Hale Reservoir Dam Design Report

Cross Creek Metropolitan District

Dam Design Report

Hale Dam and Reservoir

Fountain, Colorado

October 2013

AG File No. 12-130

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CERTIFICATION

I hereby affirm that this Design Report was prepared under my responsible charge, for the owners thereof, and to my knowledge is accurate and adheres to the applicable standards and rules provided by the State of Colorado, Department of Natural Resources, Division of Water Resources, Office of the State Engineer.

Craig Michael Ullmann
Registered Professional Engineer
State of Colorado P.E. No.: 38551

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INTRODUCTION

This report summarizes the final design for the Hale Reservoir Dam renovation. The proposed dam and reservoir are located in the Southeast ¼ of the Southeast ¼ of Section 29, Township 15 South, Range 65 West (Figure 2). The reservoir is located within the Cross Creek Park owned by the Metro District, which is approximately two miles northeast of Fountain, Colorado.

The final design was prepared by Applegate Group, Inc. (AG) for Cross Creek Metropolitan District in accordance with Work Order No. 2012-1, approved in October 2012. AG submitted the *Hazard Classification Report* in February 2013, and received Dam Safety concurrence with the minor low hazard dam classification in April 2013. AG submitted the *Hydrology Report* to Dam Safety in May 2013. The emergency spillway for Hale Reservoir Dam was increased from 30 feet to 45 feet to address Dam Safety comments on the May 2013 Hydrology Report, and a revised Hydrology Report is provided with this submittal.

The existing minor low hazard Hale Reservoir Dam will be completely removed, and a new embankment dam will be constructed. The jurisdictional height of the dam will be 15.2 feet. The design includes a principal standpipe spillway at an elevation of 5,622 feet that will be open at all times in order to maintain the normal high water level of 5,622 feet. The emergency spillway will be at an elevation of 5,627 feet, and the crest of the dam will be at 5,630 feet.

Other than flood control, the proposed dam and associated reservoir will provide non-potable water supply for park irrigation, and also provide recreational benefits including fishing, bird watching, and hiking. Water used for irrigation purposes will be removed from the reservoir using a pump station that will be constructed at a future date. The gated outlet in the dam will only be used for emergency drawdown purposes.

Applegate Group has worked with Colorado State Engineer's Office Dam Safety Division throughout the design process. AG submitted a 60% design package to Dam Safety in May 2013, and met with Dam Safety in July 2013 to go over the design. Dam Safety comments were addressed between 60% and final design completed for this design report. This final design report also includes a set of construction specifications, construction drawings, and supporting Reports previously prepared. An opinion of probable cost is also included.

PROJECT COMPONENTS

This report includes the final design for the Hale Reservoir dam replacement project. Primary design component considerations are as follows:

a. The replaced dam will be classified as a minor low hazard dam, and the design was based on the associated *Rules and Regulations for Dam Safety and Dam Construction* (January 2007) for low hazard dams.
b. The existing dam embankment will be completely removed and replaced. The cross section of the dam includes an estimated bedrock surface, a keyway tie-into competent bedrock, a 25-foot crest width, and 4H:1V side slopes with riprap on the upstream slope.

c. The primary spillway is an open standpipe that will maintain the normal high water level at an elevation of 5,622. The standpipe outlet tower wyes into the main outlet pipe downstream of the inclined slide gate.

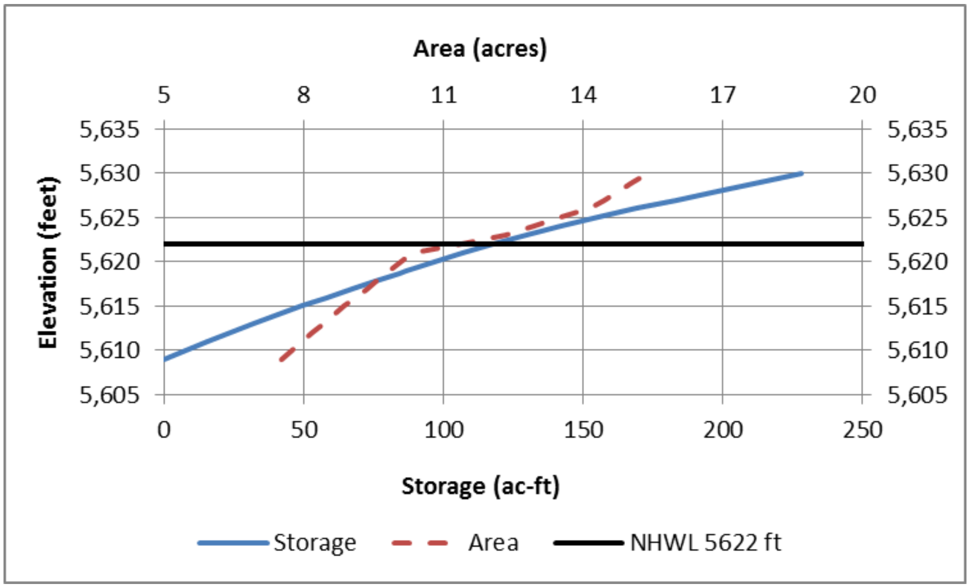
d. A 45-foot emergency spillway will include a concrete weir with a riprap rundown channel.

e. The new dam and spillway configuration will route the 100-year storm with residual freeboard of 1.36 feet, and the 50-year inflow design flood (IDF) with a residual freeboard of 1.89 feet.

f. The outlet works includes a 2-foot diameter pipe with an inclined slide gate. The outlet will be used infrequently primarily for maintenance purposes, and is capable of drawing down the reservoir 5 feet from the emergency spillway in 23 hours.

g. The new dam will have a reservoir area-capacity curve as shown in Figure 1 and Table 1.

FIGURE 1. RESERVOIR AREA-CAPACITY CURVE



$$y = 0.208x^2 + 6.3177x + 2.2148$$

Where: x = depth (ft) or (Elevation – 5609)
y = Capacity (ac-ft)

TABLE 1. RESERVOIR CAPACITY TABLE

	ELEVATION (ft)	AREA (ac.)	STORAGE (ac-ft)
Dead Storage	5,609	7.5	0.0
	5,610	7.7	7.6
	5,611	8.0	15.5
	5,612	8.2	23.6
	5,613	8.4	31.9
	5,614	8.6	40.4
	5,615	8.9	49.2
	5,616	9.1	58.1
	5,617	9.4	67.4
	5,618	9.6	76.9
	5,618.74	9.8	84.0
Active Storage	5,619	9.8	86.6
	5,620	10.1	96.5
	5,621	10.3	106.7
	5,622	11.4	117.6
Flood Storage	5,623	12.3	129.4
	5,624	12.9	142.1
	5,625	13.5	155.3
	5,626	14.2	169.1
	5,627	14.4	183.4
Free-board	5,628	14.7	198.0
	5,629	15.0	212.9
	5,630	15.4	228.1

FIGURE 2. VICINITY MAP

SITE REQUIREMENTS

Cesare, Inc. completed a supplemental Geotechnical Study for the proposed reconstruction of the Hale Reservoir Dam in April 2013 during the 30% design efforts; this report is included in Appendix A. Exploratory borings were conducted to obtain data on subsurface conditions beneath the existing dam and proposed borrow areas. Soil boring depths varied from 29 to 34 feet below grade. Dam embankment material generally consists of 4 to 23 feet of low plasticity clay material, underlain by up to 8 feet of weathered claystone and Pierre Shale bedrock. Dam foundation and existing soil properties were determined from site borings completed by Cesare, Inc. in April 2013: 3 near the proposed embankment, 2 along the outlet works, and 1 north of the reservoir where a non-potable system will be installed. In order to extend the bedrock surface, additional geotechnical data were reviewed from previous reports: Entech Engineering, Inc. January 2009 (5 borings) and Kleinfelder September 2002 (7 borings).

Cesare, Inc. installed two piezometers in April 2013: 1 located on top of the existing dam crest and coincident with the proposed outlet pipe, and the second located at the downstream end of the proposed embankment along the outlet pipe. Groundwater elevations during the geotechnical investigation ranged from 5,616 to 5,620 near the proposed embankment. Depth to water was subsequently measured monthly after the geotechnical investigation, with a resulting water level of approximately 5,621 near the proposed embankment measured in August 2013.

The resulting design considerations came from Cesare's report:

1. Embankment height will allow for up to 1 inch of settlement when calculating residual freeboard with the inflow design flood (IDF). The initial estimate for potential settling was 7 inches, but Cesare reduced settlement potential to 1 inch after discussion with Applegate Group regarding the proposed compacted clay keyway tied into bedrock.
2. The main outlet pipe will be encased in concrete to minimize uneven settling that could impact the outlet gradient, pipe joint integrity, and general performance.
3. Concrete mixtures used on site will consider severe levels of water soluble sulfates in site soils. Concrete mix will be Type II/III with fly ash to address soluble sulfates.
4. The embankment construction contractor will be notified of the moisture and density requirements in the bidding process, and constructability issues will also be addressed during the bidding process. The native clay material to be used in the embankment will be processed to within +/- 2% of optimal moisture content and compacted to a minimum of 95% of standard Proctor density according to ASTM D698. The soil will be placed in 12-inch maximum loose lifts.
5. Desiccation cracking associated with fat and wet clays should be addressed, potentially by mixing in some of the existing embankment sandy material with the native clays available for borrow material.

Additional site requirements that impact construction of Hale Reservoir are:

- Shallow depth to water – depth to water varies from near ground surface to approximately five feet below ground surface. Dewatering of the reservoir and dam embankment work areas will be necessary to facilitate construction activities. Dewatering will be achieved by pumping water out of open excavated areas, but soil dewatering prior to excavation will not be necessary.

- Non-jurisdictional wetlands – wetlands exist in the area around the Hale Reservoir construction site; however, the wetlands were determined to be non-jurisdictional by the Albuquerque District of the Army Corps of Engineers (Appendix B). Although the wetlands are non-jurisdictional, Cross Creek Metropolitan District is voluntarily mitigating the onsite wetlands as part of the Cross Creek Restoration Plan. Wetland mitigation will include salvaging key wetland plants and topsoil in areas to be disturbed, and relocating the wetlands to the fringes of the planned reservoir. Wetland restoration will be overseen by Kiowa Engineering, who will coordinate directly with Applegate Group during construction oversight.

HYDROLOGY & HAZARD CLASSIFICATION

Applegate Group prepared a *Hazard Classification Report* for the proposed Hale Reservoir Dam in February 2013, and received Dam Safety concurrence with the minor low hazard dam classification in April 2013. The Hydrology and Hazard Classification Reports are included in Appendix C.

Applegate Group submitted a *Hydrology Report* to Dam Safety in May 2013. Hydrologic analyses were completed using the Mesa Ridge Master Plan hydrologic model completed by Kiowa Engineering (2013), which is based on the NRCS Curve Number method. Precipitation input to the hydrologic model was based on the National Weather Service NOAA, Atlas #2 Precipitation-Frequency Atlas of the Western United States Volume III-Colorado. The new dam will provide flood control with a spillway capable of attenuating and routing the 100-year storm, in addition to safely passing and routing the 50-year event, as required by the SEO Rules and Regulations. Peak flows and total storm volumes are shown in Table 1, for more information see the Hydrology Report in Appendix C.

TABLE 2. SUMMARY OF HALE RESERVOIR DAM INFLOW HYRDOLOGY

Event	Cumulative 24 Hour Precip (inches)	Storm Volume (acre-feet)	Peak Inflow (cfs)
50-yr IDF	3.9	257	1,241
100-yr	4.4	295	1,540

SPILLWAY & OUTLET WORKS DESIGN

OUTLET WORKS

The outlet will consist of a 2-foot diameter C905 PVC outlet pipe, and a 30-inch diameter inclined slide gate in order to completely cover the slightly oval opening. The outlet slide gate will be used infrequently, and was designed to meet the 5 feet in 5 day drawdown requirement of the SEO. The actual time to achieve 5 feet of drawdown assuming a starting water surface elevation at the spillway elevation of 5,627 feet will be 23 hours (Figure 3). The outlet will operate under inlet control for reservoir levels below 5,626 feet, and under pipe control above 5,626 ft. The resulting stage-discharge curve for the outlet works is shown in Figure 4. Pipe friction losses were calculated using Hazen-Williams and the following loss coefficients:

- PVC pipe loss coefficient of 140
- Entrance loss coefficient of 0.5
- Exit loss coefficient of 1.0

- Wye loss coefficient of 0.6
- Orifice coefficient of 0.62
- Trash rack losses of 0.024 feet (based on an equation for trash rack losses from USBR Design of Small Dams, Chapter 10 Equation 11)

The inlet will be flush with the upstream face of the dam, and then connect to the outlet pipe via a 60 degree elbow. The outlet pipe will be encased in 9-inch thick reinforced concrete through the dam. The side slope of the concrete encasement will be 10H:1V in order to enable the contractor to compact the embankment material around the encasement. A filter diaphragm will be installed around the concrete encasement to intercept seepage flows through the dam. The filter diaphragm will be 11 feet in width and 6.75 feet tall. The location and dimension of the diaphragm were determined using FEMA's Technical Manual: Conduits through Embankment Dams (September 2005).

A hinged trash rack will be installed at the inlet with 2-inch diameter steel pipe cross bars spaced 8 inches apart to provide a maximum velocity of 1.0 feet per second. The trash rack will be hinged on the top end, allowing it to be flipped up by divers if maintenance is needed.

The inclined slide gate will be operated by a hand crank operator on the dam crest. The gate stem will be encased within a 2-inch diameter carrier pipe filled with food grade oil. The carrier pipe will be encased in a concrete beam that runs up the face of the dam, with 1.5 feet below grade and 1.5 feet above grade. The concrete encasement will also carry a 4-inch diameter air vent pipe from the 60 degree bend in the inlet up to the crest of the dam.

The outlet pipe will be extended from the toe of the dam approximately 240 feet to a discharge point downstream of the existing gas line. The purpose of the extended outlet pipe is to convey discharge over the existing gas line downstream of the dam, protecting the gas line and preventing the potential need to lower the gas line if an open channel was constructed over the gas line. The outlet pipe will not be encased in concrete for the 240 foot extension, but will be placed in a trench with compacted fill to finish the trench and cover the pipe.

The outlet pipe will discharge into a Type VI USBR impact basin sized according to the maximum outlet plus standpipe spillway flows of 86 cfs exiting the pipe. Hand railings will be installed for safety and a small grate on the end of the pipe will limit pedestrian access to the outlet pipe. 12-inch thick 6-inch median diameter riprap with 6 inches of Type II bedding will be placed in the channel that leads to the culvert under C&S Road to prevent erosion. The 6-inch median diameter riprap was based on the Army Corps of Engineer's EM 1110-2-1601 (Hydraulic Design of Flood Control Channels).

FIGURE 3. HALE RESERVOIR DRAWDOWN CURVE

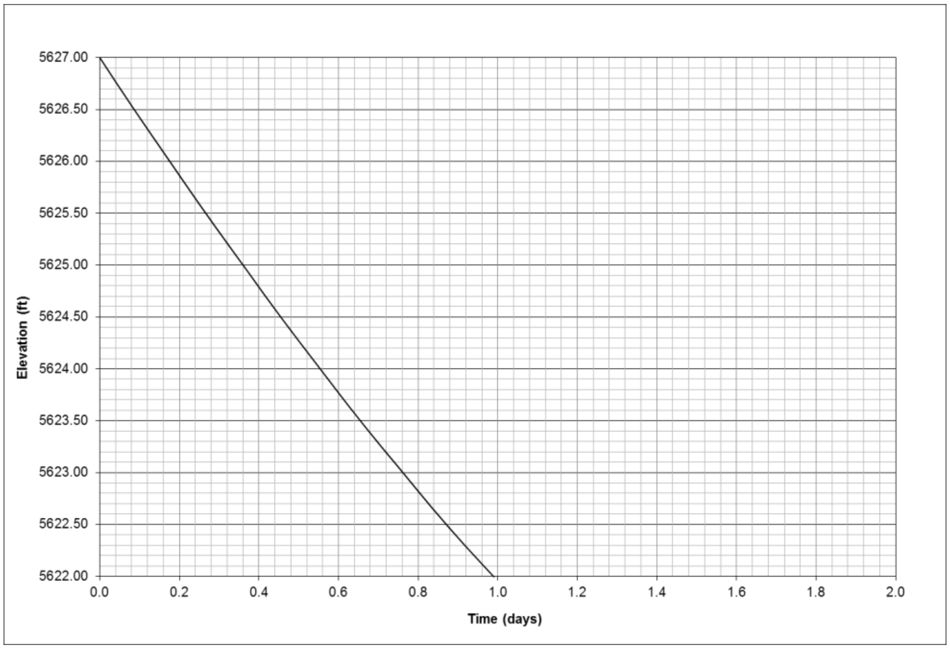
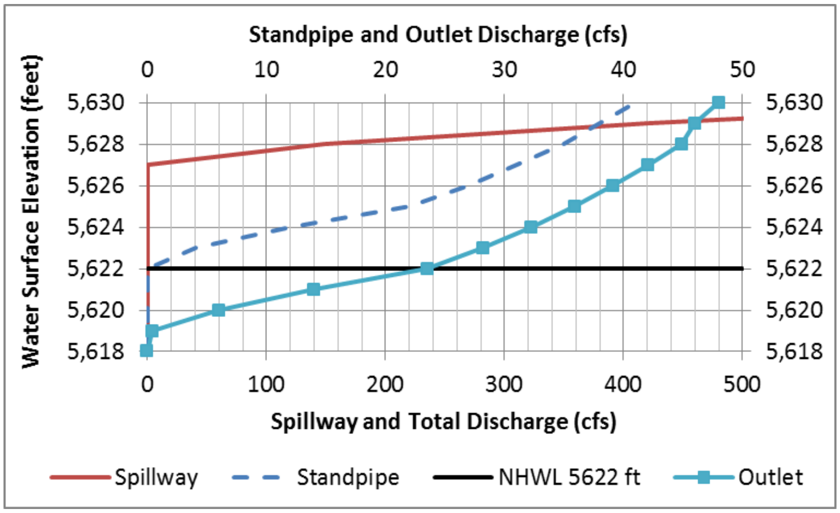


FIGURE 4. STAGE DISCHARGE CURVE FOR HALE RESERVOIR



SPILLWAY DESIGN

PRIMARY SPILLWAY

The primary spillway is an uncontrolled 2-foot diameter standpipe that will maintain the normal high water level at an elevation of 5,622. With a dam crest at an elevation of 5,630 feet, there will be 8 feet of freeboard above the primary spillway. The standpipe outlet tower will wye into the main outlet pipe downstream of the outlet inlet and 60 degree elbow to the outlet pipe. A 4-foot diameter trash rack will be mounted to a 12-inch thick and 5-foot square concrete pad on the upstream face of the dam. The trash rack will have #5 rebar with 4-inch maximum spacing, with a maximum flow through velocity of 1.4 feet per second. Weir flow is the controlling flow regime for reservoir water surface elevation between 5,622 and 5,623 feet, and orifice flow was the controlling flow regime from elevation 5,623 to 5,630. The stage-discharge curve for the standpipe primary spillway is shown in Figure 4.

EMERGENCY SPILLWAY

The emergency spillway design was evaluated using the inflow design flood developed using the 50-year IDF from the Mesa Ridge Master Plan hydrologic model developed by Kiowa Engineering in 2013. The spillway crest will be set at an elevation of 5,627 feet, and will be located on the right abutment. The dam crest elevation will be 5,630, resulting in 3 feet of freeboard above the emergency spillway.

The concrete crest of the emergency spillway controls the discharge passing through the spillway. The spillway discharge coefficient was set at 3.3 based on the USBR Design of Small Dams (Section 9.12, page 369), which indicates a discharge coefficient of 3.3 to be appropriate for weirs with height (1 feet high weir above riprap for the proposed spillway) at least one-fifth the head over the weir (3 feet maximum for the proposed Hale Reservoir dam).

The emergency spillway stage discharge table and curve is shown in Figure 4 and Table 3.

TABLE 3. EMERGENCY SPILLWAY STAGE DISCHARGE

Reservoir Stage (ft)	Spillway Discharge (cfs)
5630	772
5629	420
5628	149
5627	0

The 50-year IDF and 100-year storm were modeled with the Mesa Ridge Master Plan Hydrologic Model developed by Kiowa Engineering in 2013. The primary standpipe spillway was conservatively assumed to be clogged, resulting in all discharge occurring through the emergency spillway. The spillway configuration results in approximately 1.9 feet of residual freeboard during the 50-year IDF and 1.4 feet of residual freeboard during the 100-year event (Table 4).

TABLE 4. SUMMARY OF HALE RESERVOIR DAM HYDROLOGY

Event	Peak Inflow (cfs)	Peak Discharge (cfs)	Residual Freeboard (ft)
50-yr IDF	1,241	178	1.89
100-yr	1,540	322	1.36

EMERGENCY SPILLWAY CHANNEL

Water passing over the emergency spillway crest will enter a riprap lined outlet channel that curves around from the right abutment at the dam crest approximately 500 feet to the outlet channel that conveys flow underneath C&S Road through an existing 12’ x 6’ box culvert. The spillway channel has a 3-foot high berm on either side. The height of the berm was based on superelevation calculations around the two bends in the spillway channel. Superelevation calculations were based on Equation 4.34 referenced in US Federal Highway Administration (FHWA) Hydraulic Design Series (HDS) No. 4, Introduction to Highway Hydraulics. Berm height was determined as normal depth for the 100-year event discharge through the spillway plus one-half of the superelevation height plus six (6) inches of freeboard. Berm freeboard height was also verified with the equation for spillway channel freeboard from the Bureau of Reclamation's Design of Small Dams.

A one-dimensional HEC-RAS hydraulic model was developed to determine the hydraulics of the spillway channel for the 50-yr, 100-yr, and IDF flows. A 12-inch thick layer ($2D_{50}$) of 6-inch median diameter riprap (6-inch D_{50}) was determined to be appropriate for the emergency spillway channel based on the Army Corps of Engineer's EM 1110-2-1601, Hydraulic Design of Flood Control Channels, steep slope riprap equation (Equation 3-5) for the 322 cfs maximum discharge for the 100-year event. A flow concentration factor 1.25 was applied to the unit discharge such that $q = 1.25(Q/b)$.

$$D_{30} = \frac{1.95S^{0.555}q^{2/3}}{g^{1/3}}$$

where $D_{50} = 1.2D_{30}$
S = *slope of bed (ft/ft)*
q = *unit discharge (cfs/ft)*

A mannings roughness coefficient of $n = 0.038$ was used for the spillway channel based on the Rice et al. (1998) equation for steep slope riprap revetment.

$$n = 0.0292(D_{50}S)^{0.147}$$

where D_{50} = *median stone diameter*
S = slope of bed (*ft/ft*)

The channel will operate in supercritical flow conditions with a Froude number (*Fr)* of 1.2 at the 50-year IDF and Froude number of 1.3 at the 100-year flow. Flow velocity was modeled to be 5.6 feet per second (fps) for the 50-year IDF and 7.0 fps for the 100-year flow. Because the emergency spillway will operate under supercritical conditions, discharge for the emergency spillway was calculated using the weir flow equation without consideration of backwater effects.

STRUCTURAL ANALYSIS

Concrete rebar reinforcement was designed based on the US Army Corps of Engineers Strength Design for Reinforced-Concrete Hydraulic Structures, EM 1110-2-2104. The area of steel reinforcement for temperature and shrinkage stresses is equal or greater than the Army Corps' minimum of 0.0028 times the gross cross-sectional area, half in each face, with a maximum area equivalent to No. 9 bars at 12 inches in each face. This analysis was completed for the following concrete components:

- Outlet pipe concrete encasement
- Inlet concrete encasement
- Spillway control wall
- Staff gage concrete caissons
- Slide gate control concrete house on the dam crest

- Concrete Type VI Impact Basin

The reinforcement for the Type VI Impact Basin conforms to standard designs prepared by the USBR and depicted in Design of Small Canal Structures.

DAM EMBANKMENT

The embankment includes removal of the existing embankment, excavation of a keyway trench and fill placement using a portion of the existing embankment material and the primary borrow area of the excavated reservoir site. There will be approximately 285,000 cubic yards of excavated material available to be used in the new embankment that will require approximately 33,000 cubic yards of fill material.

KEYWAY

The embankment will be tied into bedrock with a keyway approximately 10 feet wide that penetrates a minimum of 2 feet into competent shale bedrock. As noted on the construction drawings, the embankment is founded on Pierre Shale. It is critical to not expose the bedrock foundations for any more than one work shift. All exposed foundation will be covered with a minimum of two loose lifts of fill prior to ending a shift to prevent air slaking of the bedrock. The engineer will determine if excessive time has passed on the exposed foundation or if it has been protected adequately with cover. Compaction control, moisture control, lift thickness, and adequate bonding between lifts are all part of performance criteria used to evaluate the placement. Testing shall be done on each lift and construction observation activities should be conducted under the supervision of a Professional Engineer. The keyway will be backfilled with native clay material processed to within +/- 2% of optimal moisture content and compacted to a minimum of 95% of Standard Proctor density according to ASTM D698. The soil will be placed in 12-inch maximum loose lifts.

EMBANKMENT

The dam crest will be constructed with a crest width of 25 feet at an elevation of 5,630 feet. This will provide for 8 feet of freeboard above the normal high water line. The upstream and downstream slopes will be constructed to 4H:1V side slopes to meet stability and seepage design requirements. This will also allow for simplified placement of riprap slope protection on the upstream slope and mowing operations on the downstream slope. Fill placement for the embankment will be performed in the same manner as the keyway backfill.

The reservoir capacity curve (Figure 1**Error! Reference source not found.**) was based on survey nformation collected by Clark Land Surveying, Inc. (Clark) under contract with Applegate Group. Clark completed a bathymetric survey of the existing reservoir, and also completed a general topographic survey of the Cross Creek Park in the vicinity of the proposed reservoir. An as-built survey will be required to establish the final reservoir capacity.

WAVE RUN-UP AND SLOPE PROTECTION

Riprap and bedding is included along the upstream face of the dam to protect against wave erosion. The longest fetch across the reservoir would result from a wind blowing out of the north, based on climatic wind data for Colorado Springs obtained from the National Climatic Data Center, National Oceanic and Atmospheric Administration (NOAA). Wind data from the Colorado Springs station was used to determine appropriate wind speeds that would be likely to occur. Monthly peak gust wind velocities, represented by 5-second winds, were reviewed for the period of record available. A summary of this data is shown in the table below; additional data is included in Appendix D.

TABLE 5. SUMMARY OF WIND DATA

Station	Period of Record	5-Second Max Velocity (mph)	Mean Wind Velocity (mph)	Prevailing Wind Direction
		(mph)	(mph)	(compass point)
Colorado Springs	1930-1996	70	10	North

A peak 5-second wind speed of 70 mph was selected for design. The wave run-up was analyzed according to USBR ACER TM No. 2. According to this analysis the minimum freeboard should be 1.6 feet and the significant wave height is 1.3 feet. The required riprap size was calculated according to USBR Design Standards No. 13 Embankment Dams, Chapter 7 Riprap Slope Protection. This analysis results in a required riprap size of 4.6 inches. Although the calculations indicate a 9-inch thick layer of 5-inch D_{50} rock will suffice, the design includes a larger rock size to accommodate for and prohibit various urban behaviors. The design includes an 18-inch thick layer of 9-inch D_{50} rock placed atop a 9-inch thick layer of Type II bedding from elevation 5,609 to 5,620 feet. To prevent vandalism of the riprap, 12-inch diameter D_{50} rock riprap will be used from elevation 5,620 to 5,630 feet. The 12-inch diameter riprap will be placed in a 24-inch thick layer, and will be placed atop a 12-inch thick layer of Type II bedding.

SEEPAGE DESIGN

A toe drain will be installed at the toe of the dam, and will discharge into the wingwalls of the impact basin at an elevation above the normal water level in the downstream channel. The drain system was designed using a minimum diameter of 6 inches for maintenance purposes. The drain pipe used in construction will be a dual wall HDPE with AASHTO Class 2 perforation pattern. This pattern consists of small slits located between the exterior corrugations. The pipe will be surrounded by a two stage filter. An ASTM C33 Fine Sand Aggregate is filter compatible with the embankment material but too fine to be placed near the pipe. Therefore, an envelope of ASTM No. 67 aggregate will surround the pipe and meets the filter compatibility limits with the fine sand and the slotted drain pipe. Two cleanouts will be installed, one on the midpoint of the southern toe drain, and the second on the midpoint of the northern toe drain. The cleanouts will be 6-inch diameter schedule 40 steel pipe painted black, and will stick up 3 feet above ground surface. No measuring devices have been incorporated into the toe drain design. Flow measurements for the two drains that terminate at the impact basin walls can be measured using a bucket underneath the protruding pipes.

DRAWINGS AND SPECIFICATIONS

A complete set of drawings and construction specifications are included with this submittal under separate covers. The complete drawings are intended to provide a comprehensive documentation of the design including construction details regarding all major and minor project components.

Final construction details regarding the outlet and spillway channels and instrumentation have been included in this final design.

DAM INSTRUMENTATION PLAN

A staff gage will be installed on the upstream face of the dam in two sections. The upper portion will extend from the 5,622 to 5,630 feet and will be directly mounted to the concrete beam for the gate stem and air vent. The lower staff gage will extend from the minimum reservoir elevation of 5,609 feet to 5,623 feet. Both gages will display the reservoir elevation in increments of 0.1 ft and numeric labels every foot with the zero point coinciding with the outlet gate invert.

RIVER DIVERSION DURING CONSTRUCTION

The two drainages that drain to Hale Reservoir will be bermed and diverted into temporary bypass channels flowing into the existing stormwater pond just west of Hale Reservoir. The southern portion of the existing berm for the stormwater ponds will be removed in order to facilitate construction of the right abutment of the new Hale Dam. A new berm will be constructed upstream of the removed berm, and a temporary 12-inch diameter culvert will be installed at the downstream end of the new berm to discharge minor inflows downstream of Hale Reservoir dam. The new berm will be constructed upstream far enough to allow excavation of the keyway. An overflow ditch will be cut in the east berm of the stormwater pond to allow flows in excess of the stormwater storage and culvert capacity to be stored in Hale Reservoir below the proposed outlet works elevation in the over excavation area. The temporary bypass channel will be capable of passing the 5-year storm event while utilizing proposed Hale Reservoir storage below the proposed outlet works. The 5-year storm event was modeled with the Mesa Ridge Master Plan Hydrologic Model, and the maximum water surface elevation in Hale Reservoir was determined to be 5615.03 feet during the 5-year storm event (approximately 3.7 feet below the invert of the outlet works).

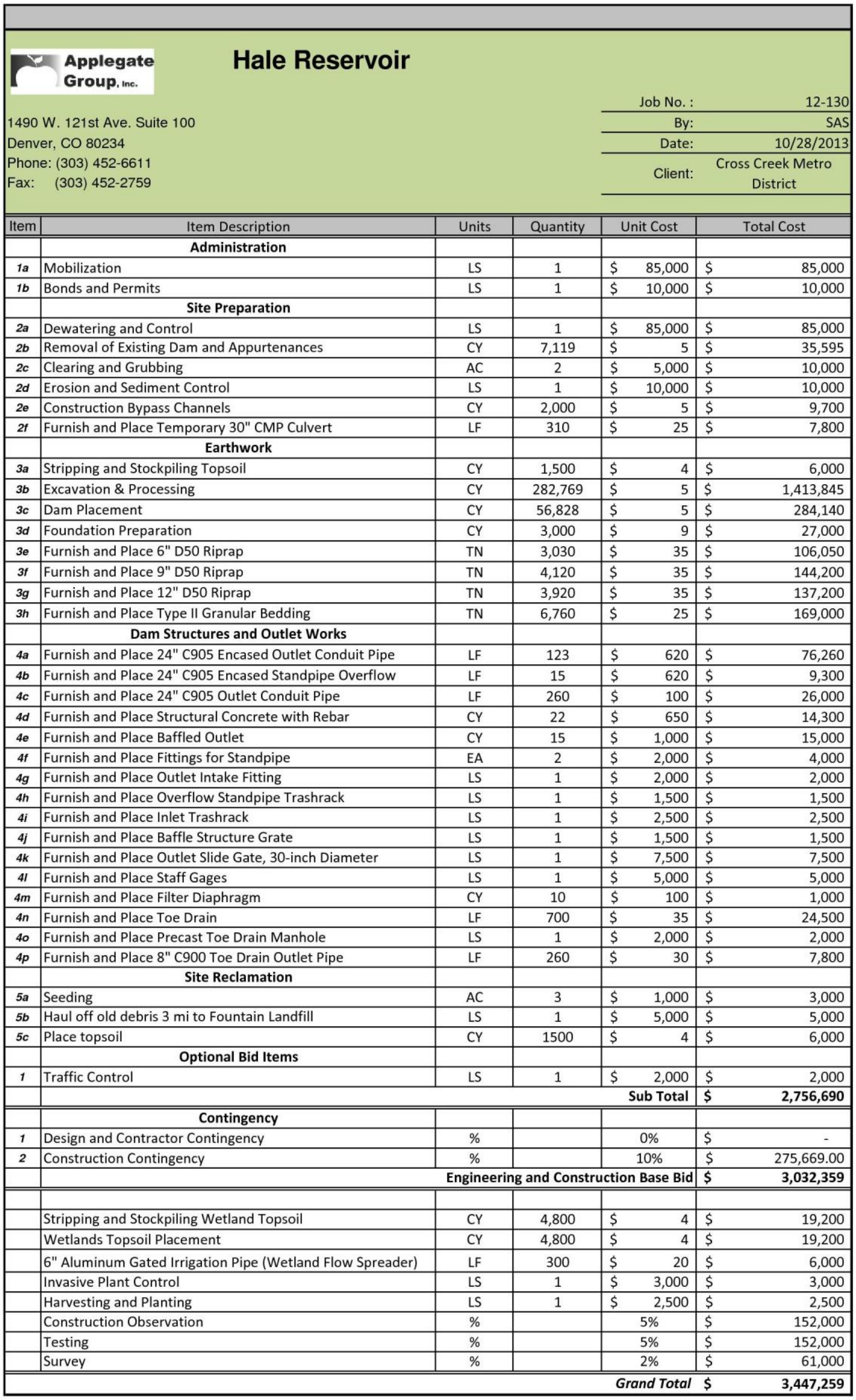
After the dam foundation and keyway are complete and the outlet works are constructed, the stormwater pond and associated bypass channels will be removed. At that point, the right abutment of the dam can be constructed and the new outlet works will be used to pass flows up to the 5-year event.

OPINION OF PROBABLE COST

Per Rule 6.1.2.1 and Rule 5.6, an opinion of probable cost for completion of the renovation at Hale Reservoir Dam is included with this Report. This estimate is based on the final complete drawings and construction specifications dated October 2013. The opinion of probable cost is provided in Table 6.

The cost opinion includes an estimated construction schedule based mainly on summer and fall construction 2014. The estimated costs reflect the best available construction cost data at the time of the report preparation and are in no way binding or indicative of actual construction costs, which will be bid by the selected contractor.

TABLE 6. OPINION OF PROBABLE COST



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Job No. : 12-130
By: SAS
Date: 10/28/2013
Client: Cross Creek Metro District

Item	Item Description	Units	Quantity	Unit Cost	Total Cost
	Administration				
1a	Mobilization	LS	1	$ 85,000	$ 85,000
1b	Bonds and Permits	LS	1	$ 10,000	$ 10,000
	Site Preparation				
2a	Dewatering and Control	LS	1	$ 85,000	$ 85,000
2b	Removal of Existing Dam and Appurtenances	CY	7,119	$ 5	$ 35,595
2c	Clearing and Grubbing	AC	2	$ 5,000	$ 10,000
2d	Erosion and Sediment Control	LS	1	$ 10,000	$ 10,000
2e	Construction Bypass Channels	CY	2,000	$ 5	$ 9,700
2f	Furnish and Place Temporary 30" CMP Culvert	LF	310	$ 25	$ 7,800
	Earthwork				
3a	Stripping and Stockpiling Topsoil	CY	1,500	$ 4	$ 6,000
3b	Excavation & Processing	CY	282,769	$ 5	$ 1,413,845
3c	Dam Placement	CY	56,828	$ 5	$ 284,140
3d	Foundation Preparation	CY	3,000	$ 9	$ 27,000
3e	Furnish and Place 6" D50 Riprap	TN	3,030	$ 35	$ 106,050
3f	Furnish and Place 9" D50 Riprap	TN	4,120	$ 35	$ 144,200
3g	Furnish and Place 12" D50 Riprap	TN	3,920	$ 35	$ 137,200
3h	Furnish and Place Type II Granular Bedding	TN	6,760	$ 25	$ 169,000
	Dam Structures and Outlet Works				
4a	Furnish and Place 24" C905 Encased Outlet Conduit Pipe	LF	123	$ 620	$ 76,260
4b	Furnish and Place 24" C905 Encased Standpipe Overflow	LF	15	$ 620	$ 9,300
4c	Furnish and Place 24" C905 Outlet Conduit Pipe	LF	260	$ 100	$ 26,000
4d	Furnish and Place Structural Concrete with Rebar	CY	22	$ 650	$ 14,300
4e	Furnish and Place Baffled Outlet	CY	15	$ 1,000	$ 15,000
4f	Furnish and Place Fittings for Standpipe	EA	2	$ 2,000	$ 4,000
4g	Furnish and Place Outlet Intake Fitting	LS	1	$ 2,000	$ 2,000
4h	Furnish and Place Overflow Standpipe Trashrack	LS	1	$ 1,500	$ 1,500
4i	Furnish and Place Inlet Trashrack	LS	1	$ 2,500	$ 2,500
4j	Furnish and Place Baffle Structure Grate	LS	1	$ 1,500	$ 1,500
4k	Furnish and Place Outlet Slide Gate, 30-inch Diameter	LS	1	$ 7,500	$ 7,500
4l	Furnish and Place Staff Gages	LS	1	$ 5,000	$ 5,000
4m	Furnish and Place Filter Diaphragm	CY	10	$ 100	$ 1,000
4n	Furnish and Place Toe Drain	LF	700	$ 35	$ 24,500
4o	Furnish and Place Precast Toe Drain Manhole	LS	1	$ 2,000	$ 2,000
4p	Furnish and Place 8" C900 Toe Drain Outlet Pipe	LF	260	$ 30	$ 7,800
	Site Reclamation				
5a	Seeding	AC	3	$ 1,000	$ 3,000
5b	Haul off old debris 3 mi to Fountain Landfill	LS	1	$ 5,000	$ 5,000
5c	Place topsoil	CY	1500	$ 4	$ 6,000
	Optional Bid Items				
1	Traffic Control	LS	1	$ 2,000	$ 2,000
				Sub Total	**$ 2,756,690**
	Contingency				
1	Design and Contractor Contingency	%		0%	$ -
2	Construction Contingency	%		10%	$ 275,669.00
				Engineering and Construction Base Bid	**$ 3,032,359**
	Stripping and Stockpiling Wetland Topsoil	CY	4,800	$ 4	$ 19,200
	Wetlands Topsoil Placement	CY	4,800	$ 4	$ 19,200
	6" Aluminum Gated Irrigation Pipe (Wetland Flow Spreader)	LF	300	$ 20	$ 6,000
	Invasive Plant Control	LS	1	$ 3,000	$ 3,000
	Harvesting and Planting	LS	1	$ 2,500	$ 2,500
	Construction Observation	%		5%	$ 152,000
	Testing	%		5%	$ 152,000
	Survey	%		2%	$ 61,000
				Grand Total	**$ 3,447,259**

Appendix A

J.A. Cesare & Associates Geotechnical Report

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

GEOTECHNICAL STUDY

Hale Dam and Reservoir
Fountain, Colorado

Report Prepared for:

Mr. Steve Smith, P.E.
Applegate Group, Inc.
1490 West 121st Avenue, Suite 100
Denver, Colorado 80234

Project No. 13.054
April 11, 2013

7108 South Alton Way, Building B • Centennial, Colorado 80112 • www.cesareinc.com
Phone 303-220-0300 • Fax 303-220-0442

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

GEOTECHNICAL STUDY
Hale Dam and Reservoir
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Report Prepared for:

Mr. Steve Smith, P.E.
Applegate Group, Inc.
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Denver, Colorado 80234

Project No. 13.054
April 11, 2013

Report Prepared by:

COLORADO LICENSED PROFESSIONAL ENGINEER
MELODY ANN PERKINS
43335
Melody A Perkins
4/11/13

Melody A. Perkins, P.E.
Staff Engineer

Darin R. Duran, P.E.
Principal, Geotechnical Engineering Manager

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1. PURPOSE

This report presents results of a subsurface study at the site of the proposed removal and reconstruction of the existing Hale Dam and Reservoir located in Fountain, Colorado. The purpose of the dam reconstruction is to move the dam further south and expand storage capacity of the reservoir. Factual data gathered during the field and laboratory work is summarized in Table 1, Figures 1 and 2, and Appendices A and B, attached. Our opinions and recommendations presented in this report are based on the data generated during this field investigation, laboratory testing, and our experience with similar type projects.

2. PROPOSED CONSTRUCTION

Hale Reservoir is located on the northeastern corner of the intersection of C and S Road and Silver Glen Drive in Fountain, Colorado. The reservoir belongs to Cross Creek Metro District, who plans to enlarge the existing reservoir for flood control purposes. The current reservoir is about 6 acre-feet in size and the dam is about 13.5 feet in height. The existing dam will be completely removed and replaced with a new embankment dam. It is our understanding that the new dam will be constructed with “zoned cohesive earth fill” and a 4:1 side slope on the downstream and upstream face. The new embankment will be about 1,100 feet in length and about 20 feet high. According to the *Colorado State Engineer’s Office Rules and Regulations for Dam Safety and Dam Construction*, the existing and proposed dams are considered minor, low hazard dams.

3. SITE CONDITIONS

Hale Reservoir is located on the northeastern corner of the intersection of C and S Road and Silver Glen Drive within the Cross Creek Park in Fountain, Colorado. A soccer field and undeveloped land are located north of the site and undeveloped land is to the south. A single-family residential development is located to the west and a single-family dwelling with outlying structures is located to the east. The topography throughout the site varies. Generally, the land slopes in the east, north, and west towards the reservoir. South of the reservoir, the land slopes down to the south toward C and S Road. Vegetation varied throughout the site. Along the crest of the embankment dam, vegetation was sparse and consisted of native grasses and weeds. Native grasses, weeds, and a few deciduous trees and bushes were located on the northern dam slope between the crest and the reservoir. Vegetation on the south side of the embankment dam consisted of native grasses, weeds, bushes, cattails, and swamp grass. Vegetation along the perimeter of the reservoir consisted of native grasses, weeds, deciduous trees, bushes, cattails, and swamp grass. The Hazard Classification Report by Applegate Group, Inc. (Applegate) dated February 2013 states that the reservoir is filled with natural groundwater and a groundwater seep is located north of the reservoir. No other water features or bedrock outcrops were observed at, or in close proximity to, the site.

4. FIELD INVESTIGATION

Subsurface conditions for the proposed dam and borrow sites were investigated by drilling five borings at the locations indicated in Figure 1. The borings were advanced 35 feet using a 4-inch diameter, continuous-flight auger powered by a track-mounted CME-45 drilling rig. At frequent intervals, samples of the subsoils were taken using a California sampler which is driven into the soil by dropping a 140-pound hammer through a free fall of 30 inches. The California sampler is a

2.5-inch outside diameter by 2-inch inside diameter device. The procedure to drive the California sampler into the soil and to record the number of blows required to drive the sampler into the soils is known as a penetration test. The number of blows required for the sampler to penetrate 12 inches gives an indication of the consistency or relative density of the soils encountered. Results of the penetration tests and locations of sampling are presented on the Log of Borings, Figure 2 with the Key to Symbols and Appendix B. Piezometers were placed in two of the borings and the boring closest to the existing embankment was backfilled with bentonite grout upon completion.

5. LABORATORY TESTING

Samples were returned to the laboratory where they were visually classified and testing was assigned to specific samples to evaluate pertinent engineering properties. Nine gradation analysis tests and Atterberg limits tests were conducted to evaluate grain size distribution and plasticity of selected samples. Two time consolidation tests were performed to evaluate the consolidation potential of the foundation soils relative to anticipated loading of the proposed dam. One pinhole dispersion test was performed to determine the dispersion characteristics of the proposed embankment soils. These results are presented in Table 1 and Appendices A and B.

6. SUBSURFACE CONDITIONS

6.1 EXISTING EMBANKMENT

The subsurface materials at the existing dam embankment consists of 13 feet of sandy clay fill, overlying 7 feet of native clay, overlying claystone down to 35 feet, the maximum depth explored. The sandy clay fill is described as loose to dense, fine to coarse grained (sand), low to medium plasticity, slightly moist to wet, and brown in color. The native clay is described as medium stiff to very stiff, high plasticity, moist to wet, and brown in color. The claystone is described as hard to very hard, medium to high plasticity, moist to wet, and grey to dark grey in color.

6.2 PREVIOUS STUDIES

Entech Engineering, Inc. performed a preliminary study for Cross Creek Park on February 19, 2009. For this study, five borings were drilled south and southeast of the existing Hale Reservoir. The borings were drilled to depths of 16 to 20 feet. Generally speaking, the subsurface conditions encountered consisted of sandy clay overlying weathered claystone and claystone. The consistency of the sandy clay was described as soft to firm, the weathered claystone as stiff, and the claystone as hard. Laboratory testing performed on the samples consisted of moisture content, dry density, Atterberg limits, and swell/consolidation.

6.3 PROPOSED EMBANKMENT

The subsurface conditions at the proposed dam embankment were investigated by drilling two borings, B-1 and B-3, down to 35 feet. The subsurface materials consisted of 11 to 12.5 feet of native clay overlying 2 to 6 feet of weathered claystone, overlying claystone down to 35 feet, the maximum depth explored. The native clay is described as medium stiff to very stiff, high plasticity, moist to wet, calcareous in the upper 4 feet, and brown in color. The weathered claystone is described as having thin layers of weathered sandstone, medium to high plasticity, moist to wet, and grey to brown in color. The claystone is described as hard to very hard, medium to high plasticity, moist to wet, and grey to dark grey in color.

6.4 BORROW AREAS

The subsurface materials at a potential borrow area located north of the existing reservoir consist of 23 feet of native clay overlying claystone bedrock down to 35 feet, the maximum depth explored. The native clay is described as soft to very stiff, sandy, high plasticity, wet, and brown in color. The claystone is described as hard to very hard, medium to high plasticity, moist to wet, and grey to dark grey in color.

6.5 ESTIMATED CONSOLIDATION

The clayey subsoils and weathered claystone at the foundation level of the embankment have a potential for settlement. The degree of settlement will depend upon the density and thickness of the overburden soils. Presently, the area of the proposed embankment dam is undeveloped. After fill placement, settlement is likely beneath the embankment. We estimate the settlement for the embankment foundation materials in this area to be between 5 to 7 inches.

The risk of settlement can be reduced, but not eliminated, by overexcavating the potentially compressive material beneath the embankment and replacing it with controlled structural fill. If overexcavation and replacement is selected to reduce the potential consolidation, the depth of the overexcavation chosen should be commensurate with risk with which the client/owner is comfortable. Table 2 below presents estimated consolidation for varying depths of fill/overexcavated material and replacement.

TABLE 2. Estimated Potential Foundation Consolidation

Depth of Fill (feet)	Estimated Potential Consolidation (inches)
0	5.0 - 7.0
3	4.5 - 6.5
5	4.0 - 6.0
10	2.5 - 3.5
15	0.7 - 1.0

The compacted embankment will also experience consolidation. In our experience, this consolidation will equal about 0.5 percent of the height of the embankment. We recommend that an additional 1.5 inches of consolidation be anticipated in addition to the values given in Table 2 to account for consolidation in the embankment.

7. SOIL DISPERSION

Testing conducted on a sample collected from Boring B-5 at a depth of 9 feet indicated nondispersive clay classified as ND per ASTM D4647 Method B. These results are presented in Table 1 and Appendix A.

8. WATER SOLUBLE SULFATES

Testing conducted on samples collected from Boring B-2 indicated 0.79 percent water soluble sulfate. The American Concrete Institute (ACI) considers this range severe for water soluble sulfate exposure according to 318-08 R4.3.1. Table 4.3.1 which follows, shows recommendations for concrete in contact with these types of soils.

ACI 318-08 - Table 4.3.1

Exposure Class	Maximum w/cm*	Minimum f'_c, psi.	Cementitious materials[†] - types			Calcium chloride admixture
			ASTM C150	ASTM C595	ASTM C1157	
S0	N/A	2,500	No type restriction	No type restriction	No type restriction	No restriction
S1 Moderate	0.50	4,000	II[‡]	IP (MS) IS (<70) (HS)	HS	No restriction
S2 Severe	0.45	4,500	V[§]	IP (HS) IS (<70) (HS)	HS	Not permitted
S3 Very Severe	0.45	4,500	V + pozzolan or slag[‖]	IP (HS)+pozzolan or slag[‖] or IS (<70) (HS)+pozzolan or slag[‖]	HS+pozzolan or slag[‖]	Not permitted

*For lightweight concrete, see 4.1.2.

[†] Alternative combinations of cementitious materials of those listed in Table 4.3.1 shall be permitted when tested for sulfate resistance and meeting the criteria in 4.5.1.

[‡] For seawater exposure, other types of Portland cements with tricalcium aluminate (C_3A) contents up to 10 percent are permitted if the w/cm does not exceed 0.40.

[§] Other available types of cement such as Type II or Type I are permitted in Exposure Classes S1 or S2 if the C_3A contents are less than 8 or 5 percent, respectively.

[‖] The amount of the specific source of the pozzolan or slag to be used shall not be less than the amount that has been determined by service record to improve sulfate resistance when used in concrete containing Type V cement. Alternatively, the amount of the specific source of the pozzolan or slag to be used shall not be less than the amount tested in accordance with ASTM C1012 and meeting the criteria in 4.5.1.

For further interpretation of this table please refer to ACI 318-08 R3.4.19.

9. EMBANKMENT CONSTRUCTION

Materials used to construct the new embankment may be derived from the reservoir area (B-5). The soils encountered are fat clays with relatively high in-place moisture content. These materials will require drying prior to use as fill and will be difficult to process. The fill materials should be placed in 6-inch maximum, loose lifts within 2 percent of optimum moisture content and should be compacted to at least 98 percent of standard Proctor density according to ASTM D698. All topsoil, existing manmade fill, frozen material, and soil containing organic material should be removed beneath embankment areas prior to placement of fill. It is our understanding that the proposed embankment will have 4:1 slopes. Evaluation of embankment stability was outside of the scope of this study.

10. GEOTECHNICAL RISK

The concept of risk is an important aspect of any geotechnical evaluation. The primary reason for this is that the analytical methods used by geotechnical engineers are generally empirical and must be tempered by engineering judgment and experience. Therefore, the solutions or recommendations presented in any geotechnical evaluation should not be considered risk free and, more importantly, are not a guarantee that the interaction between the soils and the proposed foundation will perform as predicted, desired, or intended. The engineering recommendations presented in the preceding sections constitute our best estimate of those measures that are necessary to help the embankment perform in a satisfactory manner based on the information generated during this and previous evaluations and our experience in working with these conditions.

11. LIMITATIONS

The professional judgments expressed in this report meet the standard care of our profession. The borings drilled for this study were located to obtain a reasonably accurate picture of underground conditions for design purposes. Variations frequently occur from these conditions which are not indicated by the borings. These variations are sometimes sufficient to necessitate modifications in the design. If unexpected conditions are observed during construction or, if the size, type, or location of the embankment should change, we should be notified to review our recommendations. A member of our firm should observe placement and compaction of fill.

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TABLE 1

Summary of Laboratory Test Results
Hale Dam and Reservoir
Project No. 13.054

Sample Location		Natural Dry Density (pcf)	Natural Moisture Content (%)	Gradation			Atterberg Limits		Pinhole Dispersion	Water Soluble Sulfates (%)	Material Type
Boring	Depth (feet)			Gravel (%)	Sand (%)	Silt/Clay (%)	Liquid Limit (%)	Plasticity Index (%)			
B-1	4	94.6	28.1		7	93	67	50			CLAY, brown [CH; A-7-6 (51)]
B-2	1	95.5	28.6	2	20	78	59	43			CLAY, sandy, dark brown [CH; A-7-6 (34)]
B-2	9	98.1	27.2							0.79	CLAY, brown [CH; A-7-6]
B-2	14	99.9	26.3		5	95	59	41			WEATHERED CLAYSTONE, brown [CH; A-7-6 (43)]
B-3	4	96.3	28.5		6	94	60	44			CLAY, brown [CH; A-7-6 (44)]
B-3	14	100.3	25.6			95	66	45			CLAYSTONE, brown [CH; A-7-6 (48)]
B-4	4	96.1	15.8	3	21	76	39	26			FILL - CLAY, sandy, brown [CL; A-6 (18)]
B-4	9	109.9	18.1	5	26	69	38	26			FILL - CLAY, sandy, brown [CL; A-6 (15)]
B-5	1	93.6	26.3		10	90	50	37			CLAY, brown [CH; A-7-6 (34)]
B-5	4	96.0	31.2		19	81	38	25			CLAY, sandy, brown [CL; A-6 (19)]
B-5	9	117.9	28.7				ND				CLAY, sandy, brown [CL; A-6]

ND = Nondispersive per ASTM D4647 Method B

LEGEND:

● B-1 Exploratory boring

🟩 B-2 Exploratory boring with piezometer

Modified by map provided by Google Maps.

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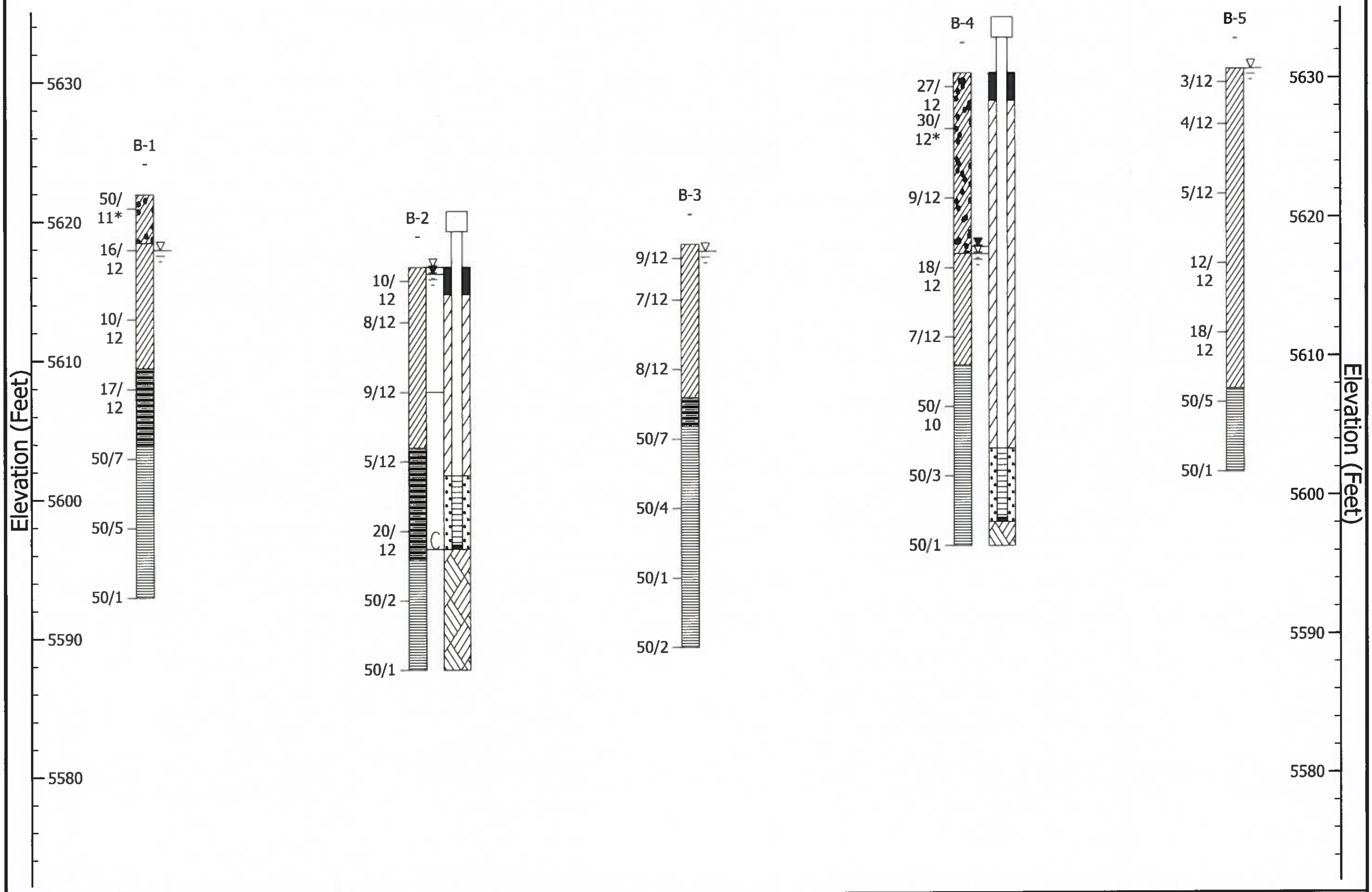
FIGURE 1
Site Plan and Exploratory Boring Locations

PROJECT NO: 13.054
PROJECT NAME: Hale Dam and Reservoir
DRAWN BY: MAP
CHECKED BY: DRD
DWG DATE: 03.5.13
REV. DATE: --



PROJECT NO:	13.054
PROJECT NAME:	Hale Reservoir
DWG DATE:	4/11/2013

FIGURE 2

Log of Borings

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KEY TO SYMBOLS

<u>Strata symbols</u>

Symbol	Description
▨	FILL- CLAY, sandy with gravel, stiff to hard, fine to course grained (sand), low to medium plasticity, slightly moist to wet, brown [CL; A-6].
▨	CLAY, with sand to sandy, soft to very stiff, medium to high plasticity, fine to medium grained (sand), moist to wet, slightly calcareous in upper 4 feet, root structures in upper 2 feet, brown [CL-CH; A-6 to A-7-6].
▤	WEATHERED CLAYSTONE, with thin layers of SANDSTONE, weathered, medium to high plasticity, fine grained (sandstone), moist to wet, slightly micaeous, grey to brown [CH; A-7-6].
▤	CLAYSTONE, with thin layers of SANDSTONE, hard to very hard, medium to high plasticity, fine grained (sandstone), moist to wet, slightly micaeous, grey to dark grey [CH; A-7 6]

<u>Misc. Symbols</u>

Symbol	Description
▽	Water table during drilling
▼	Water table one day after drilling

Symbol	Description
C	Depth to caving

<u>Monitor Well Details</u>

Symbol	Description
⊤	covered riser
◫	bentonite slurry
▨	assorted cuttings
▦	slotted pipe w/ sand
◫	endcap on pipe packed in sand
▩	no pipe, filler material

<u>Notes:</u>

1. Exploratory borings were drilled on March 5, 2013 using a 4-inch diameter continuous flight auger with a track mounted CME-45 drill rig.

2. Water was encountered in all borings at the time of drilling. Borings B-1, B-3 and B-5 were backfilled immediately after drilling for safety purposes. Boring B-3 was backfilled with bentonite grout.

3. Piezometers were placed in Borings B-2 down to a depth of 20.5 feet and Boring B-4 down to a depth of 33.5 feet.

4. Original boring locations were determined by Applegate, Inc. Accessibility to some of the locations was not possible with the track drill rig, thus, these borings were drilled as close to the original locations as possible.

5. Elevations and locations were surveyed by Applegate, Inc.

6. 50/11 indicates 50 blows with a 140-pound hammer falling 30 inches were required to drive a modified California barrel sampler 11 inches. * indicates a rock was encountered in the sampler, blow counts may not be indicative of actual conditions.

7. These logs are subject to the limitations, conclusions, and recommendations in this report.

Project No. D13.054

APPENDIX A

Laboratory Test Results

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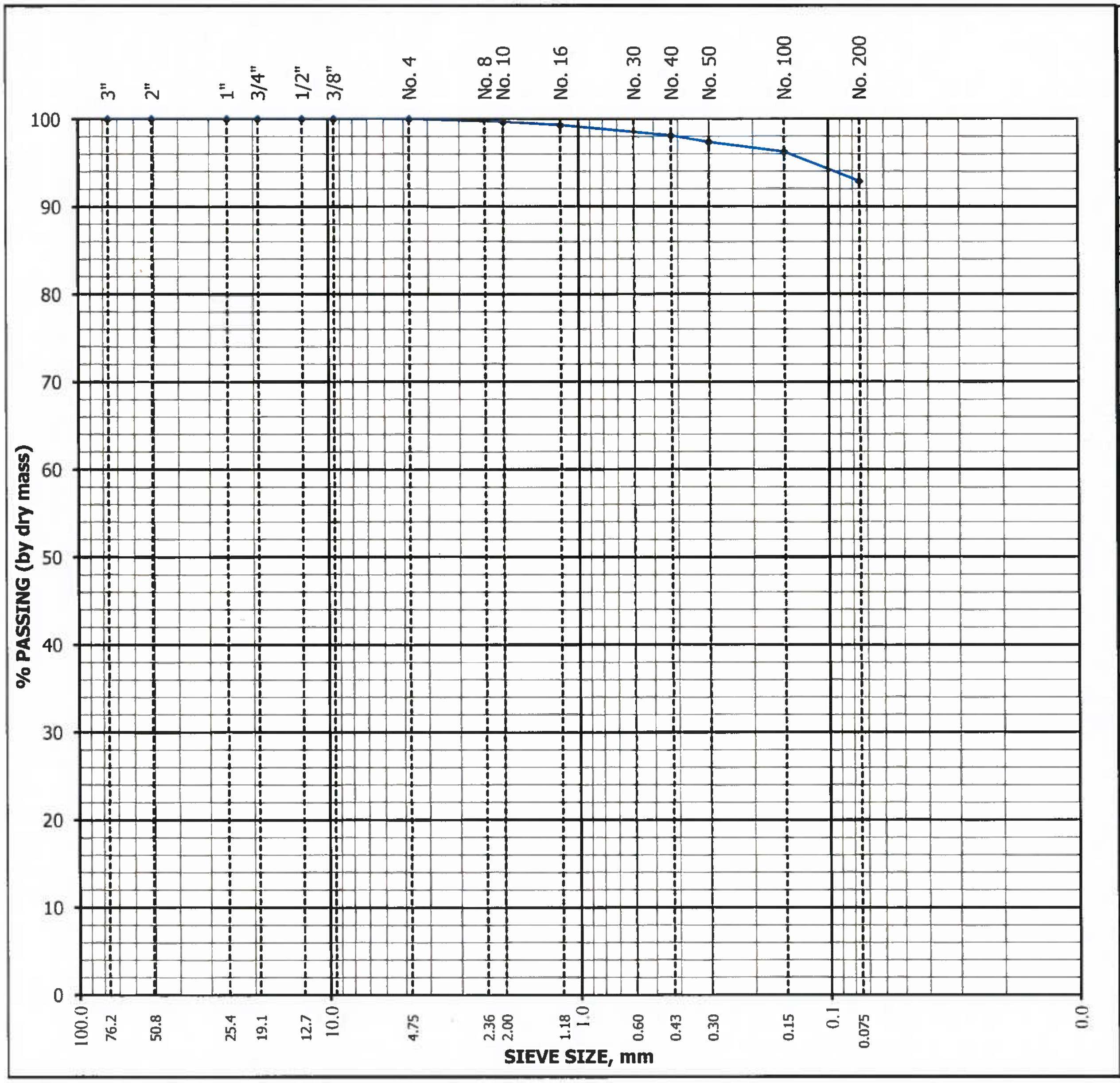
GRADATION PLOT - SOIL & AGGREGATE

Project Number:	13.054, Applegate Group, Inc.	Date:	13-Mar-13
Project Name:	Hale Reservoir	Technician:	J. Cuypers
Lab ID Number:	132208	Reviewer:	M. Perkins
Sample Location:	B-1 at 4'		
Visual Description:	CLAY, brown		

AASHTO M 145 Classification: A-7-6 **Group Index:** 51
Unified Soil Classification System (ASTM D 2487): (CH) Fat clay



Sieve Size	% Passing
3"	
2"	
1"	
3/4"	
1/2"	
3/8"	
#4	100
#8	
#10	100
#16	99
#30	
#40	98
#50	97
#100	96
#200	92.9

Moisture (M) & Density (D)	
M, %:	28.1
D, pcf:	94.6

LL	67
PL	17
PI	50

D_{60}	
D_{30}	
D_{10}	
Cu	
Cc	

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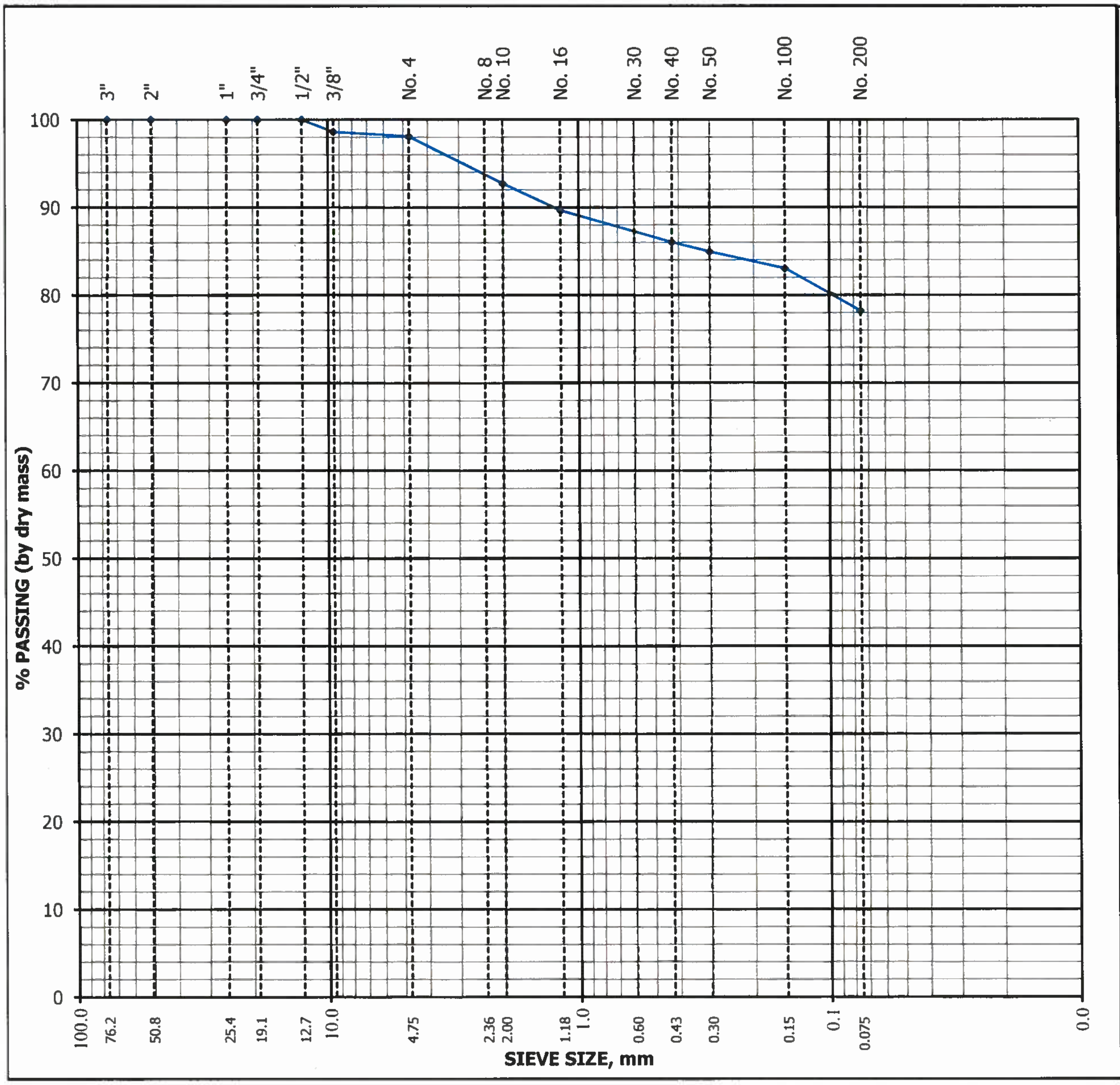
GRADATION PLOT - SOIL & AGGREGATE

Project Number: 13.054, Applegate Group, Inc.
Project Name: Hale Reservoir
Lab ID Number: 132209
Sample Location: B-2 at 1'
Visual Description: CLAY, sandy, dark brown

Date: 13-Mar-13
Technician: J. Cuypers
Reviewer: M. Perkins

AASHTO M 145 Classification: **A-7-6** **Group Index:** **34**
Unified Soil Classification System (ASTM D 2487): **(CH) Fat clay with sand**



Sieve Size	% Passing
3"	
2"	
1"	
3/4"	
1/2"	100
3/8"	99
#4	98
#8	
#10	93
#16	90
#30	
#40	86
#50	85
#100	83
#200	78.2

Moisture (M) & Density (D)	
M, %:	28.6
D, pcf:	95.5

LL	59
PL	16
PI	43

D_{60}	
D_{30}	
D_{10}	
Cu	
Cc	

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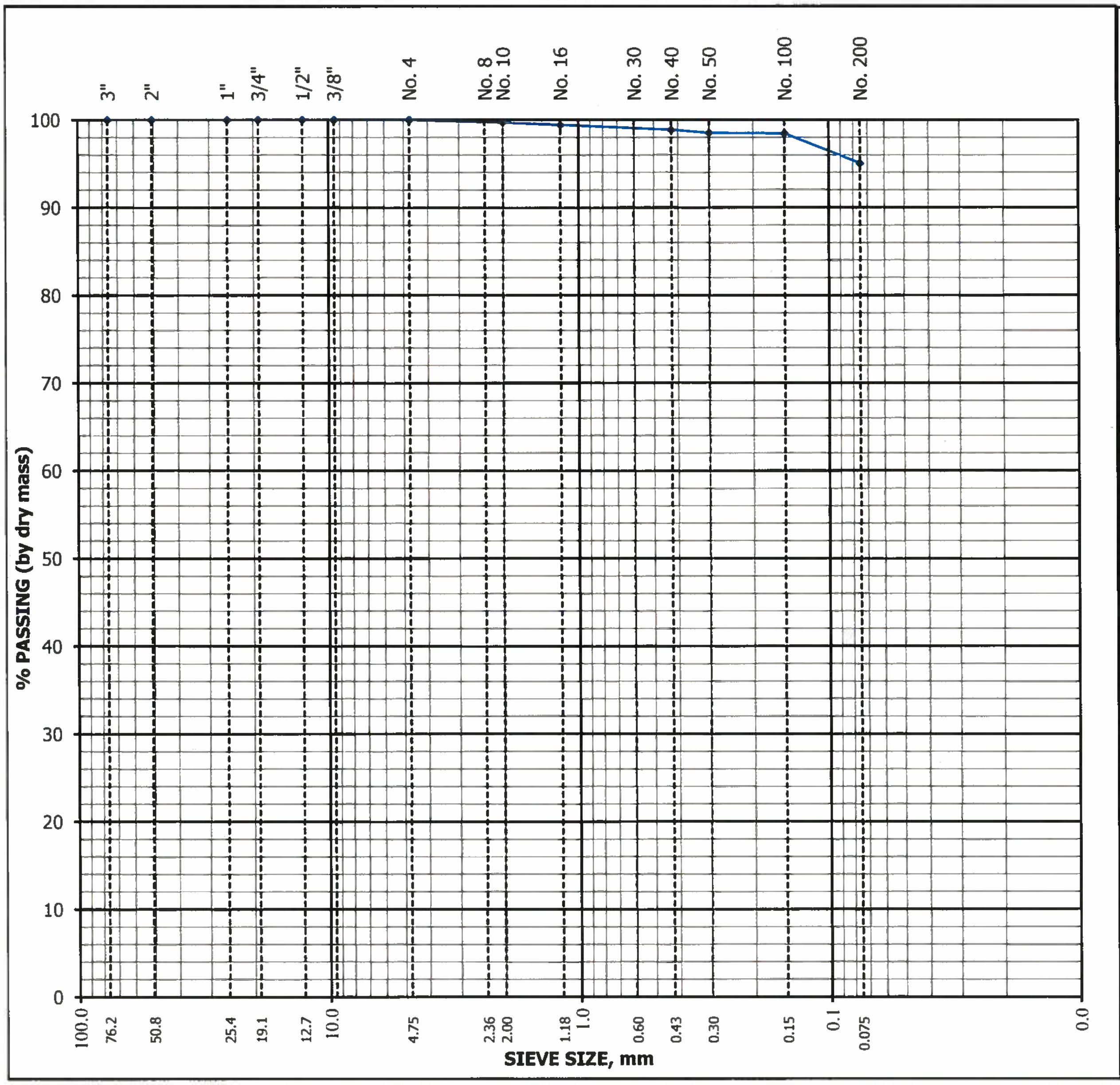
GRADATION PLOT - SOIL & AGGREGATE

Project Number:	13.054, Applegate Group, Inc.	Date:	13-Mar-13
Project Name:	Hale Reservoir	Technician:	J. Cuypers
Lab ID Number:	132211	Reviewer:	M. Perkins
Sample Location:	B-2 at 14'		
Visual Description:	WEATHERED CLAYSTONE, brown		

AASHTO M 145 Classification: A-7-6 **Group Index:** 43

Unified Soil Classification System (ASTM D 2487): (CH) Fat clay



Sieve Size	% Passing
3"	
2"	
1"	
3/4"	
1/2"	
3/8"	
#4	100
#8	
#10	100
#16	99
#30	
#40	99
#50	99
#100	98
#200	95.0

Moisture (M) & Density (D)	
M, %:	26.3
D, pcf:	99.9

LL	59
PL	18
PI	41

D_{60}	
D_{30}	
D_{10}	
Cu	
Cc	

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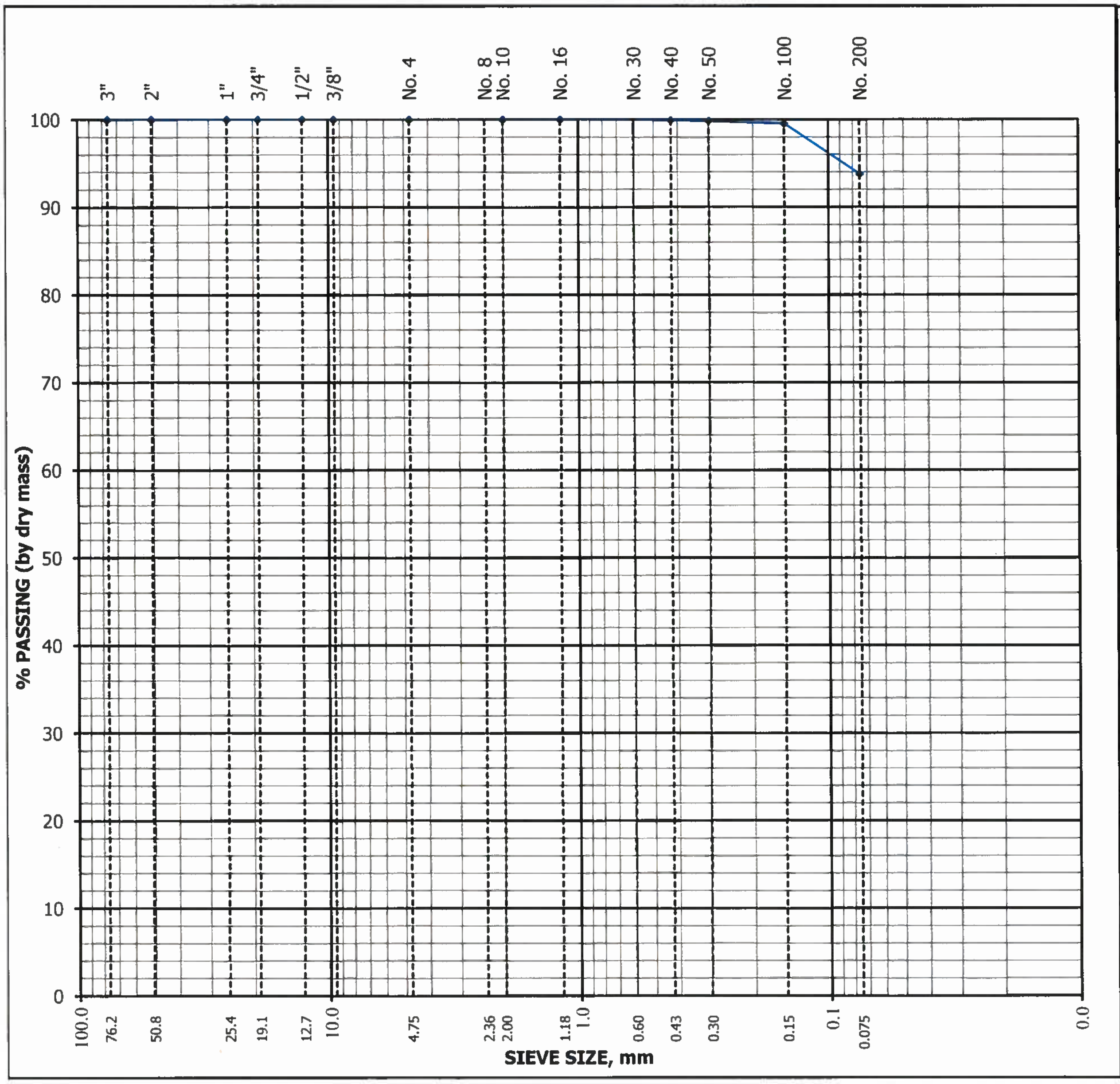
GRADATION PLOT - SOIL & AGGREGATE

Project Number:	13.054, Applegate Group, Inc.	Date:	14-Mar-13
Project Name:	Hale Reservoir	Technician:	J. Cuypers
Lab ID Number:	132212	Reviewer:	M. Perkins
Sample Location:	B-3 at 4'		
Visual Description:	CLAY, brown		

AASHTO M 145 Classification: A-7-6 **Group Index:** 44
Unified Soil Classification System (ASTM D 2487): (CH) Fat clay



Sieve Size	% Passing
3"	
2"	
1"	
3/4"	
1/2"	
3/8"	
#4	
#8	
#10	
#16	100
#30	
#40	100
#50	100
#100	100
#200	93.8

Moisture (M) & Density (D)	
M, %:	28.5
D, pcf:	96.3

LL	60
PL	16
PI	44

D_{60}	
D_{30}	
D_{10}	
Cu	
Cc	

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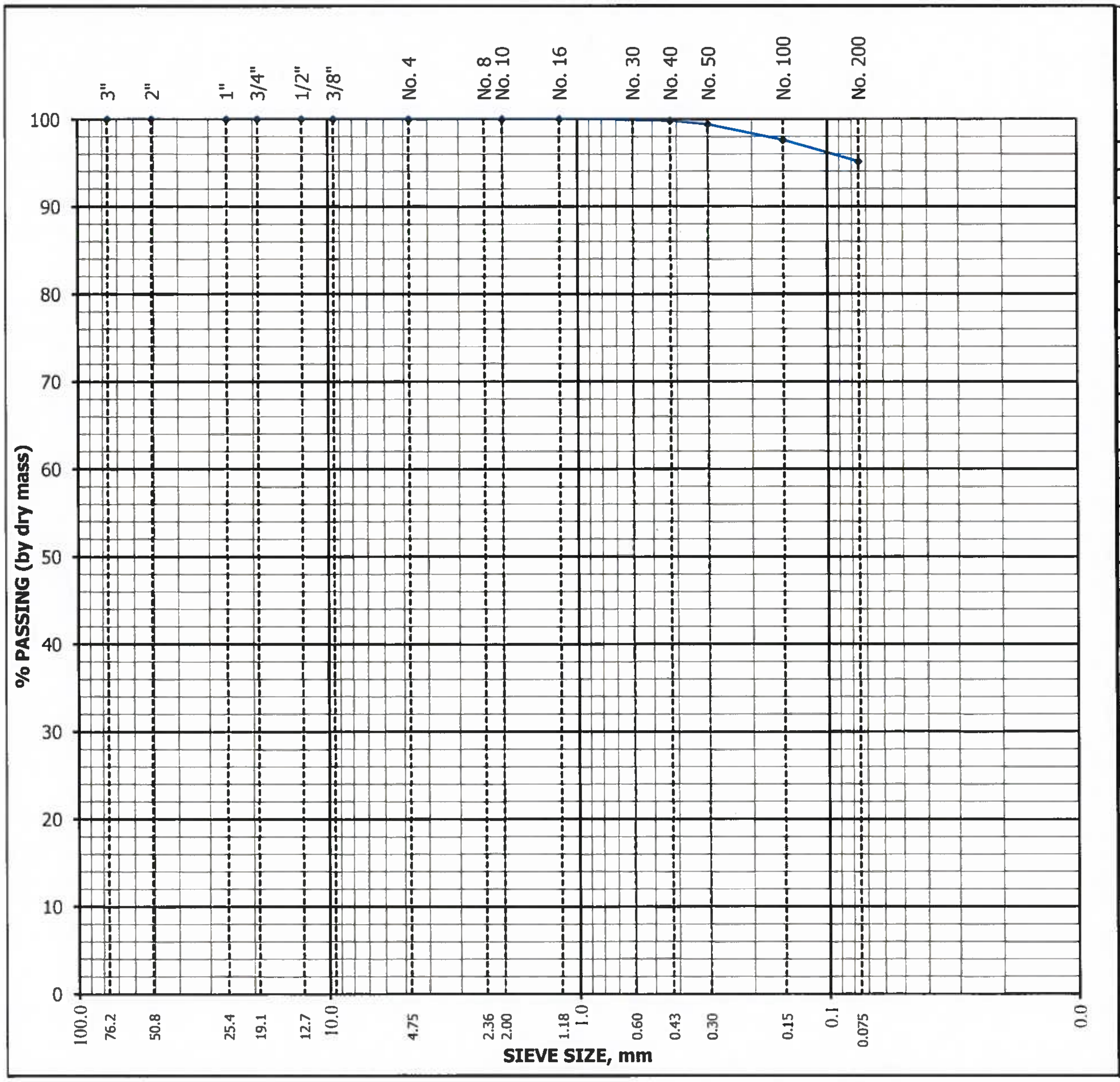
GRADATION PLOT - SOIL & AGGREGATE

Project Number: 13.054, Applegate Group, Inc.
Date: 18-Mar-13
Project Name: Hale Reservoir
Technician: J. Cuypers
Lab ID Number: 132213
Reviewer: M. Perkins
Sample Location: B-3 at 14'
Visual Description: CLAYSTONE, brown

AASHTO M 145 Classification: **A-7-6** **Group Index:** **48**
Unified Soil Classification System (ASTM D 2487): **(CH)** **Fat clay**



Sieve Size	% Passing
3"	
2"	
1"	
3/4"	
1/2"	
3/8"	
#4	
#8	
#10	
#16	100
#30	
#40	100
#50	99
#100	98
#200	95.1

Moisture (M) & Density (D)	
M, %:	25.6
D, pcf:	###

LL	66
PL	21
PI	45

D_{60}	
D_{30}	
D_{10}	
Cu	
Cc	

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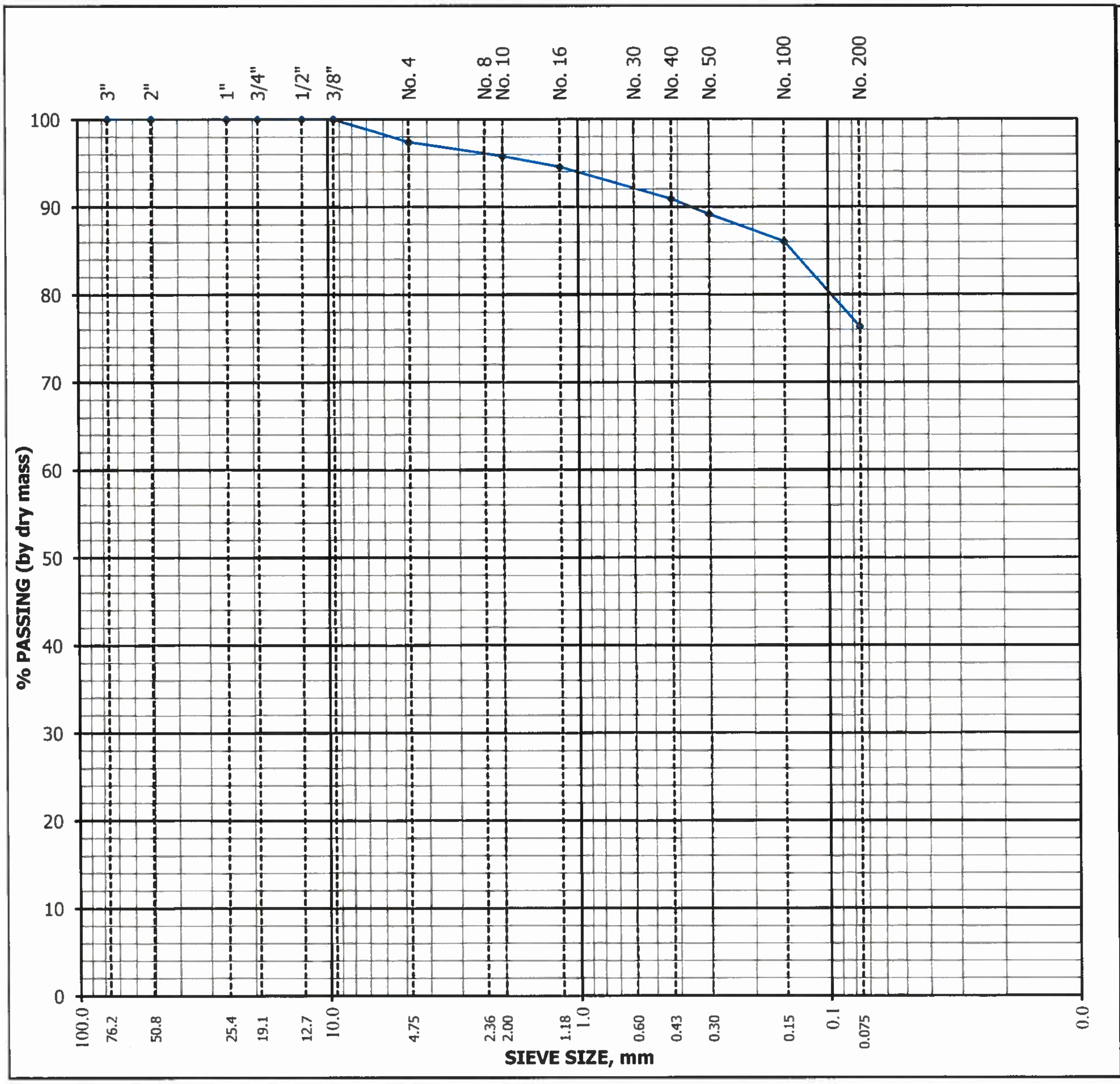
Geotechnical Engineers & Construction Materials Consultants

GRADATION PLOT - SOIL & AGGREGATE

Project Number: 13.054, Applegate Group, Inc.
Project Name: Hale Reservoir
Lab ID Number: 132215
Sample Location: B-4 at 4'
Visual Description: FILL-CLAY, sandy, brown

Date: 18-Mar-13
Technician: D. Barkley
Reviewer: M. Perkins

AASHTO M 145 Classification: A-6 **Group Index:** 18
Unified Soil Classification System (ASTM D 2487): (CL) Lean clay with sand



Sieve Size	% Passing
3"	
2"	
1"	
3/4"	
1/2"	
3/8"	100
#4	97
#8	
#10	96
#16	95
#30	
#40	91
#50	89
#100	86
#200	76.3

Moisture (M) & Density (D)	
M, %:	15.8
D, pcf:	96.1

LL	39
PL	13
PI	26

D_{60}	
D_{30}	
D_{10}	
Cu	
Cc	

CESARE, INC.
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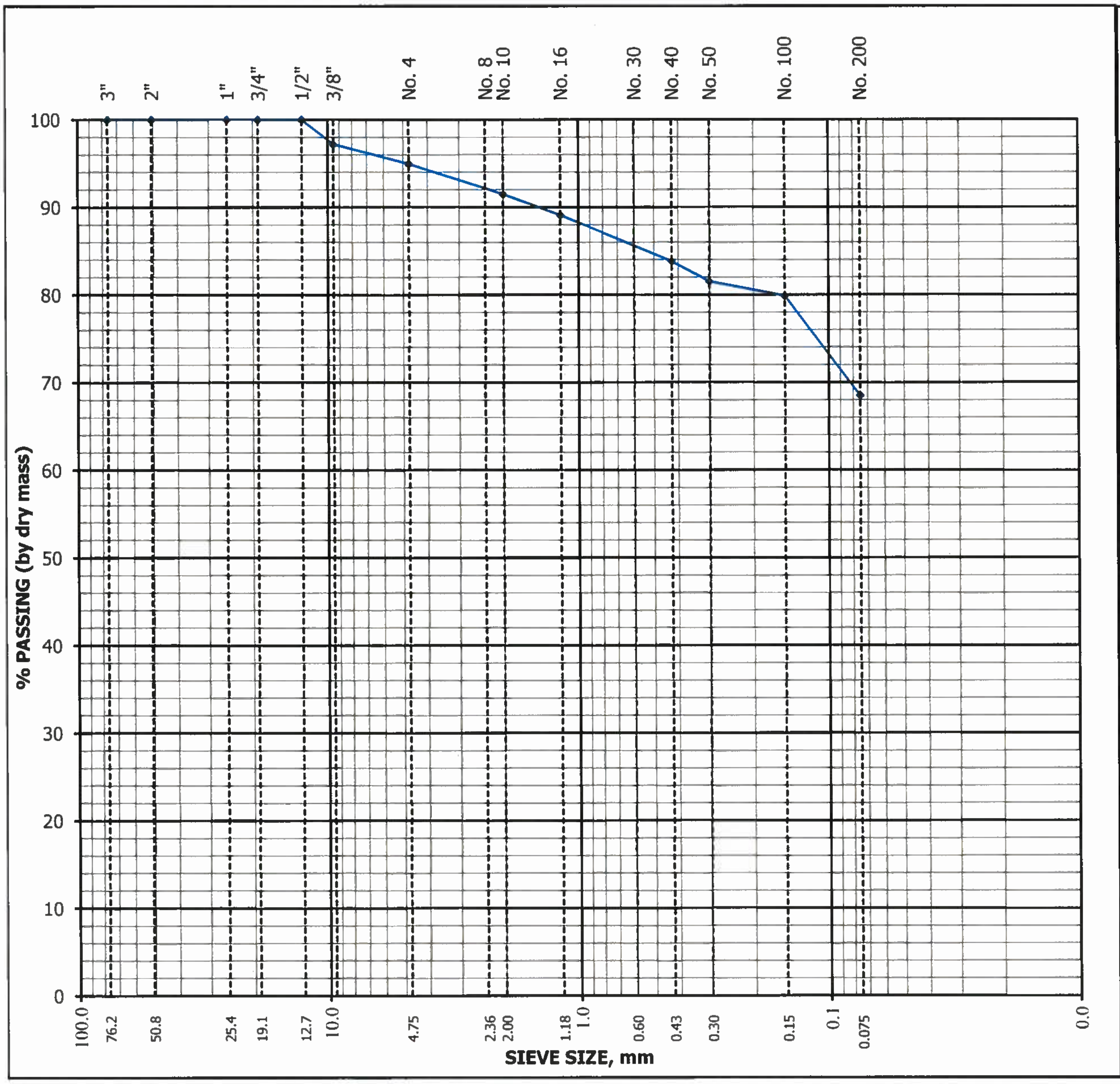
GRADATION PLOT - SOIL & AGGREGATE

Project Number:	13.054, Applegate Group, Inc.	Date:	18-Mar-13
Project Name:	Hale Reservoir	Technician:	D. Barkley
Lab ID Number:	132214	Reviewer:	M. Perkins
Sample Location:	B-4 at 9'		
Visual Description:	FILL-CLAY, sandy, brown		

AASHTO M 145 Classification: A-6 **Group Index:** 15
Unified Soil Classification System (ASTM D 2487): (CL) Sandy lean clay



Sieve Size	% Passing
3"	
2"	
1"	
3/4"	
1/2"	100
3/8"	97
#4	95
#8	
#10	91
#16	89
#30	
#40	84
#50	82
#100	80
#200	68.5

Moisture (M) & Density (D)	
M, %:	18.1
D, pcf:	###

LL	38
PL	12
PI	26

D_{60}	
D_{30}	
D_{10}	
Cu	
Cc	

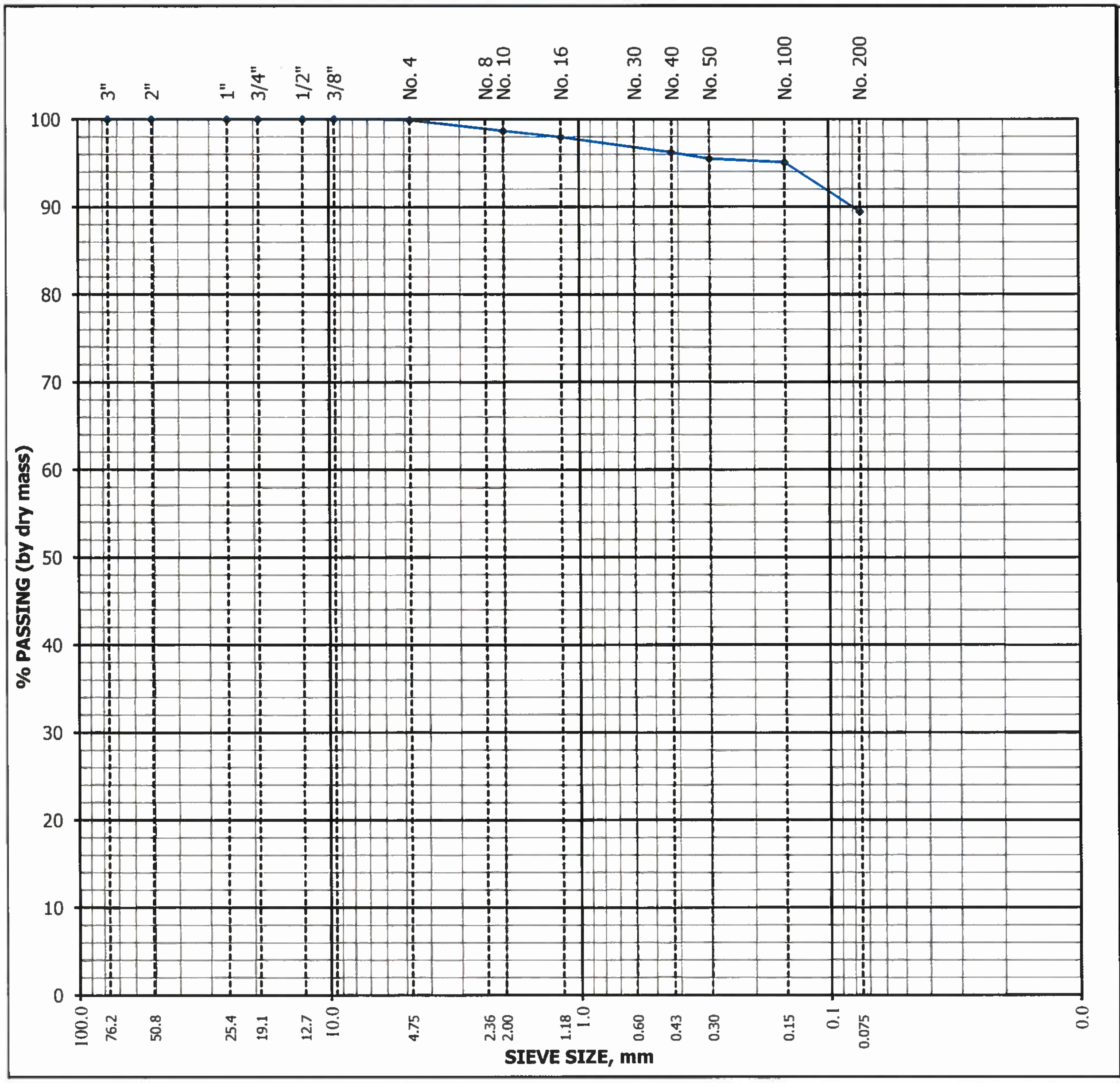
CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

GRADATION PLOT - SOIL & AGGREGATE

Project Number: 13.054, Applegate Group, Inc.
Project Name: Hale Reservoir
Lab ID Number: 132216
Sample Location: B-5 at 1'
Visual Description: CLAY, brown

Date: 18-Mar-13
Technician: D. Barkley
Reviewer: M. Perkins

AASHTO M 145 Classification: **A-7-6** **Group Index:** **34**
Unified Soil Classification System (ASTM D 2487): **(CH) Fat clay**



Sieve Size	**% Passing**
3"	
2"	
1"	
3/4"	
1/2"	
3/8"	100
#4	100
#8	
#10	99
#16	98
#30	
#40	96
#50	95
#100	95
#200	89.5

Moisture (M) & Density (D)	
M, %:	26.3
D, pcf:	93.6

LL	50
PL	13
PI	37

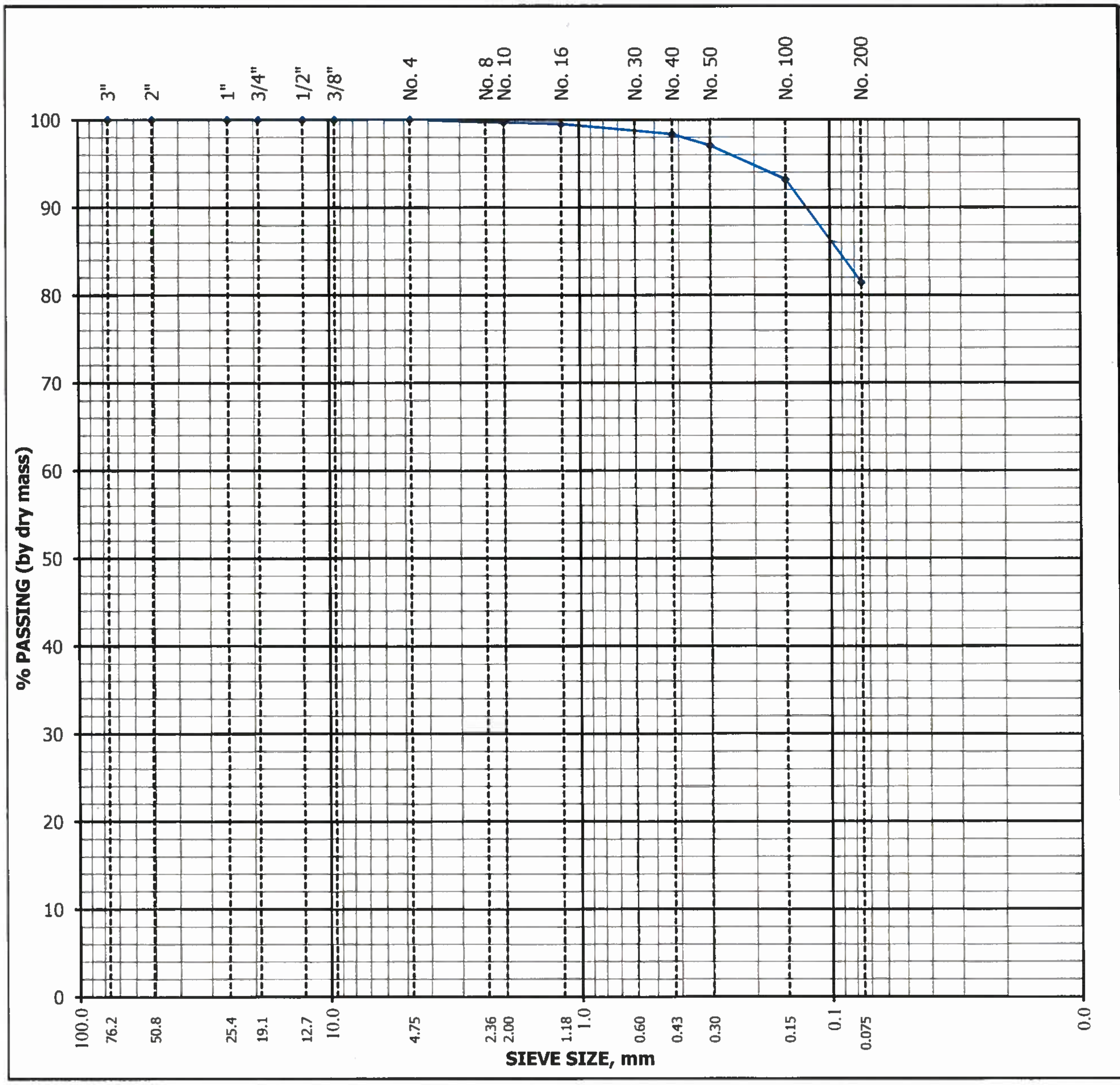
D_{60}	
D_{30}	
D_{10}	
Cu	
Cc	

GRADATION PLOT - SOIL & AGGREGATE

Project Number:	13.054, Applegate Group, Inc.	Date:	18-Mar-13
Project Name:	Hale Reservoir	Technician:	D. Barkley
Lab ID Number:	132217	Reviewer:	M. Perkins
Sample Location:	B-5 at 4'		
Visual Description:	CLAY, sandy, brown		

AASHTO M 145 Classification: A-6 **Group Index:** 19

Unified Soil Classification System (ASTM D 2487): (CL) Lean clay with sand



Sieve Size	% Passing
3"	
2"	
1"	
3/4"	
1/2"	
3/8"	
#4	100
#8	
#10	100
#16	99
#30	
#40	98
#50	97
#100	93
#200	81.4

Moisture (M) & Density (D)	
M, %:	31.2
D, pcf:	96.0

LL	38
PL	13
PI	25

D_{60}	
D_{30}	
D_{10}	
Cu	
Cc	

Knight Piésold
CONSULTING

Pinhole Dispersion Test
ASTM D 4647
Method B

Project Hale Reservoir
Date of Test 3/28/2013
Sample Location B-5 @ 9'
Sample Description

Project No. DV108-00059.13-200
Cesare Project No. 13.054
Lab No. L2013-030
Sample ID 2013-030-01

Sample Type Trimmed from Cal Liner
Curing Time, hrs. NA

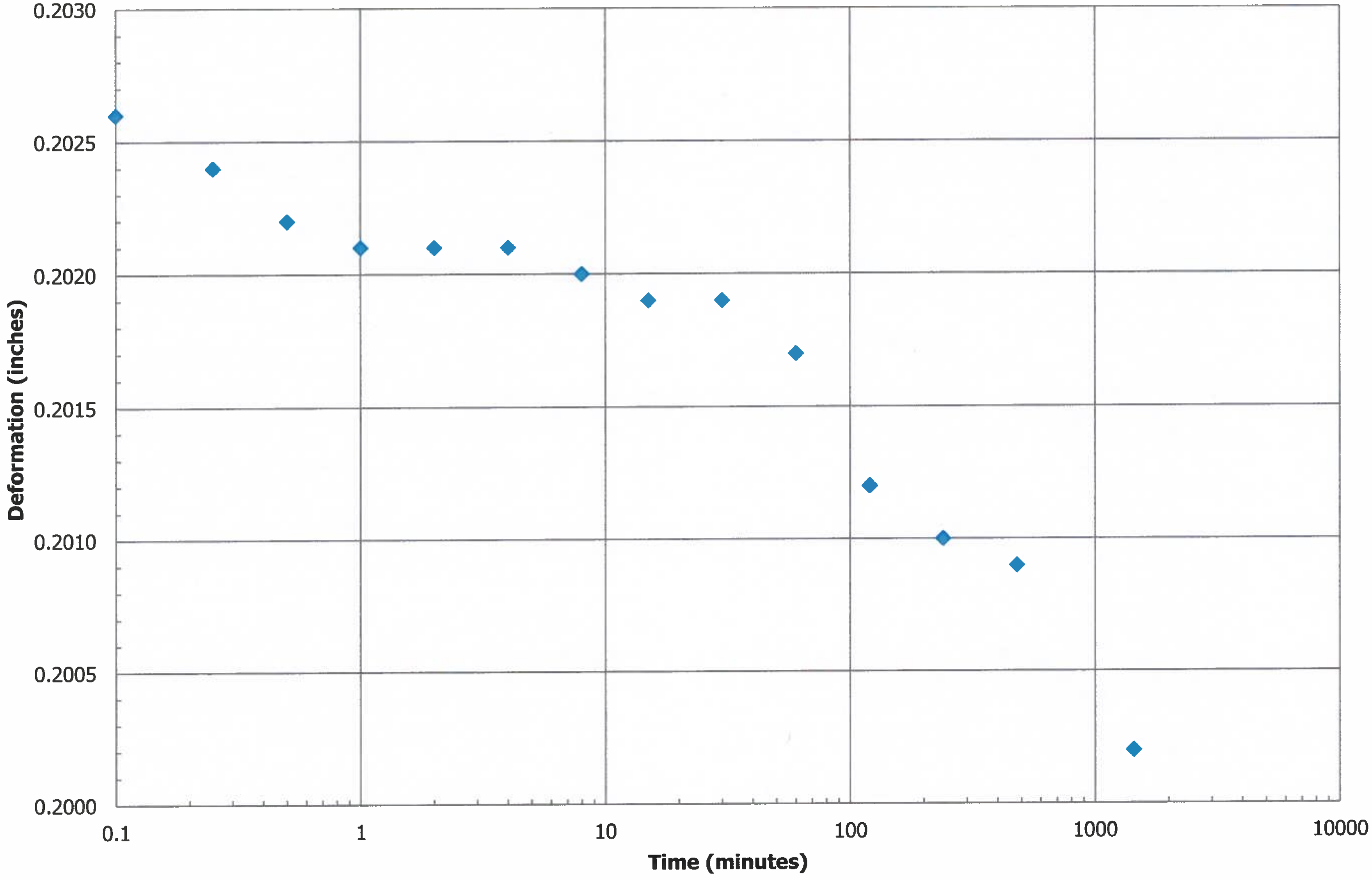
Dry Density, pcf 117.9
Moisture Content, % 28.7

Specimen Parameters

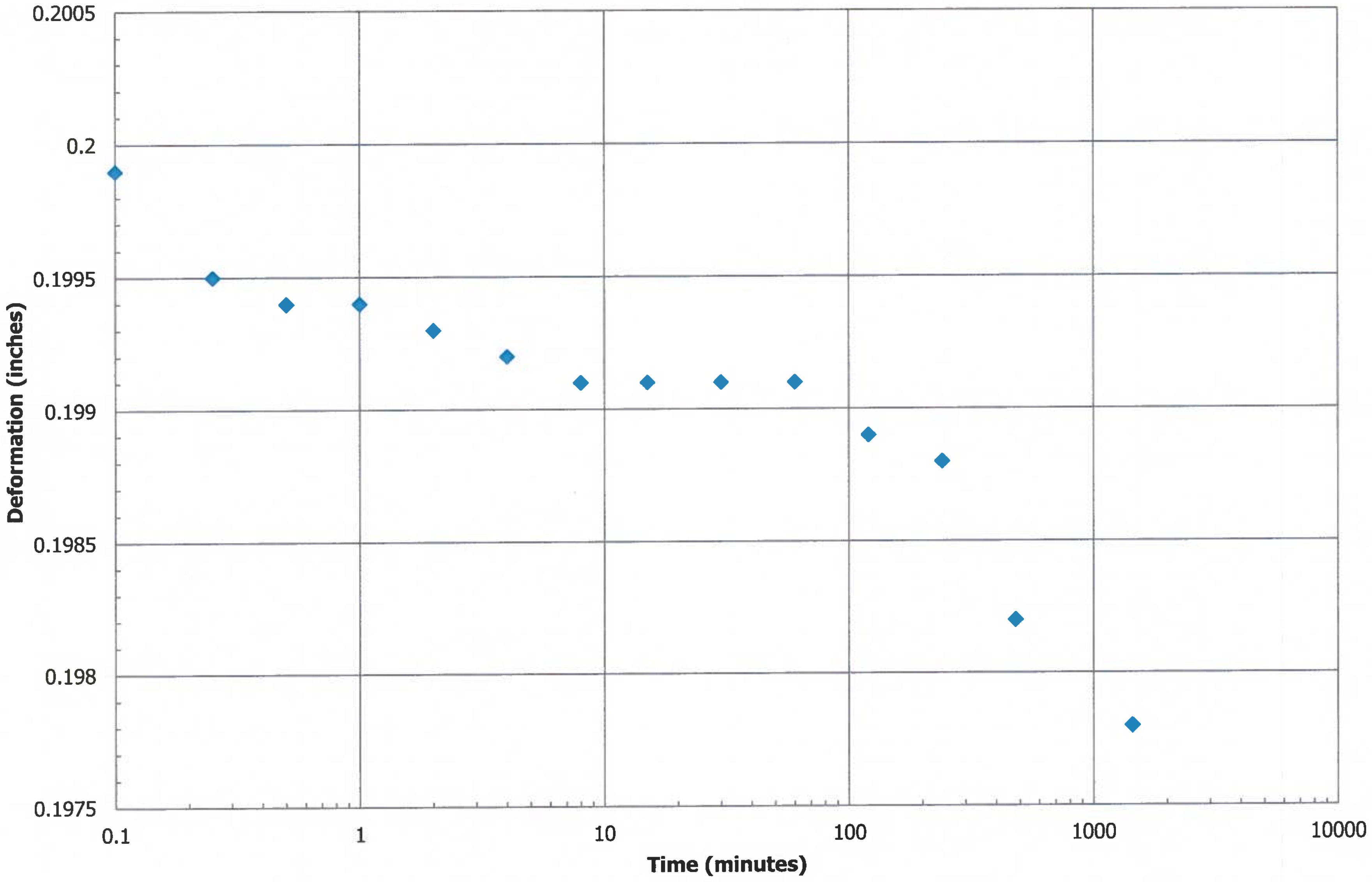
Length, in. 1.5
Diameter, in. 1.25
Wet Sample Wt.
57.2

		Flow			Turbidity from Side							
Clock Time	Head	ml	sec.	Rate, ml/s	Very Dark	Dark	Mod.Dark	Slight	Barely Vis.	Comp. Clear	Comp.Clear from Top	Comments
	2	5	133	0.04		x						
	2	10	63.1	0.16				x				
	2	10	56.7	0.18							x	
	2	10	55.4	0.18							x	
	2	10	56	0.18							x	
	2	10	55.1	0.18							x	
	7	10	15.4	0.65						x		
	7	10	13.3	0.75							x	
	7	10	13.3	0.75							x	
	7	10	13.3	0.75							x	
	7	10	13.1	0.76							x	
	7	10	6.08	1.64							x	
	15	10	5.47	1.83						x		
	15	10	5.92	1.69							x	
	15	10	5.59	1.79							x	
	15	10	5.32	1.88							x	
	15	10	5.47	1.83							x	
	15	10	5.58	1.79							x	
	15	10	5.04	1.98							x	
	40	10	5.9	1.69							x	
	40	10	6.1	1.64							x	
	40	10	6.35	1.57							x	
	40	10	6.32	1.58							x	
	40	10	6.33	1.58							x	
	40	10	6.81	1.47							x	
								Classification				Non Dispersive
								Final Hole Diameter				1 mm

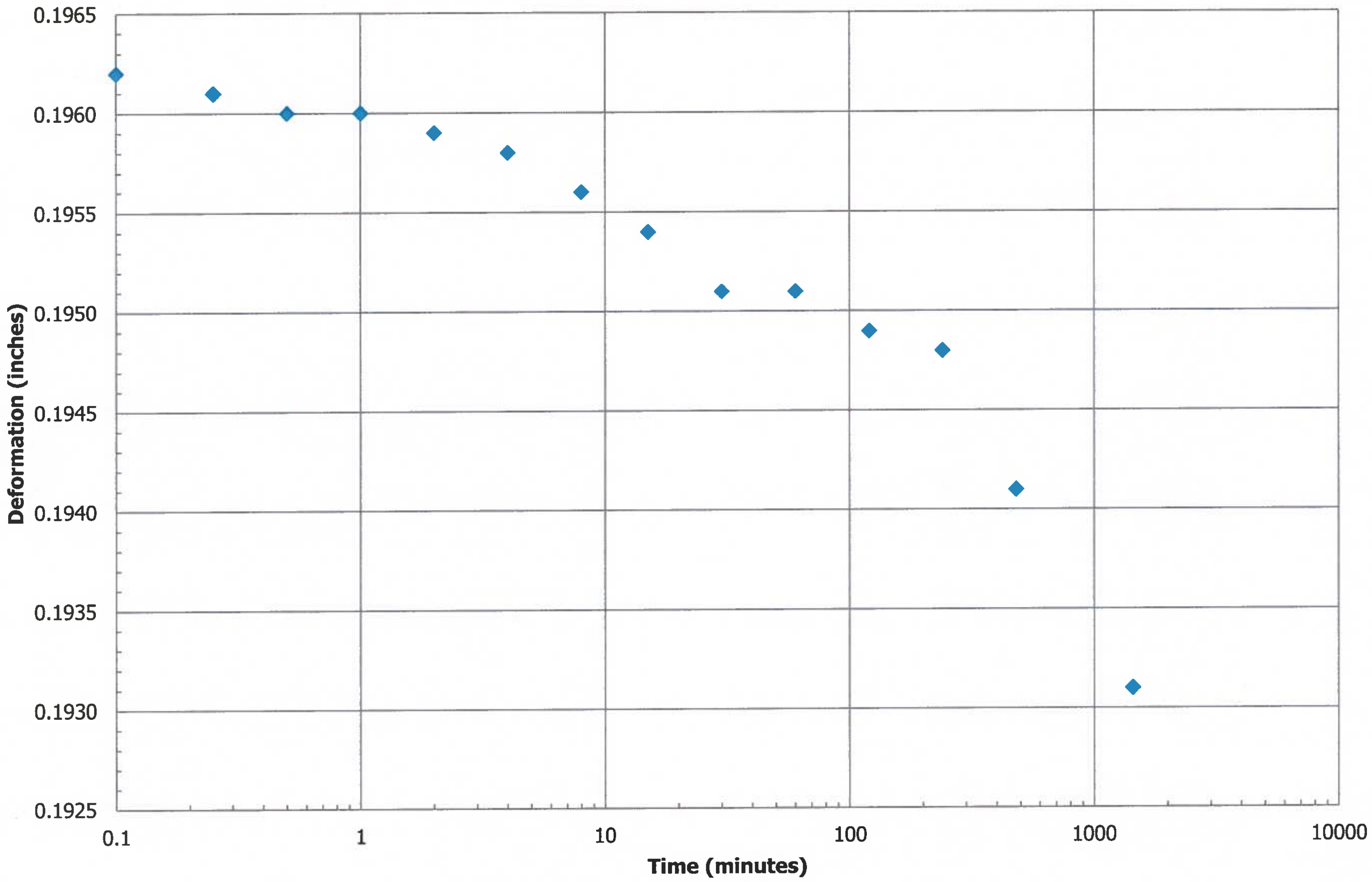
Time vs. Deformation - 250 psf
B-1 @ 14 feet



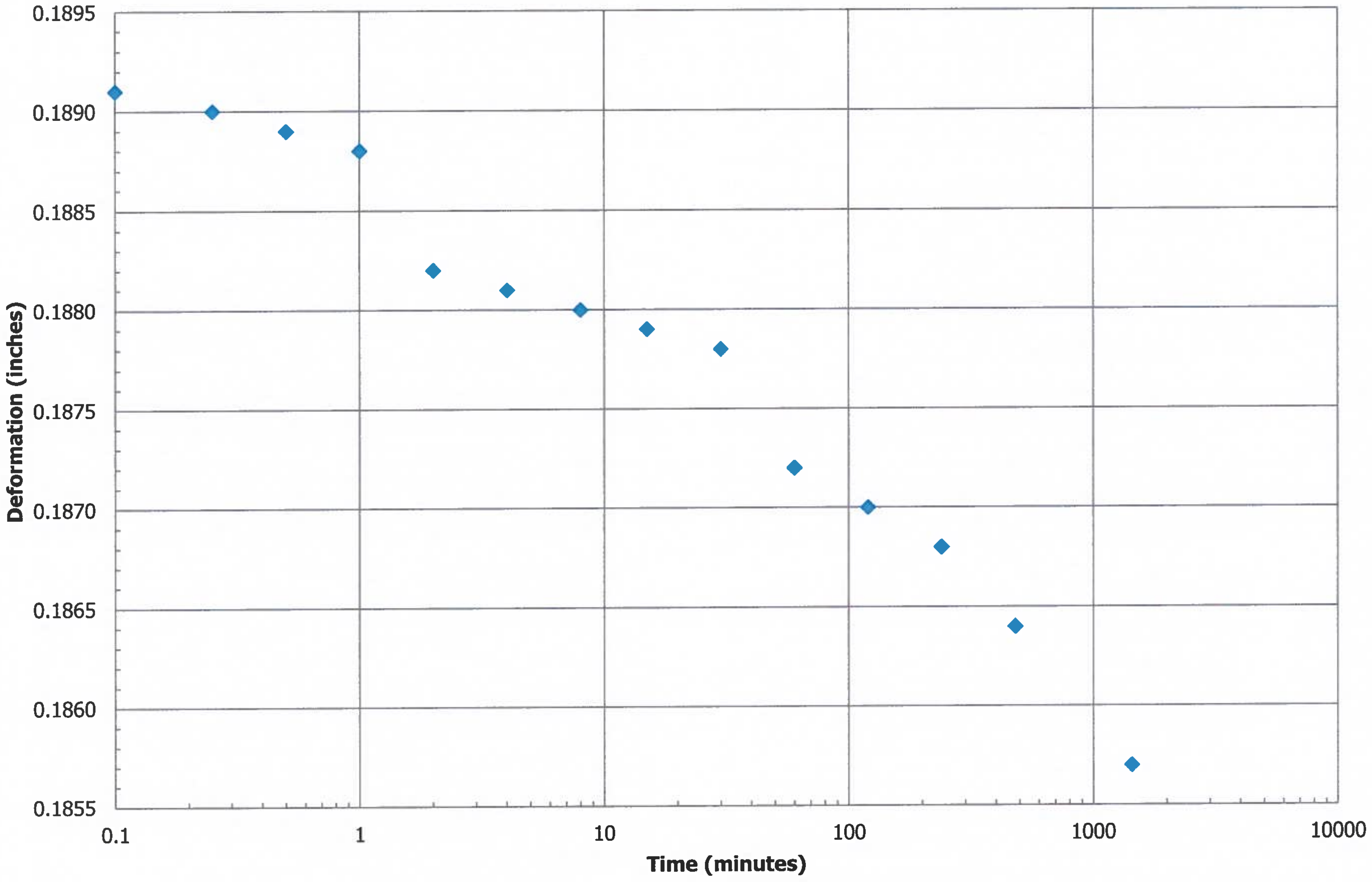
Time vs. Deformation - 500 psf
B-1 @ 14 feet



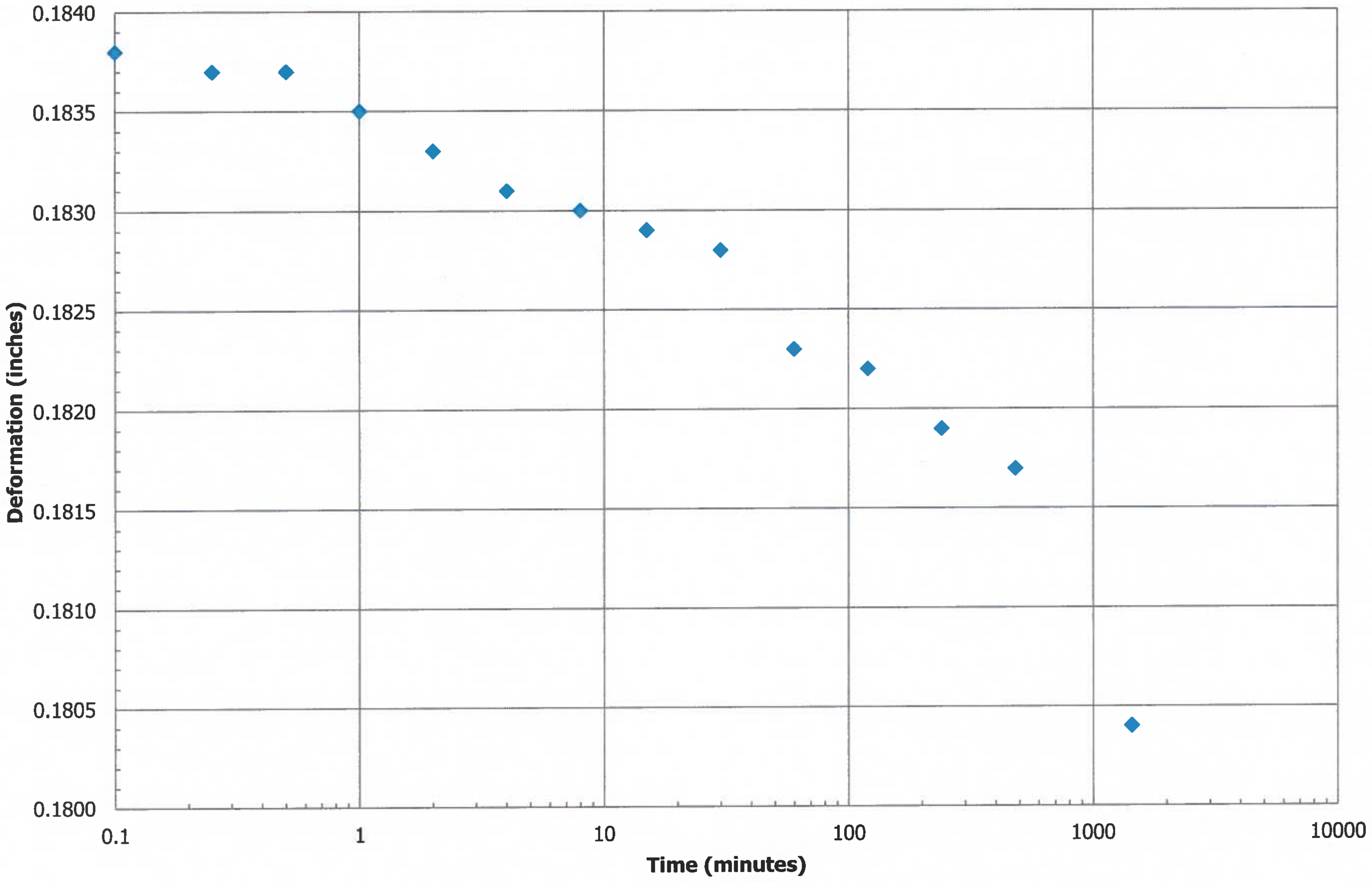
Time vs. Deformation - 1000 psf
B-1 @ 14 feet



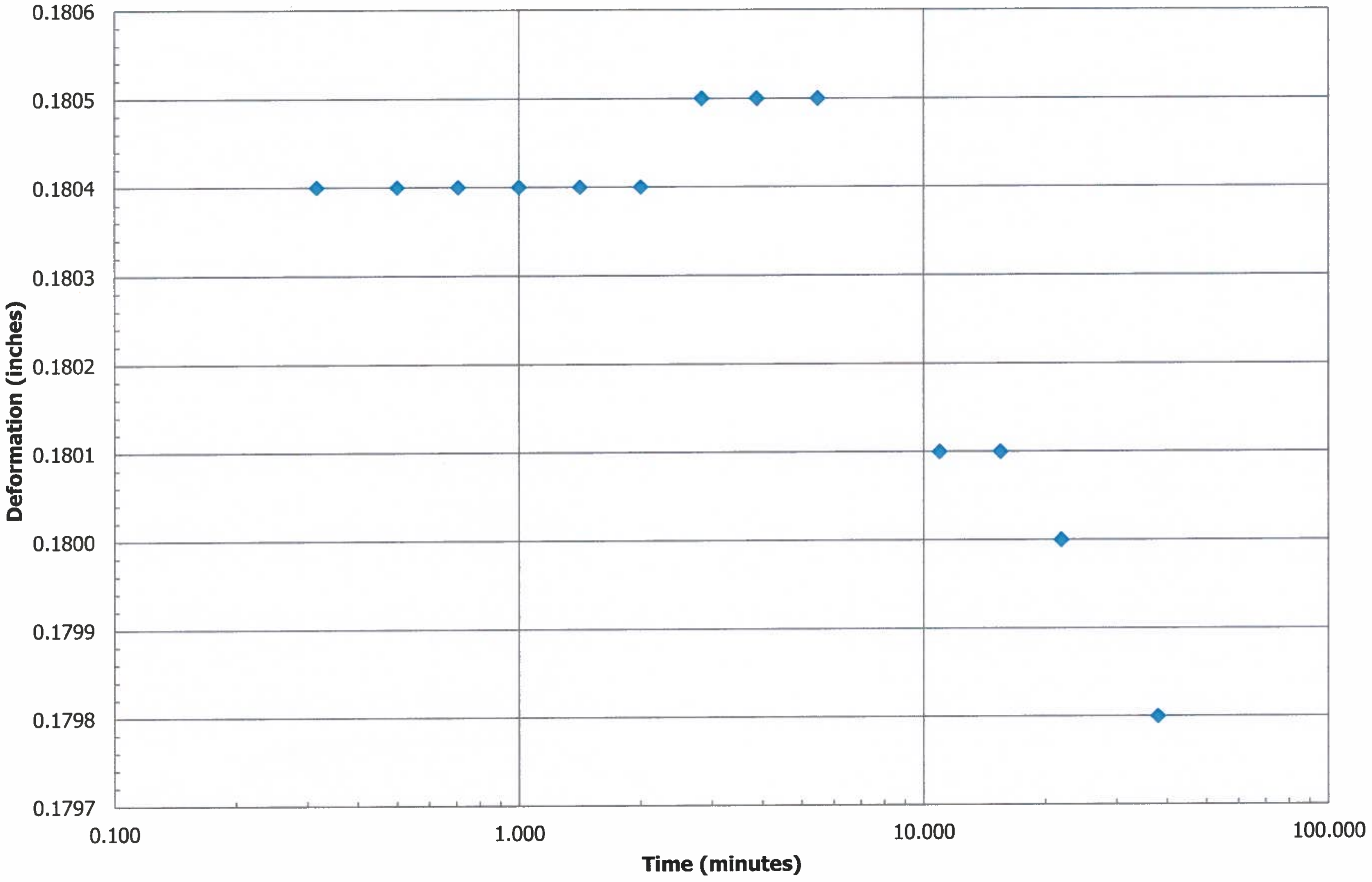
Time vs. Deformation - 2000 psf
B-1 @ 14 feet



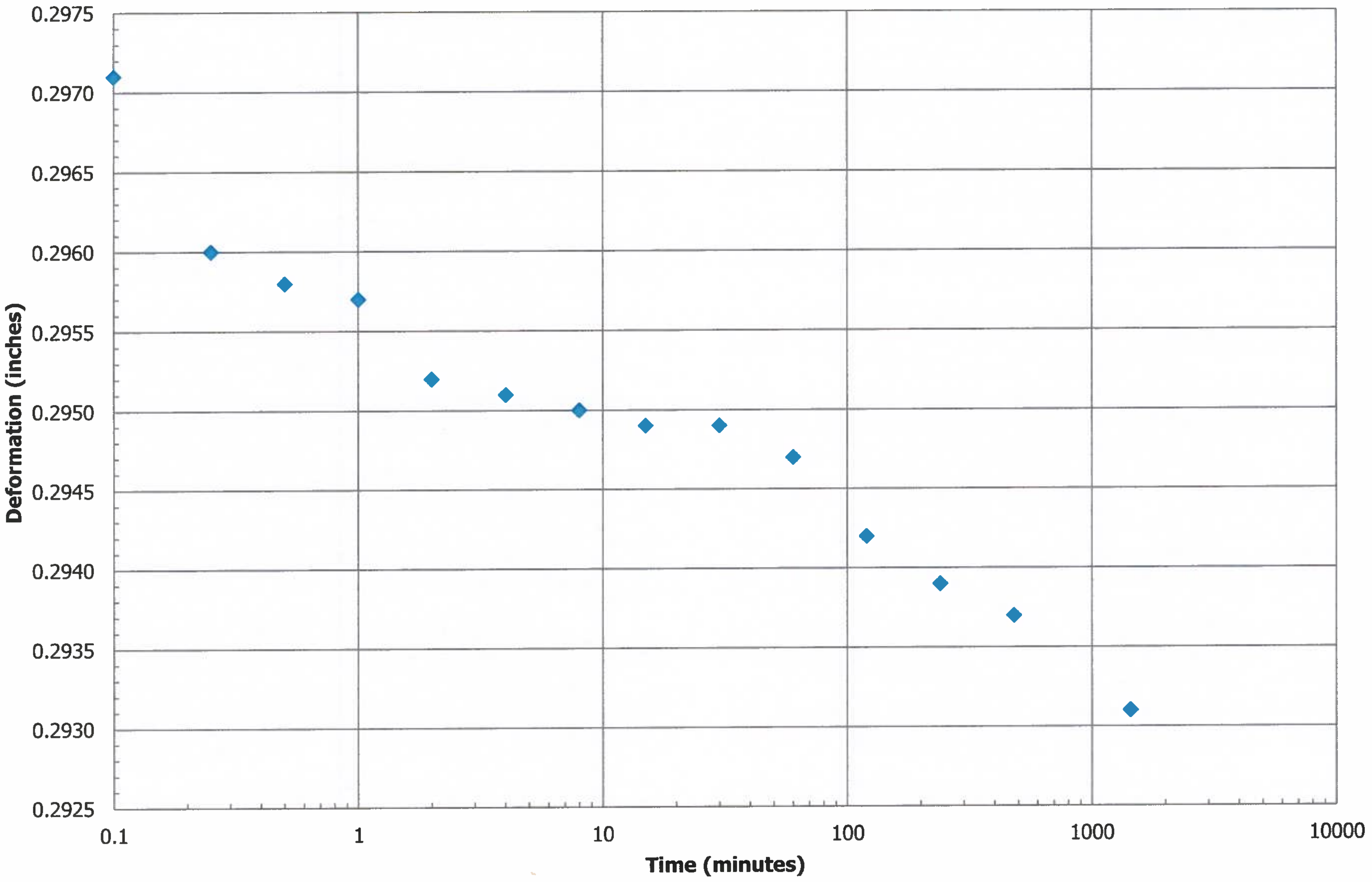
Time vs. Deformation - 2900 psf
B-1 @ 14 feet



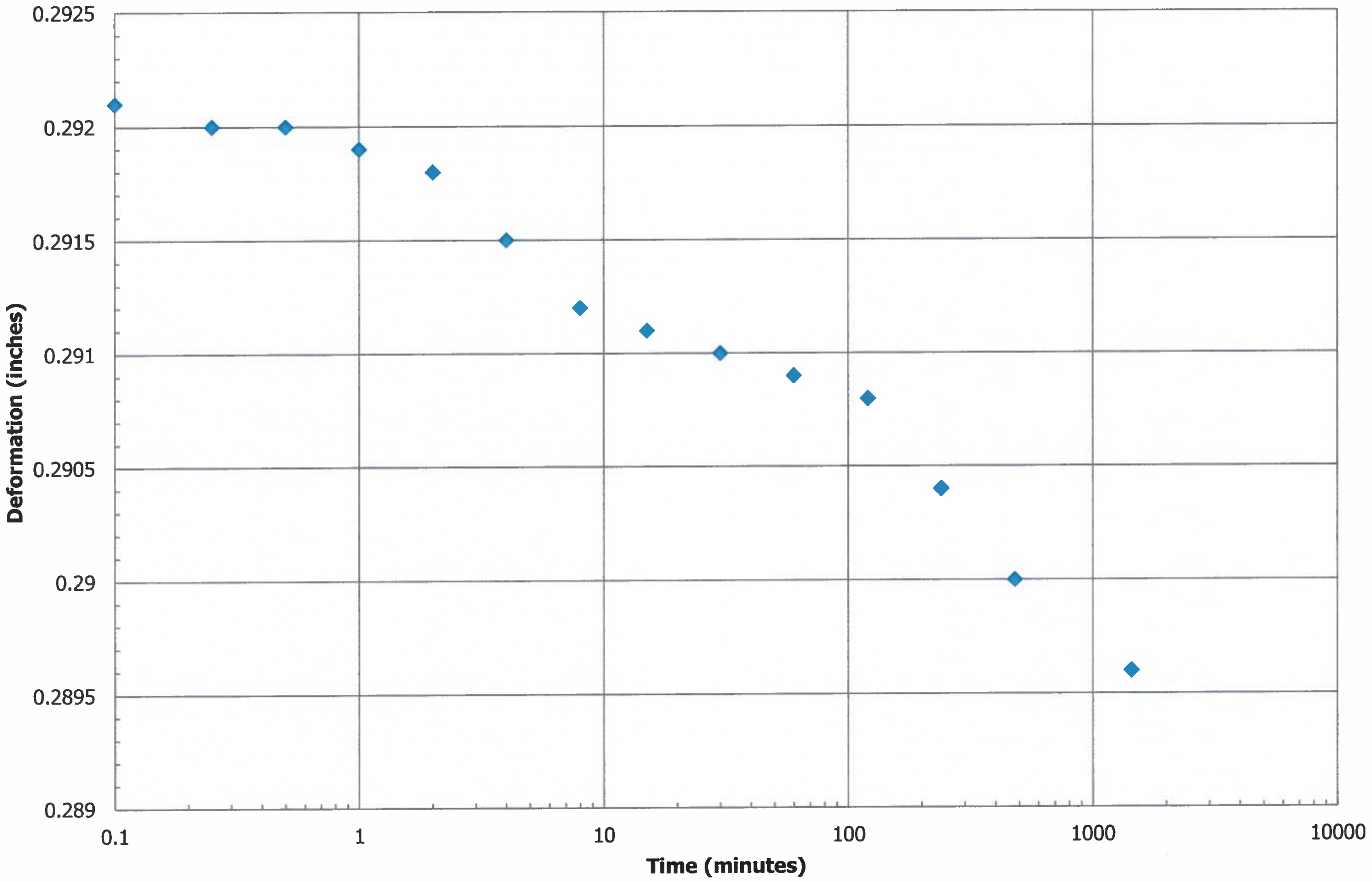
Time vs. Deformation - 2900 psf with Water
B-1 @ 14 feet



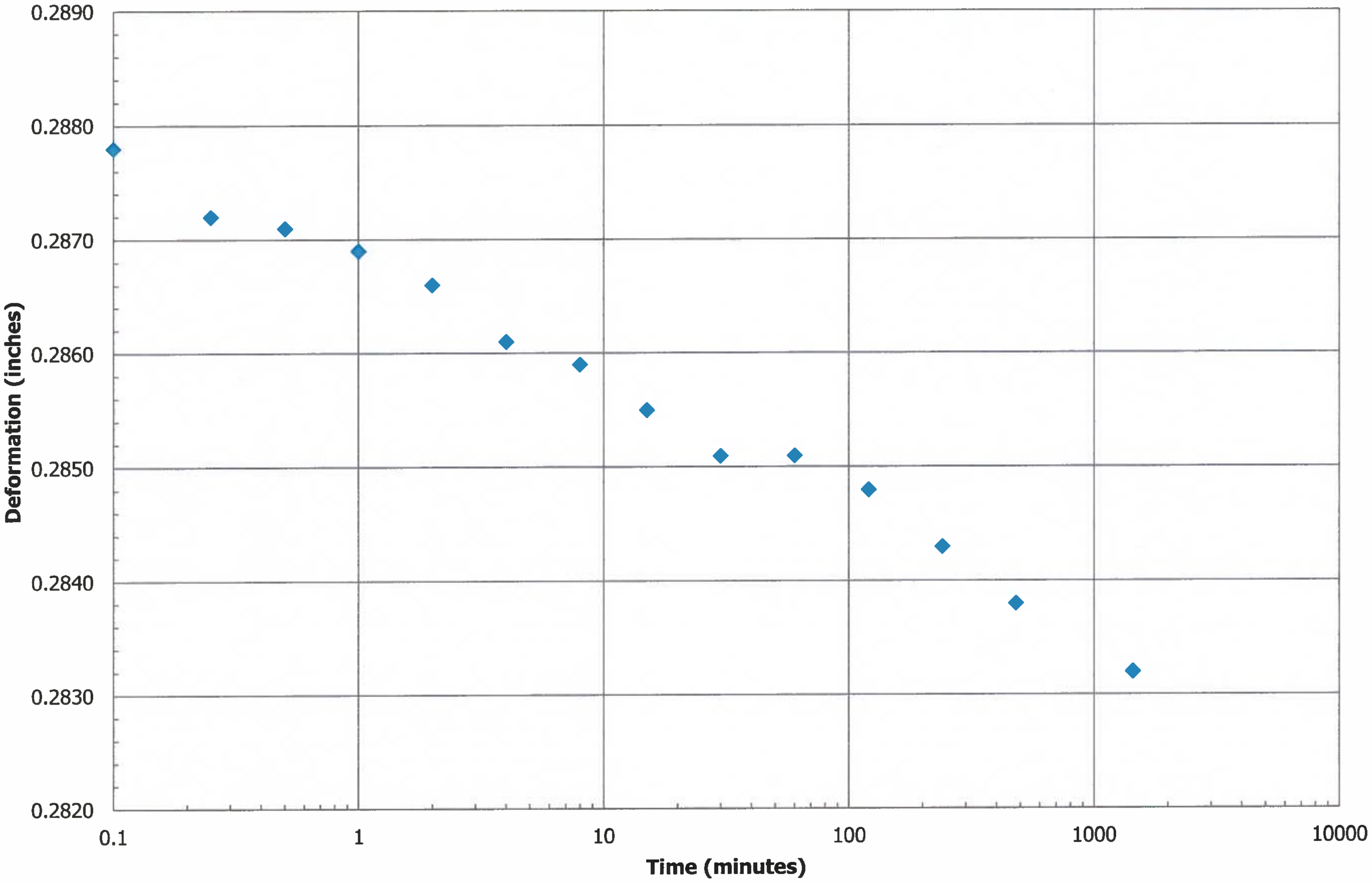
Time vs. Deformation - 250 psf
B-3 @ 9 feet



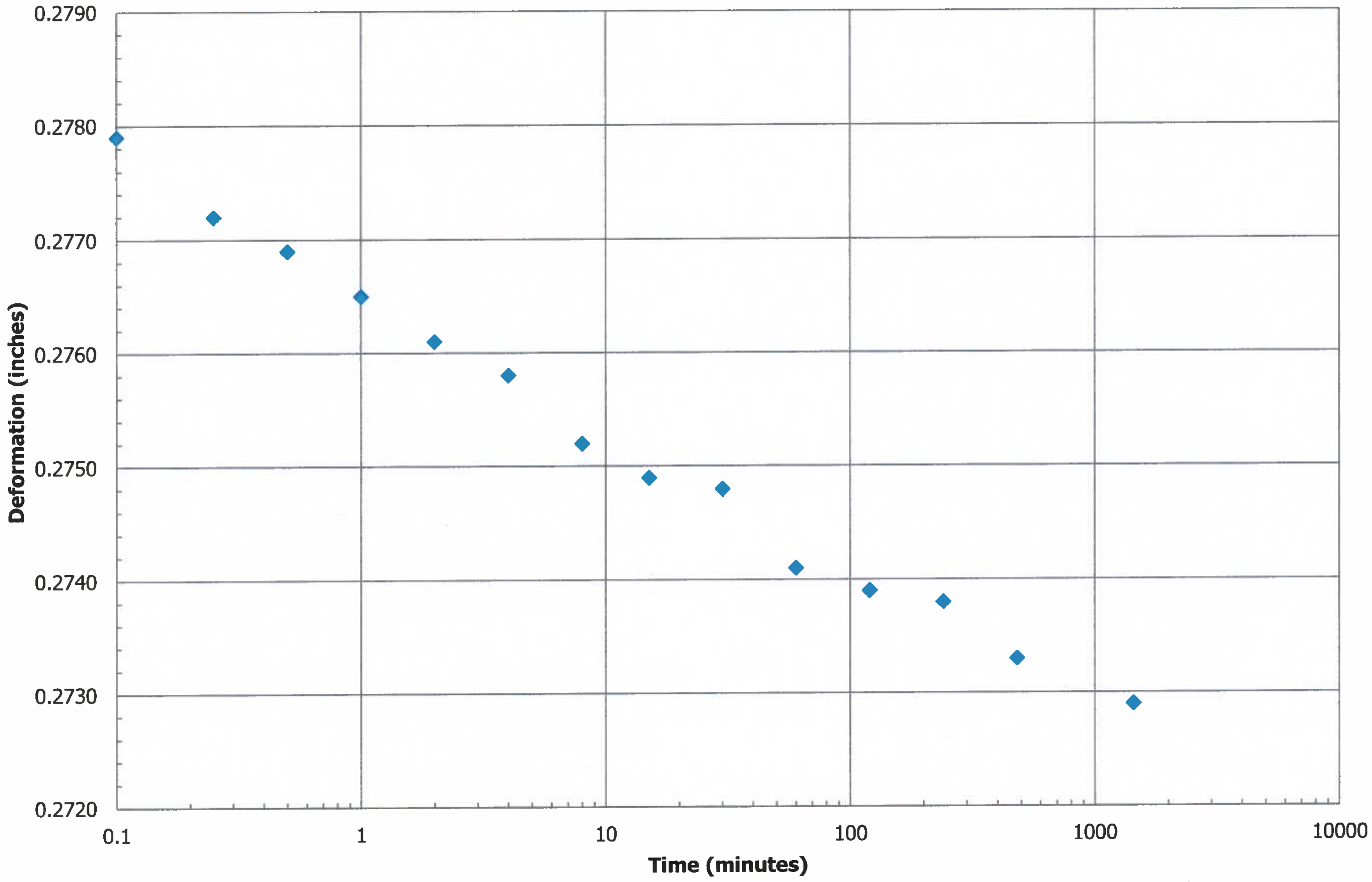
Time vs. Deformation - 500 psf
B-3 @ 9 feet



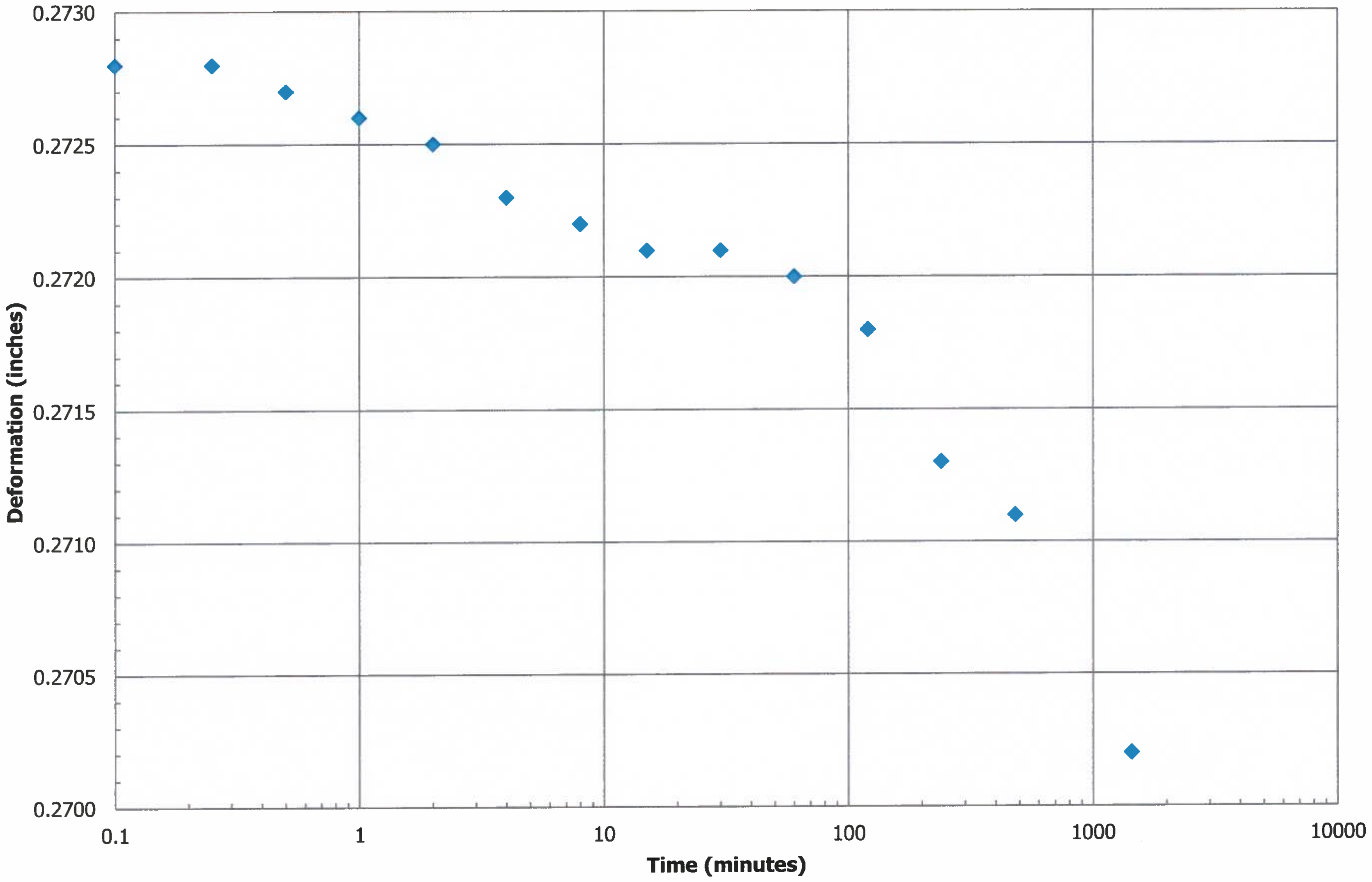
Time vs. Deformation - 1000 psf
B-3 @ 9 feet



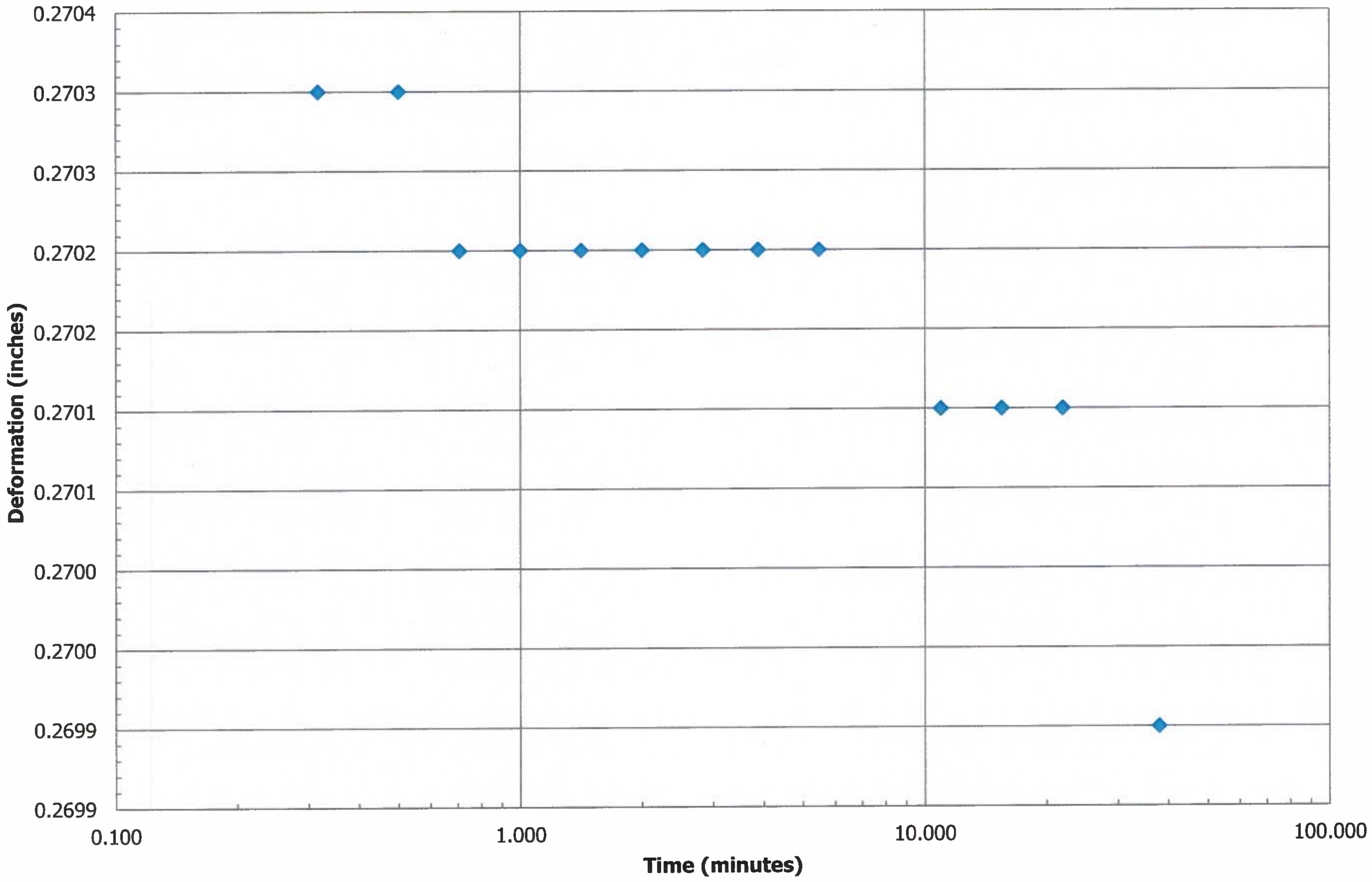
Time vs. Deformation - 2000 psf
B-3 @ 9 feet



Time vs. Deformation - 2400 psf
B-3 @ 9 feet



Time vs. Deformation - 2400 psf with Water
B-3 @ 9 feet



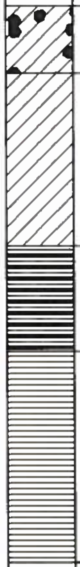
APPENDIX B

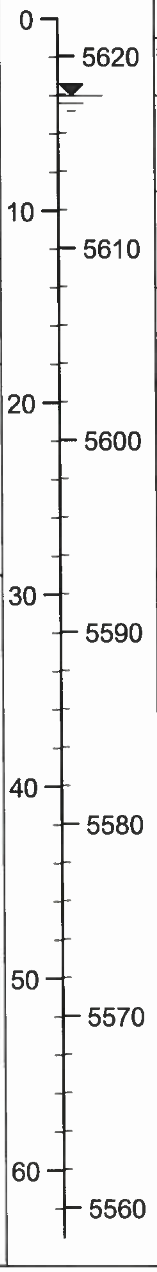
Individual Boring Logs

LOG OF BORING

B-1

CLIENT	Applegate Group, Inc.	PROJECT	Hale Reservoir
SITE	-	PROJECT NO.	13.054
ELEVATION (FT.)	5621.93	PROPOSED GRADE (FT.):	-
NORTHING (FT.)		EASTING (FT.)	
WATER LEVEL OBSERVATIONS (FT.)		DRILLED BY	Dakota Drilling
	4	LOGGED BY	Melody Perkins
DEPTH TO CAVE (FT.)	None	DATE DRILLED:	March 5, 2013





MONITORING WELL	GRAPHIC LOG	DESCRIPTION	DEPTH AND ELEVATION (FT.)	BLOWS/IN.	USCS/AASHTO CLASSIFICATION (based on laboratory testing)	TESTS			
						LIQUID LIMIT	PLASTIC INDEX	MOISTURE CONTENT (%)	% SWELL
				50/11*					
		3.5 ft. CLAY, brown [A-7-6 (51)]		16/12	CH	67	50	28.1	
				10/12					
		12.5 ft.		17/12					
		18 ft.		50/7					
				50/5					
		Total Depth 29 ft.		50/1					

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

* Indicates sampler hit a rock, blow counts may not be indicative of soil density.

LOG OF BORING

B-2

CLIENT Applegate Group, Inc.

PROJECT Hale Reservoir

SITE -

PROJECT NO. 13.054

ELEVATION (FT.) 5616.61

PROPOSED GRADE (FT.): -

NORTHING (FT.)

EASTING (FT.)

WATER LEVEL OBSERVATIONS (FT.)

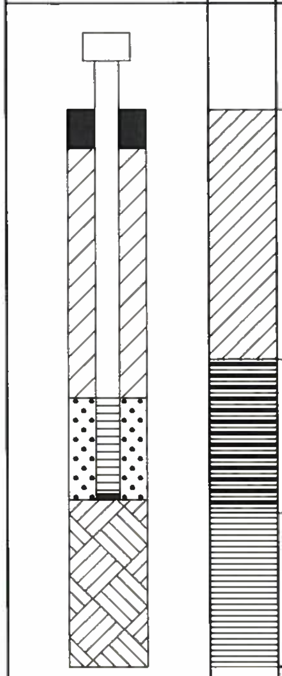
DRILLED BY Dakota Drilling

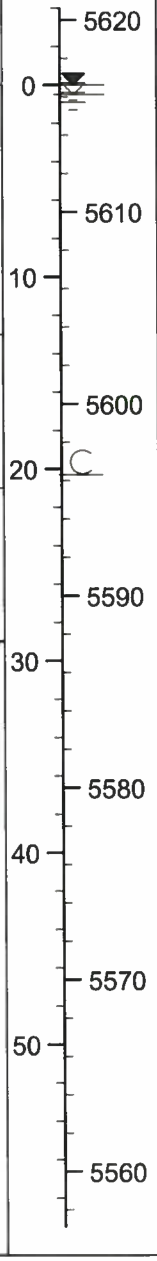
0 | .5

LOGGED BY Melody Perkins

DEPTH TO CAVE (FT.) 20.3

DATE DRILLED: March 5, 2013





DESCRIPTION	BLOWS/IN.	USCS/AASHTO CLASSIFICATION (based on laboratory testing)	TESTS LIQUID LIMIT	PLASTIC INDEX	MOISTURE CONTENT (%)	% SWELL
0 ft. CLAY, sandy, dark brown [A-6-7 (34)]	10/12	CH	59	43	28.8	
CLAY, brown [A-7-6]	8/12	CH				
CLAY, brown [A-7-6]	9/12	CH			27.2	
13 ft. WEATHERED CLAYSTONE, brown [A-7-6 (43)]	5/12	CH	59	41	26.3	
	20/12					
21 ft.	50/2					
Total Depth 29 ft.	50/1					

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

* Indicates sampler hit a rock, blow counts may not be indicative of soil density.

LOG OF BORING

B-3

CLIENT Applegate Group, Inc.
PROJECT Hale Reservoir
SITE -
PROJECT NO. 13.054
ELEVATION (FT.) 5618.14
PROPOSED GRADE (FT.):
NORTHING (FT.)
EASTING (FT.)
WATER LEVEL OBSERVATIONS (FT.) .5
DRILLED BY
LOGGED BY
DEPTH TO CAVE (FT.)
DATE DRILLED:

MONITORING WELL	GRAPHIC LOG	DESCRIPTION	DEPTH AND ELEVATION (FT.)	BLOWS/IN.	USCS/AASHTO CLASSIFICATION (based on laboratory testing)	TESTS			
						LIQUID LIMIT	PLASTIC INDEX	MOISTURE CONTENT (%)	% SWELL
			0						
				9/12					
		CLAY, brown [A-7-6 (44)]		7/12	CH	60	16	28.5	
			5610						
		CLAY, brown [A-7-6]	10	8/12	CH				
		11 ft.							
		13 ft.							
		CLAYSTONE, brown [A-7-6 (48)]		50/7	CH	66	45	25.6	
			5600						
			20	50/4					
				50/1					
			5590						
		Total Depth 29 ft.		50/2					
			30						
			5580						
			40						
			5570						
			50						
			5560						
			60						

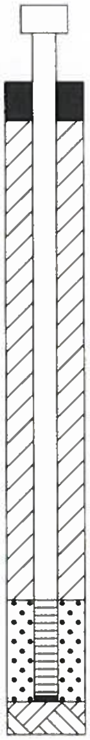
CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

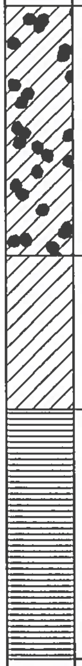
* Indicates sampler hit a rock, blow counts may not be indicative of soil density.

LOG OF BORING

B-4

CLIENT Applegate Group, Inc.	PROJECT Hale Reservoir
SITE -	PROJECT NO. 13.054
ELEVATION (FT.) 5630.39	PROPOSED GRADE (FT.):
NORTHING (FT.)	EASTING (FT.)
WATER LEVEL OBSERVATIONS (FT.)	DRILLED BY
13 | 12.5	LOGGED BY
DEPTH TO CAVE (FT.)	DATE DRILLED:





MONITORING WELL	GRAPHIC LOG	DESCRIPTION	DEPTH AND ELEVATION (FT.)	BLOWS/IN.	USCS/AASHTO CLASSIFICATION (based on laboratory testing)	TESTS LIQUID LIMIT	PLASTIC INDEX	MOISTURE CONTENT (%)	% SWELL
		0 ft.	0 — 5630	27/12					
		FILL-CLAY, sandy, brown [A-6 (18)]		30/12*	CL			15.8	
		FILL-CLAY, sandy, brown [A-6 (15)]	10 — 5620	9/12	CL			18.1	
		13 ft.		18/12					
			20 — 5610	7/12					
		21 ft.		50/10					
			30 — 5600	50/3					
		Total Depth 34 ft.		50/1					
			40 — 5590						
			50 — 5580						

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

* Indicates sampler hit a rock, blow counts may not be indicative of soil density.

LOG OF BORING

B-5

CLIENT	Applegate Group, Inc.	PROJECT	Hale Reservoir
SITE	-	PROJECT NO.	13.054
ELEVATION (FT.)	5630.66	PROPOSED GRADE (FT.):	
NORTHING (FT.)		EASTING (FT.)	
WATER LEVEL OBSERVATIONS (FT.)		DRILLED BY	
0		LOGGED BY	
DEPTH TO CAVE (FT.)		DATE DRILLED:	

MONITORING WELL	GRAPHIC LOG	DESCRIPTION	DEPTH AND ELEVATION (FT.)		BLOWS/IN.	USCS/AASHTO CLASSIFICATION (based on laboratory testing)	TESTS LIQUID LIMIT	 PLASTIC INDEX	 MOISTURE CONTENT (%)	 % SWELL
	▨	CLAY, brown [A-7-6 (34)]	0 ▼	5630	3/12	CL	50	37	26.3	
	▨	CLAY, sandy, brown [A-6 (19)]			4/12	CL	38	25	31.2	
	▨		10	5620	5/12					
	▨				12/12					
	▨		20	5610	18/12					
	▤	23 ft.			50/5					
		Total Depth 29 ft.	30	5600	50/1					
			40	5590						
			50	5580						
			60	5570						

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

* Indicates sampler hit a rock, blow counts may not be indicative of soil density.

KEY TO SYMBOLS

Strata symbols

Symbol	Description
▨	FILL- CLAY, sandy with gravel, stiff to hard, fine to course grained (sand), low to medium plasticity, slightly moist to wet, brown [CL; A-6].
▨	CLAY, with sand to sandy, soft to very stiff, medium to high plasticity, fine to medium grained (sand), moist to wet, slightly calcareous in upper 4 feet, root structures in upper 2 feet, brown [CL-CH; A-6 to A-7-6].
▤	WEATHERED CLAYSTONE, with thin layers of SANDSTONE, weathered, medium to high plasticity, fine grained (sandstone), moist to wet, slightly micaeous, grey to brown [CH; A-7-6].
▤	CLAYSTONE, with thin layers of SANDSTONE, hard to very hard, medium to high plasticity, fine grained (sandstone), moist to wet, slightly micaeous, grey to dark grey [CH; A-7 6]

Misc. Symbols

Symbol	Description
▼	Water table one day after drilling
▽	Water table during drilling

Symbol	Description
C	Depth to caving

Monitor Well Details

Symbol	Description
╤	covered riser
■	bentonite slurry
▨	assorted cuttings
▤	slotted pipe w/ sand
■	endcap on pipe packed in sand
▩	no pipe, filler material

Notes:

1. Exploratory borings were drilled on March 5, 2013 using a 4-inch diameter continuous flight auger with a track mounted CME-45 drill rig.

2. Water was encountered in all borings at the time of drilling. Borings B-1, B-3 and B-5 were backfilled immediately after drilling for safety purposes. Boring B-3 was backfilled with bentonite grout.

3. Piezometers were placed in Borings B-2 down to a depth of 20.5 feet and Boring B-4 down to a depth of 33.5 feet.

4. Original boring locations were determined by Applegate, Inc. Accessibility to some of the locations was not possible with the track drill rig, thus, these borings were drilled as close to the original locations as possible.

5. Elevations and locations were surveyed by Applegate, Inc.

6. 50/11 indicates 50 blows with a 140-pound hammer falling 30 inches were required to drive a modified California barrel sampler 11 inches. * indicates a rock was encountered in the sampler, blow counts may not be indicative of actual soil.

7. These logs are subject to the limitations, conclusions, and recommendations in this report.

Project No. D13.054

Appendix B

Army Corps of Engineers Non-Jurisdictional Wetlands Letter

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
ALBUQUERQUE DISTRICT
Southern Colorado regulatory office
200 S. Santa Fe Avenue, Suite 301
Pueblo, Colorado 81003

January 7, 2013

REPLY TO
ATTENTION OF:

Regulatory Division

SUBJECT: Action No. SPA-2012-00483-SCO, Jurisdictional Determination of Hale Reservoir, Cross Creek Metro District, El Paso County, Colorado

Elizabeth Klein
Kiowa Engineering Corp.
1604 South 21st Street
Colorado Springs, Colorado 80904

Ms. Klein

We received concurrence with the EPA that Hale Reservoir is an isolated waters. We have assigned Action No. SPA-2012-00483-SCO to this activity. To avoid delay, please include this number in all future correspondence concerning this project.

We have reviewed this project in accordance with Section 404 of the Clean Water Act (CWA). Based on your description of the proposed work, other information available to us, and current regulations and policy, we have determined that this project will not involve any of the above activities and the EPA has concurred with this determination. Therefore, it will not require Department of the Army authorization under the above laws. However, it is incumbent upon you to remain informed of any changes in the Corps Regulatory Program regulations and policy as they relate to your project.

If you have any questions concerning our regulatory program, please contact me at 719-543-6915 or by e-mail at van.a.truan@usace.army.mil. At your convenience, please complete a Customer Service Survey on-line available at http://per2.nwp.usace.army.mil/survey.html.

Sincerely,

Van Truan
Chief, Southern Colorado
Regulatory Branch

Appendix C

Hydrology and Hazard Classification Report

Hazard Classification Report

Cross Creek
Metropolitan District

Hazard Classification Report

Hale Dam and Reservoir
Fountain, Colorado

February 2013

AG File No. 12-130

Prepared for:
Cross Creek Metropolitan District
PO Box 1976
Colorado Springs, CO 80901

Applegate Group, Inc.
Water Resource Advisors for the West
1490 W 121st Ave Suite 100
Denver, CO 80234
Phone: 303-452-6611
Fax: 303-452-2759
www.applegategroup.com

TABLE OF CONTENTS

CERTIFICATION

I hereby affirm that this Hazard Classification Report was prepared under my responsible charge, for the owners thereof, and to my knowledge is accurate and adheres to the applicable standards and rules provided by the State of Colorado, Department of Natural Resources, Division of Water Resources, Office of the State Engineer.

STEVEN SMITH
43364

Steven A. Smith
Registered Professional Engineer
State of Colorado P.E. No.: 43364

INTRODUCTION

This Hazard Classification Report for Hale Dam and Reservoir was prepared for the Cross Creek Metropolitan District by Applegate Group, Inc. The dam and reservoir are located approximately 2 miles northeast of Fountain, Colorado. The reservoir is located within the Cross Creek Park owned by the Metro District.

The Cross Creek Metropolitan District is a Title 32 Special District, formed in 2003. The mission of the District is to provide and maintain Parks and Recreation amenities, stormwater improvement, and to install a non-potable water source for irrigation.

The objective of this report is to document the Hazard Classification of Hale Dam. The report was prepared according to recommended procedures outlined in the *Guidelines for Hazard Classification* published by the Colorado Office of the State Engineer (DWR 2010).

This report was authorized by the Cross Creek Metropolitan District.

SITE HISTORY

The original Hale Reservoir (WD 10 ID 3570) is decreed for 18 acre-feet of storage through Case No W1814 adjudicated in 1972. The existing reservoir configuration is approximately 6 acre-feet in size with a dam height of 13.5 feet. This reservoir is considered a minor, low hazard dam.

The Cross Creek Metro District is proposing to enlarge the existing reservoir for flood control and aesthetic purposes. This hazard classification report considers a reservoir capacity of 99 acre-feet with a 15-foot embankment dam. The dam is a minor dam according to Colorado State Engineer's Office Rules and Regulations for Dam Safety and Dam Construction.

SITE CONDITIONS

DRAINAGE BASIN

The basin that contributes to Hale Reservoir is highly developed and a master drainage plan was developed for the area by Kiowa Engineering (2002). This Master Drainage Plan is currently under revision and this report uses the most current hydrologic analysis that will be presented in the updated drainage plan, expected to be submitted to the City of Fountain.

RESERVOIR INFLOW

There are no natural or manmade channels that contribute regular inflows to the reservoir. The reservoir is filled with natural groundwater and a groundwater seep located to the north of the reservoir.

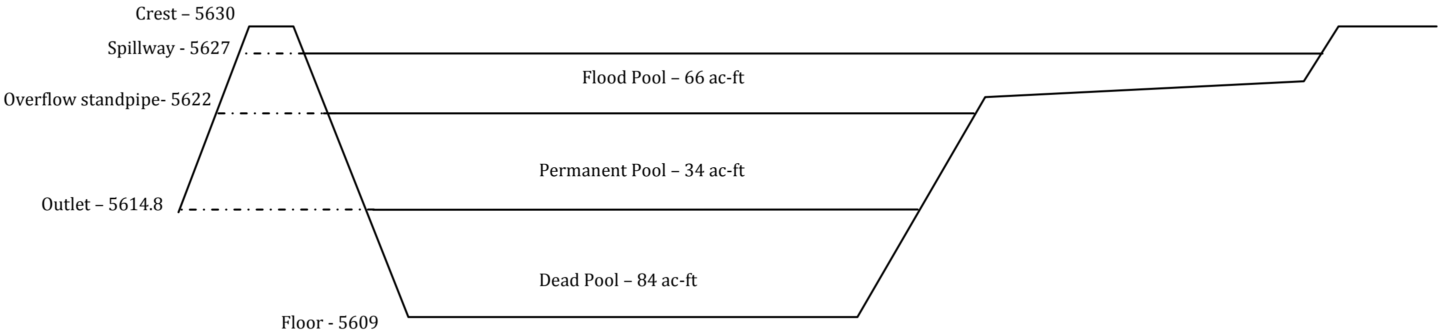
EMBANKMENT CONDITIONS

The existing dam will be completely removed and a new embankment constructed. The proposed Hale Reservoir Dam will be constructed of zoned cohesive earth fill. At this point in the design process a 4:1 side slope on downstream and upstream face of the dam are proposed. These slopes may change after the slope stability analysis has been performed during final design of the embankment.

Soil boring logs were completed in Cross Creek Park by Entech Engineering for the Norwood Development (Entech 2009). These logs show that there are sufficient materials for the majority of the embankment construction, some importation of riprap and bedding for erosion protection could be expected.

RESERVOIR CONDITIONS

As well as serving aesthetic and irrigation purposes in Cross Creek Park, the proposed reservoir will act as a flood control structure capable of attenuating and routing of the 100-year storm. The normal water surface elevation will be maintained at 5,622 with the uncontrolled overflow standpipe. The emergency spillway will be located at an elevation of 5,627. During the 100-year flood event the overflow standpipe will allow for detention of flood waters with minimal outflow until an elevation of 5,627 where the emergency spillway is located. This will allow for 5 feet of flood detention and full spectrum detention of the 100-year storm. The final spillway design will be such that maximum water surface elevation during the 100-year flood will be 2 feet above the emergency spillway crest leaving at least 1-foot of residual freeboard to the crest at 5,630. The HEC-1 file used to determine the flows at Hale Reservoir is included in Appendix F. The outlet works will be located at the base of the embankment at an upstream and downstream embankment elevation of 5618.7 and 5614.8; respectively. The bottom of the reservoir will be at an elevation of 5,609, creating a dead pool of approximately 84 acre-feet. Preliminary plans for the proposed reservoir are provided in Appendix A.



HAZARD CLASSIFICATION

The Colorado State Engineer's Office (SEO) defines a Low Hazard dam as "a dam for which loss of human life is not expected, and significant damage to structure and public facilities as defined for a Significant Hazard dam is not expected to result from failure of the dam." Applegate Group was retained to evaluate the hazard classification of the proposed expansion of Hale Reservoir. Based on the hazard classification analysis described below, it is Applegate Group's recommendation that the expanded Hale Reservoir be classified as a Low Hazard Dam.

HAZARD CLASSIFICATION APPROACH

Applegate Group used the State of Colorado Department of Natural Resources Division of Water Resources (CDWR) document entitled *Guidelines for Hazard Classification* (CDWR 2010) to determine the hazard classification of Hale Dam. The purpose for our hazard classification analysis was to evaluate the impacts of a dam breach on critical locations downstream of Hale Dam. A sunny day breach analysis of the dam was performed to develop expected depths and velocities of dam-failure flows downstream of the dam. The sunny day breach analysis refers to the absence of a precipitation storm event causing the elevation of the reservoir to rise dramatically.

FAILURE MODES CONSIDERED

According to CDWR's *Guidelines for Hazard Classification*, the chosen mode of failure should be the one that produces the largest dam break flood reasonably possible. The two failure modes considered during the Hale Reservoir dam breach analysis were overtopping and piping. Failure of the dam is generally presumed to occur if overtopping of the dam exceeds six inches in depth (Van Sciver 1983), unless a separate overtopping failure analysis of the dam conclusively shows otherwise. Piping failure occurs when the uncontrolled flow of water through and under embankments removes soil particles, leading to failure. Only failure by piping was considered using two methods described below.

GENERAL APPROACH

We used a modified version of the "Advanced" approach listed in Table 1 of the *Guidelines for Dam Breach Analysis* to complete this analysis. According to the *Guidance for Dam Breach Analysis* the following chart was used, with two-dimensional FLO-2D hydraulic modeling used in lieu of one-dimensional HEC-RAS modeling due to concerns with flows through an "S-curve" downstream of C&S Road:

	Dam Breach Parameters	Hydrograph Estimation	Hydrograph Routing	Hydraulics at Critical Locations
Advanced	Empirical Methods	Hydrologic Parametric Model	Unsteady Hydraulic Model	Unsteady Hydraulic Model
Specific Analysis Used	Froehlich and MLM/WA	HEC-RAS	FLO-2D	FLO-2D

CHOICE OF EMPIRICAL METHOD

The Hale Reservoir dam is considered a Minor Dam with a storage volume of 34 acre-feet (permanent pool) + 66 acre-feet flood pool and a dam height of 15 feet. The water surface elevation on a sunny day breach would be at 5,627 resulting in 12.2 feet of water above the base of the dam at 5614.8 and 99 acre-feet of storage. The intake of the outlet will be located at 5618.7, but the base of the breach is assumed conservatively to be 5614.8 at the invert of the downstream end of the outlet pipe. This results in a Storage Intensity of 8.1 (Medium), according to Table 3, in the Guidelines for Dam Breach Analysis, the MacDonald & Langridge-Monopolis (MLM) method is appropriate with Washing State failure method (WA) for the breach time.

For further verification of the use of the MLM-WA method used to calculate breach parameters, breach parameters were validated using the methods described in the SEO's Guidelines for Dam Breach Analysis (SEO Guidelines). Breach parameters for the Froehlich and MLM-WA methods were compared, with the following results:

- Linear erosion rates for the Froehlich and MLM-WA methods were within the acceptable range suggested in the SEO guidelines.
- The ratios of breach width to height of water were acceptable for both methods.
- Velocity at breach formation time for the MLM-WA method (2.6 ft/sec) was less than velocity at breach formation time for the Froehlich method (6.4 ft/sec). According to the SEO guidelines, "when comparing two methods, the method that yields the smallest velocity at the final breach configuration is probably the most appropriate method." Based on this velocity criterion, the MLM-WA method is the appropriate method to calculate breach parameters.

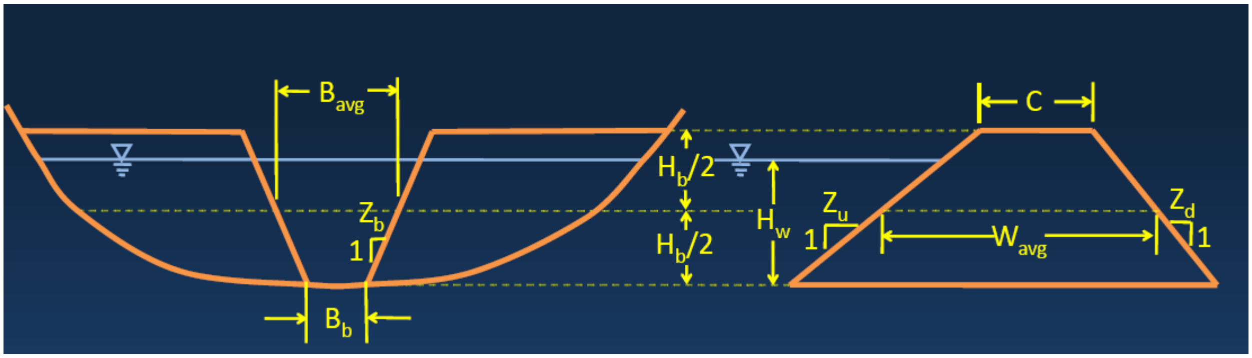
We are comfortable with the conservatism included in this analysis to determine the breach flows. Although the storage capacity of 99 acre-feet is very close to the upper limit of a minor dam (100 acre-feet), additional conservatism exists in other aspects. The water surface will normally be maintained at a much lower level, creating the permanent pool of only 34 acre-feet with flood storage above that. SEO regulations require that the breach is modeled with the water surface at the top of the flood storage pool; although on a sunny day it will more likely be maintained at the top of the permanent pool. Also the maximum height for a minor sized dam is 20 feet, and this dam is only 15 feet high with only 12.2 feet of water above the breach. Additional conservatism exists in the design of this embankment with 4:1 side slopes. All of these factors and the rationale for choosing the MLM-WA method listed above show that the approach taken here is conservative and appropriate for this dam.

An additional base flow was added to the breach model to simulate flows exiting the standpipe spillway. When the water surface is at the spillway elevation (5,627) flows from the standpipe overflow are estimated to be 14 cfs. This base flow was added to the model, but does not have a significant impact due to the low flow rate.

BREACH PARAMETER ENVELOPE COMPARISON

DAM BREACH PARAMETERS

The figure below explains the parameters used to define the dam breach.



H_b: Height of Breach
B_{avg}: Average Breach Width
Z_b: Breach Side Slope
B_b: Breach Bottom Width
Z_u & Z_d: Upstream and Downstream Dam Slopes
H_w: Height of Water
C: Crest Width

W_{avg}: Average Dam Width
Breach Definitions:
T_f: Breach Development Time
BFF = H_wV_w: Breach Formation Factor
SI = V_w/H_w: Storage Intensity
V_{er}: Volume Eroded
ER = B_{avg}/T_f: Erosion Rate
A_s: Reservoir Surface Area

The following table summarizes the inputs that are common to all methods and used in the analysis.

$H_w =$	12.2	Feet
$V_w =$	99.4	Acre-Feet
$S_a =$	14.4	Acres
C =	25.0	Feet
$H_b =$	15.2	Feet
$Z_u =$	4.0	Z(H):1(V)
$Z_d =$	4.0	Z(H):1(V)
$Z_b =$	1.0	Z(H):1(V)
$C_p =$	0.70	Used To Calculate Peak Discharge Through Piping Hole

Appendix B summarizes the assumptions and calculations made with the MLM/WA method. Guidance from the SEO indicates that MLM-WA is the most appropriate method for the size of this dam. When comparing the breach widths and formation times resulting from the two methods, the MLM/WA is most appropriate based on the verification methods suggested by the SEO guidelines. Therefore we will only consider the MLM-WA method piping dam breach parameters in further analysis.

Method	**Failure Mode**	**Breach Side Slopes**	**Breach Bottom Width, B_b** *(ft)*	**Formation Time, T_f** *(hours)*	**Predicted Peak Flow, Q_p** *(cfs)*	**Peak Velocity at T_f** *(ft/sec)*
MLM-WA	Piping	1	0.8	0.39	2781	2.6
Froehlich	Piping	0.7	34.5	0.46	4720	6.4

DEVELOPMENT OF HYDROGRAPH

Using HEC-RAS Version 4.1 a hydrograph was estimated using a sine-wave estimation based on the selected dam breach parameters. The breach was set to begin formation 5 minutes after the start of the model.

DOWNSTREAM CHANNEL CONDITIONS/ROUTING

HEC-RAS was used to determine the breach hydrograph, based on the MLM-WA breach parameters and an assumed piping breach. The breach hydrograph was then input to FLO-2D, and two-dimensional inundation modeling was completed to determine flow depths and velocities downstream of Hale Reservoir. LiDAR data obtained from El Paso County was used as the basis for the topography for the two-dimensional model. Cross-section data surveyed by Rockwell Consulting in 2009 and Clark LS in the Fall of 2011 were used to determine the geometry of the existing channel and culvert downstream of Hale Reservoir.

There is a well-defined, constructed channel downstream of Hale Reservoir on the south side of C & S Road. The Manning's n of the entire channel length is assumed to be 0.04 which according to FHWA HEC No 22 is conservative and appropriate for the material in the channel. The first 1,200 feet is rip rap lined and the last 1,500 feet is a grass lined channel before joining with the natural channel of Jimmy Camp Creek. The photographs below show the typical channel.

Typical rip-rap lined channel

Typical grass lined channel

The actual peak breach discharge determined from the HEC-RAS model was approximately 940 cfs; the modeled peak discharge is less than anticipated by the MLM-WA methodology, which is expected given the conservative nature of the empirical methodology. Results of the HEC-RAS and FLO-2D models are included in Appendix C-E, including cross sections, inundation plan, a breach discharge hydrograph, and the associated output data. The HEC-RAS and FLO-2D model input files have also been submitted with this report on a CD in Appendices F.

ASSESSMENT OF HAZARDS AT CRITICAL LOCATIONS

As discussed below, there are no areas where flow depth and velocity exceed SEO's thresholds for loss of human life or significant property damage. Thus, it is Applegate Group's opinion that the Hale Dam Breach analysis results support a Low Hazard Classification.

HAZARD NORTH OF C&S ROAD

There are not structures between the proposed dam and C&S Road. Out-of-channel inundation with a maximum depth of 1-foot and maximum flow velocity of 2.2 feet per second would occur north of C&S Road. These flows do not present a hazard, especially considering lack of structures north of C&S Road.

HAZARD AT C & S ROAD

There would be no hazard at C&S Road considering that flows would not overtop C&S Road during a dam breach. Flows would be conveyed through the existing 12' x 6' box culvert that passes flow under C&S Road approximately 450 feet downstream of the proposed dam.

HAZARD SOUTH OF C&S ROAD

The structures south of C&S Road include a church/daycare, and several homes in the Heritage Filing No. 12 neighborhood south of C&S Road. Location of these structures can be seen in the plan view of the inundation area in Appendix E. Flow would be conveyed within the existing channel south of C&S Road, preventing any hazard to the existing structures south of the road.

REFERENCES

DWR (2010), “Guidelines for Hazard Classification”, Colorado Division of Water Resources, November 15, 2010.

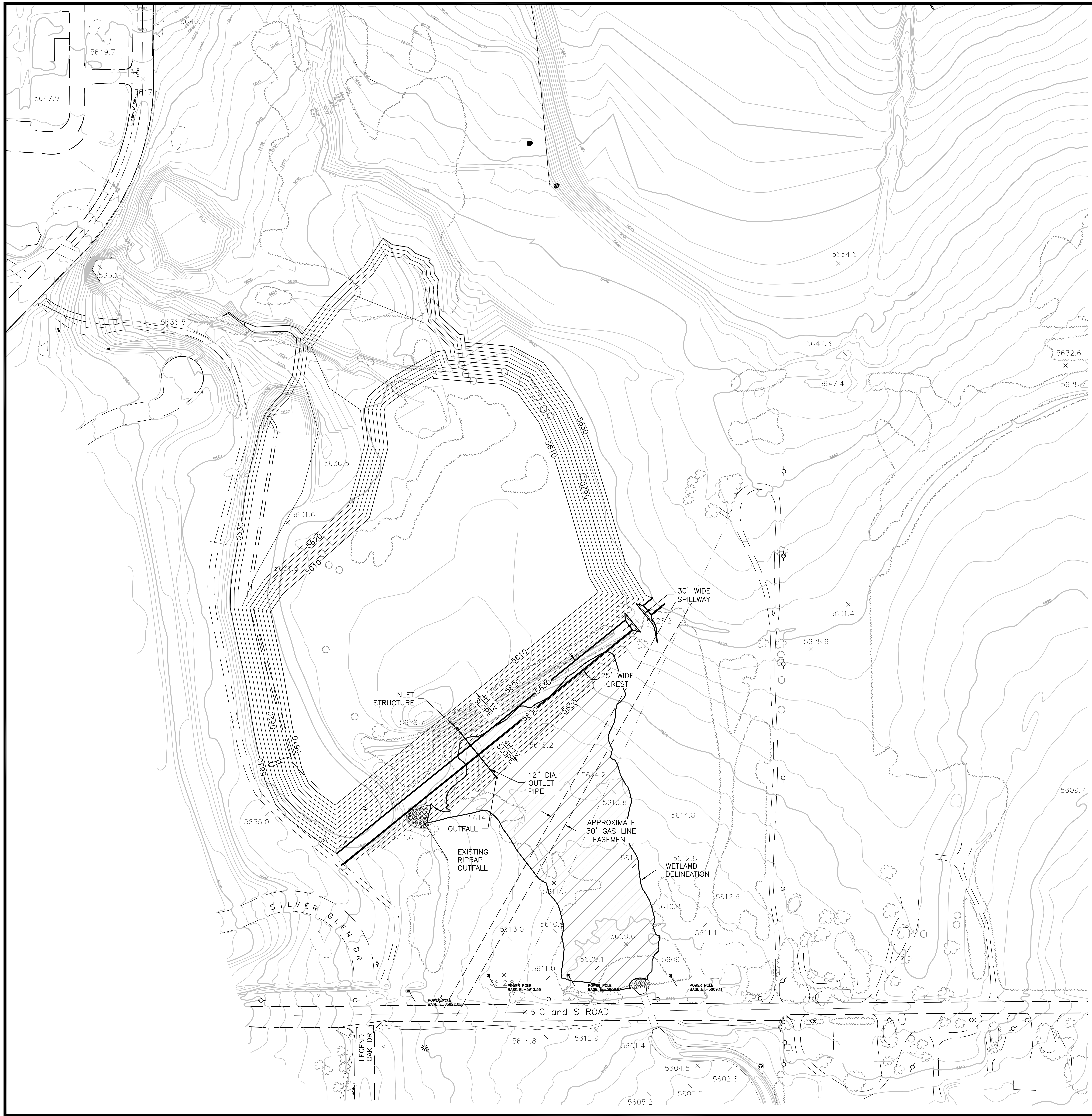
DWR (2007), “Rules and Regulations for Dam Safety and Dam Construction”, Colorado Division of Water Resources, January 1, 2007.

DWR (1994), “Dam Safety Project Review Guide”, Colorado Division of Water Resources, Dam Safety Branch, September 23, 1994.

Entech (2009) Boring Logs for Cross Creek Park, Fountain, CO Entech Engineering Inc. February 19, 2009.

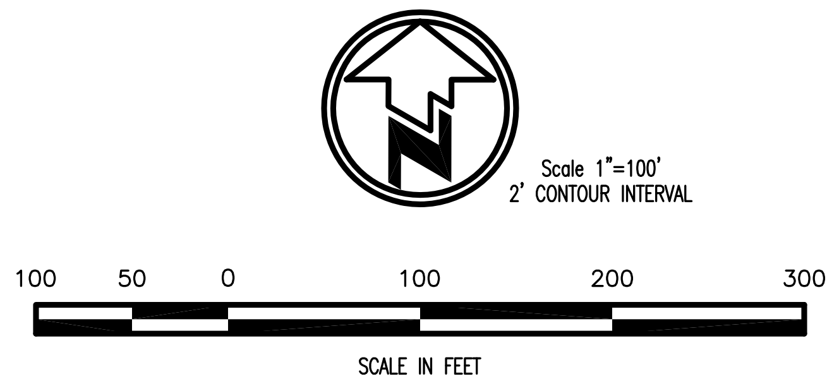
Kiowa (2002) “Master Development Drainage Plan Update Cross Creek Development”, Kiowa Engineering Corporation, May 7, 2002

APPENDIX A: PLANS OF THE PROPOSED RESERVOIR



	ELEVATION	AREA	STORAGE	STORAGE
	(ft)	(ac.)	(ac-ft)	(ac-ft)
Dead Storage	5,609	7.5	0.0	84.0
	5,610	7.7	7.6	
	5,611	8.0	15.5	
	5,612	8.2	23.6	
	5,613	8.4	31.9	
	5,614	8.6	40.4	
	5,615	8.9	49.2	
	5,616	9.1	58.1	
	5,617	9.4	67.4	
	5,618	9.6	76.9	
	5,618.74	9.8	84.0	
Active Storage	5,619	9.8	86.6	33.6
	5,620	10.1	96.5	
	5,621	10.3	106.7	
	5,622	11.4	117.6	
Flood Storage	5,623	12.3	129.4	65.8
	5,624	12.9	142.1	
	5,625	13.5	155.3	
	5,626	14.2	169.1	
	5,627	14.4	183.4	
Free-board	5,628	14.7	198.0	44.7
	5,629	15.0	212.9	
	5,630	15.4	228.1	

PRELIMINARY NOT FOR CONSTRUCTION



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HAZARD CLASSIFICATION REPORT

SITE PLAN

CROSS CREEK METRO DISTRICT HALE RESERVOIR

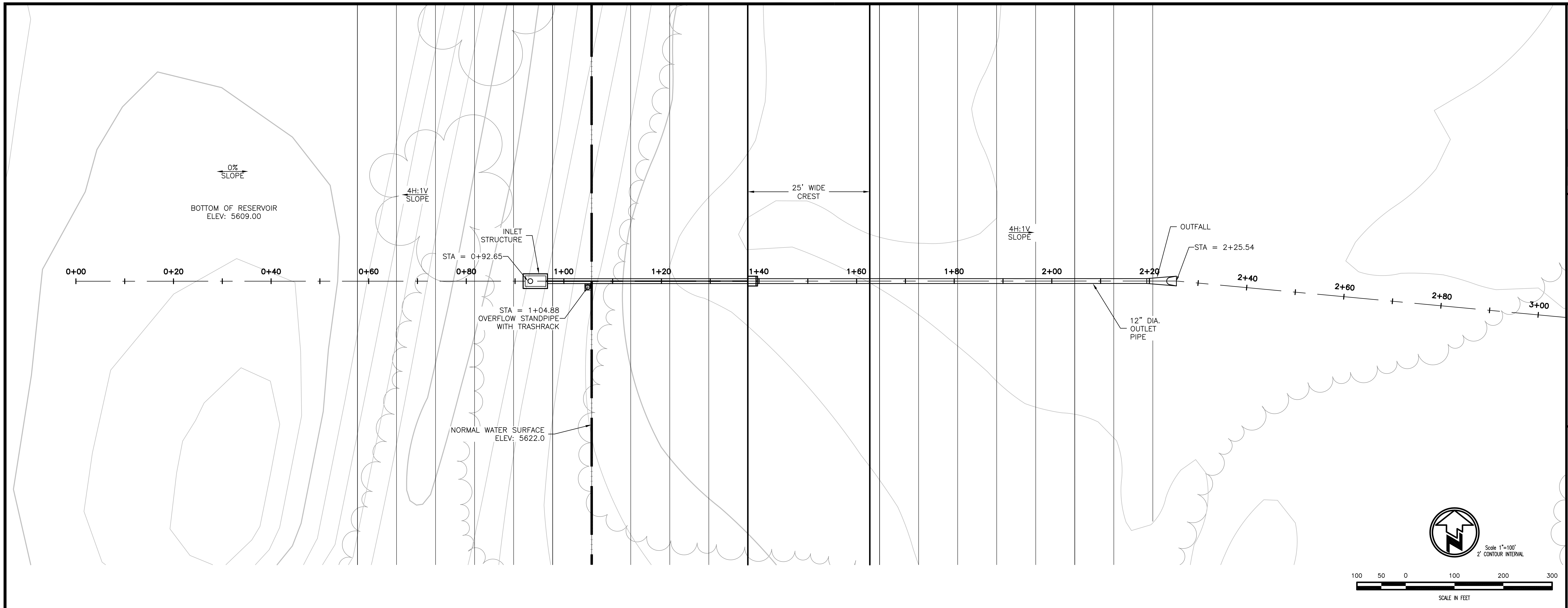
NO	DATE	BY	CHK'D	DESCRIPTION
4	02/27/13	LLD	SS	*Minor Dam*
3	06/18/12	LLD	LG	*Update Inundation*
2	04/24/12	LLD	LG	*Revisions*
1	03/27/12	LLD	LG	*Revised Dam Grading, Add Wetland Delineation*

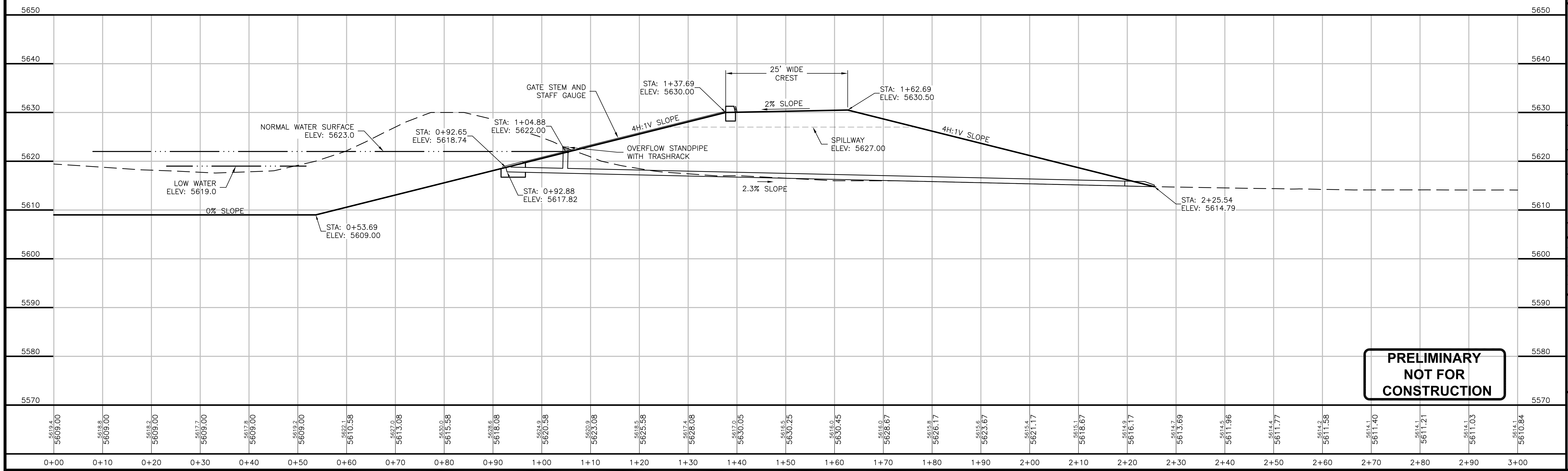
REVISIONS

Date: 01/12/12
Job No: 11–113
Drawn: LD
Design: LG
Checked:
Scale: 1" = 100'

Sheet: 1
Of:

Plot Date: 02/27/13–4:11pm, Plotted by:Luke Downing, Drawing Path: N:\11113 Cross Creek – Hale Reservoir\Drawings\Plan Set\Hazard Report\Drawing Name:Hale Creek Hazard 01 Minor Site.dwg





0+00	5619.4	5609.00
0+10	5618.8	5609.00
0+20	5618.2	5609.00
0+30	5617.7	5609.00
0+40	5617.8	5609.00
0+50	5619.2	5609.00
0+60	5622.1	5610.58
0+70	5627.0	5613.08
0+80	5630.0	5615.58
0+90	5628.6	5618.08
1+00	5624.9	5620.58
1+10	5620.9	5623.08
1+20	5618.5	5625.58
1+30	5617.4	5628.08
1+40	5617.0	5630.05
1+50	5616.5	5630.25
1+60	5616.0	5630.45
1+70	5616.0	5628.67
1+80	5615.8	5626.17
1+90	5615.6	5623.67
2+00	5615.4	5621.17
2+10	5615.1	5618.67
2+20	5614.9	5616.17
2+30	5614.7	5613.69
2+40	5614.5	5611.96
2+50	5614.4	5611.77
2+60	5614.2	5611.58
2+70	5614.1	5611.40
2+80	5614.1	5611.21
2+90	5614.1	5611.03
3+00	5614.1	5610.84

**PRELIMINARY
NOT FOR
CONSTRUCTION**

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HAZARD CLASSIFICATION REPORT

OUTLET PLAN and PROFILE

CROSS CREEK
METRO DISTRICT
HALE RESERVOIR

NO	DATE	BY	CHK'D	DESCRIPTION
4	02/27/13	LLD	SS	*Minor Dam*
3	06/18/12	LLD	LG	*Update Inundation*
2	04/24/12	LLD	LG	*Revisions*
1	03/27/12	LLD	LG	*Revised Dam Grading,* *Add Wetland Delineation*

REVISIONS

Date:	01/12/12
Job No:	11–113
Drawn:	LD
Design:	LG
Checked:	
Scale:	1" = 100'

Sheet:

Of:

APPENDIX B MLM-WA BREACH HYDROGRAPH INPUT & OUTPUT

Dam Configuration:

- Crest = 5630’, spillway = 5627’
- Standpipe outlet = 5622’
- Outlet invert (upstream) = 5618.74’, outlet invert (downstream) = 5614.79’
- Jurisdictional height = 12.2 feet (5627 - 5614.79)

MLM-WA Input

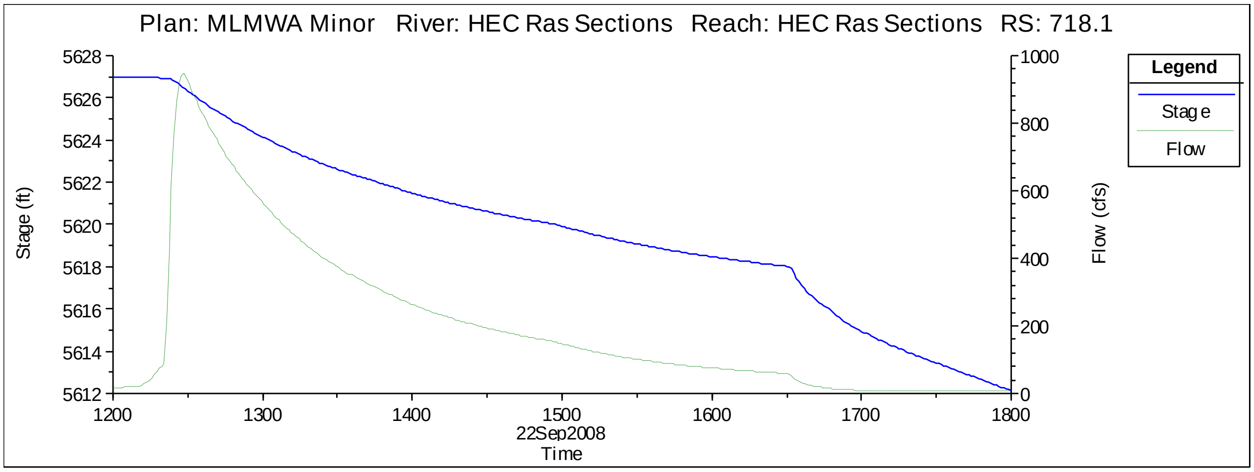
Parameter	Value
Embankment type	Earthen (cohesive)
Height of water over breach base (Hw)	5627-5614.8 = 12.2 ft
Volume of water at time of failure (Vw)	99.4 ac-ft
Surface area at Hw (Sa)	14.4
Crest width (C)	25
Breach height (Hb)	5630-5614.8 = 15.2
Slope upstream face (Zu)	4
Slope downstream face (Zd)	4
Breach side-slope ratio (Zb)	1
Piping orifice coef (Cp)	0.7
Dam size class	Minor

MLM-WA Output

Characteristic	Value
Breach formation factor (BFF)	1213.674
Embankment volume (Ver)	773.6 cu yd
Average dam width (Wavg)	85.8 ft
Average breach width (Bavg)	16.0 ft
Bottom width of breach (Bb)	0.8 ft
Breach formation time (Tf)	0.39 hr
Storage intensity (SI)	8.1
Predicted peak (Qp)	1,751 cfs

APPENDIX C: BREACH HYDROGRAPH FROM HEC-RAS

Hydrograph of the breach at the dam:



APPENDIX D: FLO-2D MODEL PARAMETERS

- 10-ft grid cells
- Main channel
    - Trapezoidal
    - 6-ft depth
    - 15-ft width
    - 2H:1V side slopes
    - n=0.03
- West-East channel north of neighborhood
    - Rectangular
    - 1.2-ft depth
    - 2.5-ft width
    - n=0.04
- Overland flow
    - Pavement n=0.02
    - Grass n=0.045
- Road modeled as overland flow
- Components modeled
    - Main channel
    - Area width reduction factors (ARF) for houses
    - Hydraulic structures for C&S culvert (including depth-Q curve)

APPENDIX E: FLO-2D RESULTS

Plan View of Inundation Area

Maximum Out-of-Channel Flow Depths

Maximum Out-of-Channel Flow Velocities

Maximum Out-of-Channel Hazard Classification

APPENDIX F: CD WITH HEC-RAS, HEC-1, AND FLO-2D MODELS

Hydrology Report

Cross Creek Metropolitan District

Hydrology Report

Hale Dam and Reservoir
Fountain, Colorado

October 2013

AG File No. 12-130

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Prepared for:
Cross Creek Metropolitan District
PO Box 1976
Colorado Springs, CO 80901

TABLE OF CONTENTS

CERTIFICATION

I hereby affirm that this Hydrology Report was prepared under my responsible charge, for the owners thereof, and to my knowledge is accurate and adheres to the applicable standards and rules provided by the State of Colorado, Department of Natural Resources, Division of Water Resources, Office of the State Engineer.

Steven Smith

Steven A. Smith
Registered Professional Engineer
State of Colorado P.E. No.: 43364

INTRODUCTION

This Hydrology Report for Hale Dam and Reservoir (WD 10 ID 3570) was prepared for the Cross Creek Metropolitan District by Applegate Group, Inc. The proposed dam and reservoir are located in the Southeast ¼ of the Southeast ¼ of Section 29, Township 15 South, Range 65 West. The reservoir is located within the Cross Creek Park owned by the Metro District, which is approximately two miles northeast of Fountain, Colorado.

The Cross Creek Metropolitan District is a Title 32 Special District, formed in 2003. The mission of the District is to provide and maintain Parks and Recreation amenities, stormwater improvement, and to install a non-potable water source for irrigation.

The objective of this report is to determine the inflow design flood (IDF) for sizing the spillway for the proposed Hale Reservoir dam, and to determine how the proposed Hale Dam would attenuate the IDF. A secondary objective is to demonstrate stormwater detention capabilities of the proposed dam. The report was prepared according to recommended information outlined in the *Rules and Regulations for Dam Safety and Construction* published by the Colorado Office of the State Engineer (DWR 2007).

This report was authorized by the Cross Creek Metropolitan District.

SITE HISTORY

The original Hale Reservoir (WD 10 ID 3570) is decreed for 18 acre-feet of storage through Case No W1814 adjudicated in 1972. The existing reservoir configuration is approximately 6 acre-feet in size with a dam height of 13.5 feet. This reservoir is considered a minor, low hazard dam.

The Cross Creek Metro District is proposing to enlarge the existing reservoir for flood control and aesthetic purposes by replacing the existing dam. This hydrology report considers a dam with a jurisdictional height of approximately 15 feet, a dead pool of 84 acre-feet, a permanent pool above the outlet works of 33.6 acre-feet, and a flood pool of 65.8 acre-feet.

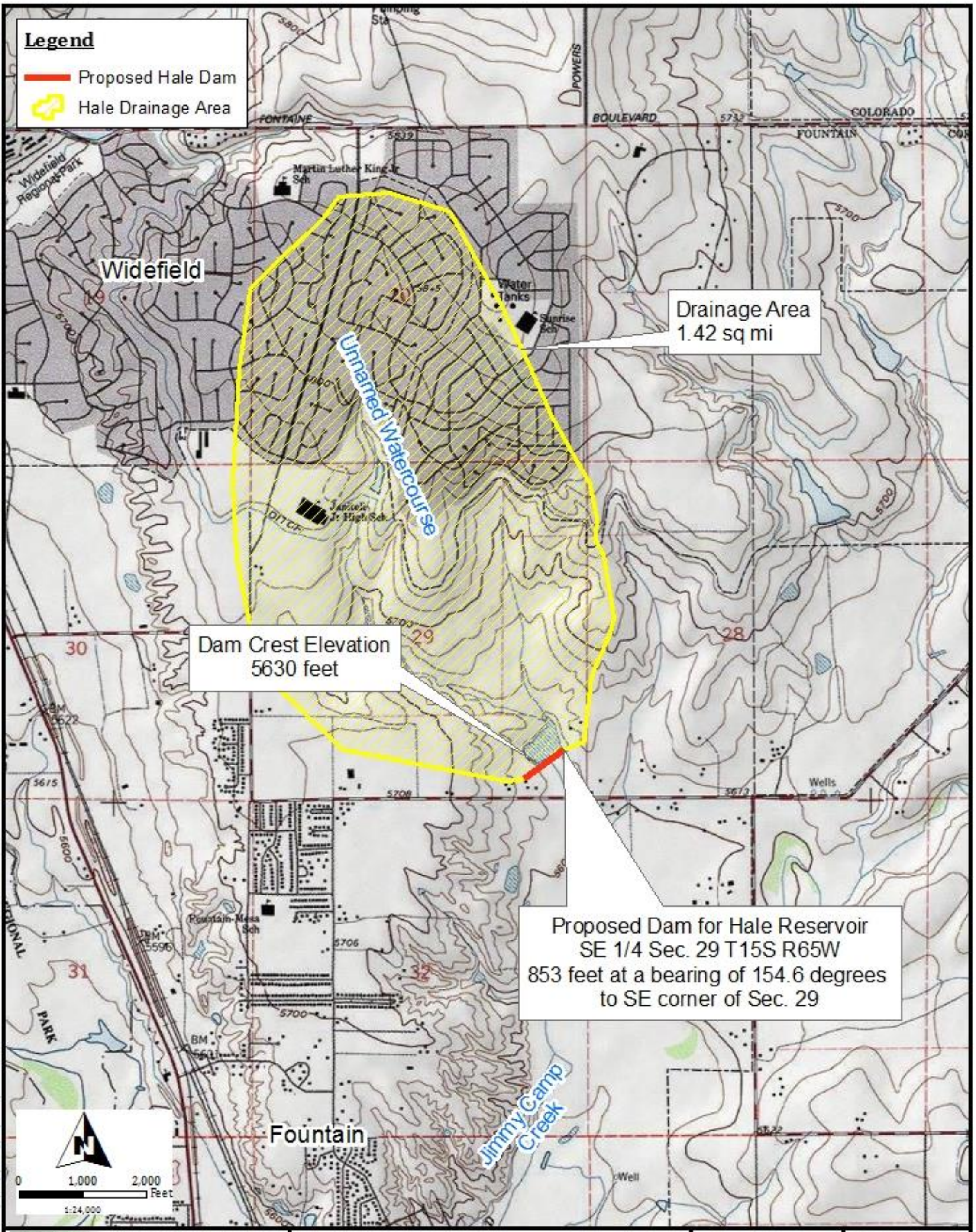
SITE CONDITIONS

PROPOSED DAM

The proposed replacement dam will be located in the Southeast ¼ of Section 29, Township 15S, Range 65W (**Figure 1**). The southeast corner of Section 29 is located 853 feet at a bearing of 154.6 degrees clockwise from north from Station 0+00 on the dam. **Table 1** shows the area-capacity curve for the proposed reservoir. Note that the elevation of the standpipe outlet will be 5,622 feet, the spillway crest will be at an elevation of 5,627 feet, and the dam crest will be at an elevation of 5,630 feet.

Table 1. Area-Capacity Curve for the Proposed Hale Dam

	ELEVATION (ft)	AREA (ac.)	STORAGE (ac-ft)
Dead Storage	5,609	7.5	0.0
	5,610	7.7	7.6
	5,611	8.0	15.5
	5,612	8.2	23.6
	5,613	8.4	31.9
	5,614	8.6	40.4
	5,615	8.9	49.2
	5,616	9.1	58.1
	5,617	9.4	67.4
	5,618	9.6	76.9
	5,618.74	9.8	84.0
Active Storage	5,619	9.8	86.6
	5,620	10.1	96.5
	5,621	10.3	106.7
	5,622	11.4	117.6
Flood Storage	5,623	12.3	129.4
	5,624	12.9	142.1
	5,625	13.5	155.3
	5,626	14.2	169.1
	5,627	14.4	183.4
Free-board	5,628	14.7	198.0
	5,629	15.0	212.9
	5,630	15.4	228.1



Drainage Area
1.42 sq mi

Dam Crest Elevation
5630 feet

Proposed Dam for Hale Reservoir
SE 1/4 Sec. 29 T15S R65W
853 feet at a bearing of 154.6 degrees
to SE corner of Sec. 29

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HALE RESERVOIR
Hydrology Report
Topographical Map

Date: 18 Mar 2013
Job #: 12-130
Drawn By: SAS

Figure:
1
Of: 1

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Path: R:\12130 Hale Reservoir\Drawings\GIS\Hydrology Report Map 2.mxd

DRAINAGE BASIN

The basin that contributes to the proposed Hale Reservoir is approximately 1.42 square miles of highly developed land. A master drainage plan was developed for the area by Kiowa Engineering (2002). The Master Drainage Plan is currently under revision and this Hydrology Report uses the most current hydrologic analysis that will be presented in the updated drainage plan, expected to be submitted to the City of Fountain.

BASIN RESPONSE FACTORS

The basin contributing to the proposed reservoir has an overall slope of approximately 2.5 percent. The weighted curve number for the basin is 79.7 (Kiowa Engineering 2002). The basin is 38 percent impervious based on an area-weighted calculation using the most current aerial photography and the Urban Drainage Flood Control District Drainage Criteria Manual (UDFCD 2008). Based on a March 2013 geotechnical investigation, surficial geology consists of sandy clay, soft to very stiff, with medium to high plasticity. Vegetative cover varies from non-native bluegrass lawns, to native vegetation including prairie grass and wetland plant species.

Applegate Group used the Mesa Ridge Master Plan hydrologic model (Kiowa Engineering 2013) to simulate runoff in the Hale Reservoir basin. This model incorporates the current development conditions in the basin, and includes the following key basin response parameters:

- Total drainage area to Hale Reservoir: 1.42 mi^2
- 4.4 inches of basin-average precipitation for the 100-year storm
- Area-weighted curve number of 79.7
- Initial abstraction calculated for each individual sub-basin as 0.2*(1000-10*CN)/CN
- Kinematic wave channel routing using a trapezoidal channel shape
- Time increment of 5 minutes in hydrograph and channel routing

RESULTS

FULL SPECTRUM STORAGE

Hale Reservoir will be designed for full-spectrum storage, including detention time for excess urban runoff volume (EURV) and a maximum 100-year flow rate downstream of the dam not to exceed the historical 100-year flow rate (UDFCD 2008). Full-spectrum storage requirements were calculated using Urban Drainage and Flood Control District's spreadsheet for full-spectrum storage (UDFCD 2013) and are shown in **Table 2**. Of the total 1.42 mi^2 drainage area to Hale Reservoir, a drainage area of 0.77 mi^2 was used to calculate full-spectrum storage requirements for Hale Reservoir. The additional 0.65 mi^2 drainage area was not used in the full-spectrum calculations, because three existing full-spectrum storage ponds upstream of Hale Reservoir already account for that portion of the total Hale Reservoir drainage area (personal communication with Kiowa Engineering re Mesa Ridge Master Plan, March 20, 2013). The water quality control volume (WQCV) was determined to be 7.9 acre-feet using the UDFCD "UD-Detention_v2.32.xlsm" spreadsheet. Routing of the EURV and WQCV was completed using the Mesa Ridge Master Plan hydrologic model (Kiowa Engineering 2013), and using the following assumptions:

- Starting water surface elevation of 5,622 feet at the standpipe outlet
- The standpipe outlet unplugged and capable of discharging the EURV and WQCV based on the discharge rating curve shown below in **Table 3**

Table 2. Full-Spectrum Storage Calculations for Hale Reservoir

	Required Detention Storage		Simulated Detention for Hale Reservoir		
Storage Requirement	Watershed Inches	Acre-Feet	Detention Time (hrs)	Max Discharge (cfs)	Max WSEL (feet)
EURV	0.44	18	38 hours	16 cfs	5623.5
WQCV	0.19	8	29 hours	7.1 cfs	5622.7

There would be an approximate 52-hour detention time for the WQCV, which meets the UDFCD minimum of 12 to 40 hours detention time for the WQCV. There would be an approximate 70-hour detention time for the EURV (**Figure 3**), which is within the 72-hour maximum detention time allowed by the State Engineer's Office. The proposed dam configuration meets the excess urban runoff flow control requirements prescribed by UDFCD (UDFCD 2008, Section 3.2.5).

The peak discharge for full-spectrum Hale Reservoir for a range of recurrence intervals from 2-year to 100-year would be less than the pre-development conditions (**Figure 2**). Pre-development maximum discharge values were calculated based on UDFCD's maximum allowable unit release rates for on-site facilities (UDFCD Drainage Criteria Manual Volume 2, p. SO-8). Two-hour rainfall depths were calculated by using the UDFCD spreadsheet "UD-Rain_v1.01.xlsm" to convert 6-hour and 24-hour precipitation values from NOAA Atlas 2 Volume 3. Two-year peak discharge from the full-spectrum Hale Reservoir was simulated with the Mesa Ridge Master Plan HEC-1 hydrologic model.

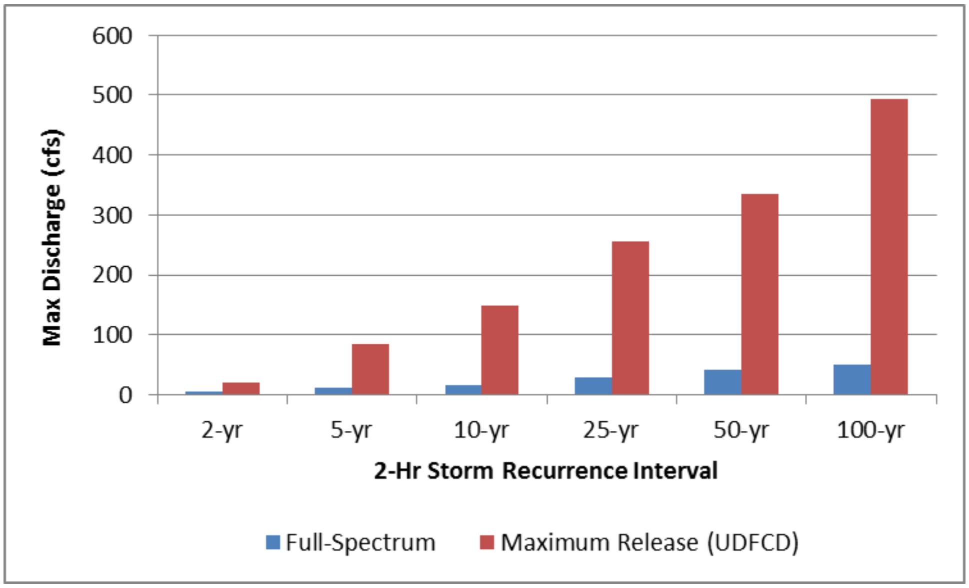

Figure 2. Two-Hour Storm Maximum Discharge

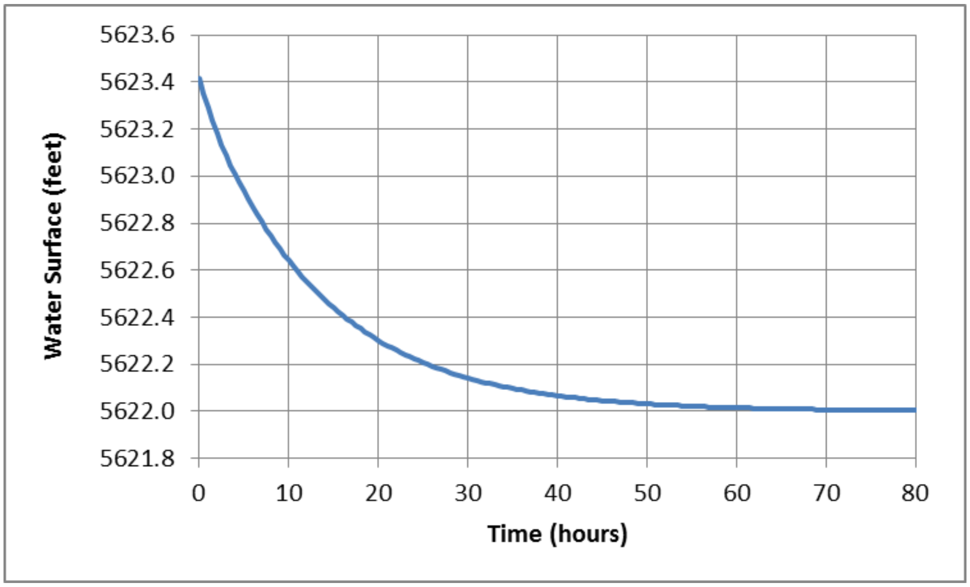

Figure 3. Excess Urban Runoff Volume Drawdown Calculation[1]

[1] Excess Urban Runoff Volume drawdown calculated as the time to drain EURV of 18 ac-ft down to the primary standpipe outlet elevation of 5622 feet.

HYDROLOGIC PARAMETERS FOR DESIGN FLOOD

The inflow design flood (IDF) would be the 50-year flood according to the State's Rules and Regulations for Dam Safety and Dam Construction. The IDF was routed through Hale Reservoir with the following assumptions:

- Starting water surface elevation of 5,622 feet at the standpipe outlet
- The standpipe outlet plugged and incapable of discharging water from Hale Reservoir (i.e., all discharge would be through the primary spillway)

The 50-year precipitation would be 3.9 inches over a 24-hour period based on the NOAA Precipitation Frequency Atlas of Western U.S. Volume III (1973). This 3.9-inch 50-year event was routed through the hydrologic model developed for the Master Drainage Plan (Kiowa Engineering 2002). **Figure 4** shows the cumulative rainfall distribution used for the 50-year precipitation event, which was based on the precipitation distribution in the Mesa Ridge Master Plan hydrologic model.

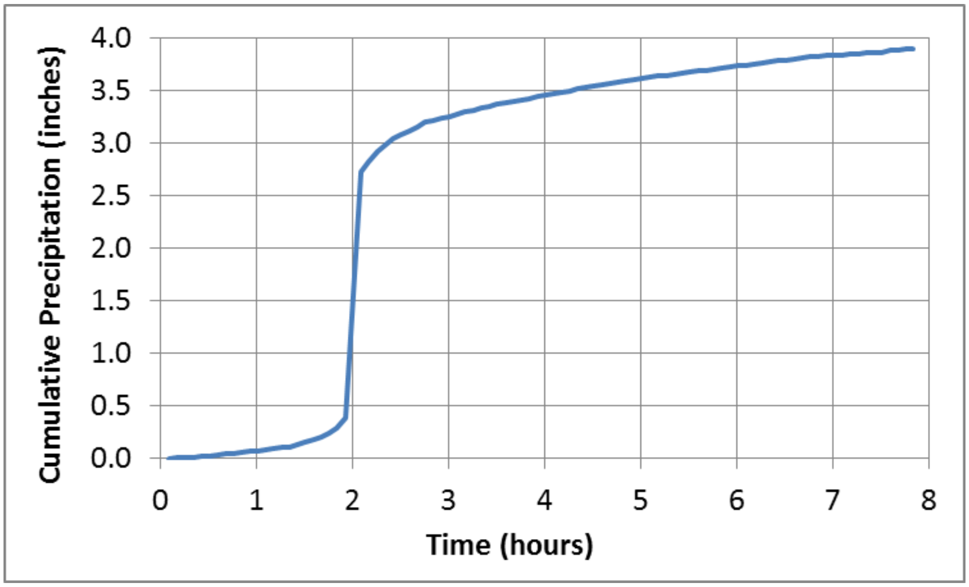

Figure 4. Cumulative Precipitation for the 50-Year Event

OUTLET AND SPILLWAY DISCHARGE

The preliminary Hale Reservoir design includes a 2-foot diameter standpipe outlet for draining regular flows (e.g., EURV and WQCV), and a 45-foot wide spillway for higher flows such as the IDF. Equations used for determining the discharge rate from the proposed dam are:

- Orifice flow for standpipe discharge: $Q(cfs) = D^2 * \frac{\pi}{4} * C_d * \sqrt{2 * g * h}$
- Weir flow for spillway (broad-crested weir): $Q(cfs) = C_S * W * H^{1.5}$

where:
D=standpipe diameter (2.0 feet)
C_d=coefficient of discharge (0.6)
g=gravitational acceleration (32 ft/sec^2)
h=height of water above top of standpipe
C_s=spillway coefficient (3.3 ft$^{0.5}$/sec)
W=width of weir (45 feet)
H=height of water above weir crest

The resulting Hale Reservoir stage-discharge curve is summarized in **Table 3** and **Figure 5**.

Table 3. Discharge Rating Table

Water Surface Elevation	Discharge (cfs)			
	Outlet	Standpipe	Spillway	Spillway plus Standpipe
5618	0	0	0	0
5619	0.4	0	0	0
5620	6	0	0	0
5621	14	0	0	0
5622	24	0	0	0
5623	28	4	0	4
5624	32	12	0	12
5625	36	22	0	22
5626	39	27	0	27
5627	42	31	0	31
5628	45	35	149	184
5629	48	38	420	458
5630	50	41	772	813

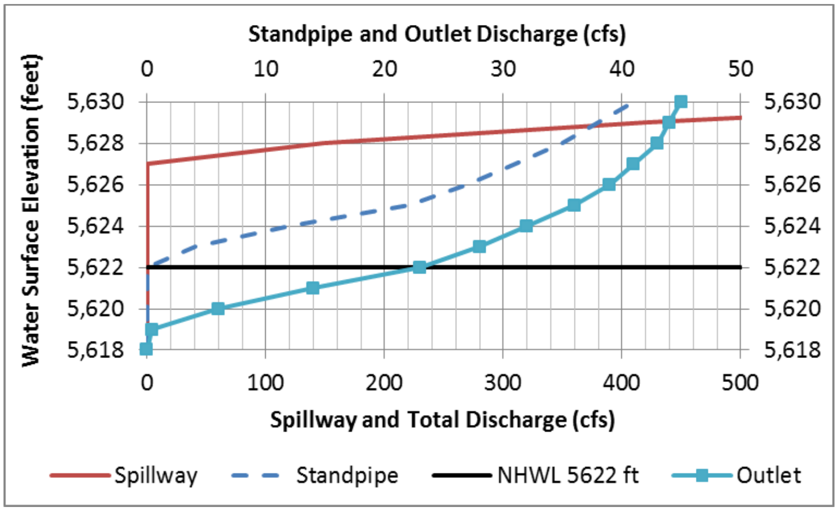

Figure 5. Stage-Discharge Curve

IDF ROUTING RESULTS

The 50-year IDF for Hale Reservoir was calculated with the Mesa Ridge Master Plan hydrologic model (Kiowa Engineering 2013), and results are summarized in **Table 4**. It should be noted that the starting reservoir stage was set to the top of the normal operating pool (5,622 feet) prior to modeling the 50-year IDF, and that the standpipe outlet was conservatively assumed to be clogged and incapable of discharge from the reservoir. The reservoir water surface elevation will be maintained under normal conditions at 5,622 to allow for stormwater detention, which is why a starting elevation at this normal high water level was used for routing the IDF. These starting assumptions are based on personal communication with Colorado State Engineer's Office Dam Safety Branch (John Hunyadi, April 25, 2013). The EURV of 18 acre-feet was not added to the starting reservoir stage, which is consistent with the City of Fountain's policy (personal communication with Duane Greenwood, City Engineer, March 27, 2013).

50-year IDF hydrologic runoff values were determined using the Mesa Ridge Master Plan hydrologic model, with the exception of storm volume, which was calculated as:

$$storm\ volume = (precipitation - initial\ abstration) * basin\ area$$

where
precipitation=3.9 inches
initial abstraction=$0.2 * (1000 - 10 * CN)/CN$
basin area=909 acres (i.e., full area of the Hale Reservoir watershed)
CN=area-weighted curve number (79.7)

The maximum water surface elevation of less than 5,629 feet meets the State Engineer's Office requirement of 1-foot of residual freeboard with the IDF. The IDF residual freeboard of 1.89 feet also leaves room for seven inches of foundation settling and one inch of embankment settling that may occur at the reservoir site based on the wet and fat clays at the site that will be used in dam construction. After the maximum conservative settling of eight inches, residual freeboard for the 50-year IDF would be approximately 1.2 feet. More discussion regarding the embankment and foundation settling will be provided in a separate geotechnical report to be submitted to the State Engineer's Office.

Table 4. 50-Year IDF Hydrologic Runoff

Cumulative 50-Yr IDF Precipitation (inches)	Initial Abstraction (inches)	Storm Volume (acre-feet)	Peak Inflow (cfs)	Peak Discharge (cfs)	Max Water Surface Elevation (feet)
3.9	0.51	257	1,241	178	5628.11

The maximum water surface elevation for the 100-year 24-hour storm would be 5628.64 feet, resulting in 1.36 feet of residual freeboard. The 100-year event was routed assuming a starting water surface elevation equivalent to the normal operating level of the proposed Hale Reservoir (5622 feet), and a plugged standpipe spillway.

SUMMARY

This Hydrology Report for Hale Dam and Reservoir (WD 10 ID 3570) was completed in accordance with the *Rules and Regulations for Dam Safety and Construction* published by the Colorado Office of the State Engineer (DWR 2007). The proposed Hale Reservoir is considered a minor, low hazard dam. The new dam will act as a flood control structure capable of attenuating and routing the IDF of a 50-year storm.

The hydrologic model created for the Mesa Ridge Master Plan (Kiowa Engineering 2013) was used to simulate runoff in the Hale Reservoir basin. Based on hydrologic modeling, the proposed Hale Reservoir will meet the following requirements of both the State Dam Safety Branch and the UDFCD:

- Hale Reservoir will attenuate and route the 100-year storm, as demonstrated with a maximum peak inflow of 1,540 cfs, maximum peak discharge of 322 cfs, and residual freeboard of 1.36 feet.
- Maximum peak discharge during a 100-year event (322 cfs) will be less than the pre-development 100-year peak discharge (539 cfs), and will also be less than the maximum peak discharge as determined using the full-spectrum detention calculations (493 cfs).
- There will be 1.89 feet of residual freeboard during the 50-year peak flow IDF, which meets the SEO minimum residual freeboard of 1-foot. The residual freeboard will also accommodate foundation and embankment settling, and still meet the SEO minimum residual freeboard of 1-foot.

REFERENCES

Kiowa Engineering (2002), “Mesa Ridge Master Plan”

Kiowa Engineering (2013), “Mesa Ridge Master Plan Hydrologic Model”, provided to Applegate Group Inc. on March 7, 2013.

National Oceanographic and Atmospheric Association (NOAA) (1973), “Precipitation Frequency Atlas of Western U.S. Volume III.

UDFCD (2008), “Urban Storm Drainage, Criteria Manual, Volume 2”, Urban Drainage and Flood Control District, Revised April 2008. Pages SO-7 through SO-14.

UDFCD (2013), “UD-Detention_v2.32.xlsm spreadsheet”, Urban Drainage and Flood Control District, Obtained March 9, 2013 from http://www.udfcd.org/downloads/down_software.htm

APPENDIX A: HEC-1 MODEL OUTPUT

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 *                                       *
        *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
        *    U.S. ARMY CORPS OF ENGINEERS     *
 *              JUN   1998               *
        *    HYDROLOGIC ENGINEERING CENTER    *
 *           VERSION 4.1                 *
        *          609 SECOND STREET          *
 *                                       *
        *       DAVIS, CALIFORNIA 95616       *
 *  RUN DATE   30AUG13  TIME  13:30:35   *
        *           (916) 756-1104            *
 *                                       *
        *                                       *
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                                                 X     X  XXXXXXX   XXXXX
XXX



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

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


1                                                                HEC-1 INPUT
                           PAGE  1

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

              1           ID   MESA RIDGE MDDP UPDATE
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             2           ID   PREPARED BY KIOWA ENGINEERING

             3           ID   2, 5, 10 & 100 YEAR STORMS  -  FILENAME: MR8080A.DAT
DEV COND WITH DETENTION
             4           ID   MODIFICATIONS IN THIS RUN:

             5           ID    -  REMOVE DET. BASIN F AND DETENTION BASIN E

             6           ID    -  MODEL DETENTION BASIN D PER KIOWA FSD DESIGN
PROEJCT NUMBER 09061
             7           ID    -  MODEL DETENTION BASIN 8006 TO FULL SPECTRUM
(PROJECT 08041)
             8           ID    -  MODEL  FLOOD STORAGE AT LOCATION OF NEW RESERVOIR
PER APPLEGATE DESIGN
             9           ID    -  MODEL DETENTION BASINS 6002 AND 7006 PER KIOWA
DESIGN PROJECT 11004
            10           ID    -  UPDATE LAND USE FOR BASIN 6010 & SPLIT INTO TWO
BASINS (6010 & 6011)
            11           ID    -  REVISE BASIN 1040 TO REFLECT HISTORIC FLOWS
(PROJECT 09061)
            12           ID    -  REVISE BASINS 6005 & 6001 TO REFLECT ACTUAL
BDY/LAND USE (PROJECT 11004)
            13           ID    -  REVISE BASINS 7005 & 7050 TO REFLECT ACTUAL
BDY/LAND USE (PROJECT 11004)
            14           ID   24HR STORM DURATION

                         *DIAGRAM

            15           IT       5       0       0     250

            16           IO       5


            17           KK   E6001

            18           KM                  RUNOFF FROM BAS E6001

            19           BA   .1120

            20           IN      15

            21           PB     3.9

            22           PC     0.0   .0005   .0015   .0030   .0045   .0060   .0080
  .0100   .0120   .0143
            23           PC   .0165   .0188   .0210   .0233   .0255   .0278   .0320
  .0390   .0460   .0530
            24           PC   .0600   .0750   .1000   .4000   .7000   .7250   .7500
  .7650   .7800   .7900
            25           PC   .8000   .8100   .8200   .8250   .8300   .8350   .8400
  .8450   .8500   .8550
            26           PC   .8600   .8638   .8675   .8713   .8750   .8788   .8825
  .8863   .8900   .8938
            27           PC   .8975   .9013   .9050   .9083   .9115   .9148   .9180
  .9210   .9240   .9270
            28           PC   .9300   .9325   .9350   .9375   .9400   .9425   .9450
  .9475   .9500   .9525
            29           PC   .9550   .9575   .9600   .9625   .9650   .9675   .9700
  .9725   .9750   .9775
            30           PC   .9800   .9813   .9825   .9838   .9850   .9863   .9875
  .9888   .9900   .9913
            31           PC   .9963   .9975   .9988  1.0000
```

```
             32           LS       0      75

             33           UD   .267


             34           KK  DB6002

             35           KM                 ROUTE FLOW FROM SB E6001 THROUGH
DETENTION BASIN 6002
             36           RS       1    STOR       0

             37           SV       0    0.07    0.23    0.43    0.68    0.98    1.33
   1.71    2.13    2.59
             38           SE    5749    5750    5751    5752    5753    5754    5755
   5756    5757    5758
             39           SQ       0       1       1      45      78     101     104
    105     108     155
             40           SE    5749    5753 5754.75    5755  5755.5    5756  5756.5
   5757    5758    5759

             41           KK   R6003

             42           KM               ROUTE DB6002 TO DP6010

             43           RK    1230    .049    .040            TRAP      10       3


             44           KK   E1040

             45           KM                 RUNOFF FROM BAS 1040 (HISTORIC
CONDITIONS)
             46           BA   .0217

             47           LS       0      65

             48           UD    .138

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             49           KK   R1040

             50           KM               ROUTE SB1040 TO DP6010

             51           RK    1025    .043    .030            TRAP      10       4


             52           KK   E6010

             53           KM                 RUNOFF FROM BAS 6010

             54           BA   .0433

             55           LS       0    84.3

             56           UD    .169


             57           KK  DP6010
```

```
              58            KM           COMBINE RUNOFF FROM R1040, R6003 AND
 SUB-BASIN 6010
              59            HC       3

              60            KK   R6004

              61            KM          ROUTE RUNOFF FROM DP 6010 TO DP 6020

              62            RK     225     .02    .013            CIRC     4.5

              63            KK   E6005

              64            KM                 RUNOFF FROM BAS 6005

              65            BA   .0362

              66            LS       0      75

              67            UD    .186

              68            KK   R6005

              69            KM               ROUTE SB6005 TO DP6020

              70            RK     750     .03    .013            CIRC       3

              71            KK   E6020

              72            KM             RUNOFF FROM BASIN 6020

              73            BA     .03

              74            LS       0    86.3

              75            UD     .13

              76            KK  DP6021

              77            KM           COMBINE RUNOFF FROM R6005 AND SUB-BASIN 6020

              78            HC       2

              79            KK   R6021

              80            KM          ROUTE RUNOFF FROM DP 6021 TO DP 6020

              81            RK     250     .03    .013            CIRC       4

              82            KK   E6011

              83            KM                 RUNOFF FROM BAS 6011

              84            BA   .0267

              85            LS       0      80
```

```
              86            UD    .172

              87            KK  DP6020
              88            KO       1
              89            KM                 COMBINE FLOW FROM R6004, R6021, AND
SB6011
              90            HC       3

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

              91            KK  DB6020
              92            KO       1
              93            KM            ROUTE DP6020 THROUGH FSD AS-BUILT DETENTION
BASIN D
              94            RS       1    ELEV  5682.4
              95            SQ       0       2       2      82     215     247     267
              96            SE  5682.4    5684    5686    5688    5690    5692    5694
              97            SV       0    1.13     3.7    5.28    7.13   10.67   14.53

              98            KK   R6025
              99            KM               ROUTE OUTFLOW FROM DB6020 THROUGH E6040
             100            RK    1000    .022    .040            TRAP      10       3

             101            KK   E6040
             102            KM                 RUNOFF FROM BAS 6040
             103            BA    .040
             104            LS       0      88
             105            UD    .191

             106            KK   E6050
             107            KM                 RUNOFF FROM BAS 6050
             108            BA    .037
             109            LS       0    80.7
             110            UD    .139
```

```
            111           KK  DP6040
            112           KM                 COMBINE FLOW FROM R6025, E6040, AND
E6050
            113           HC       3

            114           KK   R6040
            115           KM               ROUTE DP6040 TO DP6050
            116           RK     100     .02    .013            CIRC       6

            117           KK   E6051
            118           KM          RUNOFF FROM SUB-BASIN E6051
            119           BA   0.026
            120           LS       0    80.7
            121           UD     .10

            122           KK   R6051
            123           KM   ROUTE SUB-BASIN E6051 TO DP 6050
            124           RK     150     .02    .013            CIRC       3

            125           KK  DP6050
            126           KM           COMBINE R6040 AND R6051
            127           HC       2

            128           KK   R6041
            129           KM        ROUTE DP6050 TO DP 8070
            130           RK    1100     .01     .04            TRAP      10       3
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            131           KK   E7003
            132           KM                 RUNOFF FROM BAS 7003
            133           BA     .10
            134           LS       0      88
            135           UD    .134
```

```
            136           KK   R7003

            137           KM               ROUTE E7003 TO DP7030

            138           RK    1300    .04     .040           TRAP      10       3


            139           KK   E7005

            140           KO       1

            141           KM                 RUNOFF FROM BAS 7005

            142           BA   .2563

            143           LS       0    73.3

            144           UD    .367


            145           KK  DB7006

            146           KO       1

            147           KM                 ROUTE BASIN 7005 THROUGH FSD DETENTION
BASIN 7006
            148           RS       1    STOR       0

            149           SV    0.00    0.05    0.20    0.52    1.76    2.69    3.81
   5.12    6.65    8.43
            150           SE  5746.1    5748    5749    5750    5752    5753    5754
   5755    5756    5757
            151           SQ       0       1    19.3      20    58.9    75.5    88.2
  104.5   109.9     115
            152           SE    5748  5752.5    5753  5753.5    5754  5754.5    5755
   5756    5757    5758

            153           KK   R7006

            154           KM               ROUTE DB7006 TO DP7030

            155           RK    1500    .025    .040           TRAP      10       3


            156           KK   E7020

            157           KM                 RUNOFF FROM BAS 7020

            158           BA    .029

            159           LS       0      94

            160           UD    .079


            161           KK   E7030

            162           KM                 RUNOFF FROM BAS 7030

            163           BA    .027

            164           LS       0    78.4
```

```
            165            UD    .098

            166            KK  DP7030
            167            KM                    COMBINE FLOW FROM R7003, R7006, E7020,
AND E7030
            168            HC       4

            169            KK   R7030
            170            KM                  ROUTE DP7030 TO DP8010
            171            RK     500    .025    .040            TRAP      10       3
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ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            172            KK   E7050
            173            KM                    RUNOFF FROM BASIN 7050
            174            BA    .026
            175            LS       0      73
            176            UD    .079

            177            KK   R7050
            178            KM                  ROUTE E7050 TO DP7040
            179            RK    1300    .05     .040            TRAP      10       3

            180            KK   E7040
            181            KM                    RUNOFF FROM BAS 7040
            182            KO       0
            183            BA    .036
            184            LS       0    72.5
            185            UD    .079

            186            KK  DP7040
            187            KM                    COMBINE FLOW FROM R7050 AND E7040
            188            HC       2

            189            KK   R7040
```

```
             190           KM                ROUTE DP7040 THROUGH E8010
             191           RK     450    .025    .040            TRAP      10       3

             192           KK   E8010
             193           KM                  RUNOFF FROM BAS 8010
             194           BA    .029
             195           LS       0    84.5
             196           UD    .072

             197           KK  DP8010
             198           KM                  COMBINE FLOW FROM R7030, R7040 AND
E8010
             199           HC       3

             200           KK   R8010
             201           KM                ROUTE DP8010 TO DP8070
             202           RK     400    .025    .040            TRAP      10       3

             203           KK   E8005
             204           KO       1
             205           KM                  RUNOFF FROM BAS 8005
             206           BA    .104
             207           LS       0      85
             208           UD    .103

             209           KK  DB8006
             210           KO       1
             211           KM                ROUTE FLOW FROM E8005 THROUGH DB8006 -
MARKETS AT MESA RIDGE FSD
             212           RS       1    STOR       0
             213           SV       0     .22    1.74    2.34    4.40    7.44   11.00
  13.12
             214           SE    5699    5700    5703    5704    5706    5708    5710
   5711
             215           SQ       0     0.7     0.7    49.5    56.4    58.0    42.5
   73.5
             216           SE    5700    5701  5705.7    5706    5708  5708.5    5709
   5710
1                                                    HEC-1 INPUT
                            PAGE   6

            LINE
```

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

          217          SS    5710     400     3.1

          218          KK   R8006

          219          KM                 ROUTE DB8006 TO DB8070

          220          RK    1700    .015    .040            TRAP      10       3

          221          KK  DP8011

          222          KM          COMBINE R8010 AND R8006

          223          HC       2

          224          KK   R8011

          225          KM           ROUTE DP 8011 TO DP 8070

          226          RK    3000    .015     .04            TRAP      10       3

          227          KK   E8060

          228          KM                   RUNOFF FROM BAS 8060

          229          BA    .103

          230          LS       0    82.4

          231          UD    .196

          232          KK   E8070

          233          KM                   RUNOFF FROM BAS 8070

          234          BA    .063

          235          LS       0      80

          236          UD    .157

          237          KK  DP8070

          238          KM                   COMBINE FLOW FROM R8011, SB8070,
SB8060, R8010 AND R6041
          239          HC       4

          240          KK   R8070

          241          KM                 ROUTE DP8070 TO DP8075

          242          RK    1000    .005    .040            TRAP      50       5

          243          KK   E8050
```

```
              244            KM                   RUNOFF FROM BAS 8050 HALE RESERVOIR
SUB-BASIN
              245            BA    .033
              246            LS       0      75
              247            UD    .328

              248            KK   E8000
              249            KM                   RUNOFF FROM BAS 8000
              250            BA    .105
              251            LS       0      85
              252            UD     .56

              253            KK   E8035
              254            KM                   RUNOFF FROM BAS 8035
              255            BA    .072
              256            LS       0      86
              257            UD    .203
1                                                          HEC-1 INPUT
                                    PAGE  7

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

              258            KK   R8035
              259            KM         ROUTE FLOW FROM SB8035 TO DP8040
              260            KO       0
              261            RK    3550     .02    .013            CIRC     4.5

              262            KK   E8040
              263            KM                   RUNOFF FROM BAS 8040
              264            BA    .066
              265            LS       0      84
              266            UD    .543

              267            KK  DP8040
              268            KM                  COMBINE FLOW FROM SB8040 AND R8035
              269            HC       2
```

```
            270            KK   R8040

            271            KO       1

            272            KM           ROUTE DP 8040 TO DP 8075

            273            RK     600    .005    .035            TRAP      50       5


            274            KK  DP8075

            275            KM                  COMBINE FLOW FROM SB8000 R8040 R8070
AND SB8050
            276            HC       4               4


            277            KK  DB8075

            278            KO       1

            279            KM             ROUTE DP8075 THROUGH NEW HALE RESERVOIR
(PER APPLEGATE DESIGN)
            280            RS       1    ELEV    5622

            281            SQ       0       0       0       0       0       0     149
    420     772
            282            SV       0    11.8    24.5    37.7    51.5    65.8    80.4
   95.3   110.5
            283            SE    5622    5623    5624    5625    5626    5627    5628
   5629    5630

            284            KK   R8075

            285            KM             ROUTE DB 8075 TO DP 8080

            286            RK     300    .005    .035            TRAP      30       3


            287            KK   E8080

            288            KM                  RUNOFF FROM BAS 8080

            289            BA    .032

            290            LS       0      74

            291            UD    .348


            292            KK  DP8080

            293            KM                  COMBINE FLOW FROM R8075 AND SB 8080

            294            HC       2

            295            ZZ

1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW
```

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

 17       E6001
              V
              V
 34      DB6002
              V
              V
 41       R6003
              .
              .
 44           .       E1040
              .           V
              .           V
 49           .       R1040
              .           .
              .           .
 52           .           .       E6010
              .           .           .
              .           .           .
 57      DP6010........................
              V
              V
 60       R6004
              .
              .
 63           .       E6005
              .           V
              .           V
 68           .       R6005
              .           .
              .           .
 71           .           .       E6020
              .           .           .
              .           .           .
 76           .      DP6021............
              .           V
              .           V
 79           .       R6021
              .           .
              .           .
 82           .           .       E6011
              .           .           .
              .           .           .
 87      DP6020........................
              V
              V
 91      DB6020
              V
              V
 98       R6025
              .
              .
101           .       E6040
              .           .
              .           .
106           .           .       E6050
              .           .           .
              .           .           .
111      DP6040........................
              V
              V
```

```
114       R6040
              .
              .
117           .       E6051
              .           V
              .           V
122           .       R6051
              .           .
              .           .
125      DP6050............
              V
              V
128       R6041
              .
              .
131           .       E7003
              .           V
              .           V
136           .       R7003
              .           .
              .           .
139           .           .       E7005
              .           .           V
              .           .           V
145           .           .      DB7006
              .           .           V
              .           .           V
153           .           .       R7006
              .           .           .
              .           .           .
156           .           .           .       E7020
              .           .           .           .
              .           .           .           .
161           .           .           .           .       E7030
              .           .           .           .           .
              .           .           .           .           .
166           .      DP7030....................................
              .           V
              .           V
169           .       R7030
              .           .
              .           .
172           .           .       E7050
              .           .           V
              .           .           V
177           .           .       R7050
              .           .           .
              .           .           .
180           .           .           .       E7040
              .           .           .           .
              .           .           .           .
186           .           .      DP7040............
              .           .           V
              .           .           V
189           .           .       R7040
              .           .           .
              .           .           .
192           .           .           .       E8010
              .           .           .           .
              .           .           .           .
197           .      DP8010........................
              .           V
              .           V
```

```
200           .       R8010
              .           .
              .           .
203           .           .       E8005
              .           .           V
              .           .           V
209           .           .      DB8006
              .           .           V
              .           .           V
218           .           .       R8006
              .           .           .
              .           .           .
221           .      DP8011............
              .           V
              .           V
224           .       R8011
              .           .
              .           .
227           .           .       E8060
              .           .           .
              .           .           .
232           .           .           .       E8070
              .           .           .           .
              .           .           .           .
237      DP8070....................................
              V
              V
240       R8070
              .
              .
243           .       E8050
              .           .
              .           .
248           .           .       E8000
              .           .           .
              .           .           .
253           .           .           .       E8035
              .           .           .           V
              .           .           .           V
258           .           .           .       R8035
              .           .           .           .
              .           .           .           .
262           .           .           .           .       E8040
              .           .           .           .           .
              .           .           .           .           .
267           .           .           .      DP8040............
              .           .           .           V
              .           .           .           V
270           .           .           .       R8040
              .           .           .           .
              .           .           .           .
274      DP8075....................................
              V
              V
277      DB8075
              V
              V
284       R8075
              .
              .
287           .       E8080
              .           .
              .           .
```

```
   292      DP8080............

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1*****************************************
        *****************************************
 *                                       *
        *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
        *    U.S. ARMY CORPS OF ENGINEERS       *
 *               JUN   1998              *
        *    HYDROLOGIC ENGINEERING CENTER      *
 *            VERSION 4.1                *
        *          609 SECOND STREET            *
 *                                       *
        *       DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   30AUG13  TIME  13:30:35   *
        *           (916) 756-1104              *
 *                                       *
        *                                       *
 *****************************************
        *****************************************



                            MESA RIDGE MDDP UPDATE

                            PREPARED BY KIOWA ENGINEERING

                            2, 5, 10 & 100 YEAR STORMS  -  FILENAME: MR8080A.DAT DEV
COND WITH DETENTION
                            MODIFICATIONS IN THIS RUN:

                             -  REMOVE DET. BASIN F AND DETENTION BASIN E

                             -  MODEL DETENTION BASIN D PER KIOWA FSD DESIGN PROEJCT
NUMBER 09061
                             -  MODEL DETENTION BASIN 8006 TO FULL SPECTRUM (PROJECT
08041)
                             -  MODEL  FLOOD STORAGE AT LOCATION OF NEW RESERVOIR
PER APPLEGATE DESIGN
                             -  MODEL DETENTION BASINS 6002 AND 7006 PER KIOWA
DESIGN PROJECT 11004
                             -  UPDATE LAND USE FOR BASIN 6010 & SPLIT INTO TWO
BASINS (6010 & 6011)
                             -  REVISE BASIN 1040 TO REFLECT HISTORIC FLOWS (PROJECT
09061)
                             -  REVISE BASINS 6005 & 6001 TO REFLECT ACTUAL BDY/LAND
USE (PROJECT 11004)
                             -  REVISE BASINS 7005 & 7050 TO REFLECT ACTUAL BDY/LAND
USE (PROJECT 11004)
                            24HR STORM DURATION

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

      IT          HYDROGRAPH TIME DATA
                         NMIN           5  MINUTES IN COMPUTATION INTERVAL
                        IDATE      1    0  STARTING DATE
```

```
                    ITIME         0000  STARTING TIME
                       NQ          250  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      1    0  ENDING DATE
                   NDTIME         2045  ENDING TIME
                   ICENT            19  CENTURY MARK

                COMPUTATION INTERVAL      .08 HOURS
                     TOTAL TIME BASE   20.75 HOURS

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


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


              **************
              *            *
   87 KK      *    DP6020  *

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

   88 KO           OUTPUT CONTROL VARIABLES
                         IPRNT           1  PRINT CONTROL
                         IPLOT           0  PLOT CONTROL
                         QSCAL          0.  HYDROGRAPH PLOT SCALE
                                             COMBINE FLOW FROM R6004, R6021, AND SB6011


   90 HC           HYDROGRAPH COMBINATION
                         ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                          ***

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

                                                           HYDROGRAPH AT STATION   DP6020
                                                                SUM OF  3 HYDROGRAPHS


*************************************************************************************
***********************************************
                                 *                                *
              *
    DA MON HRMN  ORD      FLOW   *   DA MON HRMN  ORD       FLOW   *   DA MON HRMN
ORD      FLOW   *   DA MON HRMN  ORD      FLOW
                                 *                                *
              *
      1    0000    1       0.   *    1    0515   64         0.   *    1     1030
127        8.   *    1    1545  190        5.
      1    0005    2       0.   *    1    0520   65         0.   *    1     1035
128        8.   *    1    1550  191        5.
```

```
     1     0010     3       0.   *    1     0525   66        0.    *    1     1040
129        8.   *    1     1555  192        5.
     1     0015     4       0.   *    1     0530   67        0.    *    1     1045
130        8.   *    1     1600  193        5.
     1     0020     5       0.   *    1     0535   68        7.    *    1     1050
131        8.   *    1     1605  194        5.
     1     0025     6       0.   *    1     0540   69       34.    *    1     1055
132        8.   *    1     1610  195        5.
     1     0030     7       0.   *    1     0545   70       80.    *    1     1100
133        8.   *    1     1615  196        5.
     1     0035     8       0.   *    1     0550   71      137.    *    1     1105
134        8.   *    1     1620  197        5.
     1     0040     9       0.   *    1     0555   72      193.    *    1     1110
135        8.   *    1     1625  198        5.
     1     0045    10       0.   *    1     0600   73      241.    *    1     1115
136        8.   *    1     1630  199        5.
     1     0050    11       0.   *    1     0605   74      286.    *    1     1120
137        8.   *    1     1635  200        5.
     1     0055    12       0.   *    1     0610   75      274.    *    1     1125
138        8.   *    1     1640  201        5.
     1     0100    13       0.   *    1     0615   76      219.    *    1     1130
139        8.   *    1     1645  202        5.
     1     0105    14       0.   *    1     0620   77      176.    *    1     1135
140        8.   *    1     1650  203        5.
     1     0110    15       0.   *    1     0625   78      141.    *    1     1140
141        8.   *    1     1655  204        5.
     1     0115    16       0.   *    1     0630   79      109.    *    1     1145
142        8.   *    1     1700  205        5.
     1     0120    17       0.   *    1     0635   80       85.    *    1     1150
143        8.   *    1     1705  206        5.
     1     0125    18       0.   *    1     0640   81       63.    *    1     1155
144        8.   *    1     1710  207        5.
     1     0130    19       0.   *    1     0645   82       50.    *    1     1200
145        8.   *    1     1715  208        5.
     1     0135    20       0.   *    1     0650   83       43.    *    1     1205
146        8.   *    1     1720  209        5.
     1     0140    21       0.   *    1     0655   84       38.    *    1     1210
147        8.   *    1     1725  210        5.
     1     0145    22       0.   *    1     0700   85       34.    *    1     1215
148        8.   *    1     1730  211        5.
     1     0150    23       0.   *    1     0705   86       32.    *    1     1220
149        8.   *    1     1735  212        5.
     1     0155    24       0.   *    1     0710   87       29.    *    1     1225
150        8.   *    1     1740  213        5.
     1     0200    25       0.   *    1     0715   88       26.    *    1     1230
151        8.   *    1     1745  214        5.
     1     0205    26       0.   *    1     0720   89       24.    *    1     1235
152        8.   *    1     1750  215        5.
     1     0210    27       0.   *    1     0725   90       22.    *    1     1240
153        8.   *    1     1755  216        5.
     1     0215    28       0.   *    1     0730   91       21.    *    1     1245
154        8.   *    1     1800  217        5.
     1     0220    29       0.   *    1     0735   92       21.    *    1     1250
155        8.   *    1     1805  218        5.
     1     0225    30       0.   *    1     0740   93       20.    *    1     1255
156        8.   *    1     1810  219        5.
     1     0230    31       0.   *    1     0745   94       20.    *    1     1300
157        8.   *    1     1815  220        5.
     1     0235    32       0.   *    1     0750   95       20.    *    1     1305
158        8.   *    1     1820  221        5.
     1     0240    33       0.   *    1     0755   96       20.    *    1     1310
159        8.   *    1     1825  222        5.
     1     0245    34       0.   *    1     0800   97       20.    *    1     1315
```

```
160        7.   *    1     1830  223        5.
     1     0250   35        0.   *    1     0805   98       19.   *    1     1320
161        7.   *    1     1835  224        5.
     1     0255   36        0.   *    1     0810   99       18.   *    1     1325
162        7.   *    1     1840  225        5.
     1     0300   37        0.   *    1     0815  100       15.   *    1     1330
163        7.   *    1     1845  226        5.
     1     0305   38        0.   *    1     0820  101       14.   *    1     1335
164        7.   *    1     1850  227        5.
     1     0310   39        0.   *    1     0825  102       12.   *    1     1340
165        7.   *    1     1855  228        5.
     1     0315   40        0.   *    1     0830  103       12.   *    1     1345
166        7.   *    1     1900  229        5.
     1     0320   41        0.   *    1     0835  104       11.   *    1     1350
167        7.   *    1     1905  230        5.
     1     0325   42        0.   *    1     0840  105       11.   *    1     1355
168        7.   *    1     1910  231        5.
     1     0330   43        0.   *    1     0845  106       10.   *    1     1400
169        7.   *    1     1915  232        5.
     1     0335   44        0.   *    1     0850  107       10.   *    1     1405
170        7.   *    1     1920  233        5.
     1     0340   45        0.   *    1     0855  108       10.   *    1     1410
171        7.   *    1     1925  234        5.
     1     0345   46        0.   *    1     0900  109       10.   *    1     1415
172        7.   *    1     1930  235        5.
     1     0350   47        0.   *    1     0905  110       10.   *    1     1420
173        6.   *    1     1935  236        5.
     1     0355   48        0.   *    1     0910  111       10.   *    1     1425
174        6.   *    1     1940  237        5.
     1     0400   49        0.   *    1     0915  112       10.   *    1     1430
175        6.   *    1     1945  238        5.
     1     0405   50        0.   *    1     0920  113       10.   *    1     1435
176        6.   *    1     1950  239        5.
     1     0410   51        0.   *    1     0925  114       10.   *    1     1440
177        6.   *    1     1955  240        5.
     1     0415   52        0.   *    1     0930  115       10.   *    1     1445
178        6.   *    1     2000  241        5.
     1     0420   53        0.   *    1     0935  116       10.   *    1     1450
179        6.   *    1     2005  242        5.
     1     0425   54        0.   *    1     0940  117       10.   *    1     1455
180        6.   *    1     2010  243        5.
     1     0430   55        0.   *    1     0945  118       10.   *    1     1500
181        6.   *    1     2015  244        4.
     1     0435   56        0.   *    1     0950  119       10.   *    1     1505
182        6.   *    1     2020  245        4.
     1     0440   57        0.   *    1     0955  120       10.   *    1     1510
183        6.   *    1     2025  246        3.
     1     0445   58        0.   *    1     1000  121       10.   *    1     1515
184        6.   *    1     2030  247        3.
     1     0450   59        0.   *    1     1005  122       10.   *    1     1520
185        6.   *    1     2035  248        3.
     1     0455   60        0.   *    1     1010  123       10.   *    1     1525
186        6.   *    1     2040  249        3.
     1     0500   61        0.   *    1     1015  124        9.   *    1     1530
187        5.   *    1     2045  250        3.
     1     0505   62        0.   *    1     1020  125        9.   *    1     1535
188        5.   *
     1     0510   63        0.   *    1     1025  126        8.   *    1     1540
189        5.   *
                                 *                                *
              *

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

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

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+     286.      6.08                   40.          14.          14.           14.
                        (INCHES)     1.390        1.703        1.703        1.703
                         (AC-FT)       20.          25.          25.          25.

                         CUMULATIVE AREA =     .27 SQ MI




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


             **************
             *            *
   91 KK     *    DB6020  *
             *            *
             **************

   92 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           1  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                                     ROUTE DP6020 THROUGH FSD AS-BUILT DETENTION
BASIN D

                HYDROGRAPH ROUTING DATA

   94 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        ELEV  TYPE OF INITIAL CONDITION
                       RSVRIC     5682.40  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

   97 SV            STORAGE            .0       1.1       3.7       5.3       7.1
10.7      14.5

   95 SQ          DISCHARGE          0.         2.        2.       82.      215.
247.      267.

   96 SE          ELEVATION     5682.40   5684.00   5686.00   5688.00   5690.00
5692.00   5694.00
                                                                 ***

************************************************************************************
***********************************************
                                                   HYDROGRAPH AT STATION   DB6020

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

```
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                            *
   *
   1     0000   1       0.       .0  5682.4 *  1     0700  85      56.      4.8
5687.3 *  1     1400 169       7.       3.8  5686.1
   1     0005   2       0.       .0  5682.4 *  1     0705  86      49.      4.6
5687.2 *  1     1405 170       7.       3.8  5686.1
   1     0010   3       0.       .0  5682.4 *  1     0710  87      44.      4.5
5687.0 *  1     1410 171       7.       3.8  5686.1
   1     0015   4       0.       .0  5682.4 *  1     0715  88      39.      4.4
5686.9 *  1     1415 172       7.       3.8  5686.1
   1     0020   5       0.       .0  5682.4 *  1     0720  89      35.      4.3
5686.8 *  1     1420 173       7.       3.8  5686.1
   1     0025   6       0.       .0  5682.4 *  1     0725  90      31.      4.3
5686.7 *  1     1425 174       7.       3.8  5686.1
   1     0030   7       0.       .0  5682.4 *  1     0730  91      28.      4.2
5686.7 *  1     1430 175       7.       3.8  5686.1
   1     0035   8       0.       .0  5682.4 *  1     0735  92      26.      4.2
5686.6 *  1     1435 176       6.       3.8  5686.1
   1     0040   9       0.       .0  5682.4 *  1     0740  93      25.      4.1
5686.6 *  1     1440 177       6.       3.8  5686.1
   1     0045   10      0.       .0  5682.4 *  1     0745  94      23.      4.1
5686.5 *  1     1445 178       6.       3.8  5686.1
   1     0050   11      0.       .0  5682.4 *  1     0750  95      22.      4.1
5686.5 *  1     1450 179       6.       3.8  5686.1
   1     0055   12      0.       .0  5682.4 *  1     0755  96      22.      4.1
5686.5 *  1     1455 180       6.       3.8  5686.1
   1     0100   13      0.       .0  5682.4 *  1     0800  97      21.      4.1
5686.5 *  1     1500 181       6.       3.8  5686.1
   1     0105   14      0.       .0  5682.4 *  1     0805  98      21.      4.1
5686.5 *  1     1505 182       6.       3.8  5686.1
   1     0110   15      0.       .0  5682.4 *  1     0810  99      20.      4.1
5686.5 *  1     1510 183       6.       3.8  5686.1
   1     0115   16      0.       .0  5682.4 *  1     0815 100      19.      4.0
5686.4 *  1     1515 184       6.       3.8  5686.1
   1     0120   17      0.       .0  5682.4 *  1     0820 101      18.      4.0
5686.4 *  1     1520 185       6.       3.8  5686.1
   1     0125   18      0.       .0  5682.4 *  1     0825 102      16.      4.0
5686.4 *  1     1525 186       6.       3.8  5686.1
   1     0130   19      0.       .0  5682.4 *  1     0830 103      15.      4.0
5686.3 *  1     1530 187       6.       3.8  5686.1
   1     0135   20      0.       .0  5682.4 *  1     0835 104      14.      3.9
5686.3 *  1     1535 188       6.       3.8  5686.1
   1     0140   21      0.       .0  5682.4 *  1     0840 105      13.      3.9
5686.3 *  1     1540 189       6.       3.8  5686.1
   1     0145   22      0.       .0  5682.4 *  1     0845 106      12.      3.9
5686.3 *  1     1545 190       5.       3.8  5686.1
   1     0150   23      0.       .0  5682.4 *  1     0850 107      12.      3.9
5686.2 *  1     1550 191       5.       3.8  5686.1
   1     0155   24      0.       .0  5682.4 *  1     0855 108      11.      3.9
5686.2 *  1     1555 192       5.       3.8  5686.1
   1     0200   25      0.       .0  5682.4 *  1     0900 109      11.      3.9
5686.2 *  1     1600 193       5.       3.8  5686.1
   1     0205   26      0.       .0  5682.4 *  1     0905 110      11.      3.9
5686.2 *  1     1605 194       5.       3.8  5686.1
   1     0210   27      0.       .0  5682.4 *  1     0910 111      11.      3.9
5686.2 *  1     1610 195       5.       3.8  5686.1
   1     0215   28      0.       .0  5682.4 *  1     0915 112      10.      3.9
5686.2 *  1     1615 196       5.       3.8  5686.1
   1     0220   29      0.       .0  5682.4 *  1     0920 113      10.      3.9
5686.2 *  1     1620 197       5.       3.8  5686.1
   1     0225   30      0.       .0  5682.4 *  1     0925 114      10.      3.9
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5686.2 *  1     1625 198       5.      3.8  5686.1
   1     0230  31       0.       .0  5682.4 *  1     0930 115      10.      3.9
5686.2 *  1     1630 199       5.      3.8  5686.1
   1     0235  32       0.       .0  5682.4 *  1     0935 116      10.      3.9
5686.2 *  1     1635 200       5.      3.8  5686.1
   1     0240  33       0.       .0  5682.4 *  1     0940 117      10.      3.9
5686.2 *  1     1640 201       5.      3.8  5686.1
   1     0245  34       0.       .0  5682.4 *  1     0945 118      10.      3.9
5686.2 *  1     1645 202       5.      3.8  5686.1
   1     0250  35       0.       .0  5682.4 *  1     0950 119      10.      3.9
5686.2 *  1     1650 203       5.      3.8  5686.1
   1     0255  36       0.       .0  5682.4 *  1     0955 120      10.      3.9
5686.2 *  1     1655 204       5.      3.8  5686.1
   1     0300  37       0.       .0  5682.4 *  1     1000 121      10.      3.9
5686.2 *  1     1700 205       5.      3.8  5686.1
   1     0305  38       0.       .0  5682.4 *  1     1005 122      10.      3.9
5686.2 *  1     1705 206       5.      3.8  5686.1
   1     0310  39       0.       .0  5682.4 *  1     1010 123      10.      3.9
5686.2 *  1     1710 207       5.      3.8  5686.1
   1     0315  40       0.       .0  5682.4 *  1     1015 124      10.      3.9
5686.2 *  1     1715 208       5.      3.8  5686.1
   1     0320  41       0.       .0  5682.4 *  1     1020 125      10.      3.8
5686.2 *  1     1720 209       5.      3.8  5686.1
   1     0325  42       0.       .0  5682.4 *  1     1025 126       9.      3.8
5686.2 *  1     1725 210       5.      3.8  5686.1
   1     0330  43       0.       .0  5682.4 *  1     1030 127       9.      3.8
5686.2 *  1     1730 211       5.      3.8  5686.1
   1     0335  44       0.       .0  5682.4 *  1     1035 128       9.      3.8
5686.2 *  1     1735 212       5.      3.8  5686.1
   1     0340  45       0.       .0  5682.4 *  1     1040 129       8.      3.8
5686.2 *  1     1740 213       5.      3.8  5686.1
   1     0345  46       0.       .0  5682.4 *  1     1045 130       8.      3.8
5686.2 *  1     1745 214       5.      3.8  5686.1
   1     0350  47       0.       .0  5682.4 *  1     1050 131       8.      3.8
5686.2 *  1     1750 215       5.      3.8  5686.1
   1     0355  48       0.       .0  5682.4 *  1     1055 132       8.      3.8
5686.1 *  1     1755 216       5.      3.8  5686.1
   1     0400  49       0.       .0  5682.4 *  1     1100 133       8.      3.8
5686.1 *  1     1800 217       5.      3.8  5686.1
   1     0405  50       0.       .0  5682.4 *  1     1105 134       8.      3.8
5686.1 *  1     1805 218       5.      3.8  5686.1
   1     0410  51       0.       .0  5682.4 *  1     1110 135       8.      3.8
5686.1 *  1     1810 219       5.      3.8  5686.1
   1     0415  52       0.       .0  5682.4 *  1     1115 136       8.      3.8
5686.1 *  1     1815 220       5.      3.8  5686.1
   1     0420  53       0.       .0  5682.4 *  1     1120 137       8.      3.8
5686.1 *  1     1820 221       5.      3.8  5686.1
   1     0425  54       0.       .0  5682.4 *  1     1125 138       8.      3.8
5686.1 *  1     1825 222       5.      3.8  5686.1
   1     0430  55       0.       .0  5682.4 *  1     1130 139       8.      3.8
5686.1 *  1     1830 223       5.      3.8  5686.1
   1     0435  56       0.       .0  5682.4 *  1     1135 140       8.      3.8
5686.1 *  1     1835 224       5.      3.8  5686.1
   1     0440  57       0.       .0  5682.4 *  1     1140 141       8.      3.8
5686.1 *  1     1840 225       5.      3.8  5686.1
   1     0445  58       0.       .0  5682.4 *  1     1145 142       8.      3.8
5686.1 *  1     1845 226       5.      3.8  5686.1
   1     0450  59       0.       .0  5682.4 *  1     1150 143       8.      3.8
5686.1 *  1     1850 227       5.      3.8  5686.1
   1     0455  60       0.       .0  5682.4 *  1     1155 144       8.      3.8
5686.1 *  1     1855 228       5.      3.8  5686.1
   1     0500  61       0.       .0  5682.4 *  1     1200 145       8.      3.8
5686.1 *  1     1900 229       5.      3.8  5686.1
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   1     0505  62       0.       .0  5682.4 *  1     1205 146       8.      3.8
5686.1 *  1     1905 230       5.       3.8  5686.1
   1     0510  63       0.       .0  5682.4 *  1     1210 147       8.      3.8
5686.1 *  1     1910 231       5.       3.8  5686.1
   1     0515  64       0.       .0  5682.4 *  1     1215 148       8.      3.8
5686.1 *  1     1915 232       5.       3.8  5686.1
   1     0520  65       0.       .0  5682.4 *  1     1220 149       8.      3.8
5686.1 *  1     1920 233       5.       3.8  5686.1
   1     0525  66       0.       .0  5682.4 *  1     1225 150       8.      3.8
5686.1 *  1     1925 234       5.       3.8  5686.1
   1     0530  67       0.       .0  5682.4 *  1     1230 151       8.      3.8
5686.1 *  1     1930 235       5.       3.8  5686.1
   1     0535  68       0.       .0  5682.4 *  1     1235 152       8.      3.8
5686.1 *  1     1935 236       5.       3.8  5686.1
   1     0540  69       0.       .2  5682.6 *  1     1240 153       8.      3.8
5686.1 *  1     1940 237       5.       3.8  5686.1
   1     0545  70       1.       .6  5683.2 *  1     1245 154       8.      3.8
5686.1 *  1     1945 238       5.       3.8  5686.1
   1     0550  71       2.      1.3  5684.1 *  1     1250 155       8.      3.8
5686.1 *  1     1950 239       5.       3.8  5686.1
   1     0555  72       2.      2.4  5685.0 *  1     1255 156       8.      3.8
5686.1 *  1     1955 240       5.       3.8  5686.1
   1     0600  73      10.      3.9  5686.2 *  1     1300 157       8.      3.8
5686.1 *  1     2000 241       5.       3.8  5686.1
   1     0605  74      87.      5.3  5688.1 *  1     1305 158       8.      3.8
5686.1 *  1     2005 242       5.       3.8  5686.1
   1     0610  75     163.      6.4  5689.2 *  1     1310 159       8.      3.8
5686.1 *  1     2010 243       5.       3.8  5686.1
   1     0615  76     196.      6.9  5689.7 *  1     1315 160       8.      3.8
5686.1 *  1     2015 244       5.       3.8  5686.1
   1     0620  77     197.      6.9  5689.7 *  1     1320 161       8.      3.8
5686.1 *  1     2020 245       5.       3.8  5686.1
   1     0625  78     181.      6.7  5689.5 *  1     1325 162       7.      3.8
5686.1 *  1     2025 246       4.       3.7  5686.1
   1     0630  79     159.      6.4  5689.2 *  1     1330 163       7.      3.8
5686.1 *  1     2030 247       4.       3.7  5686.1
   1     0635  80     134.      6.0  5688.8 *  1     1335 164       7.      3.8
5686.1 *  1     2035 248       4.       3.7  5686.0
   1     0640  81     110.      5.7  5688.4 *  1     1340 165       7.      3.8
5686.1 *  1     2040 249       4.       3.7  5686.0
   1     0645  82      89.      5.4  5688.1 *  1     1345 166       7.      3.8
5686.1 *  1     2045 250       3.       3.7  5686.0
   1     0650  83      75.      5.1  5687.8 *  1     1350 167       7.      3.8
5686.1 *
   1     0655  84      64.      4.9  5687.6 *  1     1355 168       7.      3.8
5686.1 *
                                            *
   *

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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+     197.      6.33                   33.         12.         12.          12.
                        (INCHES)     1.140       1.444       1.444        1.444
                         (AC-FT)       16.         21.         21.          21.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     20.75-HR
+  (AC-FT)      (HR)
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        7.     6.33                    4.          3.          3.           3.

  PEAK STAGE   TIME                           MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     20.75-HR
+   (FEET)     (HR)
   5689.73     6.33                5686.70     5685.24     5685.24      5685.24

                         CUMULATIVE AREA =     .27 SQ MI



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


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             *            *
  139 KK     *     E7005  *
             *            *
             **************

  140 KO           OUTPUT CONTROL VARIABLES
                         IPRNT           1  PRINT CONTROL
                         IPLOT           0  PLOT CONTROL
                         QSCAL          0.  HYDROGRAPH PLOT SCALE
                                          RUNOFF FROM BAS 7005


                 SUBBASIN RUNOFF DATA

  142 BA           SUBBASIN CHARACTERISTICS
                         TAREA          .26  SUBBASIN AREA

                   PRECIPITATION DATA

   21 PB                 STORM        3.90  BASIN TOTAL PRECIPITATION

   22 PI             INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .01       .01       .01       .01       .01
.10       .10       .10       .10
                        .10       .10       .01       .01       .01       .01
.01       .01       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
```

```
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00

  143 LS          SCS LOSS RATE
                        STRTL         .73  INITIAL ABSTRACTION
                       CRVNBR       73.30  CURVE NUMBER
                        RTIMP         .00  PERCENT IMPERVIOUS AREA

  144 UD          SCS DIMENSIONLESS UNITGRAPH
                         TLAG         .37  LAG

                                                                 ***

                                                           UNIT HYDROGRAPH
                                                      24 END-OF-PERIOD ORDINATES
                 31.       98.      206.      285.      303.      277.      228.
 160.      112.       81.
                 59.       42.       30.       22.       15.       11.        8.
   6.        4.        3.
                  2.        2.        1.        0.

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                                                   HYDROGRAPH AT STATION    E7005

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                                                                  *
        DA MON HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q       *     DA MON
HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q
                                                                  *
         1     0000    1     .00     .00     .00         0.       *        1
1025  126     .00     .00     .00         8.
         1     0005    2     .00     .00     .00         0.       *        1
1030  127     .00     .00     .00         7.
```

```
         1     0010    3     .00     .00     .00          0.        *         1
1035  128     .01     .00     .00          7.
         1     0015    4     .00     .00     .00          0.        *         1
1040  129     .01     .00     .00          7.
         1     0020    5     .00     .00     .00          0.        *         1
1045  130     .01     .00     .00          7.
         1     0025    6     .00     .00     .00          0.        *         1
1050  131     .00     .00     .00          7.
         1     0030    7     .00     .00     .00          0.        *         1
1055  132     .00     .00     .00          7.
         1     0035    8     .00     .00     .00          0.        *         1
1100  133     .00     .00     .00          7.
         1     0040    9     .00     .00     .00          0.        *         1
1105  134     .01     .00     .00          7.
         1     0045   10     .00     .00     .00          0.        *         1
1110  135     .01     .00     .00          7.
         1     0050   11     .00     .00     .00          0.        *         1
1115  136     .01     .00     .00          7.
         1     0055   12     .00     .00     .00          0.        *         1
1120  137     .00     .00     .00          7.
         1     0100   13     .00     .00     .00          0.        *         1
1125  138     .00     .00     .00          7.
         1     0105   14     .00     .00     .00          0.        *         1
1130  139     .00     .00     .00          7.
         1     0110   15     .00     .00     .00          0.        *         1
1135  140     .01     .00     .00          7.
         1     0115   16     .00     .00     .00          0.        *         1
1140  141     .01     .00     .00          7.
         1     0120   17     .00     .00     .00          0.        *         1
1145  142     .01     .00     .00          7.
         1     0125   18     .00     .00     .00          0.        *         1
1150  143     .00     .00     .00          7.
         1     0130   19     .00     .00     .00          0.        *         1
1155  144     .00     .00     .00          7.
         1     0135   20     .00     .00     .00          0.        *         1
1200  145     .00     .00     .00          7.
         1     0140   21     .00     .00     .00          0.        *         1
1205  146     .01     .00     .00          7.
         1     0145   22     .00     .00     .00          0.        *         1
1210  147     .01     .00     .00          7.
         1     0150   23     .00     .00     .00          0.        *         1
1215  148     .01     .00     .00          7.
         1     0155   24     .00     .00     .00          0.        *         1
1220  149     .00     .00     .00          7.
         1     0200   25     .00     .00     .00          0.        *         1
1225  150     .00     .00     .00          7.
         1     0205   26     .00     .00     .00          0.        *         1
1230  151     .00     .00     .00          7.
         1     0210   27     .00     .00     .00          0.        *         1
1235  152     .01     .00     .00          7.
         1     0215   28     .00     .00     .00          0.        *         1
1240  153     .01     .00     .00          7.
         1     0220   29     .00     .00     .00          0.        *         1
1245  154     .01     .00     .00          7.
         1     0225   30     .00     .00     .00          0.        *         1
1250  155     .00     .00     .00          7.
         1     0230   31     .00     .00     .00          0.        *         1
1255  156     .00     .00     .00          7.
         1     0235   32     .00     .00     .00          0.        *         1
1300  157     .00     .00     .00          7.
         1     0240   33     .00     .00     .00          0.        *         1
1305  158     .00     .00     .00          7.
         1     0245   34     .00     .00     .00          0.        *         1
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1310  159     .00     .00     .00         7.
         1     0250   35     .00     .00     .00         0.       *        1
1315  160     .00     .00     .00         7.
         1     0255   36     .00     .00     .00         0.       *        1
1320  161     .00     .00     .00         6.
         1     0300   37     .00     .00     .00         0.       *        1
1325  162     .00     .00     .00         6.
         1     0305   38     .00     .00     .00         0.       *        1
1330  163     .00     .00     .00         6.
         1     0310   39     .00     .00     .00         0.       *        1
1335  164     .00     .00     .00         6.
         1     0315   40     .00     .00     .00         0.       *        1
1340  165     .00     .00     .00         6.
         1     0320   41     .00     .00     .00         0.       *        1
1345  166     .00     .00     .00         6.
         1     0325   42     .00     .00     .00         0.       *        1
1350  167     .00     .00     .00         6.
         1     0330   43     .00     .00     .00         0.       *        1
1355  168     .00     .00     .00         6.
         1     0335   44     .00     .00     .00         0.       *        1
1400  169     .00     .00     .00         6.
         1     0340   45     .00     .00     .00         0.       *        1
1405  170     .00     .00     .00         6.
         1     0345   46     .00     .00     .00         0.       *        1
1410  171     .00     .00     .00         6.
         1     0350   47     .01     .01     .00         0.       *        1
1415  172     .00     .00     .00         6.
         1     0355   48     .01     .01     .00         0.       *        1
1420  173     .00     .00     .00         6.
         1     0400   49     .01     .01     .00         0.       *        1
1425  174     .00     .00     .00         6.
         1     0405   50     .01     .01     .00         0.       *        1
1430  175     .00     .00     .00         6.
         1     0410   51     .01     .01     .00         0.       *        1
1435  176     .00     .00     .00         6.
         1     0415   52     .01     .01     .00         0.       *        1
1440  177     .00     .00     .00         6.
         1     0420   53     .01     .01     .00         0.       *        1
1445  178     .00     .00     .00         6.
         1     0425   54     .01     .01     .00         0.       *        1
1450  179     .00     .00     .00         5.
         1     0430   55     .01     .01     .00         0.       *        1
1455  180     .00     .00     .00         5.
         1     0435   56     .01     .01     .00         0.       *        1
1500  181     .00     .00     .00         5.
         1     0440   57     .01     .01     .00         0.       *        1
1505  182     .00     .00     .00         5.
         1     0445   58     .01     .01     .00         0.       *        1
1510  183     .00     .00     .00         5.
         1     0450   59     .01     .01     .00         0.       *        1
1515  184     .00     .00     .00         5.
         1     0455   60     .01     .01     .00         0.       *        1
1520  185     .00     .00     .00         5.
         1     0500   61     .01     .01     .00         0.       *        1
1525  186     .00     .00     .00         5.
         1     0505   62     .02     .02     .00         0.       *        1
1530  187     .00     .00     .00         5.
         1     0510   63     .02     .02     .00         0.       *        1
1535  188     .00     .00     .00         5.
         1     0515   64     .02     .02     .00         0.       *        1
1540  189     .00     .00     .00         5.
         1     0520   65     .03     .03     .00         0.       *        1
1545  190     .00     .00     .00         5.
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            1     0525   66     .03     .03     .00         0.        *        1
1550  191     .00     .00     .00          5.
            1     0530   67     .03     .03     .00         0.        *        1
1555  192     .00     .00     .00          5.
            1     0535   68     .40     .40     .00         0.        *        1
1600  193     .00     .00     .00          5.
            1     0540   69     .40     .35     .05         2.        *        1
1605  194     .00     .00     .00          5.
            1     0545   70     .40     .28     .11         9.        *        1
1610  195     .00     .00     .00          5.
            1     0550   71     .40     .24     .16        27.        *        1
1615  196     .00     .00     .00          5.
            1     0555   72     .40     .20     .19        59.        *        1
1620  197     .00     .00     .00          5.
            1     0600   73     .40     .17     .22       106.        *        1
1625  198     .00     .00     .00          5.
            1     0605   74     .03     .01     .02       155.        *        1
1630  199     .00     .00     .00          5.
            1     0610   75     .03     .01     .02       194.        *        1
1635  200     .00     .00     .00          5.
            1     0615   76     .03     .01     .02       206.        *        1
1640  201     .00     .00     .00          5.
            1     0620   77     .03     .01     .02       192.        *        1
1645  202     .00     .00     .00          5.
            1     0625   78     .03     .01     .02       166.        *        1
1650  203     .00     .00     .00          5.
            1     0630   79     .03     .01     .02       135.        *        1
1655  204     .00     .00     .00          5.
            1     0635   80     .02     .01     .01       107.        *        1
1700  205     .00     .00     .00          5.
            1     0640   81     .02     .01     .01        87.        *        1
1705  206     .00     .00     .00          5.
            1     0645   82     .02     .01     .01        72.        *        1
1710  207     .00     .00     .00          5.
            1     0650   83     .02     .01     .01        60.        *        1
1715  208     .00     .00     .00          5.
            1     0655   84     .02     .01     .01        51.        *        1
1720  209     .00     .00     .00          5.
            1     0700   85     .02     .01     .01        43.        *        1
1725  210     .00     .00     .00          5.
            1     0705   86     .01     .00     .01        38.        *        1
1730  211     .00     .00     .00          5.
            1     0710   87     .01     .00     .01        34.        *        1
1735  212     .00     .00     .00          5.
            1     0715   88     .01     .00     .01        30.        *        1
1740  213     .00     .00     .00          5.
            1     0720   89     .01     .00     .01        27.        *        1
1745  214     .00     .00     .00          5.
            1     0725   90     .01     .00     .01        25.        *        1
1750  215     .00     .00     .00          5.
            1     0730   91     .01     .00     .01        22.        *        1
1755  216     .00     .00     .00          5.
            1     0735   92     .01     .00     .01        21.        *        1
1800  217     .00     .00     .00          5.
            1     0740   93     .01     .00     .01        20.        *        1
1805  218     .00     .00     .00          5.
            1     0745   94     .01     .00     .01        19.        *        1
1810  219     .00     .00     .00          5.
            1     0750   95     .01     .00     .01        18.        *        1
1815  220     .00     .00     .00          5.
            1     0755   96     .01     .00     .01        18.        *        1
1820  221     .00     .00     .00          5.
            1     0800   97     .01     .00     .01        17.        *        1
```

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1825  222     .00     .00     .00         5.
         1     0805   98     .01     .00     .00        17.       *        1
1830  223     .00     .00     .00         5.
         1     0810   99     .01     .00     .00        17.       *        1
1835  224     .00     .00     .00         5.
         1     0815  100     .01     .00     .00        16.       *        1
1840  225     .00     .00     .00         5.
         1     0820  101     .01     .00     .00        14.       *        1
1845  226     .00     .00     .00         5.
         1     0825  102     .01     .00     .00        13.       *        1
1850  227     .00     .00     .00         5.
         1     0830  103     .01     .00     .00        12.       *        1
1855  228     .00     .00     .00         5.
         1     0835  104     .01     .00     .00        11.       *        1
1900  229     .00     .00     .00         5.
         1     0840  105     .01     .00     .00        10.       *        1
1905  230     .00     .00     .00         5.
         1     0845  106     .01     .00     .00        10.       *        1
1910  231     .00     .00     .00         5.
         1     0850  107     .01     .00     .00         9.       *        1
1915  232     .00     .00     .00         5.
         1     0855  108     .01     .00     .00         9.       *        1
1920  233     .00     .00     .00         5.
         1     0900  109     .01     .00     .00         9.       *        1
1925  234     .00     .00     .00         5.
         1     0905  110     .01     .00     .00         9.       *        1
1930  235     .00     .00     .00         5.
         1     0910  111     .01     .00     .00         9.       *        1
1935  236     .00     .00     .00         5.
         1     0915  112     .01     .00     .00         9.       *        1
1940  237     .00     .00     .00         5.
         1     0920  113     .01     .00     .00         9.       *        1
1945  238     .00     .00     .00         5.
         1     0925  114     .01     .00     .00         9.       *        1
1950  239     .00     .00     .00         5.
         1     0930  115     .01     .00     .00         9.       *        1
1955  240     .00     .00     .00         5.
         1     0935  116     .01     .00     .00         9.       *        1
2000  241     .00     .00     .00         5.
         1     0940  117     .01     .00     .00         9.       *        1
2005  242     .00     .00     .00         5.
         1     0945  118     .01     .00     .00         9.       *        1
2010  243     .00     .00     .00         5.
         1     0950  119     .01     .00     .00         9.       *        1
2015  244     .00     .00     .00         4.
         1     0955  120     .01     .00     .00         9.       *        1
2020  245     .00     .00     .00         4.
         1     1000  121     .01     .00     .00         9.       *        1
2025  246     .00     .00     .00         4.
         1     1005  122     .01     .00     .00         9.       *        1
2030  247     .00     .00     .00         3.
         1     1010  123     .01     .00     .00         9.       *        1
2035  248     .00     .00     .00         3.
         1     1015  124     .01     .00     .00         8.       *        1
2040  249     .00     .00     .00         3.
         1     1020  125     .00     .00     .00         8.       *        1
2045  250     .00     .00     .00         3.
                                                                  *

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     TOTAL RAINFALL =    3.90, TOTAL LOSS =    2.42, TOTAL EXCESS =    1.48
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```
  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR     20.75-HR
+   (CFS)       (HR)
                                   (CFS)
+     206.      6.25                       33.          12.          12.           12.
                                (INCHES)     1.184        1.469        1.469         1.469
                                 (AC-FT)       16.          20.          20.           20.

                                 CUMULATIVE AREA =     .26 SQ MI




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


             **************
             *            *
  145 KK     *    DB7006  *
             *            *
             **************

  146 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           1  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                                          ROUTE BASIN 7005 THROUGH FSD DETENTION
BASIN 7006

                HYDROGRAPH ROUTING DATA

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

  149 SV            STORAGE          .0         .1         .2         .5        1.8
 2.7       3.8       5.1       6.7       8.4


  150 SE          ELEVATION     5746.10   5748.00   5749.00   5750.00   5752.00
5753.00   5754.00   5755.00   5756.00   5757.00


  151 SQ          DISCHARGE          0.         1.        19.        20.        59.
 76.       88.      105.      110.      115.


  152 SE          ELEVATION     5748.00   5752.50   5753.00   5753.50   5754.00
5754.50   5755.00   5756.00   5757.00   5758.00


                                                                          ***

                                                        COMPUTED STORAGE-OUTFLOW-ELEVATION
DATA

             STORAGE         .00        .05        .20        .52       1.76       2.22
  2.69      3.25      3.81      4.47
```

```
             OUTFLOW         .00        .00        .22        .44        .89       1.00
 19.30     20.00     58.90     75.50
           ELEVATION     5746.10    5748.00    5749.00    5750.00    5752.00    5752.50
5753.00   5753.50   5754.00   5754.50

             STORAGE        5.12       6.65       8.43      10.21
             OUTFLOW       88.20     104.50     109.90     115.00
           ELEVATION     5755.00    5756.00    5757.00    5758.00

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                                                   HYDROGRAPH AT STATION   DB7006

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                                            *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                            *
   *
   1     0000   1       0.       .0  5746.1 *  1     0700  85      89.      5.2
5755.1 *  1     1400 169       6.      2.4  5752.6
   1     0005   2       0.       .0  5746.1 *  1     0705  86      84.      4.9
5754.8 *  1     1405 170       6.      2.4  5752.6
   1     0010   3       0.       .0  5746.1 *  1     0710  87      78.      4.6
5754.6 *  1     1410 171       6.      2.4  5752.6
   1     0015   4       0.       .0  5746.1 *  1     0715  88      71.      4.3
5754.4 *  1     1415 172       6.      2.4  5752.6
   1     0020   5       0.       .0  5746.1 *  1     0720  89      64.      4.0
5754.2 *  1     1420 173       6.      2.3  5752.6
   1     0025   6       0.       .0  5746.1 *  1     0725  90      57.      3.8
5754.0 *  1     1425 174       6.      2.3  5752.6
   1     0030   7       0.       .0  5746.1 *  1     0730  91      44.      3.6
5753.8 *  1     1430 175       6.      2.3  5752.6
   1     0035   8       0.       .0  5746.1 *  1     0735  92      35.      3.5
5753.7 *  1     1435 176       6.      2.3  5752.6
   1     0040   9       0.       .0  5746.1 *  1     0740  93      30.      3.4
5753.6 *  1     1440 177       6.      2.3  5752.6
   1     0045   10      0.       .0  5746.1 *  1     0745  94      26.      3.3
5753.6 *  1     1445 178       6.      2.3  5752.6
   1     0050   11      0.       .0  5746.1 *  1     0750  95      23.      3.3
5753.5 *  1     1450 179       6.      2.3  5752.6
   1     0055   12      0.       .0  5746.1 *  1     0755  96      21.      3.3
5753.5 *  1     1455 180       6.      2.3  5752.6
   1     0100   13      0.       .0  5746.1 *  1     0800  97      20.      3.2
5753.5 *  1     1500 181       6.      2.3  5752.6
   1     0105   14      0.       .0  5746.1 *  1     0805  98      20.      3.2
5753.5 *  1     1505 182       6.      2.3  5752.6
   1     0110   15      0.       .0  5746.1 *  1     0810  99      20.      3.2
5753.5 *  1     1510 183       6.      2.3  5752.6
   1     0115   16      0.       .0  5746.1 *  1     0815 100      20.      3.2
5753.4 *  1     1515 184       5.      2.3  5752.6
   1     0120   17      0.       .0  5746.1 *  1     0820 101      20.      3.1
5753.4 *  1     1520 185       5.      2.3  5752.6
   1     0125   18      0.       .0  5746.1 *  1     0825 102      20.      3.1
5753.4 *  1     1525 186       5.      2.3  5752.6
   1     0130   19      0.       .0  5746.1 *  1     0830 103      20.      3.1
5753.3 *  1     1530 187       5.      2.3  5752.6
   1     0135   20      0.       .0  5746.1 *  1     0835 104      20.      3.0
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5753.3 *  1     1535 188       5.      2.3  5752.6
  1     0140  21       0.       .0  5746.1 *  1     0840 105      20.      2.9
5753.2 *  1     1540 189       5.      2.3  5752.6
  1     0145  22       0.       .0  5746.1 *  1     0845 106      20.      2.9
5753.2 *  1     1545 190       5.      2.3  5752.6
  1     0150  23       0.       .0  5746.1 *  1     0850 107      19.      2.8
5753.1 *  1     1550 191       5.      2.3  5752.6
  1     0155  24       0.       .0  5746.1 *  1     0855 108      19.      2.7
5753.0 *  1     1555 192       5.      2.3  5752.6
  1     0200  25       0.       .0  5746.1 *  1     0900 109      18.      2.7
5753.0 *  1     1600 193       5.      2.3  5752.6
  1     0205  26       0.       .0  5746.1 *  1     0905 110      16.      2.6
5752.9 *  1     1605 194       5.      2.3  5752.6
  1     0210  27       0.       .0  5746.1 *  1     0910 111      14.      2.6
5752.9 *  1     1610 195       5.      2.3  5752.6
  1     0215  28       0.       .0  5746.1 *  1     0915 112      13.      2.5
5752.8 *  1     1615 196       5.      2.3  5752.6
  1     0220  29       0.       .0  5746.1 *  1     0920 113      12.      2.5
5752.8 *  1     1620 197       5.      2.3  5752.6
  1     0225  30       0.       .0  5746.1 *  1     0925 114      11.      2.5
5752.8 *  1     1625 198       5.      2.3  5752.6
  1     0230  31       0.       .0  5746.1 *  1     0930 115      11.      2.5
5752.8 *  1     1630 199       5.      2.3  5752.6
  1     0235  32       0.       .0  5746.1 *  1     0935 116      10.      2.5
5752.8 *  1     1635 200       5.      2.3  5752.6
  1     0240  33       0.       .0  5746.1 *  1     0940 117      10.      2.4
5752.7 *  1     1640 201       5.      2.3  5752.6
  1     0245  34       0.       .0  5746.1 *  1     0945 118      10.      2.4
5752.7 *  1     1645 202       5.      2.3  5752.6
  1     0250  35       0.       .0  5746.1 *  1     0950 119       9.      2.4
5752.7 *  1     1650 203       5.      2.3  5752.6
  1     0255  36       0.       .0  5746.1 *  1     0955 120       9.      2.4
5752.7 *  1     1655 204       5.      2.3  5752.6
  1     0300  37       0.       .0  5746.1 *  1     1000 121       9.      2.4
5752.7 *  1     1700 205       5.      2.3  5752.6
  1     0305  38       0.       .0  5746.1 *  1     1005 122       9.      2.4
5752.7 *  1     1705 206       5.      2.3  5752.6
  1     0310  39       0.       .0  5746.1 *  1     1010 123       9.      2.4
5752.7 *  1     1710 207       5.      2.3  5752.6
  1     0315  40       0.       .0  5746.1 *  1     1015 124       9.      2.4
5752.7 *  1     1715 208       5.      2.3  5752.6
  1     0320  41       0.       .0  5746.1 *  1     1020 125       9.      2.4
5752.7 *  1     1720 209       5.      2.3  5752.6
  1     0325  42       0.       .0  5746.1 *  1     1025 126       8.      2.4
5752.7 *  1     1725 210       5.      2.3  5752.6
  1     0330  43       0.       .0  5746.1 *  1     1030 127       8.      2.4
5752.7 *  1     1730 211       5.      2.3  5752.6
  1     0335  44       0.       .0  5746.1 *  1     1035 128       8.      2.4
5752.7 *  1     1735 212       5.      2.3  5752.6
  1     0340  45       0.       .0  5746.1 *  1     1040 129       8.      2.4
5752.7 *  1     1740 213       5.      2.3  5752.6
  1     0345  46       0.       .0  5746.1 *  1     1045 130       8.      2.4
5752.7 *  1     1745 214       5.      2.3  5752.6
  1     0350  47       0.       .0  5746.1 *  1     1050 131       7.      2.4
5752.7 *  1     1750 215       5.      2.3  5752.6
  1     0355  48       0.       .0  5746.1 *  1     1055 132       7.      2.4
5752.7 *  1     1755 216       5.      2.3  5752.6
  1     0400  49       0.       .0  5746.1 *  1     1100 133       7.      2.4
5752.7 *  1     1800 217       5.      2.3  5752.6
  1     0405  50       0.       .0  5746.1 *  1     1105 134       7.      2.4
5752.7 *  1     1805 218       5.      2.3  5752.6
  1     0410  51       0.       .0  5746.1 *  1     1110 135       7.      2.4
5752.7 *  1     1810 219       5.      2.3  5752.6
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   1     0415  52       0.       .0  5746.1 *  1     1115 136        7.       2.4
5752.7 *  1     1815 220        5.      2.3  5752.6
   1     0420  53       0.       .0  5746.1 *  1     1120 137        7.       2.4
5752.7 *  1     1820 221        5.      2.3  5752.6
   1     0425  54       0.       .0  5746.1 *  1     1125 138        7.       2.4
5752.7 *  1     1825 222        5.      2.3  5752.6
   1     0430  55       0.       .0  5746.1 *  1     1130 139        7.       2.4
5752.7 *  1     1830 223        5.      2.3  5752.6
   1     0435  56       0.       .0  5746.1 *  1     1135 140        7.       2.4
5752.7 *  1     1835 224        5.      2.3  5752.6
   1     0440  57       0.       .0  5746.1 *  1     1140 141        7.       2.4
5752.7 *  1     1840 225        5.      2.3  5752.6
   1     0445  58       0.       .0  5746.1 *  1     1145 142        7.       2.4
5752.7 *  1     1845 226        5.      2.3  5752.6
   1     0450  59       0.       .0  5746.1 *  1     1150 143        7.       2.4
5752.7 *  1     1850 227        5.      2.3  5752.6
   1     0455  60       0.       .0  5746.1 *  1     1155 144        7.       2.4
5752.7 *  1     1855 228        5.      2.3  5752.6
   1     0500  61       0.       .0  5746.1 *  1     1200 145        7.       2.4
5752.7 *  1     1900 229        5.      2.3  5752.6
   1     0505  62       0.       .0  5746.1 *  1     1205 146        7.       2.4
5752.7 *  1     1905 230        5.      2.3  5752.6
   1     0510  63       0.       .0  5746.1 *  1     1210 147        7.       2.4
5752.7 *  1     1910 231        5.      2.3  5752.6
   1     0515  64       0.       .0  5746.1 *  1     1215 148        7.       2.4
5752.7 *  1     1915 232        5.      2.3  5752.6
   1     0520  65       0.       .0  5746.1 *  1     1220 149        7.       2.4
5752.7 *  1     1920 233        5.      2.3  5752.6
   1     0525  66       0.       .0  5746.1 *  1     1225 150        7.       2.4
5752.7 *  1     1925 234        5.      2.3  5752.6
   1     0530  67       0.       .0  5746.1 *  1     1230 151        7.       2.4
5752.7 *  1     1930 235        5.      2.3  5752.6
   1     0535  68       0.       .0  5746.1 *  1     1235 152        7.       2.4
5752.7 *  1     1935 236        5.      2.3  5752.6
   1     0540  69       0.       .0  5746.3 *  1     1240 153        7.       2.4
5752.7 *  1     1940 237        5.      2.3  5752.6
   1     0545  70       0.       .0  5747.7 *  1     1245 154        7.       2.4
5752.7 *  1     1945 238        5.      2.3  5752.6
   1     0550  71       0.       .2  5748.8 *  1     1250 155        7.       2.4
5752.7 *  1     1950 239        5.      2.3  5752.6
   1     0555  72       0.       .5  5749.8 *  1     1255 156        7.       2.4
5752.7 *  1     1955 240        5.      2.3  5752.6
   1     0600  73       1.      1.0  5750.8 *  1     1300 157        7.       2.4
5752.7 *  1     2000 241        5.      2.3  5752.6
   1     0605  74       1.      1.9  5752.2 *  1     1305 158        7.       2.4
5752.7 *  1     2005 242        5.      2.3  5752.6
   1     0610  75      20.      3.0  5753.3 *  1     1310 159        7.       2.4
5752.7 *  1     2010 243        5.      2.3  5752.6
   1     0615  76      67.      4.1  5754.2 *  1     1315 160        7.       2.4
5752.7 *  1     2015 244        5.      2.3  5752.6
   1     0620  77      85.      5.0  5754.9 *  1     1320 161        7.       2.4
5752.7 *  1     2020 245        4.      2.3  5752.6
   1     0625  78      93.      5.6  5755.3 *  1     1325 162        7.       2.4
5752.7 *  1     2025 246        4.      2.3  5752.6
   1     0630  79      97.      6.0  5755.6 *  1     1330 163        7.       2.4
5752.7 *  1     2030 247        4.      2.3  5752.6
   1     0635  80      99.      6.1  5755.7 *  1     1335 164        6.       2.4
5752.6 *  1     2035 248        4.      2.3  5752.6
   1     0640  81      99.      6.1  5755.6 *  1     1340 165        6.       2.4
5752.6 *  1     2040 249        4.      2.3  5752.6
   1     0645  82      97.      6.0  5755.6 *  1     1345 166        6.       2.4
5752.6 *  1     2045 250        3.      2.3  5752.6
   1     0650  83      95.      5.8  5755.4 *  1     1350 167        6.       2.4
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5752.6 *
   1     0655  84      92.      5.5  5755.3 *  1     1355 168       6.      2.4
5752.6 *
                                            *
   *

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

  PEAK FLOW     TIME                                 MAXIMUM AVERAGE FLOW
                                         6-HR         24-HR        72-HR     20.75-HR
+   (CFS)       (HR)
                                 (CFS)
+      99.      6.58                     28.          10.          10.           10.
                              (INCHES)  1.026        1.301        1.301         1.301
                               (AC-FT)    14.          18.          18.           18.

 PEAK STORAGE   TIME                                MAXIMUM AVERAGE STORAGE
                                         6-HR         24-HR        72-HR     20.75-HR
+  (AC-FT)      (HR)
        6.      6.58                       3.           2.           2.            2.

  PEAK STAGE    TIME                                 MAXIMUM AVERAGE STAGE
                                         6-HR         24-HR        72-HR     20.75-HR
+   (FEET)      (HR)
   5755.66      6.58                  5753.37      5750.99      5750.99       5750.99

                                  CUMULATIVE AREA =     .26 SQ MI


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


             **************
             *            *
  180 KK     *     E7040  *
             *            *
             **************

  182 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           5  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE


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


             **************
             *            *
  203 KK     *     E8005  *
             *            *
             **************

  204 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           1  PRINT CONTROL
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                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                                          RUNOFF FROM BAS 8005


                SUBBASIN RUNOFF DATA

  206 BA          SUBBASIN CHARACTERISTICS
                        TAREA         .10  SUBBASIN AREA

                  PRECIPITATION DATA

   21 PB                STORM        3.90  BASIN TOTAL PRECIPITATION

   22 PI            INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .01       .01       .01       .01       .01
.10       .10       .10       .10
                        .10       .10       .01       .01       .01       .01
.01       .01       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
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                                .00       .00       .00       .00       .00       .00
.00       .00       .00

  207 LS          SCS LOSS RATE
                        STRTL         .35  INITIAL ABSTRACTION
                       CRVNBR       85.00  CURVE NUMBER
                        RTIMP         .00  PERCENT IMPERVIOUS AREA

  208 UD          SCS DIMENSIONLESS UNITGRAPH
                         TLAG         .10  LAG

                                                                ***

 WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

                                                           UNIT HYDROGRAPH
                                                        8 END-OF-PERIOD ORDINATES
               215.      336.      154.       62.       24.        9.        4.
   1.

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                                                            HYDROGRAPH AT STATION    E8005

*************************************************************************************
***********************************************
                                                                  *
        DA MON HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q       *        DA MON
HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q
                                                                  *
         1     0000    1     .00     .00     .00         0.       *         1
1025  126     .00     .00     .00        3.
         1     0005    2     .00     .00     .00         0.       *         1
1030  127     .00     .00     .00        3.
         1     0010    3     .00     .00     .00         0.       *         1
1035  128     .01     .00     .00        3.
         1     0015    4     .00     .00     .00         0.       *         1
1040  129     .01     .00     .00        3.
         1     0020    5     .00     .00     .00         0.       *         1
1045  130     .01     .00     .00        3.
         1     0025    6     .00     .00     .00         0.       *         1
1050  131     .00     .00     .00        3.
         1     0030    7     .00     .00     .00         0.       *         1
1055  132     .00     .00     .00        3.
         1     0035    8     .00     .00     .00         0.       *         1
1100  133     .00     .00     .00        3.
         1     0040    9     .00     .00     .00         0.       *         1
1105  134     .01     .00     .00        3.
         1     0045   10     .00     .00     .00         0.       *         1
1110  135     .01     .00     .00        3.
         1     0050   11     .00     .00     .00         0.       *         1
1115  136     .01     .00     .00        4.
         1     0055   12     .00     .00     .00         0.       *         1
1120  137     .00     .00     .00        3.
         1     0100   13     .00     .00     .00         0.       *         1
1125  138     .00     .00     .00        3.
         1     0105   14     .00     .00     .00         0.       *         1
1130  139     .00     .00     .00        3.
         1     0110   15     .00     .00     .00         0.       *         1
1135  140     .01     .00     .00        3.
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         1     0115   16     .00     .00     .00         0.       *        1
1140  141     .01     .00     .00         3.
         1     0120   17     .00     .00     .00         0.       *        1
1145  142     .01     .00     .00         4.
         1     0125   18     .00     .00     .00         0.       *        1
1150  143     .00     .00     .00         3.
         1     0130   19     .00     .00     .00         0.       *        1
1155  144     .00     .00     .00         3.
         1     0135   20     .00     .00     .00         0.       *        1
1200  145     .00     .00     .00         3.
         1     0140   21     .00     .00     .00         0.       *        1
1205  146     .01     .00     .00         3.
         1     0145   22     .00     .00     .00         0.       *        1
1210  147     .01     .00     .00         4.
         1     0150   23     .00     .00     .00         0.       *        1
1215  148     .01     .00     .00         4.
         1     0155   24     .00     .00     .00         0.       *        1
1220  149     .00     .00     .00         4.
         1     0200   25     .00     .00     .00         0.       *        1
1225  150     .00     .00     .00         3.
         1     0205   26     .00     .00     .00         0.       *        1
1230  151     .00     .00     .00         3.
         1     0210   27     .00     .00     .00         0.       *        1
1235  152     .01     .00     .00         3.
         1     0215   28     .00     .00     .00         0.       *        1
1240  153     .01     .00     .00         4.
         1     0220   29     .00     .00     .00         0.       *        1
1245  154     .01     .00     .00         4.
         1     0225   30     .00     .00     .00         0.       *        1
1250  155     .00     .00     .00         4.
         1     0230   31     .00     .00     .00         0.       *        1
1255  156     .00     .00     .00         3.
         1     0235   32     .00     .00     .00         0.       *        1
1300  157     .00     .00     .00         3.
         1     0240   33     .00     .00     .00         0.       *        1
1305  158     .00     .00     .00         3.
         1     0245   34     .00     .00     .00         0.       *        1
1310  159     .00     .00     .00         3.
         1     0250   35     .00     .00     .00         0.       *        1
1315  160     .00     .00     .00         3.
         1     0255   36     .00     .00     .00         0.       *        1
1320  161     .00     .00     .00         3.
         1     0300   37     .00     .00     .00         0.       *        1
1325  162     .00     .00     .00         3.
         1     0305   38     .00     .00     .00         0.       *        1
1330  163     .00     .00     .00         3.
         1     0310   39     .00     .00     .00         0.       *        1
1335  164     .00     .00     .00         3.
         1     0315   40     .00     .00     .00         0.       *        1
1340  165     .00     .00     .00         3.
         1     0320   41     .00     .00     .00         0.       *        1
1345  166     .00     .00     .00         3.
         1     0325   42     .00     .00     .00         0.       *        1
1350  167     .00     .00     .00         3.
         1     0330   43     .00     .00     .00         0.       *        1
1355  168     .00     .00     .00         3.
         1     0335   44     .00     .00     .00         0.       *        1
1400  169     .00     .00     .00         3.
         1     0340   45     .00     .00     .00         0.       *        1
1405  170     .00     .00     .00         3.
         1     0345   46     .00     .00     .00         0.       *        1
1410  171     .00     .00     .00         3.
         1     0350   47     .01     .01     .00         0.       *        1
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1415  172     .00     .00     .00         3.
         1     0355   48     .01     .01     .00         0.       *        1
1420  173     .00     .00     .00         3.
         1     0400   49     .01     .01     .00         0.       *        1
1425  174     .00     .00     .00         3.
         1     0405   50     .01     .01     .00         0.       *        1
1430  175     .00     .00     .00         3.
         1     0410   51     .01     .01     .00         0.       *        1
1435  176     .00     .00     .00         3.
         1     0415   52     .01     .01     .00         0.       *        1
1440  177     .00     .00     .00         3.
         1     0420   53     .01     .01     .00         0.       *        1
1445  178     .00     .00     .00         3.
         1     0425   54     .01     .01     .00         0.       *        1
1450  179     .00     .00     .00         3.
         1     0430   55     .01     .01     .00         0.       *        1
1455  180     .00     .00     .00         3.
         1     0435   56     .01     .01     .00         0.       *        1
1500  181     .00     .00     .00         3.
         1     0440   57     .01     .01     .00         0.       *        1
1505  182     .00     .00     .00         3.
         1     0445   58     .01     .01     .00         0.       *        1
1510  183     .00     .00     .00         2.
         1     0450   59     .01     .01     .00         0.       *        1
1515  184     .00     .00     .00         2.
         1     0455   60     .01     .01     .00         0.       *        1
1520  185     .00     .00     .00         2.
         1     0500   61     .01     .01     .00         0.       *        1
1525  186     .00     .00     .00         2.
         1     0505   62     .02     .02     .00         0.       *        1
1530  187     .00     .00     .00         2.
         1     0510   63     .02     .02     .00         0.       *        1
1535  188     .00     .00     .00         2.
         1     0515   64     .02     .02     .00         0.       *        1
1540  189     .00     .00     .00         2.
         1     0520   65     .03     .03     .00         0.       *        1
1545  190     .00     .00     .00         2.
         1     0525   66     .03     .03     .00         0.       *        1
1550  191     .00     .00     .00         2.
         1     0530   67     .03     .03     .00         0.       *        1
1555  192     .00     .00     .00         2.
         1     0535   68     .40     .31     .09        19.       *        1
1600  193     .00     .00     .00         2.
         1     0540   69     .40     .22     .18        68.       *        1
1605  194     .00     .00     .00         2.
         1     0545   70     .40     .16     .24       126.       *        1
1610  195     .00     .00     .00         2.
         1     0550   71     .40     .12     .28       172.       *        1
1615  196     .00     .00     .00         2.
         1     0555   72     .40     .10     .30       207.       *        1
1620  197     .00     .00     .00         2.
         1     0600   73     .40     .08     .32       232.       *        1
1625  198     .00     .00     .00         2.
         1     0605   74     .03     .01     .03       184.       *        1
1630  199     .00     .00     .00         2.
         1     0610   75     .03     .01     .03        92.       *        1
1635  200     .00     .00     .00         2.
         1     0615   76     .03     .01     .03        50.       *        1
1640  201     .00     .00     .00         2.
         1     0620   77     .03     .01     .03        33.       *        1
1645  202     .00     .00     .00         2.
         1     0625   78     .03     .01     .03        26.       *        1
1650  203     .00     .00     .00         2.
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         1     0630   79     .03     .01     .03        24.        *        1
1655  204     .00     .00     .00          2.
         1     0635   80     .02     .00     .02        20.        *        1
1700  205     .00     .00     .00          2.
         1     0640   81     .02     .00     .02        16.        *        1
1705  206     .00     .00     .00          2.
         1     0645   82     .02     .00     .02        15.        *        1
1710  207     .00     .00     .00          2.
         1     0650   83     .02     .00     .02        14.        *        1
1715  208     .00     .00     .00          2.
         1     0655   84     .02     .00     .02        14.        *        1
1720  209     .00     .00     .00          2.
         1     0700   85     .02     .00     .02        14.        *        1
1725  210     .00     .00     .00          2.
         1     0705   86     .01     .00     .01        12.        *        1
1730  211     .00     .00     .00          2.
         1     0710   87     .01     .00     .01        10.        *        1
1735  212     .00     .00     .00          2.
         1     0715   88     .01     .00     .01        10.        *        1
1740  213     .00     .00     .00          2.
         1     0720   89     .01     .00     .01         9.        *        1
1745  214     .00     .00     .00          2.
         1     0725   90     .01     .00     .01         9.        *        1
1750  215     .00     .00     .00          2.
         1     0730   91     .01     .00     .01         9.        *        1
1755  216     .00     .00     .00          2.
         1     0735   92     .01     .00     .01         9.        *        1
1800  217     .00     .00     .00          2.
         1     0740   93     .01     .00     .01         9.        *        1
1805  218     .00     .00     .00          2.
         1     0745   94     .01     .00     .01         9.        *        1
1810  219     .00     .00     .00          2.
         1     0750   95     .01     .00     .01         9.        *        1
1815  220     .00     .00     .00          2.
         1     0755   96     .01     .00     .01         9.        *        1
1820  221     .00     .00     .00          2.
         1     0800   97     .01     .00     .01         9.        *        1
1825  222     .00     .00     .00          2.
         1     0805   98     .01     .00     .01         8.        *        1
1830  223     .00     .00     .00          2.
         1     0810   99     .01     .00     .01         6.        *        1
1835  224     .00     .00     .00          2.
         1     0815  100     .01     .00     .01         5.        *        1
1840  225     .00     .00     .00          2.
         1     0820  101     .01     .00     .01         5.        *        1
1845  226     .00     .00     .00          2.
         1     0825  102     .01     .00     .01         5.        *        1
1850  227     .00     .00     .00          2.
         1     0830  103     .01     .00     .01         5.        *        1
1855  228     .00     .00     .00          2.
         1     0835  104     .01     .00     .01         5.        *        1
1900  229     .00     .00     .00          2.
         1     0840  105     .01     .00     .01         5.        *        1
1905  230     .00     .00     .00          2.
         1     0845  106     .01     .00     .01         5.        *        1
1910  231     .00     .00     .00          2.
         1     0850  107     .01     .00     .01         5.        *        1
1915  232     .00     .00     .00          2.
         1     0855  108     .01     .00     .01         5.        *        1
1920  233     .00     .00     .00          2.
         1     0900  109     .01     .00     .01         5.        *        1
1925  234     .00     .00     .00          2.
         1     0905  110     .01     .00     .01         5.        *        1
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1930  235     .00     .00     .00         2.
         1     0910  111     .01     .00     .01         5.       *        1
1935  236     .00     .00     .00         2.
         1     0915  112     .01     .00     .01         5.       *        1
1940  237     .00     .00     .00         2.
         1     0920  113     .01     .00     .01         5.       *        1
1945  238     .00     .00     .00         2.
         1     0925  114     .01     .00     .01         5.       *        1
1950  239     .00     .00     .00         2.
         1     0930  115     .01     .00     .01         5.       *        1
1955  240     .00     .00     .00         2.
         1     0935  116     .01     .00     .01         5.       *        1
2000  241     .00     .00     .00         2.
         1     0940  117     .01     .00     .01         5.       *        1
2005  242     .00     .00     .00         2.
         1     0945  118     .01     .00     .01         5.       *        1
2010  243     .00     .00     .00         2.
         1     0950  119     .01     .00     .01         5.       *        1
2015  244     .00     .00     .00         1.
         1     0955  120     .01     .00     .01         5.       *        1
2020  245     .00     .00     .00         1.
         1     1000  121     .01     .00     .01         5.       *        1
2025  246     .00     .00     .00         1.
         1     1005  122     .01     .00     .00         4.       *        1
2030  247     .00     .00     .00         1.
         1     1010  123     .01     .00     .00         4.       *        1
2035  248     .00     .00     .00         1.
         1     1015  124     .01     .00     .00         4.       *        1
2040  249     .00     .00     .00         1.
         1     1020  125     .00     .00     .00         4.       *        1
2045  250     .00     .00     .00         1.
                                                                  *

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     TOTAL RAINFALL =    3.90, TOTAL LOSS =    1.53, TOTAL EXCESS =    2.37

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                               (CFS)
+     232.      6.00                     22.           8.          8.           8.
                            (INCHES)   2.007        2.366       2.366        2.366
                             (AC-FT)     11.          13.         13.          13.

                             CUMULATIVE AREA =     .10 SQ MI



 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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             *            *
  209 KK     *    DB8006  *
             *            *
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  210 KO          OUTPUT CONTROL VARIABLES
```

```
                        IPRNT           1  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                                        ROUTE FLOW FROM E8005 THROUGH DB8006 -
MARKETS AT MESA RIDGE FSD

                HYDROGRAPH ROUTING DATA

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

  213 SV            STORAGE          .0         .2        1.7        2.3        4.4
 7.4      11.0      13.1

  214 SE          ELEVATION     5699.00   5700.00   5703.00   5704.00   5706.00
5708.00   5710.00   5711.00

  215 SQ          DISCHARGE          0.         1.         1.        50.        56.
 58.       43.       74.

  216 SE          ELEVATION     5700.00   5701.00   5705.70   5706.00   5708.00
5708.50   5709.00   5710.00

  217 SS          SPILLWAY
                         CREL     5710.00  SPILLWAY CREST ELEVATION
                        SPWID      400.00  SPILLWAY WIDTH
                         COQW        3.10  WEIR COEFFICIENT
                         EXPW        1.50  EXPONENT OF HEAD

                                                                          ***

                                                       COMPUTED STORAGE-OUTFLOW-ELEVATION
DATA

            STORAGE        .00        .22        .73       1.74       2.34       4.09
  4.40      7.44      8.33      9.22
            OUTFLOW        .00        .00        .70        .70        .70        .70
 49.50     56.40     58.00     42.50
          ELEVATION    5699.00    5700.00    5701.00    5703.00    5704.00    5705.70
5706.00   5708.00   5708.50   5709.00

            STORAGE      11.00      13.12
            OUTFLOW      73.50     104.50
          ELEVATION    5710.00    5711.00


*************************************************************************************
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                                                   HYDROGRAPH AT STATION   DB8006

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                                            *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                            *
   *
```

```
   1     0000   1       0.        .0  5699.0 *  1     0700  85       50.       4.6
5706.1 *  1     1400 169       3.        4.1  5705.7
   1     0005   2       0.        .0  5699.0 *  1     0705  86       39.       4.3
5705.9 *  1     1405 170       3.        4.1  5705.7
   1     0010   3       0.        .0  5699.0 *  1     0710  87       20.       4.2
5705.8 *  1     1410 171       3.        4.1  5705.7
   1     0015   4       0.        .0  5699.0 *  1     0715  88       13.       4.2
5705.8 *  1     1415 172       3.        4.1  5705.7
   1     0020   5       0.        .0  5699.0 *  1     0720  89       10.       4.2
5705.8 *  1     1420 173       3.        4.1  5705.7
   1     0025   6       0.        .0  5699.0 *  1     0725  90       10.       4.1
5705.8 *  1     1425 174       3.        4.1  5705.7
   1     0030   7       0.        .0  5699.0 *  1     0730  91        9.       4.1
5705.8 *  1     1430 175       3.        4.1  5705.7
   1     0035   8       0.        .0  5699.0 *  1     0735  92        9.       4.1
5705.8 *  1     1435 176       3.        4.1  5705.7
   1     0040   9       0.        .0  5699.0 *  1     0740  93        9.       4.1
5705.8 *  1     1440 177       3.        4.1  5705.7
   1     0045   10      0.        .0  5699.0 *  1     0745  94        9.       4.1
5705.8 *  1     1445 178       3.        4.1  5705.7
   1     0050   11      0.        .0  5699.0 *  1     0750  95        9.       4.1
5705.8 *  1     1450 179       3.        4.1  5705.7
   1     0055   12      0.        .0  5699.0 *  1     0755  96        9.       4.1
5705.8 *  1     1455 180       3.        4.1  5705.7
   1     0100   13      0.        .0  5699.0 *  1     0800  97        9.       4.1
5705.8 *  1     1500 181       3.        4.1  5705.7
   1     0105   14      0.        .0  5699.0 *  1     0805  98        9.       4.1
5705.7 *  1     1505 182       3.        4.1  5705.7
   1     0110   15      0.        .0  5699.0 *  1     0810  99        7.       4.1
5705.7 *  1     1510 183       3.        4.1  5705.7
   1     0115   16      0.        .0  5699.0 *  1     0815 100        6.       4.1
5705.7 *  1     1515 184       3.        4.1  5705.7
   1     0120   17      0.        .0  5699.0 *  1     0820 101        5.       4.1
5705.7 *  1     1520 185       2.        4.1  5705.7
   1     0125   18      0.        .0  5699.0 *  1     0825 102        5.       4.1
5705.7 *  1     1525 186       2.        4.1  5705.7
   1     0130   19      0.        .0  5699.0 *  1     0830 103        5.       4.1
5705.7 *  1     1530 187       2.        4.1  5705.7
   1     0135   20      0.        .0  5699.0 *  1     0835 104        5.       4.1
5705.7 *  1     1535 188       2.        4.1  5705.7
   1     0140   21      0.        .0  5699.0 *  1     0840 105        5.       4.1
5705.7 *  1     1540 189       2.        4.1  5705.7
   1     0145   22      0.        .0  5699.0 *  1     0845 106        5.       4.1
5705.7 *  1     1545 190       2.        4.1  5705.7
   1     0150   23      0.        .0  5699.0 *  1     0850 107        5.       4.1
5705.7 *  1     1550 191       2.        4.1  5705.7
   1     0155   24      0.        .0  5699.0 *  1     0855 108        5.       4.1
5705.7 *  1     1555 192       2.        4.1  5705.7
   1     0200   25      0.        .0  5699.0 *  1     0900 109        5.       4.1
5705.7 *  1     1600 193       2.        4.1  5705.7
   1     0205   26      0.        .0  5699.0 *  1     0905 110        5.       4.1
5705.7 *  1     1605 194       2.        4.1  5705.7
   1     0210   27      0.        .0  5699.0 *  1     0910 111        5.       4.1
5705.7 *  1     1610 195       2.        4.1  5705.7
   1     0215   28      0.        .0  5699.0 *  1     0915 112        5.       4.1
5705.7 *  1     1615 196       2.        4.1  5705.7
   1     0220   29      0.        .0  5699.0 *  1     0920 113        5.       4.1
5705.7 *  1     1620 197       2.        4.1  5705.7
   1     0225   30      0.        .0  5699.0 *  1     0925 114        5.       4.1
5705.7 *  1     1625 198       2.        4.1  5705.7
   1     0230   31      0.        .0  5699.0 *  1     0930 115        5.       4.1
5705.7 *  1     1630 199       2.        4.1  5705.7
   1     0235   32      0.        .0  5699.0 *  1     0935 116        5.       4.1
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5705.7 *  1     1635 200       2.       4.1  5705.7
   1     0240  33       0.       .0  5699.0 *  1     0940 117       5.       4.1
5705.7 *  1     1640 201       2.       4.1  5705.7
   1     0245  34       0.       .0  5699.0 *  1     0945 118       5.       4.1
5705.7 *  1     1645 202       2.       4.1  5705.7
   1     0250  35       0.       .0  5699.0 *  1     0950 119       5.       4.1
5705.7 *  1     1650 203       2.       4.1  5705.7
   1     0255  36       0.       .0  5699.0 *  1     0955 120       5.       4.1
5705.7 *  1     1655 204       2.       4.1  5705.7
   1     0300  37       0.       .0  5699.0 *  1     1000 121       5.       4.1
5705.7 *  1     1700 205       2.       4.1  5705.7
   1     0305  38       0.       .0  5699.0 *  1     1005 122       5.       4.1
5705.7 *  1     1705 206       2.       4.1  5705.7
   1     0310  39       0.       .0  5699.0 *  1     1010 123       4.       4.1
5705.7 *  1     1710 207       2.       4.1  5705.7
   1     0315  40       0.       .0  5699.0 *  1     1015 124       4.       4.1
5705.7 *  1     1715 208       2.       4.1  5705.7
   1     0320  41       0.       .0  5699.0 *  1     1020 125       4.       4.1
5705.7 *  1     1720 209       2.       4.1  5705.7
   1     0325  42       0.       .0  5699.0 *  1     1025 126       4.       4.1
5705.7 *  1     1725 210       2.       4.1  5705.7
   1     0330  43       0.       .0  5699.0 *  1     1030 127       3.       4.1
5705.7 *  1     1730 211       2.       4.1  5705.7
   1     0335  44       0.       .0  5699.0 *  1     1035 128       3.       4.1
5705.7 *  1     1735 212       2.       4.1  5705.7
   1     0340  45       0.       .0  5699.0 *  1     1040 129       3.       4.1
5705.7 *  1     1740 213       2.       4.1  5705.7
   1     0345  46       0.       .0  5699.0 *  1     1045 130       3.       4.1
5705.7 *  1     1745 214       2.       4.1  5705.7
   1     0350  47       0.       .0  5699.0 *  1     1050 131       3.       4.1
5705.7 *  1     1750 215       2.       4.1  5705.7
   1     0355  48       0.       .0  5699.0 *  1     1055 132       3.       4.1
5705.7 *  1     1755 216       2.       4.1  5705.7
   1     0400  49       0.       .0  5699.0 *  1     1100 133       3.       4.1
5705.7 *  1     1800 217       2.       4.1  5705.7
   1     0405  50       0.       .0  5699.0 *  1     1105 134       3.       4.1
5705.7 *  1     1805 218       2.       4.1  5705.7
   1     0410  51       0.       .0  5699.0 *  1     1110 135       3.       4.1
5705.7 *  1     1810 219       2.       4.1  5705.7
   1     0415  52       0.       .0  5699.0 *  1     1115 136       3.       4.1
5705.7 *  1     1815 220       2.       4.1  5705.7
   1     0420  53       0.       .0  5699.0 *  1     1120 137       3.       4.1
5705.7 *  1     1820 221       2.       4.1  5705.7
   1     0425  54       0.       .0  5699.0 *  1     1125 138       3.       4.1
5705.7 *  1     1825 222       2.       4.1  5705.7
   1     0430  55       0.       .0  5699.0 *  1     1130 139       3.       4.1
5705.7 *  1     1830 223       2.       4.1  5705.7
   1     0435  56       0.       .0  5699.0 *  1     1135 140       3.       4.1
5705.7 *  1     1835 224       2.       4.1  5705.7
   1     0440  57       0.       .0  5699.0 *  1     1140 141       3.       4.1
5705.7 *  1     1840 225       2.       4.1  5705.7
   1     0445  58       0.       .0  5699.0 *  1     1145 142       3.       4.1
5705.7 *  1     1845 226       2.       4.1  5705.7
   1     0450  59       0.       .0  5699.0 *  1     1150 143       4.       4.1
5705.7 *  1     1850 227       2.       4.1  5705.7
   1     0455  60       0.       .0  5699.0 *  1     1155 144       3.       4.1
5705.7 *  1     1855 228       2.       4.1  5705.7
   1     0500  61       0.       .0  5699.0 *  1     1200 145       3.       4.1
5705.7 *  1     1900 229       2.       4.1  5705.7
   1     0505  62       0.       .0  5699.0 *  1     1205 146       3.       4.1
5705.7 *  1     1905 230       2.       4.1  5705.7
   1     0510  63       0.       .0  5699.0 *  1     1210 147       3.       4.1
5705.7 *  1     1910 231       2.       4.1  5705.7
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   1     0515  64        0.       .0  5699.0 *  1     1215 148       3.      4.1
5705.7 *  1     1915 232       2.       4.1  5705.7
   1     0520  65        0.       .0  5699.0 *  1     1220 149       4.      4.1
5705.7 *  1     1920 233       2.       4.1  5705.7
   1     0525  66        0.       .0  5699.0 *  1     1225 150       3.      4.1
5705.7 *  1     1925 234       2.       4.1  5705.7
   1     0530  67        0.       .0  5699.0 *  1     1230 151       3.      4.1
5705.7 *  1     1930 235       2.       4.1  5705.7
   1     0535  68        0.       .1  5699.3 *  1     1235 152       3.      4.1
5705.7 *  1     1935 236       2.       4.1  5705.7
   1     0540  69        0.       .4  5700.3 *  1     1240 153       3.      4.1
5705.7 *  1     1940 237       2.       4.1  5705.7
   1     0545  70        1.      1.0  5701.6 *  1     1245 154       4.      4.1
5705.7 *  1     1945 238       2.       4.1  5705.7
   1     0550  71        1.      2.1  5703.5 *  1     1250 155       4.      4.1
5705.7 *  1     1950 239       2.       4.1  5705.7
   1     0555  72        1.      3.4  5705.0 *  1     1255 156       3.      4.1
5705.7 *  1     1955 240       2.       4.1  5705.7
   1     0600  73       50.      4.7  5706.2 *  1     1300 157       3.      4.1
5705.7 *  1     2000 241       2.       4.1  5705.7
   1     0605  74       53.      5.8  5706.9 *  1     1305 158       3.      4.1
5705.7 *  1     2005 242       2.       4.1  5705.7
   1     0610  75       54.      6.4  5707.3 *  1     1310 159       3.      4.1
5705.7 *  1     2010 243       2.       4.1  5705.7
   1     0615  76       54.      6.5  5707.4 *  1     1315 160       3.      4.1
5705.7 *  1     2015 244       2.       4.1  5705.7
   1     0620  77       54.      6.4  5707.3 *  1     1320 161       3.      4.1
5705.7 *  1     2020 245       1.       4.1  5705.7
   1     0625  78       54.      6.2  5707.2 *  1     1325 162       3.      4.1
5705.7 *  1     2025 246       1.       4.1  5705.7
   1     0630  79       53.      6.0  5707.1 *  1     1330 163       3.      4.1
5705.7 *  1     2030 247       1.       4.1  5705.7
   1     0635  80       53.      5.8  5706.9 *  1     1335 164       3.      4.1
5705.7 *  1     2035 248       1.       4.1  5705.7
   1     0640  81       52.      5.6  5706.8 *  1     1340 165       3.      4.1
5705.7 *  1     2040 249       1.       4.1  5705.7
   1     0645  82       52.      5.3  5706.6 *  1     1345 166       3.      4.1
5705.7 *  1     2045 250       1.       4.1  5705.7
   1     0650  83       51.      5.1  5706.4 *  1     1350 167       3.      4.1
5705.7 *
   1     0655  84       50.      4.8  5706.3 *  1     1355 168       3.      4.1
5705.7 *
                                            *
   *

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  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     20.75-HR

+   (CFS)       (HR)
                           (CFS)
+      54.      6.25                   14.          5.          5.           5.
                        (INCHES)     1.286       1.628       1.628        1.628
                         (AC-FT)        7.          9.          9.           9.

 PEAK STORAGE   TIME                               MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     20.75-HR

+  (AC-FT)      (HR)
        6.      6.25                    4.          3.          3.           3.

  PEAK STAGE    TIME                                MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     20.75-HR
```

```
+   (FEET)       (HR)
   5707.36      6.25               5705.92     5703.91     5703.91      5703.91

                             CUMULATIVE AREA =     .10 SQ MI



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


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             *            *
  258 KK     *     R8035  *

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

  260 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           5  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE



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


             **************
             *            *
  270 KK     *     R8040  *

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

  271 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           1  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                                   ROUTE DP 8040 TO DP 8075


                HYDROGRAPH ROUTING DATA

  273 RK          KINEMATIC WAVE STREAM ROUTING
                            L        600.  CHANNEL LENGTH
                            S       .0050  SLOPE
                            N        .035  CHANNEL ROUGHNESS COEFFICIENT
                           CA         .00  CONTRIBUTING AREA
                        SHAPE        TRAP  CHANNEL SHAPE
                           WD       50.00  BOTTOM WIDTH OR DIAMETER
                            Z        5.00  SIDE SLOPE
                       NDXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                                                           ***
                                            COMPUTED KINEMATIC PARAMETERS
                                                 VARIABLE TIME STEP
                                               (DT SHOWN IS A MINIMUM)

                           ELEMENT    ALPHA        M          DT         DX        PEAK
TIME TO     VOLUME    MAXIMUM
```

```
PEAK                CELERITY
                                                    (MIN)      (FT)     (CFS)
(MIN)       (IN)      (FPS)

                    MAIN           .34      1.51        .90    200.00    179.56
370.92      2.36      4.35


 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1739E+02  EXCESS= .0000E+00 OUTFLOW=
.1737E+02 BASIN STORAGE= .2658E-01 PERCENT ERROR=    .0


                                           INTERPOLATED TO SPECIFIED COMPUTATION
INTERVAL


                    MAIN           .34      1.51       5.00               179.35
370.00      2.36


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                                                   HYDROGRAPH AT STATION    R8040


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***********************************************
                                 *                                *
              *
    DA MON HRMN  ORD      FLOW   *   DA MON HRMN  ORD      FLOW   *   DA MON HRMN
ORD      FLOW   *   DA MON HRMN  ORD      FLOW
                                 *                                *
              *
     1     0000    1        0.   *    1     0515   64        0.   *    1     1030
127        5.   *    1     1545  190        3.
     1     0005    2        0.   *    1     0520   65        0.   *    1     1035
128        5.   *    1     1550  191        3.
     1     0010    3        0.   *    1     0525   66        0.   *    1     1040
129        5.   *    1     1555  192        3.
     1     0015    4        0.   *    1     0530   67        0.   *    1     1045
130        5.   *    1     1600  193        3.
     1     0020    5        0.   *    1     0535   68        0.   *    1     1050
131        5.   *    1     1605  194        3.
     1     0025    6        0.   *    1     0540   69        0.   *    1     1055
132        5.   *    1     1610  195        3.
     1     0030    7        0.   *    1     0545   70       17.   *    1     1100
133        5.   *    1     1615  196        3.
     1     0035    8        0.   *    1     0550   71       57.   *    1     1105
134        5.   *    1     1620  197        3.
     1     0040    9        0.   *    1     0555   72       98.   *    1     1110
135        5.   *    1     1625  198        3.
     1     0045   10        0.   *    1     0600   73      139.   *    1     1115
136        5.   *    1     1630  199        3.
     1     0050   11        0.   *    1     0605   74      170.   *    1     1120
137        5.   *    1     1635  200        3.
     1     0055   12        0.   *    1     0610   75      179.   *    1     1125
138        5.   *    1     1640  201        3.
     1     0100   13        0.   *    1     0615   76      167.   *    1     1130
139        5.   *    1     1645  202        3.
     1     0105   14        0.   *    1     0620   77      144.   *    1     1135
140        5.   *    1     1650  203        3.
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    1     0110   15        0.   *    1     0625   78      122.   *    1     1140
141       5.   *    1     1655  204        3.
    1     0115   16        0.   *    1     0630   79      105.   *    1     1145
142       5.   *    1     1700  205        3.
    1     0120   17        0.   *    1     0635   80       91.   *    1     1150
143       5.   *    1     1705  206        3.
    1     0125   18        0.   *    1     0640   81       78.   *    1     1155
144       5.   *    1     1710  207        3.
    1     0130   19        0.   *    1     0645   82       67.   *    1     1200
145       5.   *    1     1715  208        3.
    1     0135   20        0.   *    1     0650   83       56.   *    1     1205
146       5.   *    1     1720  209        3.
    1     0140   21        0.   *    1     0655   84       48.   *    1     1210
147       5.   *    1     1725  210        3.
    1     0145   22        0.   *    1     0700   85       41.   *    1     1215
148       5.   *    1     1730  211        3.
    1     0150   23        0.   *    1     0705   86       36.   *    1     1220
149       5.   *    1     1735  212        3.
    1     0155   24        0.   *    1     0710   87       32.   *    1     1225
150       5.   *    1     1740  213        3.
    1     0200   25        0.   *    1     0715   88       28.   *    1     1230
151       5.   *    1     1745  214        3.
    1     0205   26        0.   *    1     0720   89       25.   *    1     1235
152       5.   *    1     1750  215        3.
    1     0210   27        0.   *    1     0725   90       23.   *    1     1240
153       5.   *    1     1755  216        3.
    1     0215   28        0.   *    1     0730   91       20.   *    1     1245
154       5.   *    1     1800  217        3.
    1     0220   29        0.   *    1     0735   92       19.   *    1     1250
155       5.   *    1     1805  218        3.
    1     0225   30        0.   *    1     0740   93       17.   *    1     1255
156       5.   *    1     1810  219        3.
    1     0230   31        0.   *    1     0745   94       16.   *    1     1300
157       5.   *    1     1815  220        3.
    1     0235   32        0.   *    1     0750   95       15.   *    1     1305
158       5.   *    1     1820  221        3.
    1     0240   33        0.   *    1     0755   96       15.   *    1     1310
159       5.   *    1     1825  222        3.
    1     0245   34        0.   *    1     0800   97       14.   *    1     1315
160       5.   *    1     1830  223        3.
    1     0250   35        0.   *    1     0805   98       14.   *    1     1320
161       5.   *    1     1835  224        3.
    1     0255   36        0.   *    1     0810   99       13.   *    1     1325
162       4.   *    1     1840  225        3.
    1     0300   37        0.   *    1     0815  100       12.   *    1     1330
163       4.   *    1     1845  226        3.
    1     0305   38        0.   *    1     0820  101       11.   *    1     1335
164       4.   *    1     1850  227        3.
    1     0310   39        0.   *    1     0825  102       10.   *    1     1340
165       4.   *    1     1855  228        3.
    1     0315   40        0.   *    1     0830  103        9.   *    1     1345
166       4.   *    1     1900  229        3.
    1     0320   41        0.   *    1     0835  104        9.   *    1     1350
167       4.   *    1     1905  230        3.
    1     0325   42        0.   *    1     0840  105        8.   *    1     1355
168       4.   *    1     1910  231        3.
    1     0330   43        0.   *    1     0845  106        8.   *    1     1400
169       4.   *    1     1915  232        3.
    1     0335   44        0.   *    1     0850  107        7.   *    1     1405
170       4.   *    1     1920  233        3.
    1     0340   45        0.   *    1     0855  108        7.   *    1     1410
171       4.   *    1     1925  234        3.
    1     0345   46        0.   *    1     0900  109        7.   *    1     1415
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172          4.   *    1      1930  235          3.
     1     0350   47          0.    *    1      0905  110         7.    *    1      1420
173          4.   *    1      1935  236          3.
     1     0355   48          0.    *    1      0910  111         7.    *    1      1425
174          4.   *    1      1940  237          3.
     1     0400   49          0.    *    1      0915  112         6.    *    1      1430
175          4.   *    1      1945  238          3.
     1     0405   50          0.    *    1      0920  113         6.    *    1      1435
176          4.   *    1      1950  239          3.
     1     0410   51          0.    *    1      0925  114         6.    *    1      1440
177          4.   *    1      1955  240          3.
     1     0415   52          0.    *    1      0930  115         6.    *    1      1445
178          4.   *    1      2000  241          3.
     1     0420   53          0.    *    1      0935  116         6.    *    1      1450
179          4.   *    1      2005  242          3.
     1     0425   54          0.    *    1      0940  117         6.    *    1      1455
180          4.   *    1      2010  243          3.
     1     0430   55          0.    *    1      0945  118         6.    *    1      1500
181          4.   *    1      2015  244          3.
     1     0435   56          0.    *    1      0950  119         6.    *    1      1505
182          4.   *    1      2020  245          3.
     1     0440   57          0.    *    1      0955  120         6.    *    1      1510
183          4.   *    1      2025  246          3.
     1     0445   58          0.    *    1      1000  121         6.    *    1      1515
184          4.   *    1      2030  247          2.
     1     0450   59          0.    *    1      1005  122         6.    *    1      1520
185          4.   *    1      2035  248          2.
     1     0455   60          0.    *    1      1010  123         6.    *    1      1525
186          4.   *    1      2040  249          2.
     1     0500   61          0.    *    1      1015  124         6.    *    1      1530
187          3.   *    1      2045  250          2.
     1     0505   62          0.    *    1      1020  125         6.    *    1      1535
188          3.   *
     1     0510   63          0.    *    1      1025  126         6.    *    1      1540
189          3.   *
                                    *                                 *
              *

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  PEAK FLOW     TIME                           MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR     20.75-HR

+   (CFS)       (HR)
                             (CFS)
+     179.      6.17                     30.          10.          10.          10.
                          (INCHES)     1.995        2.359        2.359        2.359
                           (AC-FT)       15.          17.          17.          17.

                         CUMULATIVE AREA =     .14 SQ MI




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


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             *            *
  277 KK     *    DB8075  *

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  278 KO          OUTPUT CONTROL VARIABLES
                        IPRNT            1  PRINT CONTROL
                        IPLOT            0  PLOT CONTROL
                        QSCAL           0.  HYDROGRAPH PLOT SCALE
                                     ROUTE DP8075 THROUGH NEW HALE RESERVOIR  (PER
APPLEGATE DESIGN)

               HYDROGRAPH ROUTING DATA

  280 RS          STORAGE ROUTING
                        NSTPS            1  NUMBER OF SUBREACHES
                         ITYP         ELEV  TYPE OF INITIAL CONDITION
                       RSVRIC      5622.00  INITIAL CONDITION
                            X          .00 WORKING R AND D COEFFICIENT

  282 SV            STORAGE           .0      11.8      24.5      37.7      51.5
65.8      80.4      95.3     110.5

  283 SE          ELEVATION     5622.00   5623.00   5624.00   5625.00   5626.00
5627.00   5628.00   5629.00   5630.00

  281 SQ          DISCHARGE          0.         0.         0.         0.         0.
  0.      149.      420.      772.

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                                                            HYDROGRAPH AT STATION   DB8075


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                                                *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                                *
   *
   1     0000   1       0.       .0  5622.0 *  1     0700  85     104.     76.0
5627.7 *  1     1400 169      44.     70.1  5627.3
   1     0005   2       0.       .0  5622.0 *  1     0705  86     122.     77.7
5627.8 *  1     1405 170      43.     70.1  5627.3
   1     0010   3       0.       .0  5622.0 *  1     0710  87     136.     79.2
5627.9 *  1     1410 171      43.     70.0  5627.3
   1     0015   4       0.       .0  5622.0 *  1     0715  88     148.     80.3
5628.0 *  1     1415 172      43.     70.0  5627.3
   1     0020   5       0.       .0  5622.0 *  1     0720  89     162.     81.1
5628.0 *  1     1420 173      42.     70.0  5627.3
   1     0025   6       0.       .0  5622.0 *  1     0725  90     171.     81.6
5628.1 *  1     1425 174      42.     69.9  5627.3
   1     0030   7       0.       .0  5622.0 *  1     0730  91     176.     81.9
5628.1 *  1     1430 175      42.     69.9  5627.3
   1     0035   8       0.       .0  5622.0 *  1     0735  92     178.     82.0
5628.1 *  1     1435 176      41.     69.9  5627.3
   1     0040   9       0.       .0  5622.0 *  1     0740  93     178.     82.0
5628.1 *  1     1440 177      41.     69.8  5627.3
   1     0045  10       0.       .0  5622.0 *  1     0745  94     176.     81.9
5628.1 *  1     1445 178      41.     69.8  5627.3
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   1     0050  11       0.       .0  5622.0 *  1     0750  95     172.     81.7
5628.1 *  1     1450 179      40.     69.8  5627.3
   1     0055  12       0.       .0  5622.0 *  1     0755  96     168.     81.5
5628.1 *  1     1455 180      40.     69.7  5627.3
   1     0100  13       0.       .0  5622.0 *  1     0800  97     164.     81.2
5628.1 *  1     1500 181      40.     69.7  5627.3
   1     0105  14       0.       .0  5622.0 *  1     0805  98     160.     81.0
5628.0 *  1     1505 182      40.     69.7  5627.3
   1     0110  15       0.       .0  5622.0 *  1     0810  99     155.     80.7
5628.0 *  1     1510 183      39.     69.6  5627.3
   1     0115  16       0.       .0  5622.0 *  1     0815 100     151.     80.5
5628.0 *  1     1515 184      39.     69.6  5627.3
   1     0120  17       0.       .0  5622.0 *  1     0820 101     147.     80.2
5628.0 *  1     1520 185      39.     69.6  5627.3
   1     0125  18       0.       .0  5622.0 *  1     0825 102     144.     79.9
5628.0 *  1     1525 186      38.     69.6  5627.3
   1     0130  19       0.       .0  5622.0 *  1     0830 103     140.     79.5
5627.9 *  1     1530 187      38.     69.5  5627.3
   1     0135  20       0.       .0  5622.0 *  1     0835 104     137.     79.2
5627.9 *  1     1535 188      38.     69.5  5627.3
   1     0140  21       0.       .0  5622.0 *  1     0840 105     133.     78.8
5627.9 *  1     1540 189      37.     69.5  5627.3
   1     0145  22       0.       .0  5622.0 *  1     0845 106     129.     78.4
5627.9 *  1     1545 190      37.     69.4  5627.2
   1     0150  23       0.       .0  5622.0 *  1     0850 107     125.     78.1
5627.8 *  1     1550 191      36.     69.4  5627.2
   1     0155  24       0.       .0  5622.0 *  1     0855 108     122.     77.7
5627.8 *  1     1555 192      36.     69.3  5627.2
   1     0200  25       0.       .0  5622.0 *  1     0900 109     118.     77.4
5627.8 *  1     1600 193      36.     69.3  5627.2
   1     0205  26       0.       .0  5622.0 *  1     0905 110     115.     77.1
5627.8 *  1     1605 194      35.     69.3  5627.2
   1     0210  27       0.       .0  5622.0 *  1     0910 111     112.     76.8
5627.8 *  1     1610 195      35.     69.2  5627.2
   1     0215  28       0.       .0  5622.0 *  1     0915 112     109.     76.5
5627.7 *  1     1615 196      35.     69.2  5627.2
   1     0220  29       0.       .0  5622.0 *  1     0920 113     106.     76.2
5627.7 *  1     1620 197      34.     69.2  5627.2
   1     0225  30       0.       .0  5622.0 *  1     0925 114     104.     75.9
5627.7 *  1     1625 198      34.     69.1  5627.2
   1     0230  31       0.       .0  5622.0 *  1     0930 115     101.     75.7
5627.7 *  1     1630 199      34.     69.1  5627.2
   1     0235  32       0.       .0  5622.0 *  1     0935 116      98.     75.4
5627.7 *  1     1635 200      33.     69.1  5627.2
   1     0240  33       0.       .0  5622.0 *  1     0940 117      96.     75.2
5627.6 *  1     1640 201      33.     69.1  5627.2
   1     0245  34       0.       .0  5622.0 *  1     0945 118      93.     74.9
5627.6 *  1     1645 202      33.     69.0  5627.2
   1     0250  35       0.       .0  5622.0 *  1     0950 119      91.     74.7
5627.6 *  1     1650 203      33.     69.0  5627.2
   1     0255  36       0.       .0  5622.0 *  1     0955 120      89.     74.5
5627.6 *  1     1655 204      33.     69.0  5627.2
   1     0300  37       0.       .0  5622.0 *  1     1000 121      87.     74.3
5627.6 *  1     1700 205      32.     69.0  5627.2
   1     0305  38       0.       .0  5622.0 *  1     1005 122      85.     74.1
5627.6 *  1     1705 206      32.     68.9  5627.2
   1     0310  39       0.       .0  5622.0 *  1     1010 123      83.     73.9
5627.6 *  1     1710 207      32.     68.9  5627.2
   1     0315  40       0.       .0  5622.0 *  1     1015 124      81.     73.8
5627.5 *  1     1715 208      32.     68.9  5627.2
   1     0320  41       0.       .0  5622.0 *  1     1020 125      79.     73.6
5627.5 *  1     1720 209      32.     68.9  5627.2
   1     0325  42       0.       .0  5622.0 *  1     1025 126      78.     73.4
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5627.5 *  1     1725 210      31.     68.9  5627.2
   1     0330  43       0.       .0  5622.0 *  1     1030 127       76.      73.2
5627.5 *  1     1730 211      31.     68.9  5627.2
   1     0335  44       0.       .0  5622.0 *  1     1035 128       74.      73.1
5627.5 *  1     1735 212      31.     68.9  5627.2
   1     0340  45       0.       .0  5622.0 *  1     1040 129       72.      72.9
5627.5 *  1     1740 213      31.     68.8  5627.2
   1     0345  46       0.       .0  5622.0 *  1     1045 130       71.      72.7
5627.5 *  1     1745 214      31.     68.8  5627.2
   1     0350  47       0.       .0  5622.0 *  1     1050 131       69.      72.6
5627.5 *  1     1750 215      31.     68.8  5627.2
   1     0355  48       0.       .0  5622.0 *  1     1055 132       68.      72.4
5627.5 *  1     1755 216      31.     68.8  5627.2
   1     0400  49       0.       .0  5622.0 *  1     1100 133       66.      72.3
5627.4 *  1     1800 217      31.     68.8  5627.2
   1     0405  50       0.       .0  5622.0 *  1     1105 134       65.      72.1
5627.4 *  1     1805 218      31.     68.8  5627.2
   1     0410  51       0.       .0  5622.0 *  1     1110 135       63.      72.0
5627.4 *  1     1810 219      31.     68.8  5627.2
   1     0415  52       0.       .0  5622.0 *  1     1115 136       62.      71.9
5627.4 *  1     1815 220      31.     68.8  5627.2
   1     0420  53       0.       .0  5622.0 *  1     1120 137       61.      71.8
5627.4 *  1     1820 221      30.     68.8  5627.2
   1     0425  54       0.       .0  5622.0 *  1     1125 138       60.      71.6
5627.4 *  1     1825 222      30.     68.8  5627.2
   1     0430  55       0.       .0  5622.0 *  1     1130 139       59.      71.5
5627.4 *  1     1830 223      30.     68.8  5627.2
   1     0435  56       0.       .0  5622.0 *  1     1135 140       58.      71.4
5627.4 *  1     1835 224      30.     68.8  5627.2
   1     0440  57       0.       .0  5622.0 *  1     1140 141       57.      71.3
5627.4 *  1     1840 225      30.     68.8  5627.2
   1     0445  58       0.       .0  5622.0 *  1     1145 142       56.      71.3
5627.4 *  1     1845 226      30.     68.8  5627.2
   1     0450  59       0.       .0  5622.0 *  1     1150 143       55.      71.2
5627.4 *  1     1850 227      30.     68.8  5627.2
   1     0455  60       0.       .0  5622.0 *  1     1155 144       54.      71.1
5627.4 *  1     1855 228      30.     68.8  5627.2
   1     0500  61       0.       .0  5622.0 *  1     1200 145       53.      71.0
5627.4 *  1     1900 229      30.     68.7  5627.2
   1     0505  62       0.       .0  5622.0 *  1     1205 146       53.      71.0
5627.4 *  1     1905 230      30.     68.7  5627.2
   1     0510  63       0.       .0  5622.0 *  1     1210 147       52.      70.9
5627.3 *  1     1910 231      30.     68.7  5627.2
   1     0515  64       0.       .0  5622.0 *  1     1215 148       52.      70.8
5627.3 *  1     1915 232      30.     68.7  5627.2
   1     0520  65       0.       .0  5622.0 *  1     1220 149       51.      70.8
5627.3 *  1     1920 233      30.     68.7  5627.2
   1     0525  66       0.       .0  5622.0 *  1     1225 150       50.      70.7
5627.3 *  1     1925 234      30.     68.7  5627.2
   1     0530  67       0.       .0  5622.0 *  1     1230 151       50.      70.7
5627.3 *  1     1930 235      30.     68.7  5627.2
   1     0535  68       0.       .0  5622.0 *  1     1235 152       50.      70.7
5627.3 *  1     1935 236      30.     68.7  5627.2
   1     0540  69       0.       .0  5622.0 *  1     1240 153       49.      70.6
5627.3 *  1     1940 237      30.     68.7  5627.2
   1     0545  70       0.       .4  5622.0 *  1     1245 154       49.      70.6
5627.3 *  1     1945 238      30.     68.7  5627.2
   1     0550  71       0.      2.5  5622.2 *  1     1250 155       48.      70.5
5627.3 *  1     1950 239      30.     68.7  5627.2
   1     0555  72       0.      6.8  5622.6 *  1     1255 156       48.      70.5
5627.3 *  1     1955 240      30.     68.7  5627.2
   1     0600  73       0.     13.2  5623.1 *  1     1300 157       48.      70.5
5627.3 *  1     2000 241      30.     68.7  5627.2
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   1     0605  74       0.     21.1  5623.7 *  1     1305 158      47.     70.5
5627.3 *  1     2005 242      30.     68.7  5627.2
   1     0610  75       0.     29.6  5624.4 *  1     1310 159      47.     70.4
5627.3 *  1     2010 243      30.     68.7  5627.2
   1     0615  76       0.     37.6  5625.0 *  1     1315 160      47.     70.4
5627.3 *  1     2015 244      30.     68.7  5627.2
   1     0620  77       0.     44.6  5625.5 *  1     1320 161      47.     70.4
5627.3 *  1     2020 245      30.     68.7  5627.2
   1     0625  78       0.     50.6  5625.9 *  1     1325 162      46.     70.3
5627.3 *  1     2025 246      29.     68.7  5627.2
   1     0630  79       0.     55.9  5626.3 *  1     1330 163      46.     70.3
5627.3 *  1     2030 247      29.     68.7  5627.2
   1     0635  80       0.     60.6  5626.6 *  1     1335 164      46.     70.3
5627.3 *  1     2035 248      29.     68.6  5627.2
   1     0640  81       0.     64.8  5626.9 *  1     1340 165      45.     70.2
5627.3 *  1     2040 249      28.     68.6  5627.2
   1     0645  82      27.     68.5  5627.2 *  1     1345 166      45.     70.2
5627.3 *  1     2045 250      28.     68.5  5627.2
   1     0650  83      58.     71.5  5627.4 *  1     1350 167      45.     70.2
5627.3 *
   1     0655  84      84.     74.0  5627.6 *  1     1355 168      44.     70.1
5627.3 *
                                          *
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  PEAK FLOW     TIME                             MAXIMUM AVERAGE FLOW
                                         6-HR        24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                            (CFS)
+     178.      7.58                     99.          42.         42.          42.
                         (INCHES)       .646         .957        .957         .957
                          (AC-FT)        49.          73.         73.          73.

 PEAK STORAGE   TIME                            MAXIMUM AVERAGE STORAGE
                                         6-HR        24-HR       72-HR     20.75-HR
+  (AC-FT)      (HR)
       82.      7.58                     75.          50.         50.          50.

  PEAK STAGE    TIME                             MAXIMUM AVERAGE STAGE
                                         6-HR        24-HR       72-HR     20.75-HR
+   (FEET)      (HR)
   5628.11      7.58                 5627.65     5625.80     5625.80      5625.80

                          CUMULATIVE AREA =    1.42 SQ MI

1
                                                           RUNOFF SUMMARY
                                                   FLOW IN CUBIC FEET PER SECOND
                                                TIME IN HOURS,  AREA IN SQUARE MILES

                                          PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM
PERIOD      BASIN     MAXIMUM     TIME OF
         OPERATION      STATION      FLOW     PEAK
          AREA      STAGE     MAX STAGE
+                                                           6-HOUR     24-HOUR
72-HOUR

         HYDROGRAPH AT
+                              E6001       119.    6.17          16.          6.
  6.        .11
```

```
          ROUTED TO
+                          DB6002       102.    6.25          13.          5.
  5.        .11
+
                    5756.12        6.25

          ROUTED TO
+                           R6003       100.    6.25          13.          5.
  5.        .11
          HYDROGRAPH AT
+                           E1040        17.    6.08           2.          1.
  1.        .02
          ROUTED TO
+                           R1040        17.    6.08           2.          1.
  1.        .02
          HYDROGRAPH AT
+                           E6010        83.    6.08           9.          3.
  3.        .04
          3 COMBINED AT
+                          DP6010       164.    6.17          24.          9.
  9.        .18
          ROUTED TO
+                           R6004       163.    6.17          24.          9.
  9.        .18
          HYDROGRAPH AT
+                           E6005        46.    6.08           5.          2.
  2.        .04
          ROUTED TO
+                           R6005        46.    6.08           5.          2.
  2.        .04
          HYDROGRAPH AT
+                           E6020        66.    6.00           7.          2.
  2.        .03
          2 COMBINED AT
+                          DP6021       106.    6.00          12.          4.
  4.        .07
          ROUTED TO
+                           R6021       106.    6.08          12.          4.
  4.        .07
          HYDROGRAPH AT
+                           E6011        43.    6.08           5.          2.
  2.        .03
          3 COMBINED AT
+                          DP6020       286.    6.08          40.         14.
 14.        .27
          ROUTED TO
+                          DB6020       197.    6.33          33.         12.
 12.        .27
+
```

```
                    5689.73        6.33

          ROUTED TO
+                           R6025       197.    6.33          33.         12.
 12.        .27

          HYDROGRAPH AT
+                           E6040        85.    6.08          10.          3.
  3.        .04

          HYDROGRAPH AT
+                           E6050        65.    6.00           7.          2.
  2.        .04

          3 COMBINED AT
+                          DP6040       259.    6.25          49.         18.
 18.        .35

          ROUTED TO
+                           R6040       258.    6.25          49.         18.
 18.        .35

          HYDROGRAPH AT
+                           E6051        50.    6.00           5.          2.
  2.        .03

          ROUTED TO
+                           R6051        50.    6.00           5.          2.
  2.        .03

          2 COMBINED AT
+                          DP6050       273.    6.17          54.         19.
 19.        .37

          ROUTED TO
+                           R6041       270.    6.25          54.         19.
 19.        .37

          HYDROGRAPH AT
+                           E7003       233.    6.00          24.          8.
  8.        .10

          ROUTED TO
+                           R7003       226.    6.00          24.          8.
  8.        .10

          HYDROGRAPH AT
+                           E7005       206.    6.25          33.         12.
 12.        .26

          ROUTED TO
+                          DB7006        99.    6.58          28.         10.
 10.        .26
+
                    5755.66        6.58

          ROUTED TO
+                           R7006        99.    6.67          28.         10.
 10.        .26

          HYDROGRAPH AT
+                           E7020        84.    6.00           9.          3.
  3.        .03
```

```
               HYDROGRAPH AT
+                                E7030        48.    6.00           4.          2.
  2.         .03
               4 COMBINED AT
+                               DP7030       358.    6.00          65.         23.
 23.         .41
               ROUTED TO
+                                R7030       354.    6.00          65.         23.
 23.         .41
               HYDROGRAPH AT
+                                E7050        39.    6.00           3.          1.
  1.         .03
               ROUTED TO
+                                R7050        36.    6.00           3.          1.
  1.         .03
               HYDROGRAPH AT
+                                E7040        52.    6.00           4.          2.
  2.         .04
               2 COMBINED AT
+                               DP7040        88.    6.00           8.          3.
  3.         .06
               ROUTED TO
+                                R7040        85.    6.00           8.          3.
  3.         .06
               HYDROGRAPH AT
+                                E8010        67.    6.00           6.          2.
  2.         .03
               3 COMBINED AT
+                               DP8010       506.    6.00          79.         28.
 28.         .50
               ROUTED TO
+                                R8010       502.    6.00          79.         28.
 28.         .50
               HYDROGRAPH AT
+                                E8005       232.    6.00          22.          8.
  8.         .10
               ROUTED TO
+                               DB8006        54.    6.25          14.          5.
  5.         .10
+
                       5707.36         6.25
               ROUTED TO
+                                R8006        54.    6.33          14.          5.
  5.         .10
               2 COMBINED AT
+                               DP8011       504.    6.00          93.         33.
 33.         .61
```

```
          ROUTED TO
+                          R8011       495.    6.08          93.          33.
 33.        .61

          HYDROGRAPH AT
+                          E8060       177.    6.08          20.           7.
  7.        .10

          HYDROGRAPH AT
+                          E8070       103.    6.08          11.           4.
  4.        .06

          4 COMBINED AT
+                         DP8070      1008.    6.08         177.          63.
 63.       1.15

          ROUTED TO
+                          R8070       978.    6.08         177.          63.
 63.       1.15

          HYDROGRAPH AT
+                          E8050        31.    6.17           5.           2.
  2.        .03

          HYDROGRAPH AT
+                          E8000       113.    6.42          22.           8.
  8.        .10

          HYDROGRAPH AT
+                          E8035       141.    6.08          16.           5.
  5.        .07

          ROUTED TO
+                          R8035       138.    6.08          16.           5.
  5.        .07

          HYDROGRAPH AT
+                          E8040        69.    6.42          14.           5.
  5.        .07

          2 COMBINED AT
+                         DP8040       180.    6.17          30.          10.
 10.        .14

          ROUTED TO
+                          R8040       179.    6.17          30.          10.
 10.        .14

          4 COMBINED AT
+                         DP8075      1241.    6.17         233.          82.
 82.       1.42

          ROUTED TO
+                         DB8075       178.    7.58          99.          42.
 42.       1.42
+
                    5628.11       7.58

          ROUTED TO
+                          R8075       178.    7.67          99.          42.
 42.       1.42

          HYDROGRAPH AT
```

```
+                             E8080        27.    6.25           4.           2.
  2.        .03

         2 COMBINED AT
+                            DP8080       180.    7.58         100.          44.
 44.       1.45
1

                                                   SUMMARY OF KINEMATIC WAVE -
MUSKINGUM-CUNGE ROUTING
                                                       (FLOW IS DIRECT RUNOFF WITHOUT BASE
FLOW)

INTERPOLATED TO

COMPUTATION INTERVAL
            ISTAQ    ELEMENT      DT        PEAK    TIME TO     VOLUME      DT
PEAK    TIME TO     VOLUME
                                                          PEAK
         PEAK


                                 (MIN)     (CFS)      (MIN)      (IN)     (MIN)
(CFS)     (MIN)       (IN)


              R6003  MANE          .75    101.59    376.41      1.38      5.00
100.42    375.00       1.38



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .8234E+01 EXCESS= .0000E+00 OUTFLOW= .8231E+01
BASIN STORAGE= .1031E-01 PERCENT ERROR=   -.1



              R1040  MANE          .98     16.96    366.46       .97      5.00
16.69    365.00         .97



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1121E+01 EXCESS= .0000E+00 OUTFLOW= .1120E+01
BASIN STORAGE= .1911E-02 PERCENT ERROR=   -.1



              R6004  MANE          .11    163.47    370.10      1.56      5.00
163.15    370.00       1.56



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1469E+02 EXCESS= .0000E+00 OUTFLOW= .1469E+02
BASIN STORAGE= .6805E-03 PERCENT ERROR=    .0



              R6005  MANE          .22     45.79    365.51      1.59      5.00
```

```
45.52    365.00        1.59



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3066E+01 EXCESS= .0000E+00 OUTFLOW= .3066E+01
BASIN STORAGE= .5804E-03 PERCENT ERROR=    .0



              R6021  MANE          .15    106.05    360.32      1.99      5.00
105.62    365.00        1.99



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .7035E+01 EXCESS= .0000E+00 OUTFLOW= .7035E+01
BASIN STORAGE= .3237E-03 PERCENT ERROR=    .0



              R6025  MANE          .76    196.72    380.35      1.44      5.00
196.71    380.00        1.45



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2079E+02 EXCESS= .0000E+00 OUTFLOW= .2077E+02
BASIN STORAGE= .2407E-01 PERCENT ERROR=    .0



              R6040  MANE          .15    258.42    374.91      1.64      5.00
258.40    375.00        1.64



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3038E+02 EXCESS= .0000E+00 OUTFLOW= .3038E+02
BASIN STORAGE= .2796E-03 PERCENT ERROR=    .0



              R6051  MANE          .19     49.96    360.05      2.01      5.00
49.92    360.00        2.01



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2789E+01 EXCESS= .0000E+00 OUTFLOW= .2789E+01
BASIN STORAGE= .8824E-04 PERCENT ERROR=    .0



              R6041  MANE          .88    272.50    372.28      1.67      5.00
270.45    375.00        1.67
```

```
 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3317E+02 EXCESS= .0000E+00 OUTFLOW= .3313E+02
BASIN STORAGE= .4026E-01 PERCENT ERROR=    .0



              R7003  MANE          .63    232.45    361.26      2.63      5.00
226.39    360.00        2.63



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1404E+02 EXCESS= .0000E+00 OUTFLOW= .1404E+02
BASIN STORAGE= .1302E-01 PERCENT ERROR=   -.1



              R7006  MANE         1.22     98.86    397.93      1.30      5.00
98.80    400.00        1.30



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1779E+02 EXCESS= .0000E+00 OUTFLOW= .1776E+02
BASIN STORAGE= .3540E-01 PERCENT ERROR=    .0



              R7030  MANE          .28    356.96    360.49      1.79      5.00
354.21    360.00        1.79



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .3942E+02 EXCESS= .0000E+00 OUTFLOW= .3940E+02
BASIN STORAGE= .1632E-01 PERCENT ERROR=    .0



              R7050  MANE         1.11     37.55    361.65      1.45      5.00
35.73    360.00        1.45



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2017E+01 EXCESS= .0000E+00 OUTFLOW= .2014E+01
BASIN STORAGE= .3874E-02 PERCENT ERROR=   -.1



              R7040  MANE          .40     86.95    360.51      1.43      5.00
85.47    360.00        1.44



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .4742E+01 EXCESS= .0000E+00 OUTFLOW= .4741E+01
```

```
BASIN STORAGE= .3117E-02 PERCENT ERROR=    .0



              R8010  MANE          .31    503.50    360.21      1.78      5.00
501.59    360.00        1.78



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .4778E+02 EXCESS= .0000E+00 OUTFLOW= .4777E+02
BASIN STORAGE= .1458E-01 PERCENT ERROR=    .0



              R8006  MANE         1.89     54.15    377.97      1.63      5.00
54.14    380.00        1.63



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .9029E+01 EXCESS= .0000E+00 OUTFLOW= .9036E+01
BASIN STORAGE= .2230E-01 PERCENT ERROR=   -.3



              R8011  MANE         1.66    502.31    363.61      1.75      5.00
495.33    365.00        1.75



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .5682E+02 EXCESS= .0000E+00 OUTFLOW= .5664E+02
BASIN STORAGE= .1529E+00 PERCENT ERROR=    .0



              R8070  MANE          .85   1002.60    366.49      1.76      5.00
978.22    365.00        1.76



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1080E+03 EXCESS= .0000E+00 OUTFLOW= .1079E+03
BASIN STORAGE= .1908E+00 PERCENT ERROR=    .0



              R8035  MANE          .92    139.73    366.49      2.45      5.00
137.71    365.00        2.45



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .9411E+01 EXCESS= .0000E+00 OUTFLOW= .9411E+01
BASIN STORAGE= .5855E-02 PERCENT ERROR=   -.1
```

```
              R8040  MANE          .90    179.56    370.92      2.36      5.00
179.35    370.00        2.36



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1739E+02 EXCESS= .0000E+00 OUTFLOW= .1737E+02
BASIN STORAGE= .2658E-01 PERCENT ERROR=    .0



              R8075  MANE          .39    177.75    455.85       .96      5.00
177.60    460.00         .96



 CONTINUITY SUMMARY (AC-FT) - INFLOW= .7260E+02 EXCESS= .0000E+00 OUTFLOW= .7255E+02
BASIN STORAGE= .6491E-01 PERCENT ERROR=    .0




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

```
1*****************************************
        ***************************************
 *                                       *
        *                                     *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
        *    U.S. ARMY CORPS OF ENGINEERS     *
 *              JUN   1998               *
        *    HYDROLOGIC ENGINEERING CENTER    *
 *             VERSION 4.1               *
        *          609 SECOND STREET          *
 *                                       *
        *       DAVIS, CALIFORNIA 95616       *
 *  RUN DATE   10SEP13  TIME  12:29:04   *
        *           (916) 756-1104            *
 *                                       *
        *                                     *
 *****************************************
        ***************************************



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



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

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


1                                                     HEC-1 INPUT
                           PAGE  1

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

              1           ID   MESA RIDGE MDDP UPDATE
```

```
             2           ID   PREPARED BY KIOWA ENGINEERING

             3           ID   2, 5, 10 & 100 YEAR STORMS  -  FILENAME: MR8080A.DAT
DEV COND WITH DETENTION
             4           ID   MODIFICATIONS IN THIS RUN:

             5           ID    -  REMOVE DET. BASIN F AND DETENTION BASIN E

             6           ID    -  MODEL DETENTION BASIN D PER KIOWA FSD DESIGN
PROEJCT NUMBER 09061
             7           ID    -  MODEL DETENTION BASIN 8006 TO FULL SPECTRUM
(PROJECT 08041)
             8           ID    -  MODEL  FLOOD STORAGE AT LOCATION OF NEW RESERVOIR
PER APPLEGATE DESIGN
             9           ID    -  MODEL DETENTION BASINS 6002 AND 7006 PER KIOWA
DESIGN PROJECT 11004
            10           ID    -  UPDATE LAND USE FOR BASIN 6010 & SPLIT INTO TWO
BASINS (6010 & 6011)
            11           ID    -  REVISE BASIN 1040 TO REFLECT HISTORIC FLOWS
(PROJECT 09061)
            12           ID    -  REVISE BASINS 6005 & 6001 TO REFLECT ACTUAL
BDY/LAND USE (PROJECT 11004)
            13           ID    -  REVISE BASINS 7005 & 7050 TO REFLECT ACTUAL
BDY/LAND USE (PROJECT 11004)
            14           ID   24HR STORM DURATION

                         *DIAGRAM

            15           IT       5       0       0     250

            16           IO       5

            17           JR    PREC     .47     .56     .70       1


            18           KK   E6001

            19           KM                 RUNOFF FROM BAS E6001

            20           BA   .1120

            21           IN      15

            22           PB     4.4

            23           PC     0.0   .0005   .0015   .0030   .0045   .0060   .0080
  .0100   .0120   .0143
            24           PC   .0165   .0188   .0210   .0233   .0255   .0278   .0320
  .0390   .0460   .0530
            25           PC   .0600   .0750   .1000   .4000   .7000   .7250   .7500
  .7650   .7800   .7900
            26           PC   .8000   .8100   .8200   .8250   .8300   .8350   .8400
  .8450   .8500   .8550
            27           PC   .8600   .8638   .8675   .8713   .8750   .8788   .8825
  .8863   .8900   .8938
            28           PC   .8975   .9013   .9050   .9083   .9115   .9148   .9180
  .9210   .9240   .9270
            29           PC   .9300   .9325   .9350   .9375   .9400   .9425   .9450
  .9475   .9500   .9525
            30           PC   .9550   .9575   .9600   .9625   .9650   .9675   .9700
  .9725   .9750   .9775
            31           PC   .9800   .9813   .9825   .9838   .9850   .9863   .9875
  .9888   .9900   .9913
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```
              32            PC   .9963   .9975   .9988  1.0000

              33            LS       0      75

              34            UD   .267


              35            KK  DB6002

              36            KM                 ROUTE FLOW FROM SB E6001 THROUGH
DETENTION BASIN 6002
              37            RS       1    STOR       0

              38            SV       0    0.07    0.23    0.43    0.68    0.98    1.33
   1.71    2.13    2.59
              39            SE    5749    5750    5751    5752    5753    5754    5755
   5756    5757    5758
              40            SQ       0       1       1      45      78     101     104
    105     108     155
              41            SE    5749    5753 5754.75    5755  5755.5    5756  5756.5
   5757    5758    5759

              42            KK   R6003

              43            KM               ROUTE DB6002 TO DP6010

              44            RK    1230    .049    .040            TRAP      10       3


              45            KK   E1040

              46            KM                 RUNOFF FROM BAS 1040 (HISTORIC
CONDITIONS)
              47            BA   .0217

              48            LS       0      65

              49            UD    .138

1                                                       HEC-1 INPUT
                           PAGE  2

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


              50            KK   R1040

              51            KM               ROUTE SB1040 TO DP6010

              52            RK    1025    .043    .030            TRAP      10       4


              53            KK   E6010

              54            KM                 RUNOFF FROM BAS 6010

              55            BA   .0433

              56            LS       0    84.3

              57            UD    .169
```

```
           58           KK  DP6010

           59           KM           COMBINE RUNOFF FROM R1040, R6003 AND
  SUB-BASIN 6010
           60           HC       3

           61           KK   R6004

           62           KM          ROUTE RUNOFF FROM DP 6010 TO DP 6020

           63           RK     225     .02    .013            CIRC     4.5

           64           KK   E6005

           65           KM                  RUNOFF FROM BAS 6005

           66           BA   .0362

           67           LS       0      75

           68           UD    .186

           69           KK   R6005

           70           KM                ROUTE SB6005 TO DP6020

           71           RK     750     .03    .013            CIRC       3

           72           KK   E6020

           73           KM              RUNOFF FROM BASIN 6020

           74           BA     .03

           75           LS       0    86.3

           76           UD     .13

           77           KK  DP6021

           78           KM           COMBINE RUNOFF FROM R6005 AND SUB-BASIN 6020

           79           HC       2

           80           KK   R6021

           81           KM          ROUTE RUNOFF FROM DP 6021 TO DP 6020

           82           RK     250     .03    .013            CIRC       4

           83           KK   E6011

           84           KM                  RUNOFF FROM BAS 6011

           85           BA   .0267
```

```
             86           LS       0      80
             87           UD    .172

             88           KK  DP6020
             89           KO       1
             90           KM                 COMBINE FLOW FROM R6004, R6021, AND
SB6011
             91           HC       3
1                                                      HEC-1 INPUT
                           PAGE   3
           LINE
ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

             92           KK  DB6020
             93           KO       1
             94           KM            ROUTE DP6020 THROUGH FSD AS-BUILT DETENTION
BASIN D
             95           RS       1    ELEV  5682.4
             96           SQ       0       2       2      82     215     247     267
             97           SE  5682.4    5684    5686    5688    5690    5692    5694
             98           SV       0    1.13     3.7    5.28    7.13   10.67   14.53

             99           KK   R6025
            100           KM               ROUTE OUTFLOW FROM DB6020 THROUGH E6040
            101           RK    1000    .022    .040            TRAP      10       3

            102           KK   E6040
            103           KM                 RUNOFF FROM BAS 6040
            104           BA    .040
            105           LS       0      88
            106           UD    .191

            107           KK   E6050
            108           KM                 RUNOFF FROM BAS 6050
            109           BA    .037
            110           LS       0    80.7
            111           UD    .139
```

```
            112           KK  DP6040
            113           KM              COMBINE FLOW FROM R6025, E6040, AND
E6050
            114           HC       3

            115           KK   R6040
            116           KM            ROUTE DP6040 TO DP6050
            117           RK     100     .02    .013            CIRC       6

            118           KK   E6051
            119           KM       RUNOFF FROM SUB-BASIN E6051
            120           BA   0.026
            121           LS       0    80.7
            122           UD     .10

            123           KK   R6051
            124           KM   ROUTE SUB-BASIN E6051 TO DP 6050
            125           RK     150     .02    .013            CIRC       3

            126           KK  DP6050
            127           KM        COMBINE R6040 AND R6051
            128           HC       2

            129           KK   R6041
            130           KM     ROUTE DP6050 TO DP 8070
            131           RK    1100     .01     .04            TRAP      10        3
1                                                       HEC-1 INPUT
                           PAGE   4

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

            132           KK   E7003
            133           KM              RUNOFF FROM BAS 7003
            134           BA     .10
            135           LS       0      88
            136           UD    .134
```

```
                    137           KK   R7003
                    138           KM               ROUTE E7003 TO DP7030
                    139           RK    1300     .04    .040                TRAP      10       3

                    140           KK   E7005
                    141           KO       1
                    142           KM                 RUNOFF FROM BAS 7005
                    143           BA   .2563
                    144           LS       0    73.3
                    145           UD    .367

                    146           KK  DB7006
                    147           KO       1
                    148           KM                 ROUTE BASIN 7005 THROUGH FSD DETENTION
         BASIN 7006
                    149           RS       1    STOR       0
                    150           SV    0.00    0.05    0.20    0.52    1.76    2.69    3.81
            5.12    6.65    8.43
                    151           SE  5746.1    5748    5749    5750    5752    5753    5754
            5755    5756    5757
                    152           SQ       0       1    19.3      20    58.9    75.5    88.2
           104.5   109.9     115
                    153           SE    5748  5752.5    5753  5753.5    5754  5754.5    5755
            5756    5757    5758

                    154           KK   R7006
                    155           KM               ROUTE DB7006 TO DP7030
                    156           RK    1500    .025    .040                TRAP      10       3

                    157           KK   E7020
                    158           KM                 RUNOFF FROM BAS 7020
                    159           BA    .029
                    160           LS       0      94
                    161           UD    .079

                    162           KK   E7030
                    163           KM                 RUNOFF FROM BAS 7030
                    164           BA    .027
```

```
            165           LS         0    78.4
            166           UD      .098

            167           KK  DP7030
            168           KM                 COMBINE FLOW FROM R7003, R7006, E7020,
AND E7030
            169           HC         4

            170           KK   R7030
            171           KM               ROUTE DP7030 TO DP8010
            172           RK       500    .025    .040            TRAP      10       3

1                                                       HEC-1 INPUT
                           PAGE  5

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

            173           KK   E7050
            174           KM                 RUNOFF FROM BASIN 7050
            175           BA      .026
            176           LS         0      73
            177           UD      .079

            178           KK   R7050
            179           KM               ROUTE E7050 TO DP7040
            180           RK      1300    .05     .040            TRAP      10       3

            181           KK   E7040
            182           KM                 RUNOFF FROM BAS 7040
            183           KO         0
            184           BA      .036
            185           LS         0    72.5
            186           UD      .079

            187           KK  DP7040
            188           KM                 COMBINE FLOW FROM R7050 AND E7040
            189           HC         2
```

```
            190           KK   R7040

            191           KM                ROUTE DP7040 THROUGH E8010

            192           RK     450    .025    .040            TRAP      10       3

            193           KK   E8010

            194           KM                  RUNOFF FROM BAS 8010

            195           BA    .029

            196           LS       0    84.5

            197           UD    .072

            198           KK  DP8010

            199           KM                  COMBINE FLOW FROM R7030, R7040 AND
E8010
            200           HC       3

            201           KK   R8010

            202           KM                ROUTE DP8010 TO DP8070

            203           RK     400    .025    .040            TRAP      10       3

            204           KK   E8005

            205           KO       1

            206           KM                  RUNOFF FROM BAS 8005

            207           BA    .104

            208           LS       0      85

            209           UD    .103

            210           KK  DB8006

            211           KO       1

            212           KM                ROUTE FLOW FROM E8005 THROUGH DB8006 -
MARKETS AT MESA RIDGE FSD
            213           RS       1    STOR       0

            214           SV       0     .22    1.74    2.34    4.40    7.44   11.00
  13.12
            215           SE    5699    5700    5703    5704    5706    5708    5710
   5711
            216           SQ       0     0.7     0.7    49.5    56.4    58.0    42.5
   73.5
            217           SE    5700    5701  5705.7    5706    5708  5708.5    5709
   5710
1                                                       HEC-1 INPUT
                           PAGE   6
```

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

           218            SS    5710     400     3.1

           219            KK   R8006
           220            KM                 ROUTE DB8006 TO DB8070
           221            RK    1700    .015    .040            TRAP      10       3

           222            KK  DP8011
           223            KM        COMBINE R8010 AND R8006
           224            HC       2

           225            KK   R8011
           226            KM         ROUTE DP 8011 TO DP 8070
           227            RK    3000    .015     .04            TRAP      10       3

           228            KK   E8060
           229            KM                   RUNOFF FROM BAS 8060
           230            BA    .103
           231            LS       0    82.4
           232            UD    .196

           233            KK   E8070
           234            KM                   RUNOFF FROM BAS 8070
           235            BA    .063
           236            LS       0      80
           237            UD    .157

           238            KK  DP8070
           239            KM                   COMBINE FLOW FROM R8011, SB8070,
SB8060, R8010 AND R6041
           240            HC       4

           241            KK   R8070
           242            KM                 ROUTE DP8070 TO DP8075
           243            RK    1000    .005    .040            TRAP      50       5
```

```
            244            KK   E8050
            245            KM                 RUNOFF FROM BAS 8050 HALE RESERVOIR
SUB-BASIN
            246            BA    .033
            247            LS       0      75
            248            UD    .328

            249            KK   E8000
            250            KM                 RUNOFF FROM BAS 8000
            251            BA    .105
            252            LS       0      85
            253            UD     .56

            254            KK   E8035
            255            KM                 RUNOFF FROM BAS 8035
            256            BA    .072
            257            LS       0      86
            258            UD    .203
1                                                               HEC-1 INPUT
                                 PAGE  7

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

            259            KK   R8035
            260            KM        ROUTE FLOW FROM SB8035 TO DP8040
            261            KO       0
            262            RK    3550     .02    .013            CIRC     4.5

            263            KK   E8040
            264            KM                 RUNOFF FROM BAS 8040
            265            BA    .066
            266            LS       0      84
            267            UD    .543

            268            KK  DP8040
            269            KM                COMBINE FLOW FROM SB8040 AND R8035
```

```
          270            HC       2

          271            KK   R8040
          272            KO       1
          273            KM           ROUTE DP 8040 TO DP 8075
          274            RK     600    .005    .035            TRAP      50       5

          275            KK  DP8075
          276            KM                  COMBINE FLOW FROM SB8000 R8040 R8070
AND SB8050
          277            HC       4               4

          278            KK  DB8075
          279            KO       1
          280            KM             ROUTE DP8075 THROUGH NEW HALE RESERVOIR
(PER APPLEGATE DESIGN)
          281            RS       1    ELEV    5622
          282            SQ       0       0       0       0       0       0     149
    420     772
          283            SV       0    11.8    24.5    37.7    51.5    65.8    80.4
   95.3   110.5
          284            SE    5622    5623    5624    5625    5626    5627    5628
   5629    5630

          285            KK   R8075
          286            KM             ROUTE DB 8075 TO DP 8080
          287            RK     300    .005    .035            TRAP      30       3

          288            KK   E8080
          289            KM                  RUNOFF FROM BAS 8080
          290            BA    .032
          291            LS       0      74
          292            UD    .348

          293            KK  DP8080
          294            KM                  COMBINE FLOW FROM R8075 AND SB 8080
          295            HC       2
          296            ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
```

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

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

   18       E6001
                V
                V
   35      DB6002
                V
                V
   42       R6003
                .
                .
   45           .       E1040
                .           V
                .           V
   50           .       R1040
                .           .
                .           .
   53           .           .       E6010
                .           .           .
                .           .           .
   58      DP6010........................
                V
                V
   61       R6004
                .
                .
   64           .       E6005
                .           V
                .           V
   69           .       R6005
                .           .
                .           .
   72           .           .       E6020
                .           .           .
                .           .           .
   77           .      DP6021............
                .           V
                .           V
   80           .       R6021
                .           .
                .           .
   83           .           .       E6011
                .           .           .
                .           .           .
   88      DP6020........................
                V
                V
   92      DB6020
                V
                V
   99       R6025
                .
                .
  102           .       E6040
                .           .
                .           .
  107           .           .       E6050
                .           .           .
                .           .           .
  112      DP6040........................
```

```
              V
              V
115       R6040
              .
              .
118           .       E6051
              .           V
              .           V
123           .       R6051
              .           .
              .           .
126      DP6050............
              V
              V
129       R6041
              .
              .
132           .       E7003
              .           V
              .           V
137           .       R7003
              .           .
              .           .
140           .           .       E7005
              .           .           V
              .           .           V
146           .           .      DB7006
              .           .           V
              .           .           V
154           .           .       R7006
              .           .           .
              .           .           .
157           .           .           .       E7020
              .           .           .           .
              .           .           .           .
162           .           .           .           .       E7030
              .           .           .           .           .
              .           .           .           .           .
167           .      DP7030....................................
              .           V
              .           V
170           .       R7030
              .           .
              .           .
173           .           .       E7050
              .           .           V
              .           .           V
178           .           .       R7050
              .           .           .
              .           .           .
181           .           .           .       E7040
              .           .           .           .
              .           .           .           .
187           .           .      DP7040............
              .           .           V
              .           .           V
190           .           .       R7040
              .           .           .
              .           .           .
193           .           .           .       E8010
              .           .           .           .
              .           .           .           .
198           .      DP8010........................
```

```
              .           V
              .           V
201           .       R8010
              .           .
              .           .
204           .           .       E8005
              .           .           V
              .           .           V
210           .           .      DB8006
              .           .           V
              .           .           V
219           .           .       R8006
              .           .           .
              .           .           .
222           .      DP8011............
              .           V
              .           V
225           .       R8011
              .           .
              .           .
228           .           .       E8060
              .           .           .
              .           .           .
233           .           .           .       E8070
              .           .           .           .
              .           .           .           .
238      DP8070....................................
              V
              V
241       R8070
              .
              .
244           .       E8050
              .           .
              .           .
249           .           .       E8000
              .           .           .
              .           .           .
254           .           .           .       E8035
              .           .           .           V
              .           .           .           V
259           .           .           .       R8035
              .           .           .           .
              .           .           .           .
263           .           .           .           .       E8040
              .           .           .           .           .
              .           .           .           .           .
268           .           .           .      DP8040............
              .           .           .           V
              .           .           .           V
271           .           .           .       R8040
              .           .           .           .
              .           .           .           .
275      DP8075....................................
              V
              V
278      DB8075
              V
              V
285       R8075
              .
              .
288           .       E8080
```

```
                 .           .
                 .           .
   293      DP8080...........

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1*****************************************
        *****************************************
 *                                       *
        *                                        *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
        *    U.S. ARMY CORPS OF ENGINEERS        *
 *              JUN   1998               *
        *    HYDROLOGIC ENGINEERING CENTER       *
 *           VERSION 4.1                 *
        *           609 SECOND STREET            *
 *                                       *
        *       DAVIS, CALIFORNIA 95616          *
 *  RUN DATE   10SEP13  TIME  12:29:04   *
        *            (916) 756-1104              *
 *                                       *
        *                                        *
 *****************************************
        *****************************************




                            MESA RIDGE MDDP UPDATE

                            PREPARED BY KIOWA ENGINEERING

                            2, 5, 10 & 100 YEAR STORMS  -  FILENAME: MR8080A.DAT DEV
COND WITH DETENTION
                            MODIFICATIONS IN THIS RUN:

                              -  REMOVE DET. BASIN F AND DETENTION BASIN E

                              -  MODEL DETENTION BASIN D PER KIOWA FSD DESIGN PROEJCT
NUMBER 09061
                              -  MODEL DETENTION BASIN 8006 TO FULL SPECTRUM (PROJECT
08041)
                              -  MODEL  FLOOD STORAGE AT LOCATION OF NEW RESERVOIR
PER APPLEGATE DESIGN
                              -  MODEL DETENTION BASINS 6002 AND 7006 PER KIOWA
DESIGN PROJECT 11004
                              -  UPDATE LAND USE FOR BASIN 6010 & SPLIT INTO TWO
BASINS (6010 & 6011)
                              -  REVISE BASIN 1040 TO REFLECT HISTORIC FLOWS (PROJECT
09061)
                              -  REVISE BASINS 6005 & 6001 TO REFLECT ACTUAL BDY/LAND
USE (PROJECT 11004)
                              -  REVISE BASINS 7005 & 7050 TO REFLECT ACTUAL BDY/LAND
USE (PROJECT 11004)
                            24HR STORM DURATION

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

      IT          HYDROGRAPH TIME DATA
```

```
                  NMIN            5  MINUTES IN COMPUTATION INTERVAL
                 IDATE      1    0  STARTING DATE
                 ITIME         0000  STARTING TIME
                    NQ          250  NUMBER OF HYDROGRAPH ORDINATES
                NDDATE      1    0  ENDING DATE
                NDTIME         2045  ENDING TIME
                ICENT            19  CENTURY MARK

            COMPUTATION INTERVAL     .08 HOURS
                 TOTAL TIME BASE   20.75 HOURS

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

JP          MULTI-PLAN OPTION
                  NPLAN           1  NUMBER OF PLANS

JR          MULTI-RATIO OPTION
                RATIOS OF PRECIPITATION
                .47       .56       .70      1.00


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


             **************
             *            *
   88 KK     *    DP6020  *

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

   89 KO        OUTPUT CONTROL VARIABLES
                  IPRNT           1  PRINT CONTROL
                  IPLOT           0  PLOT CONTROL
                  QSCAL          0.  HYDROGRAPH PLOT SCALE
                                    COMBINE FLOW FROM R6004, R6021, AND SB6011


   91 HC        HYDROGRAPH COMBINATION
                  ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                          ***


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

                                                     HYDROGRAPH AT STATION   DP6020
                                                          SUM OF  3 HYDROGRAPHS
                                                        PLAN 1,   RATIO =   .47


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

```
                                  *                                *
              *
    DA MON HRMN  ORD      FLOW    *  DA MON HRMN  ORD      FLOW    *  DA MON HRMN
ORD      FLOW   *   DA MON HRMN  ORD      FLOW
                                  *                                *
              *
     1     0000    1         0.   *   1     0515   64         0.   *   1     1030
127        3.   *    1     1545  190        2.
     1     0005    2         0.   *   1     0520   65         0.   *   1     1035
128        3.   *    1     1550  191        2.
     1     0010    3         0.   *   1     0525   66         0.   *   1     1040
129        3.   *    1     1555  192        2.
     1     0015    4         0.   *   1     0530   67         0.   *   1     1045
130        3.   *    1     1600  193        2.
     1     0020    5         0.   *   1     0535   68         0.   *   1     1050
131        3.   *    1     1605  194        2.
     1     0025    6         0.   *   1     0540   69         3.   *   1     1055
132        3.   *    1     1610  195        2.
     1     0030    7         0.   *   1     0545   70        13.   *   1     1100
133        3.   *    1     1615  196        2.
     1     0035    8         0.   *   1     0550   71        29.   *   1     1105
134        3.   *    1     1620  197        2.
     1     0040    9         0.   *   1     0555   72        48.   *   1     1110
135        3.   *    1     1625  198        2.
     1     0045   10         0.   *   1     0600   73        68.   *   1     1115
136        3.   *    1     1630  199        2.
     1     0050   11         0.   *   1     0605   74        75.   *   1     1120
137        3.   *    1     1635  200        2.
     1     0055   12         0.   *   1     0610   75        59.   *   1     1125
138        3.   *    1     1640  201        2.
     1     0100   13         0.   *   1     0615   76        38.   *   1     1130
139        3.   *    1     1645  202        2.
     1     0105   14         0.   *   1     0620   77        25.   *   1     1135
140        3.   *    1     1650  203        2.
     1     0110   15         0.   *   1     0625   78        19.   *   1     1140
141        3.   *    1     1655  204        2.
     1     0115   16         0.   *   1     0630   79        15.   *   1     1145
142        3.   *    1     1700  205        2.
     1     0120   17         0.   *   1     0635   80        13.   *   1     1150
143        3.   *    1     1705  206        2.
     1     0125   18         0.   *   1     0640   81        11.   *   1     1155
144        3.   *    1     1710  207        2.
     1     0130   19         0.   *   1     0645   82         9.   *   1     1200
145        3.   *    1     1715  208        2.
     1     0135   20         0.   *   1     0650   83         8.   *   1     1205
146        3.   *    1     1720  209        2.
     1     0140   21         0.   *   1     0655   84         8.   *   1     1210
147        3.   *    1     1725  210        2.
     1     0145   22         0.   *   1     0700   85         8.   *   1     1215
148        3.   *    1     1730  211        2.
     1     0150   23         0.   *   1     0705   86         7.   *   1     1220
149        3.   *    1     1735  212        2.
     1     0155   24         0.   *   1     0710   87         7.   *   1     1225
150        3.   *    1     1740  213        2.
     1     0200   25         0.   *   1     0715   88         6.   *   1     1230
151        3.   *    1     1745  214        2.
     1     0205   26         0.   *   1     0720   89         6.   *   1     1235
152        3.   *    1     1750  215        2.
     1     0210   27         0.   *   1     0725   90         6.   *   1     1240
153        3.   *    1     1755  216        2.
     1     0215   28         0.   *   1     0730   91         6.   *   1     1245
154        3.   *    1     1800  217        2.
     1     0220   29         0.   *   1     0735   92         6.   *   1     1250
```

```
155        3.   *    1     1805  218        2.
     1     0225   30        0.   *    1     0740   93        6.   *    1     1255
156        3.   *    1     1810  219        2.
     1     0230   31        0.   *    1     0745   94        6.   *    1     1300
157        3.   *    1     1815  220        2.
     1     0235   32        0.   *    1     0750   95        7.   *    1     1305
158        3.   *    1     1820  221        2.
     1     0240   33        0.   *    1     0755   96        7.   *    1     1310
159        3.   *    1     1825  222        2.
     1     0245   34        0.   *    1     0800   97        7.   *    1     1315
160        3.   *    1     1830  223        2.
     1     0250   35        0.   *    1     0805   98        7.   *    1     1320
161        3.   *    1     1835  224        2.
     1     0255   36        0.   *    1     0810   99        6.   *    1     1325
162        3.   *    1     1840  225        2.
     1     0300   37        0.   *    1     0815  100        6.   *    1     1330
163        3.   *    1     1845  226        2.
     1     0305   38        0.   *    1     0820  101        5.   *    1     1335
164        3.   *    1     1850  227        2.
     1     0310   39        0.   *    1     0825  102        4.   *    1     1340
165        3.   *    1     1855  228        2.
     1     0315   40        0.   *    1     0830  103        4.   *    1     1345
166        3.   *    1     1900  229        2.
     1     0320   41        0.   *    1     0835  104        4.   *    1     1350
167        3.   *    1     1905  230        2.
     1     0325   42        0.   *    1     0840  105        4.   *    1     1355
168        3.   *    1     1910  231        2.
     1     0330   43        0.   *    1     0845  106        4.   *    1     1400
169        3.   *    1     1915  232        2.
     1     0335   44        0.   *    1     0850  107        4.   *    1     1405
170        3.   *    1     1920  233        2.
     1     0340   45        0.   *    1     0855  108        4.   *    1     1410
171        3.   *    1     1925  234        2.
     1     0345   46        0.   *    1     0900  109        4.   *    1     1415
172        3.   *    1     1930  235        2.
     1     0350   47        0.   *    1     0905  110        4.   *    1     1420
173        3.   *    1     1935  236        2.
     1     0355   48        0.   *    1     0910  111        4.   *    1     1425
174        3.   *    1     1940  237        2.
     1     0400   49        0.   *    1     0915  112        4.   *    1     1430
175        3.   *    1     1945  238        2.
     1     0405   50        0.   *    1     0920  113        4.   *    1     1435
176        2.   *    1     1950  239        2.
     1     0410   51        0.   *    1     0925  114        4.   *    1     1440
177        2.   *    1     1955  240        2.
     1     0415   52        0.   *    1     0930  115        4.   *    1     1445
178        2.   *    1     2000  241        2.
     1     0420   53        0.   *    1     0935  116        4.   *    1     1450
179        2.   *    1     2005  242        2.
     1     0425   54        0.   *    1     0940  117        4.   *    1     1455
180        3.   *    1     2010  243        2.
     1     0430   55        0.   *    1     0945  118        4.   *    1     1500
181        3.   *    1     2015  244        2.
     1     0435   56        0.   *    1     0950  119        4.   *    1     1505
182        2.   *    1     2020  245        2.
     1     0440   57        0.   *    1     0955  120        4.   *    1     1510
183        2.   *    1     2025  246        2.
     1     0445   58        0.   *    1     1000  121        4.   *    1     1515
184        2.   *    1     2030  247        2.
     1     0450   59        0.   *    1     1005  122        4.   *    1     1520
185        2.   *    1     2035  248        2.
     1     0455   60        0.   *    1     1010  123        4.   *    1     1525
186        2.   *    1     2040  249        2.
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     1      0500   61         0.    *    1     1015  124         3.    *    1     1530
187         2.    *    1     2045  250         1.
     1      0505   62         0.    *    1     1020  125         3.    *    1     1535
188         2.    *
     1      0510   63         0.    *    1     1025  126         3.    *    1     1540
189         2.    *
                                    *                                *
               *

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  PEAK FLOW     TIME                         MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR     20.75-HR
+   (CFS)       (HR)
                             (CFS)
+      75.      6.08                   9.           4.           4.           4.
                          (INCHES)    .326         .453         .453         .453
                           (AC-FT)      5.           7.           7.           7.

                           CUMULATIVE AREA =      .27 SQ MI


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                                                  HYDROGRAPH AT STATION   DP6020
                                                       SUM OF  3 HYDROGRAPHS
                                                     PLAN 1,   RATIO =   .56


*************************************************************************************
***********************************************
                                    *                                *
               *
    DA MON HRMN  ORD       FLOW     *   DA MON HRMN  ORD       FLOW    *   DA MON HRMN
ORD       FLOW    *   DA MON HRMN   ORD       FLOW
                                    *                                *
               *
     1      0000    1         0.    *    1     0515   64         0.    *    1     1030
127         4.    *    1     1545  190         3.
     1      0005    2         0.    *    1     0520   65         0.    *    1     1035
128         4.    *    1     1550  191         3.
     1      0010    3         0.    *    1     0525   66         0.    *    1     1040
129         4.    *    1     1555  192         3.
     1      0015    4         0.    *    1     0530   67         0.    *    1     1045
130         4.    *    1     1600  193         3.
     1      0020    5         0.    *    1     0535   68         1.    *    1     1050
131         4.    *    1     1605  194         3.
     1      0025    6         0.    *    1     0540   69         7.    *    1     1055
132         4.    *    1     1610  195         3.
     1      0030    7         0.    *    1     0545   70        23.    *    1     1100
133         4.    *    1     1615  196         3.
     1      0035    8         0.    *    1     0550   71        47.    *    1     1105
134         4.    *    1     1620  197         3.
     1      0040    9         0.    *    1     0555   72        73.    *    1     1110
135         4.    *    1     1625  198         3.
     1      0045   10         0.    *    1     0600   73       100.    *    1     1115
136         4.    *    1     1630  199         3.
     1      0050   11         0.    *    1     0605   74       109.    *    1     1120
137         4.    *    1     1635  200         3.
     1      0055   12         0.    *    1     0610   75        85.    *    1     1125
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138          4.   *    1      1640  201          3.
     1      0100   13          0.   *    1      0615   76        55.   *    1      1130
139          4.   *    1      1645  202          3.
     1      0105   14          0.   *    1      0620   77        36.   *    1      1135
140          4.   *    1      1650  203          3.
     1      0110   15          0.   *    1      0625   78        33.   *    1      1140
141          4.   *    1      1655  204          3.
     1      0115   16          0.   *    1      0630   79        41.   *    1      1145
142          4.   *    1      1700  205          3.
     1      0120   17          0.   *    1      0635   80        34.   *    1      1150
143          4.   *    1      1705  206          3.
     1      0125   18          0.   *    1      0640   81        28.   *    1      1155
144          4.   *    1      1710  207          3.
     1      0130   19          0.   *    1      0645   82        23.   *    1      1200
145          4.   *    1      1715  208          3.
     1      0135   20          0.   *    1      0650   83        20.   *    1      1205
146          4.   *    1      1720  209          3.
     1      0140   21          0.   *    1      0655   84        18.   *    1      1210
147          4.   *    1      1725  210          3.
     1      0145   22          0.   *    1      0700   85        16.   *    1      1215
148          4.   *    1      1730  211          3.
     1      0150   23          0.   *    1      0705   86        15.   *    1      1220
149          4.   *    1      1735  212          3.
     1      0155   24          0.   *    1      0710   87        14.   *    1      1225
150          4.   *    1      1740  213          3.
     1      0200   25          0.   *    1      0715   88        13.   *    1      1230
151          4.   *    1      1745  214          3.
     1      0205   26          0.   *    1      0720   89        12.   *    1      1235
152          4.   *    1      1750  215          3.
     1      0210   27          0.   *    1      0725   90        11.   *    1      1240
153          4.   *    1      1755  216          3.
     1      0215   28          0.   *    1      0730   91        10.   *    1      1245
154          4.   *    1      1800  217          3.
     1      0220   29          0.   *    1      0735   92        10.   *    1      1250
155          4.   *    1      1805  218          3.
     1      0225   30          0.   *    1      0740   93        10.   *    1      1255
156          4.   *    1      1810  219          3.
     1      0230   31          0.   *    1      0745   94        10.   *    1      1300
157          4.   *    1      1815  220          3.
     1      0235   32          0.   *    1      0750   95        10.   *    1      1305
158          4.   *    1      1820  221          3.
     1      0240   33          0.   *    1      0755   96        10.   *    1      1310
159          4.   *    1      1825  222          3.
     1      0245   34          0.   *    1      0800   97        10.   *    1      1315
160          4.   *    1      1830  223          3.
     1      0250   35          0.   *    1      0805   98         9.   *    1      1320
161          4.   *    1      1835  224          3.
     1      0255   36          0.   *    1      0810   99         9.   *    1      1325
162          4.   *    1      1840  225          3.
     1      0300   37          0.   *    1      0815  100         8.   *    1      1330
163          3.   *    1      1845  226          3.
     1      0305   38          0.   *    1      0820  101         7.   *    1      1335
164          3.   *    1      1850  227          3.
     1      0310   39          0.   *    1      0825  102         6.   *    1      1340
165          3.   *    1      1855  228          3.
     1      0315   40          0.   *    1      0830  103         6.   *    1      1345
166          3.   *    1      1900  229          3.
     1      0320   41          0.   *    1      0835  104         5.   *    1      1350
167          3.   *    1      1905  230          3.
     1      0325   42          0.   *    1      0840  105         5.   *    1      1355
168          3.   *    1      1910  231          3.
     1      0330   43          0.   *    1      0845  106         5.   *    1      1400
169          3.   *    1      1915  232          3.
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     1     0335   44        0.    *    1     0850  107        5.    *    1     1405
170        3.   *    1     1920  233        3.
     1     0340   45        0.    *    1     0855  108        5.    *    1     1410
171        3.   *    1     1925  234        3.
     1     0345   46        0.    *    1     0900  109        5.    *    1     1415
172        3.   *    1     1930  235        3.
     1     0350   47        0.    *    1     0905  110        5.    *    1     1420
173        3.   *    1     1935  236        3.
     1     0355   48        0.    *    1     0910  111        5.    *    1     1425
174        3.   *    1     1940  237        3.
     1     0400   49        0.    *    1     0915  112        5.    *    1     1430
175        3.   *    1     1945  238        3.
     1     0405   50        0.    *    1     0920  113        5.    *    1     1435
176        3.   *    1     1950  239        3.
     1     0410   51        0.    *    1     0925  114        5.    *    1     1440
177        3.   *    1     1955  240        3.
     1     0415   52        0.    *    1     0930  115        5.    *    1     1445
178        3.   *    1     2000  241        3.
     1     0420   53        0.    *    1     0935  116        5.    *    1     1450
179        3.   *    1     2005  242        3.
     1     0425   54        0.    *    1     0940  117        5.    *    1     1455
180        3.   *    1     2010  243        2.
     1     0430   55        0.    *    1     0945  118        5.    *    1     1500
181        3.   *    1     2015  244        2.
     1     0435   56        0.    *    1     0950  119        5.    *    1     1505
182        3.   *    1     2020  245        2.
     1     0440   57        0.    *    1     0955  120        5.    *    1     1510
183        3.   *    1     2025  246        2.
     1     0445   58        0.    *    1     1000  121        5.    *    1     1515
184        3.   *    1     2030  247        2.
     1     0450   59        0.    *    1     1005  122        5.    *    1     1520
185        3.   *    1     2035  248        2.
     1     0455   60        0.    *    1     1010  123        5.    *    1     1525
186        3.   *    1     2040  249        2.
     1     0500   61        0.    *    1     1015  124        5.    *    1     1530
187        3.   *    1     2045  250        2.
     1     0505   62        0.    *    1     1020  125        4.    *    1     1535
188        3.   *
     1     0510   63        0.    *    1     1025  126        4.    *    1     1540
189        3.   *
                                 *                                *
              *

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  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+     109.      6.08                   15.          6.          6.           6.
                        (INCHES)      .521        .680        .680         .680
                         (AC-FT)        8.         10.         10.          10.

                         CUMULATIVE AREA =     .27 SQ MI


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                                                   HYDROGRAPH AT STATION   DP6020
                                                        SUM OF  3 HYDROGRAPHS
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                                                              PLAN 1,   RATIO =   .70

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*****************************************************
                                     *                                    *
                *
    DA MON HRMN    ORD       FLOW    *    DA MON HRMN     ORD     FLOW    *    DA MON HRMN
ORD       FLOW    *   DA MON HRMN    ORD       FLOW
                                     *                                    *
                *
      1     0000      1         0.   *     1     0515    64          0.   *     1      1030
127         6.    *     1     1545   190         4.
      1     0005      2         0.   *     1     0520    65          0.   *     1      1035
128         6.    *     1     1550   191         4.
      1     0010      3         0.   *     1     0525    66          0.   *     1      1040
129         6.    *     1     1555   192         4.
      1     0015      4         0.   *     1     0530    67          0.   *     1      1045
130         6.    *     1     1600   193         4.
      1     0020      5         0.   *     1     0535    68          3.   *     1      1050
131         6.    *     1     1605   194         4.
      1     0025      6         0.   *     1     0540    69         16.   *     1      1055
132         5.    *     1     1610   195         4.
      1     0030      7         0.   *     1     0545    70         44.   *     1      1100
133         5.    *     1     1615   196         4.
      1     0035      8         0.   *     1     0550    71         81.   *     1      1105
134         5.    *     1     1620   197         4.
      1     0040      9         0.   *     1     0555    72        120.   *     1      1110
135         5.    *     1     1625   198         4.
      1     0045     10         0.   *     1     0600    73        157.   *     1      1115
136         5.    *     1     1630   199         4.
      1     0050     11         0.   *     1     0605    74        166.   *     1      1120
137         5.    *     1     1635   200         4.
      1     0055     12         0.   *     1     0610    75        134.   *     1      1125
138         5.    *     1     1640   201         4.
      1     0100     13         0.   *     1     0615    76        130.   *     1      1130
139         5.    *     1     1645   202         4.
      1     0105     14         0.   *     1     0620    77        113.   *     1      1135
140         5.    *     1     1650   203         4.
      1     0110     15         0.   *     1     0625    78         89.   *     1      1140
141         5.    *     1     1655   204         4.
      1     0115     16         0.   *     1     0630    79         66.   *     1      1145
142         5.    *     1     1700   205         4.
      1     0120     17         0.   *     1     0635    80         51.   *     1      1150
143         6.    *     1     1705   206         4.
      1     0125     18         0.   *     1     0640    81         41.   *     1      1155
144         6.    *     1     1710   207         4.
      1     0130     19         0.   *     1     0645    82         34.   *     1      1200
145         5.    *     1     1715   208         4.
      1     0135     20         0.   *     1     0650    83         29.   *     1      1205
146         5.    *     1     1720   209         4.
      1     0140     21         0.   *     1     0655    84         26.   *     1      1210
147         5.    *     1     1725   210         4.
      1     0145     22         0.   *     1     0700    85         24.   *     1      1215
148         6.    *     1     1730   211         4.
      1     0150     23         0.   *     1     0705    86         22.   *     1      1220
149         6.    *     1     1735   212         4.
      1     0155     24         0.   *     1     0710    87         20.   *     1      1225
150         6.    *     1     1740   213         4.
      1     0200     25         0.   *     1     0715    88         18.   *     1      1230
151         6.    *     1     1745   214         4.
      1     0205     26         0.   *     1     0720    89         17.   *     1      1235
152         6.    *     1     1750   215         4.
```

```
     1     0210   27        0.   *    1     0725   90       16.   *    1     1240
153        6.   *    1     1755  216        4.
     1     0215   28        0.   *    1     0730   91       15.   *    1     1245
154        6.   *    1     1800  217        4.
     1     0220   29        0.   *    1     0735   92       14.   *    1     1250
155        6.   *    1     1805  218        4.
     1     0225   30        0.   *    1     0740   93       14.   *    1     1255
156        6.   *    1     1810  219        4.
     1     0230   31        0.   *    1     0745   94       14.   *    1     1300
157        6.   *    1     1815  220        4.
     1     0235   32        0.   *    1     0750   95       14.   *    1     1305
158        5.   *    1     1820  221        4.
     1     0240   33        0.   *    1     0755   96       14.   *    1     1310
159        5.   *    1     1825  222        4.
     1     0245   34        0.   *    1     0800   97       14.   *    1     1315
160        5.   *    1     1830  223        4.
     1     0250   35        0.   *    1     0805   98       14.   *    1     1320
161        5.   *    1     1835  224        4.
     1     0255   36        0.   *    1     0810   99       12.   *    1     1325
162        5.   *    1     1840  225        4.
     1     0300   37        0.   *    1     0815  100       11.   *    1     1330
163        5.   *    1     1845  226        4.
     1     0305   38        0.   *    1     0820  101       10.   *    1     1335
164        5.   *    1     1850  227        4.
     1     0310   39        0.   *    1     0825  102        9.   *    1     1340
165        5.   *    1     1855  228        4.
     1     0315   40        0.   *    1     0830  103        8.   *    1     1345
166        5.   *    1     1900  229        4.
     1     0320   41        0.   *    1     0835  104        8.   *    1     1350
167        5.   *    1     1905  230        4.
     1     0325   42        0.   *    1     0840  105        7.   *    1     1355
168        5.   *    1     1910  231        4.
     1     0330   43        0.   *    1     0845  106        7.   *    1     1400
169        5.   *    1     1915  232        4.
     1     0335   44        0.   *    1     0850  107        7.   *    1     1405
170        5.   *    1     1920  233        4.
     1     0340   45        0.   *    1     0855  108        7.   *    1     1410
171        5.   *    1     1925  234        4.
     1     0345   46        0.   *    1     0900  109        7.   *    1     1415
172        5.   *    1     1930  235        4.
     1     0350   47        0.   *    1     0905  110        7.   *    1     1420
173        5.   *    1     1935  236        4.
     1     0355   48        0.   *    1     0910  111        7.   *    1     1425
174        5.   *    1     1940  237        4.
     1     0400   49        0.   *    1     0915  112        7.   *    1     1430
175        5.   *    1     1945  238        4.
     1     0405   50        0.   *    1     0920  113        7.   *    1     1435
176        5.   *    1     1950  239        4.
     1     0410   51        0.   *    1     0925  114        7.   *    1     1440
177        5.   *    1     1955  240        4.
     1     0415   52        0.   *    1     0930  115        7.   *    1     1445
178        5.   *    1     2000  241        4.
     1     0420   53        0.   *    1     0935  116        7.   *    1     1450
179        5.   *    1     2005  242        4.
     1     0425   54        0.   *    1     0940  117        7.   *    1     1455
180        5.   *    1     2010  243        3.
     1     0430   55        0.   *    1     0945  118        7.   *    1     1500
181        5.   *    1     2015  244        3.
     1     0435   56        0.   *    1     0950  119        7.   *    1     1505
182        4.   *    1     2020  245        3.
     1     0440   57        0.   *    1     0955  120        7.   *    1     1510
183        4.   *    1     2025  246        2.
     1     0445   58        0.   *    1     1000  121        7.   *    1     1515
```

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184        4.   *    1     2030  247       2.
     1     0450   59        0.   *    1     1005  122         7.  *    1     1520
185        4.   *    1     2035  248       2.
     1     0455   60        0.   *    1     1010  123         7.  *    1     1525
186        4.   *    1     2040  249       2.
     1     0500   61        0.   *    1     1015  124         6.  *    1     1530
187        4.   *    1     2045  250       2.
     1     0505   62        0.   *    1     1020  125         6.  *    1     1535
188        4.   *
     1     0510   63        0.   *    1     1025  126         6.  *    1     1540
189        4.   *
                                 *                                *
              *

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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+     166.      6.08                   25.          9.          9.           9.
                        (INCHES)      .869       1.093       1.093        1.093
                         (AC-FT)       13.         16.         16.          16.

                         CUMULATIVE AREA =     .27 SQ MI


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                                                   HYDROGRAPH AT STATION   DP6020
                                                        SUM OF  3 HYDROGRAPHS
                                                       PLAN 1,   RATIO =  1.00


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***********************************************
                                 *                                *
              *
    DA MON HRMN  ORD      FLOW   *   DA MON HRMN  ORD      FLOW   *   DA MON HRMN
ORD      FLOW   *   DA MON HRMN  ORD      FLOW
                                 *                                *
              *
     1     0000    1        0.   *    1     0515   64         0.  *    1     1030
127       10.   *    1     1545  190       6.
     1     0005    2        0.   *    1     0520   65         0.  *    1     1035
128        9.   *    1     1550  191       6.
     1     0010    3        0.   *    1     0525   66         0.  *    1     1040
129        9.   *    1     1555  192       6.
     1     0015    4        0.   *    1     0530   67         1.  *    1     1045
130        9.   *    1     1600  193       6.
     1     0020    5        0.   *    1     0535   68        11.  *    1     1050
131        9.   *    1     1605  194       6.
     1     0025    6        0.   *    1     0540   69        47.  *    1     1055
132        9.   *    1     1610  195       6.
     1     0030    7        0.   *    1     0545   70       106.  *    1     1100
133        9.   *    1     1615  196       6.
     1     0035    8        0.   *    1     0550   71       175.  *    1     1105
134        9.   *    1     1620  197       6.
     1     0040    9        0.   *    1     0555   72       241.  *    1     1110
135        9.   *    1     1625  198       6.
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     1     0045   10        0.   *    1     0600   73      300.   *    1     1115
136        9.   *    1    1630   199        6.
     1     0050   11        0.   *    1     0605   74      375.   *    1     1120
137        9.   *    1    1635   200        6.
     1     0055   12        0.   *    1     0610   75      330.   *    1     1125
138        9.   *    1    1640   201        6.
     1     0100   13        0.   *    1     0615   76      249.   *    1     1130
139        9.   *    1    1645   202        6.
     1     0105   14        0.   *    1     0620   77      197.   *    1     1135
140        9.   *    1    1650   203        6.
     1     0110   15        0.   *    1     0625   78      169.   *    1     1140
141        9.   *    1    1655   204        6.
     1     0115   16        0.   *    1     0630   79      154.   *    1     1145
142        9.   *    1    1700   205        6.
     1     0120   17        0.   *    1     0635   80      133.   *    1     1150
143        9.   *    1    1705   206        6.
     1     0125   18        0.   *    1     0640   81       98.   *    1     1155
144        9.   *    1    1710   207        6.
     1     0130   19        0.   *    1     0645   82       67.   *    1     1200
145        9.   *    1    1715   208        6.
     1     0135   20        0.   *    1     0650   83       52.   *    1     1205
146        9.   *    1    1720   209        6.
     1     0140   21        0.   *    1     0655   84       45.   *    1     1210
147        9.   *    1    1725   210        6.
     1     0145   22        0.   *    1     0700   85       41.   *    1     1215
148        9.   *    1    1730   211        6.
     1     0150   23        0.   *    1     0705   86       38.   *    1     1220
149        9.   *    1    1735   212        6.
     1     0155   24        0.   *    1     0710   87       34.   *    1     1225
150        9.   *    1    1740   213        6.
     1     0200   25        0.   *    1     0715   88       31.   *    1     1230
151        9.   *    1    1745   214        6.
     1     0205   26        0.   *    1     0720   89       28.   *    1     1235
152        9.   *    1    1750   215        6.
     1     0210   27        0.   *    1     0725   90       26.   *    1     1240
153        9.   *    1    1755   216        6.
     1     0215   28        0.   *    1     0730   91       25.   *    1     1245
154        9.   *    1    1800   217        6.
     1     0220   29        0.   *    1     0735   92       24.   *    1     1250
155        9.   *    1    1805   218        6.
     1     0225   30        0.   *    1     0740   93       24.   *    1     1255
156        9.   *    1    1810   219        6.
     1     0230   31        0.   *    1     0745   94       24.   *    1     1300
157        9.   *    1    1815   220        6.
     1     0235   32        0.   *    1     0750   95       24.   *    1     1305
158        9.   *    1    1820   221        6.
     1     0240   33        0.   *    1     0755   96       24.   *    1     1310
159        9.   *    1    1825   222        6.
     1     0245   34        0.   *    1     0800   97       24.   *    1     1315
160        9.   *    1    1830   223        6.
     1     0250   35        0.   *    1     0805   98       23.   *    1     1320
161        8.   *    1    1835   224        6.
     1     0255   36        0.   *    1     0810   99       21.   *    1     1325
162        8.   *    1    1840   225        6.
     1     0300   37        0.   *    1     0815  100       18.   *    1     1330
163        8.   *    1    1845   226        6.
     1     0305   38        0.   *    1     0820  101       16.   *    1     1335
164        8.   *    1    1850   227        6.
     1     0310   39        0.   *    1     0825  102       15.   *    1     1340
165        8.   *    1    1855   228        6.
     1     0315   40        0.   *    1     0830  103       14.   *    1     1345
166        8.   *    1    1900   229        6.
     1     0320   41        0.   *    1     0835  104       13.   *    1     1350
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167         8.   *    1     1905  230         6.
     1     0325  42          0.   *    1     0840  105        13.   *    1     1355
168         8.   *    1     1910  231         6.
     1     0330  43          0.   *    1     0845  106        12.   *    1     1400
169         8.   *    1     1915  232         6.
     1     0335  44          0.   *    1     0850  107        12.   *    1     1405
170         8.   *    1     1920  233         6.
     1     0340  45          0.   *    1     0855  108        12.   *    1     1410
171         8.   *    1     1925  234         6.
     1     0345  46          0.   *    1     0900  109        12.   *    1     1415
172         8.   *    1     1930  235         6.
     1     0350  47          0.   *    1     0905  110        12.   *    1     1420
173         8.   *    1     1935  236         6.
     1     0355  48          0.   *    1     0910  111        12.   *    1     1425
174         8.   *    1     1940  237         6.
     1     0400  49          0.   *    1     0915  112        12.   *    1     1430
175         7.   *    1     1945  238         6.
     1     0405  50          0.   *    1     0920  113        12.   *    1     1435
176         7.   *    1     1950  239         6.
     1     0410  51          0.   *    1     0925  114        12.   *    1     1440
177         7.   *    1     1955  240         6.
     1     0415  52          0.   *    1     0930  115        12.   *    1     1445
178         7.   *    1     2000  241         6.
     1     0420  53          0.   *    1     0935  116        12.   *    1     1450
179         7.   *    1     2005  242         6.
     1     0425  54          0.   *    1     0940  117        12.   *    1     1455
180         7.   *    1     2010  243         6.
     1     0430  55          0.   *    1     0945  118        12.   *    1     1500
181         7.   *    1     2015  244         5.
     1     0435  56          0.   *    1     0950  119        12.   *    1     1505
182         7.   *    1     2020  245         4.
     1     0440  57          0.   *    1     0955  120        12.   *    1     1510
183         7.   *    1     2025  246         4.
     1     0445  58          0.   *    1     1000  121        12.   *    1     1515
184         7.   *    1     2030  247         4.
     1     0450  59          0.   *    1     1005  122        12.   *    1     1520
185         7.   *    1     2035  248         3.
     1     0455  60          0.   *    1     1010  123        11.   *    1     1525
186         7.   *    1     2040  249         3.
     1     0500  61          0.   *    1     1015  124        11.   *    1     1530
187         6.   *    1     2045  250         3.
     1     0505  62          0.   *    1     1020  125        10.   *    1     1535
188         6.   *
     1     0510  63          0.   *    1     1025  126        10.   *    1     1540
189         6.   *
                                  *                                *
              *

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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                       6-HR        24-HR        72-HR     20.75-HR
+   (CFS)       (HR)
                            (CFS)
+     375.      6.08                    50.          18.          18.           18.
                         (INCHES)     1.728        2.097        2.097         2.097
                          (AC-FT)       25.          30.          30.           30.

                         CUMULATIVE AREA =     .27 SQ MI
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 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
*** *** *** *** *** *** *** *** *** *** *** ***


             **************
             *            *
   92 KK     *    DB6020  *
             *            *
             **************


   93 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           1  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                                          ROUTE DP6020 THROUGH FSD AS-BUILT DETENTION
BASIN D

                HYDROGRAPH ROUTING DATA

   95 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        ELEV  TYPE OF INITIAL CONDITION
                       RSVRIC     5682.40  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

   98 SV            STORAGE            .0        1.1        3.7        5.3        7.1
10.7      14.5

   96 SQ          DISCHARGE            0.         2.         2.        82.       215.
247.      267.

   97 SE          ELEVATION     5682.40   5684.00   5686.00   5688.00   5690.00
5692.00   5694.00

                                                                          ***


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                                                            HYDROGRAPH AT STATION   DB6020
                                                                PLAN 1,   RATIO =   .47


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                                                    *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                                    *
   *
   1     0000   1       0.       .0  5682.4 *  1     0700  85       2.      2.9
5685.4 *  1     1400 169       3.      3.7  5686.0
   1     0005   2       0.       .0  5682.4 *  1     0705  86       2.      2.9
5685.4 *  1     1405 170       3.      3.7  5686.0
   1     0010   3       0.       .0  5682.4 *  1     0710  87       2.      3.0
5685.4 *  1     1410 171       3.      3.7  5686.0
   1     0015   4       0.       .0  5682.4 *  1     0715  88       2.      3.0
5685.5 *  1     1415 172       3.      3.7  5686.0
   1     0020   5       0.       .0  5682.4 *  1     0720  89       2.      3.0
```

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5685.5 *  1     1420 173       3.       3.7  5686.0
   1     0025   6       0.       .0  5682.4 *  1     0725  90       2.      3.1
5685.5 *  1     1425 174       3.       3.7  5686.0
   1     0030   7       0.       .0  5682.4 *  1     0730  91       2.      3.1
5685.5 *  1     1430 175       3.       3.7  5686.0
   1     0035   8       0.       .0  5682.4 *  1     0735  92       2.      3.1
5685.5 *  1     1435 176       3.       3.7  5686.0
   1     0040   9       0.       .0  5682.4 *  1     0740  93       2.      3.1
5685.6 *  1     1440 177       3.       3.7  5686.0
   1     0045   10      0.       .0  5682.4 *  1     0745  94       2.      3.2
5685.6 *  1     1445 178       3.       3.7  5686.0
   1     0050   11      0.       .0  5682.4 *  1     0750  95       2.      3.2
5685.6 *  1     1450 179       3.       3.7  5686.0
   1     0055   12      0.       .0  5682.4 *  1     0755  96       2.      3.2
5685.6 *  1     1455 180       3.       3.7  5686.0
   1     0100   13      0.       .0  5682.4 *  1     0800  97       2.      3.3
5685.7 *  1     1500 181       3.       3.7  5686.0
   1     0105   14      0.       .0  5682.4 *  1     0805  98       2.      3.3
5685.7 *  1     1505 182       3.       3.7  5686.0
   1     0110   15      0.       .0  5682.4 *  1     0810  99       2.      3.3
5685.7 *  1     1510 183       2.       3.7  5686.0
   1     0115   16      0.       .0  5682.4 *  1     0815 100       2.      3.4
5685.7 *  1     1515 184       2.       3.7  5686.0
   1     0120   17      0.       .0  5682.4 *  1     0820 101       2.      3.4
5685.7 *  1     1520 185       2.       3.7  5686.0
   1     0125   18      0.       .0  5682.4 *  1     0825 102       2.      3.4
5685.8 *  1     1525 186       2.       3.7  5686.0
   1     0130   19      0.       .0  5682.4 *  1     0830 103       2.      3.4
5685.8 *  1     1530 187       2.       3.7  5686.0
   1     0135   20      0.       .0  5682.4 *  1     0835 104       2.      3.4
5685.8 *  1     1535 188       2.       3.7  5686.0
   1     0140   21      0.       .0  5682.4 *  1     0840 105       2.      3.4
5685.8 *  1     1540 189       2.       3.7  5686.0
   1     0145   22      0.       .0  5682.4 *  1     0845 106       2.      3.4
5685.8 *  1     1545 190       2.       3.7  5686.0
   1     0150   23      0.       .0  5682.4 *  1     0850 107       2.      3.5
5685.8 *  1     1550 191       2.       3.7  5686.0
   1     0155   24      0.       .0  5682.4 *  1     0855 108       2.      3.5
5685.8 *  1     1555 192       2.       3.7  5686.0
   1     0200   25      0.       .0  5682.4 *  1     0900 109       2.      3.5
5685.8 *  1     1600 193       2.       3.7  5686.0
   1     0205   26      0.       .0  5682.4 *  1     0905 110       2.      3.5
5685.8 *  1     1605 194       2.       3.7  5686.0
   1     0210   27      0.       .0  5682.4 *  1     0910 111       2.      3.5
5685.9 *  1     1610 195       2.       3.7  5686.0
   1     0215   28      0.       .0  5682.4 *  1     0915 112       2.      3.5
5685.9 *  1     1615 196       2.       3.7  5686.0
   1     0220   29      0.       .0  5682.4 *  1     0920 113       2.      3.5
5685.9 *  1     1620 197       2.       3.7  5686.0
   1     0225   30      0.       .0  5682.4 *  1     0925 114       2.      3.5
5685.9 *  1     1625 198       2.       3.7  5686.0
   1     0230   31      0.       .0  5682.4 *  1     0930 115       2.      3.6
5685.9 *  1     1630 199       2.       3.7  5686.0
   1     0235   32      0.       .0  5682.4 *  1     0935 116       2.      3.6
5685.9 *  1     1635 200       2.       3.7  5686.0
   1     0240   33      0.       .0  5682.4 *  1     0940 117       2.      3.6
5685.9 *  1     1640 201       2.       3.7  5686.0
   1     0245   34      0.       .0  5682.4 *  1     0945 118       2.      3.6
5685.9 *  1     1645 202       2.       3.7  5686.0
   1     0250   35      0.       .0  5682.4 *  1     0950 119       2.      3.6
5685.9 *  1     1650 203       2.       3.7  5686.0
   1     0255   36      0.       .0  5682.4 *  1     0955 120       2.      3.6
5685.9 *  1     1655 204       2.       3.7  5686.0
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   1     0300  37       0.       .0  5682.4 *  1     1000 121       2.      3.6
5685.9 *  1     1700 205       2.      3.7  5686.0
   1     0305  38       0.       .0  5682.4 *  1     1005 122       2.      3.6
5685.9 *  1     1705 206       2.      3.7  5686.0
   1     0310  39       0.       .0  5682.4 *  1     1010 123       2.      3.6
5686.0 *  1     1710 207       2.      3.7  5686.0
   1     0315  40       0.       .0  5682.4 *  1     1015 124       2.      3.7
5686.0 *  1     1715 208       2.      3.7  5686.0
   1     0320  41       0.       .0  5682.4 *  1     1020 125       2.      3.7
5686.0 *  1     1720 209       2.      3.7  5686.0
   1     0325  42       0.       .0  5682.4 *  1     1025 126       2.      3.7
5686.0 *  1     1725 210       2.      3.7  5686.0
   1     0330  43       0.       .0  5682.4 *  1     1030 127       2.      3.7
5686.0 *  1     1730 211       2.      3.7  5686.0
   1     0335  44       0.       .0  5682.4 *  1     1035 128       2.      3.7
5686.0 *  1     1735 212       2.      3.7  5686.0
   1     0340  45       0.       .0  5682.4 *  1     1040 129       2.      3.7
5686.0 *  1     1740 213       2.      3.7  5686.0
   1     0345  46       0.       .0  5682.4 *  1     1045 130       2.      3.7
5686.0 *  1     1745 214       2.      3.7  5686.0
   1     0350  47       0.       .0  5682.4 *  1     1050 131       2.      3.7
5686.0 *  1     1750 215       2.      3.7  5686.0
   1     0355  48       0.       .0  5682.4 *  1     1055 132       2.      3.7
5686.0 *  1     1755 216       2.      3.7  5686.0
   1     0400  49       0.       .0  5682.4 *  1     1100 133       2.      3.7
5686.0 *  1     1800 217       2.      3.7  5686.0
   1     0405  50       0.       .0  5682.4 *  1     1105 134       3.      3.7
5686.0 *  1     1805 218       2.      3.7  5686.0
   1     0410  51       0.       .0  5682.4 *  1     1110 135       3.      3.7
5686.0 *  1     1810 219       2.      3.7  5686.0
   1     0415  52       0.       .0  5682.4 *  1     1115 136       3.      3.7
5686.0 *  1     1815 220       2.      3.7  5686.0
   1     0420  53       0.       .0  5682.4 *  1     1120 137       3.      3.7
5686.0 *  1     1820 221       2.      3.7  5686.0
   1     0425  54       0.       .0  5682.4 *  1     1125 138       3.      3.7
5686.0 *  1     1825 222       2.      3.7  5686.0
   1     0430  55       0.       .0  5682.4 *  1     1130 139       3.      3.7
5686.0 *  1     1830 223       2.      3.7  5686.0
   1     0435  56       0.       .0  5682.4 *  1     1135 140       3.      3.7
5686.0 *  1     1835 224       2.      3.7  5686.0
   1     0440  57       0.       .0  5682.4 *  1     1140 141       3.      3.7
5686.0 *  1     1840 225       2.      3.7  5686.0
   1     0445  58       0.       .0  5682.4 *  1     1145 142       3.      3.7
5686.0 *  1     1845 226       2.      3.7  5686.0
   1     0450  59       0.       .0  5682.4 *  1     1150 143       3.      3.7
5686.0 *  1     1850 227       2.      3.7  5686.0
   1     0455  60       0.       .0  5682.4 *  1     1155 144       3.      3.7
5686.0 *  1     1855 228       2.      3.7  5686.0
   1     0500  61       0.       .0  5682.4 *  1     1200 145       3.      3.7
5686.0 *  1     1900 229       2.      3.7  5686.0
   1     0505  62       0.       .0  5682.4 *  1     1205 146       3.      3.7
5686.0 *  1     1905 230       2.      3.7  5686.0
   1     0510  63       0.       .0  5682.4 *  1     1210 147       3.      3.7
5686.0 *  1     1910 231       2.      3.7  5686.0
   1     0515  64       0.       .0  5682.4 *  1     1215 148       3.      3.7
5686.0 *  1     1915 232       2.      3.7  5686.0
   1     0520  65       0.       .0  5682.4 *  1     1220 149       3.      3.7
5686.0 *  1     1920 233       2.      3.7  5686.0
   1     0525  66       0.       .0  5682.4 *  1     1225 150       3.      3.7
5686.0 *  1     1925 234       2.      3.7  5686.0
   1     0530  67       0.       .0  5682.4 *  1     1230 151       3.      3.7
5686.0 *  1     1930 235       2.      3.7  5686.0
   1     0535  68       0.       .0  5682.4 *  1     1235 152       3.      3.7
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5686.0 *  1     1935 236       2.       3.7  5686.0
   1     0540  69       0.        .0  5682.4 *  1     1240 153       3.      3.7
5686.0 *  1     1940 237       2.       3.7  5686.0
   1     0545  70       0.        .1  5682.5 *  1     1245 154       3.      3.7
5686.0 *  1     1945 238       2.       3.7  5686.0
   1     0550  71       0.        .2  5682.7 *  1     1250 155       3.      3.7
5686.0 *  1     1950 239       2.       3.7  5686.0
   1     0555  72       1.        .5  5683.1 *  1     1255 156       3.      3.7
5686.0 *  1     1955 240       2.       3.7  5686.0
   1     0600  73       2.        .9  5683.6 *  1     1300 157       3.      3.7
5686.0 *  1     2000 241       2.       3.7  5686.0
   1     0605  74       2.       1.3  5684.2 *  1     1305 158       3.      3.7
5686.0 *  1     2005 242       2.       3.7  5686.0
   1     0610  75       2.       1.8  5684.5 *  1     1310 159       3.      3.7
5686.0 *  1     2010 243       2.       3.7  5686.0
   1     0615  76       2.       2.1  5684.8 *  1     1315 160       3.      3.7
5686.0 *  1     2015 244       2.       3.7  5686.0
   1     0620  77       2.       2.3  5684.9 *  1     1320 161       3.      3.7
5686.0 *  1     2020 245       2.       3.7  5686.0
   1     0625  78       2.       2.5  5685.0 *  1     1325 162       3.      3.7
5686.0 *  1     2025 246       2.       3.7  5686.0
   1     0630  79       2.       2.6  5685.1 *  1     1330 163       3.      3.7
5686.0 *  1     2030 247       2.       3.7  5686.0
   1     0635  80       2.       2.6  5685.2 *  1     1335 164       3.      3.7
5686.0 *  1     2035 248       2.       3.7  5686.0
   1     0640  81       2.       2.7  5685.2 *  1     1340 165       3.      3.7
5686.0 *  1     2040 249       2.       3.7  5686.0
   1     0645  82       2.       2.8  5685.3 *  1     1345 166       3.      3.7
5686.0 *  1     2045 250       2.       3.7  5686.0
   1     0650  83       2.       2.8  5685.3 *  1     1350 167       3.      3.7
5686.0 *
   1     0655  84       2.       2.9  5685.3 *  1     1355 168       3.      3.7
5686.0 *
                                            *
   *

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  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR     20.75-HR

+   (CFS)       (HR)
                                (CFS)
+       3.     13.00                       3.           2.           2.           2.
                             (INCHES)    .089         .196         .196         .196
                              (AC-FT)      1.           3.           3.           3.

 PEAK STORAGE   TIME                             MAXIMUM AVERAGE STORAGE
                                          6-HR        24-HR        72-HR     20.75-HR

+  (AC-FT)      (HR)
        4.     12.92                       4.           3.           3.           3.

  PEAK STAGE    TIME                              MAXIMUM AVERAGE STAGE
                                          6-HR        24-HR        72-HR     20.75-HR

+   (FEET)      (HR)
   5686.02     12.92                    5686.01      5684.88      5684.88      5684.88

                         CUMULATIVE AREA =      .27 SQ MI


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                                                          HYDROGRAPH AT STATION   DB6020
                                                              PLAN 1,   RATIO =   .56


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                                                *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                                *
   *
   1     0000   1       0.       .0  5682.4 *  1     0700  85      20.      4.1
5686.5 *  1     1400 169       3.      3.7  5686.0
   1     0005   2       0.       .0  5682.4 *  1     0705  86      19.      4.0
5686.4 *  1     1405 170       3.      3.7  5686.0
   1     0010   3       0.       .0  5682.4 *  1     0710  87      18.      4.0
5686.4 *  1     1410 171       3.      3.7  5686.0
   1     0015   4       0.       .0  5682.4 *  1     0715  88      16.      4.0
5686.4 *  1     1415 172       3.      3.7  5686.0
   1     0020   5       0.       .0  5682.4 *  1     0720  89      15.      4.0
5686.3 *  1     1420 173       3.      3.7  5686.0
   1     0025   6       0.       .0  5682.4 *  1     0725  90      14.      3.9
5686.3 *  1     1425 174       3.      3.7  5686.0
   1     0030   7       0.       .0  5682.4 *  1     0730  91      13.      3.9
5686.3 *  1     1430 175       3.      3.7  5686.0
   1     0035   8       0.       .0  5682.4 *  1     0735  92      12.      3.9
5686.3 *  1     1435 176       3.      3.7  5686.0
   1     0040   9       0.       .0  5682.4 *  1     0740  93      11.      3.9
5686.2 *  1     1440 177       3.      3.7  5686.0
   1     0045  10       0.       .0  5682.4 *  1     0745  94      11.      3.9
5686.2 *  1     1445 178       3.      3.7  5686.0
   1     0050  11       0.       .0  5682.4 *  1     0750  95      11.      3.9
5686.2 *  1     1450 179       3.      3.7  5686.0
   1     0055  12       0.       .0  5682.4 *  1     0755  96      10.      3.9
5686.2 *  1     1455 180       3.      3.7  5686.0
   1     0100  13       0.       .0  5682.4 *  1     0800  97      10.      3.9
5686.2 *  1     1500 181       3.      3.7  5686.0
   1     0105  14       0.       .0  5682.4 *  1     0805  98      10.      3.9
5686.2 *  1     1505 182       3.      3.7  5686.0
   1     0110  15       0.       .0  5682.4 *  1     0810  99      10.      3.9
5686.2 *  1     1510 183       3.      3.7  5686.0
   1     0115  16       0.       .0  5682.4 *  1     0815 100       9.      3.8
5686.2 *  1     1515 184       3.      3.7  5686.0
   1     0120  17       0.       .0  5682.4 *  1     0820 101       9.      3.8
5686.2 *  1     1520 185       3.      3.7  5686.0
   1     0125  18       0.       .0  5682.4 *  1     0825 102       8.      3.8
5686.1 *  1     1525 186       3.      3.7  5686.0
   1     0130  19       0.       .0  5682.4 *  1     0830 103       7.      3.8
5686.1 *  1     1530 187       3.      3.7  5686.0
   1     0135  20       0.       .0  5682.4 *  1     0835 104       7.      3.8
5686.1 *  1     1535 188       3.      3.7  5686.0
   1     0140  21       0.       .0  5682.4 *  1     0840 105       6.      3.8
5686.1 *  1     1540 189       3.      3.7  5686.0
   1     0145  22       0.       .0  5682.4 *  1     0845 106       6.      3.8
5686.1 *  1     1545 190       3.      3.7  5686.0
   1     0150  23       0.       .0  5682.4 *  1     0850 107       6.      3.8
5686.1 *  1     1550 191       3.      3.7  5686.0
   1     0155  24       0.       .0  5682.4 *  1     0855 108       6.      3.8
5686.1 *  1     1555 192       3.      3.7  5686.0
   1     0200  25       0.       .0  5682.4 *  1     0900 109       5.      3.8
5686.1 *  1     1600 193       3.      3.7  5686.0
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   1     0205  26        0.        .0  5682.4 *  1     0905 110        5.      3.8
5686.1 *  1     1605 194       3.       3.7  5686.0
   1     0210  27        0.        .0  5682.4 *  1     0910 111        5.      3.8
5686.1 *  1     1610 195       3.       3.7  5686.0
   1     0215  28        0.        .0  5682.4 *  1     0915 112        5.      3.8
5686.1 *  1     1615 196       3.       3.7  5686.0
   1     0220  29        0.        .0  5682.4 *  1     0920 113        5.      3.8
5686.1 *  1     1620 197       3.       3.7  5686.0
   1     0225  30        0.        .0  5682.4 *  1     0925 114        5.      3.8
5686.1 *  1     1625 198       3.       3.7  5686.0
   1     0230  31        0.        .0  5682.4 *  1     0930 115        5.      3.8
5686.1 *  1     1630 199       3.       3.7  5686.0
   1     0235  32        0.        .0  5682.4 *  1     0935 116        5.      3.8
5686.1 *  1     1635 200       3.       3.7  5686.0
   1     0240  33        0.        .0  5682.4 *  1     0940 117        5.      3.8
5686.1 *  1     1640 201       3.       3.7  5686.0
   1     0245  34        0.        .0  5682.4 *  1     0945 118        5.      3.8
5686.1 *  1     1645 202       3.       3.7  5686.0
   1     0250  35        0.        .0  5682.4 *  1     0950 119        5.      3.8
5686.1 *  1     1650 203       3.       3.7  5686.0
   1     0255  36        0.        .0  5682.4 *  1     0955 120        5.      3.8
5686.1 *  1     1655 204       3.       3.7  5686.0
   1     0300  37        0.        .0  5682.4 *  1     1000 121        5.      3.8
5686.1 *  1     1700 205       3.       3.7  5686.0
   1     0305  38        0.        .0  5682.4 *  1     1005 122        5.      3.8
5686.1 *  1     1705 206       3.       3.7  5686.0
   1     0310  39        0.        .0  5682.4 *  1     1010 123        5.      3.8
5686.1 *  1     1710 207       3.       3.7  5686.0
   1     0315  40        0.        .0  5682.4 *  1     1015 124        5.      3.8
5686.1 *  1     1715 208       3.       3.7  5686.0
   1     0320  41        0.        .0  5682.4 *  1     1020 125        5.      3.8
5686.1 *  1     1720 209       3.       3.7  5686.0
   1     0325  42        0.        .0  5682.4 *  1     1025 126        5.      3.8
5686.1 *  1     1725 210       3.       3.7  5686.0
   1     0330  43        0.        .0  5682.4 *  1     1030 127        4.      3.7
5686.1 *  1     1730 211       3.       3.7  5686.0
   1     0335  44        0.        .0  5682.4 *  1     1035 128        4.      3.7
5686.1 *  1     1735 212       3.       3.7  5686.0
   1     0340  45        0.        .0  5682.4 *  1     1040 129        4.      3.7
5686.1 *  1     1740 213       3.       3.7  5686.0
   1     0345  46        0.        .0  5682.4 *  1     1045 130        4.      3.7
5686.1 *  1     1745 214       3.       3.7  5686.0
   1     0350  47        0.        .0  5682.4 *  1     1050 131        4.      3.7
5686.1 *  1     1750 215       3.       3.7  5686.0
   1     0355  48        0.        .0  5682.4 *  1     1055 132        4.      3.7
5686.0 *  1     1755 216       3.       3.7  5686.0
   1     0400  49        0.        .0  5682.4 *  1     1100 133        4.      3.7
5686.0 *  1     1800 217       3.       3.7  5686.0
   1     0405  50        0.        .0  5682.4 *  1     1105 134        4.      3.7
5686.0 *  1     1805 218       3.       3.7  5686.0
   1     0410  51        0.        .0  5682.4 *  1     1110 135        4.      3.7
5686.0 *  1     1810 219       3.       3.7  5686.0
   1     0415  52        0.        .0  5682.4 *  1     1115 136        4.      3.7
5686.0 *  1     1815 220       3.       3.7  5686.0
   1     0420  53        0.        .0  5682.4 *  1     1120 137        4.      3.7
5686.0 *  1     1820 221       3.       3.7  5686.0
   1     0425  54        0.        .0  5682.4 *  1     1125 138        4.      3.7
5686.0 *  1     1825 222       3.       3.7  5686.0
   1     0430  55        0.        .0  5682.4 *  1     1130 139        4.      3.7
5686.0 *  1     1830 223       3.       3.7  5686.0
   1     0435  56        0.        .0  5682.4 *  1     1135 140        4.      3.7
5686.0 *  1     1835 224       3.       3.7  5686.0
   1     0440  57        0.        .0  5682.4 *  1     1140 141        4.      3.7
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5686.0 *  1     1840 225       3.      3.7  5686.0
   1     0445  58       0.       .0  5682.4 *  1     1145 142       4.      3.7
5686.0 *  1     1845 226       3.      3.7  5686.0
   1     0450  59       0.       .0  5682.4 *  1     1150 143       4.      3.7
5686.0 *  1     1850 227       3.      3.7  5686.0
   1     0455  60       0.       .0  5682.4 *  1     1155 144       4.      3.7
5686.0 *  1     1855 228       3.      3.7  5686.0
   1     0500  61       0.       .0  5682.4 *  1     1200 145       4.      3.7
5686.0 *  1     1900 229       3.      3.7  5686.0
   1     0505  62       0.       .0  5682.4 *  1     1205 146       4.      3.7
5686.0 *  1     1905 230       3.      3.7  5686.0
   1     0510  63       0.       .0  5682.4 *  1     1210 147       4.      3.7
5686.0 *  1     1910 231       3.      3.7  5686.0
   1     0515  64       0.       .0  5682.4 *  1     1215 148       4.      3.7
5686.0 *  1     1915 232       3.      3.7  5686.0
   1     0520  65       0.       .0  5682.4 *  1     1220 149       4.      3.7
5686.0 *  1     1920 233       3.      3.7  5686.0
   1     0525  66       0.       .0  5682.4 *  1     1225 150       4.      3.7
5686.0 *  1     1925 234       3.      3.7  5686.0
   1     0530  67       0.       .0  5682.4 *  1     1230 151       4.      3.7
5686.0 *  1     1930 235       3.      3.7  5686.0
   1     0535  68       0.       .0  5682.4 *  1     1235 152       4.      3.7
5686.0 *  1     1935 236       3.      3.7  5686.0
   1     0540  69       0.       .0  5682.4 *  1     1240 153       4.      3.7
5686.0 *  1     1940 237       3.      3.7  5686.0
   1     0545  70       0.       .1  5682.6 *  1     1245 154       4.      3.7
5686.0 *  1     1945 238       3.      3.7  5686.0
   1     0550  71       1.       .4  5682.9 *  1     1250 155       4.      3.7
5686.0 *  1     1950 239       3.      3.7  5686.0
   1     0555  72       1.       .8  5683.5 *  1     1255 156       4.      3.7
5686.0 *  1     1955 240       3.      3.7  5686.0
   1     0600  73       2.      1.4  5684.2 *  1     1300 157       4.      3.7
5686.0 *  1     2000 241       3.      3.7  5686.0
   1     0605  74       2.      2.1  5684.7 *  1     1305 158       4.      3.7
5686.0 *  1     2005 242       3.      3.7  5686.0
   1     0610  75       2.      2.7  5685.2 *  1     1310 159       4.      3.7
5686.0 *  1     2010 243       3.      3.7  5686.0
   1     0615  76       2.      3.2  5685.6 *  1     1315 160       4.      3.7
5686.0 *  1     2015 244       3.      3.7  5686.0
   1     0620  77       2.      3.5  5685.8 *  1     1320 161       4.      3.7
5686.0 *  1     2020 245       2.      3.7  5686.0
   1     0625  78       2.      3.7  5686.0 *  1     1325 162       4.      3.7
5686.0 *  1     2025 246       2.      3.7  5686.0
   1     0630  79      13.      3.9  5686.3 *  1     1330 163       4.      3.7
5686.0 *  1     2030 247       2.      3.7  5686.0
   1     0635  80      20.      4.1  5686.4 *  1     1335 164       4.      3.7
5686.0 *  1     2035 248       2.      3.7  5686.0
   1     0640  81      23.      4.1  5686.5 *  1     1340 165       4.      3.7
5686.0 *  1     2040 249       2.      3.7  5686.0
   1     0645  82      24.      4.1  5686.5 *  1     1345 166       4.      3.7
5686.0 *  1     2045 250       2.      3.7  5686.0
   1     0650  83      23.      4.1  5686.5 *  1     1350 167       3.      3.7
5686.0 *
   1     0655  84      22.      4.1  5686.5 *  1     1355 168       3.      3.7
5686.0 *
                                            *
   *

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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     20.75-HR
```

```
+   (CFS)       (HR)
                           (CFS)
+      24.      6.75                     8.          4.          4.           4.
                        (INCHES)       .274        .423        .423         .423
                         (AC-FT)         4.          6.          6.           6.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                       6-HR       24-HR       72-HR     20.75-HR
+  (AC-FT)      (HR)
        4.      6.75                     4.          3.          3.           3.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                       6-HR       24-HR       72-HR     20.75-HR
+   (FEET)      (HR)
   5686.54      6.75                5686.14     5685.01     5685.01      5685.01

                         CUMULATIVE AREA =     .27 SQ MI


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                                                   HYDROGRAPH AT STATION   DB6020
                                                       PLAN 1,   RATIO =   .70

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                                            *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                            *
   *
   1     0000   1       0.        .0  5682.4 *  1     0700  85       38.       4.4
5686.9 *  1     1400 169       5.       3.8  5686.1
   1     0005   2       0.        .0  5682.4 *  1     0705  86       34.       4.3
5686.8 *  1     1405 170       5.       3.8  5686.1
   1     0010   3       0.        .0  5682.4 *  1     0710  87       30.       4.3
5686.7 *  1     1410 171       5.       3.8  5686.1
   1     0015   4       0.        .0  5682.4 *  1     0715  88       27.       4.2
5686.6 *  1     1415 172       5.       3.8  5686.1
   1     0020   5       0.        .0  5682.4 *  1     0720  89       24.       4.1
5686.5 *  1     1420 173       5.       3.8  5686.1
   1     0025   6       0.        .0  5682.4 *  1     0725  90       22.       4.1
5686.5 *  1     1425 174       5.       3.8  5686.1
   1     0030   7       0.        .0  5682.4 *  1     0730  91       20.       4.1
5686.4 *  1     1430 175       5.       3.8  5686.1
   1     0035   8       0.        .0  5682.4 *  1     0735  92       18.       4.0
5686.4 *  1     1435 176       5.       3.8  5686.1
   1     0040   9       0.        .0  5682.4 *  1     0740  93       17.       4.0
5686.4 *  1     1440 177       5.       3.8  5686.1
   1     0045  10       0.        .0  5682.4 *  1     0745  94       16.       4.0
5686.4 *  1     1445 178       5.       3.8  5686.1
   1     0050  11       0.        .0  5682.4 *  1     0750  95       16.       4.0
5686.3 *  1     1450 179       5.       3.8  5686.1
   1     0055  12       0.        .0  5682.4 *  1     0755  96       15.       4.0
5686.3 *  1     1455 180       5.       3.8  5686.1
   1     0100  13       0.        .0  5682.4 *  1     0800  97       15.       4.0
5686.3 *  1     1500 181       5.       3.7  5686.1
   1     0105  14       0.        .0  5682.4 *  1     0805  98       14.       3.9
5686.3 *  1     1505 182       5.       3.7  5686.1
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   1     0110  15        0.        .0  5682.4 *  1     0810  99       14.       3.9
 5686.3 *  1     1510 183       4.       3.7  5686.1
   1     0115  16        0.        .0  5682.4 *  1     0815 100       13.       3.9
 5686.3 *  1     1515 184       4.       3.7  5686.1
   1     0120  17        0.        .0  5682.4 *  1     0820 101       12.       3.9
 5686.3 *  1     1520 185       4.       3.7  5686.1
   1     0125  18        0.        .0  5682.4 *  1     0825 102       11.       3.9
 5686.2 *  1     1525 186       4.       3.7  5686.1
   1     0130  19        0.        .0  5682.4 *  1     0830 103       11.       3.9
 5686.2 *  1     1530 187       4.       3.7  5686.1
   1     0135  20        0.        .0  5682.4 *  1     0835 104       10.       3.9
 5686.2 *  1     1535 188       4.       3.7  5686.1
   1     0140  21        0.        .0  5682.4 *  1     0840 105        9.       3.8
 5686.2 *  1     1540 189       4.       3.7  5686.0
   1     0145  22        0.        .0  5682.4 *  1     0845 106        9.       3.8
 5686.2 *  1     1545 190       4.       3.7  5686.0
   1     0150  23        0.        .0  5682.4 *  1     0850 107        8.       3.8
 5686.2 *  1     1550 191       4.       3.7  5686.0
   1     0155  24        0.        .0  5682.4 *  1     0855 108        8.       3.8
 5686.1 *  1     1555 192       4.       3.7  5686.0
   1     0200  25        0.        .0  5682.4 *  1     0900 109        8.       3.8
 5686.1 *  1     1600 193       4.       3.7  5686.0
   1     0205  26        0.        .0  5682.4 *  1     0905 110        8.       3.8
 5686.1 *  1     1605 194       4.       3.7  5686.0
   1     0210  27        0.        .0  5682.4 *  1     0910 111        7.       3.8
 5686.1 *  1     1610 195       4.       3.7  5686.0
   1     0215  28        0.        .0  5682.4 *  1     0915 112        7.       3.8
 5686.1 *  1     1615 196       4.       3.7  5686.0
   1     0220  29        0.        .0  5682.4 *  1     0920 113        7.       3.8
 5686.1 *  1     1620 197       4.       3.7  5686.0
   1     0225  30        0.        .0  5682.4 *  1     0925 114        7.       3.8
 5686.1 *  1     1625 198       4.       3.7  5686.0
   1     0230  31        0.        .0  5682.4 *  1     0930 115        7.       3.8
 5686.1 *  1     1630 199       4.       3.7  5686.0
   1     0235  32        0.        .0  5682.4 *  1     0935 116        7.       3.8
 5686.1 *  1     1635 200       4.       3.7  5686.0
   1     0240  33        0.        .0  5682.4 *  1     0940 117        7.       3.8
 5686.1 *  1     1640 201       4.       3.7  5686.0
   1     0245  34        0.        .0  5682.4 *  1     0945 118        7.       3.8
 5686.1 *  1     1645 202       4.       3.7  5686.0
   1     0250  35        0.        .0  5682.4 *  1     0950 119        7.       3.8
 5686.1 *  1     1650 203       4.       3.7  5686.0
   1     0255  36        0.        .0  5682.4 *  1     0955 120        7.       3.8
 5686.1 *  1     1655 204       4.       3.7  5686.0
   1     0300  37        0.        .0  5682.4 *  1     1000 121        7.       3.8
 5686.1 *  1     1700 205       4.       3.7  5686.0
   1     0305  38        0.        .0  5682.4 *  1     1005 122        7.       3.8
 5686.1 *  1     1705 206       4.       3.7  5686.0
   1     0310  39        0.        .0  5682.4 *  1     1010 123        7.       3.8
 5686.1 *  1     1710 207       4.       3.7  5686.0
   1     0315  40        0.        .0  5682.4 *  1     1015 124        7.       3.8
 5686.1 *  1     1715 208       4.       3.7  5686.0
   1     0320  41        0.        .0  5682.4 *  1     1020 125        7.       3.8
 5686.1 *  1     1720 209       4.       3.7  5686.0
   1     0325  42        0.        .0  5682.4 *  1     1025 126        7.       3.8
 5686.1 *  1     1725 210       4.       3.7  5686.0
   1     0330  43        0.        .0  5682.4 *  1     1030 127        6.       3.8
 5686.1 *  1     1730 211       4.       3.7  5686.0
   1     0335  44        0.        .0  5682.4 *  1     1035 128        6.       3.8
 5686.1 *  1     1735 212       4.       3.7  5686.0
   1     0340  45        0.        .0  5682.4 *  1     1040 129        6.       3.8
 5686.1 *  1     1740 213       4.       3.7  5686.0
   1     0345  46        0.        .0  5682.4 *  1     1045 130        6.       3.8
```

```
5686.1 *  1     1745 214       4.       3.7  5686.0
   1     0350  47       0.       .0  5682.4 *  1     1050 131       6.       3.8
5686.1 *  1     1750 215       4.       3.7  5686.0
   1     0355  48       0.       .0  5682.4 *  1     1055 132       6.       3.8
5686.1 *  1     1755 216       4.       3.7  5686.0
   1     0400  49       0.       .0  5682.4 *  1     1100 133       6.       3.8
5686.1 *  1     1800 217       4.       3.7  5686.0
   1     0405  50       0.       .0  5682.4 *  1     1105 134       6.       3.8
5686.1 *  1     1805 218       4.       3.7  5686.0
   1     0410  51       0.       .0  5682.4 *  1     1110 135       6.       3.8
5686.1 *  1     1810 219       4.       3.7  5686.0
   1     0415  52       0.       .0  5682.4 *  1     1115 136       6.       3.8
5686.1 *  1     1815 220       4.       3.7  5686.0
   1     0420  53       0.       .0  5682.4 *  1     1120 137       6.       3.8
5686.1 *  1     1820 221       4.       3.7  5686.0
   1     0425  54       0.       .0  5682.4 *  1     1125 138       5.       3.8
5686.1 *  1     1825 222       4.       3.7  5686.0
   1     0430  55       0.       .0  5682.4 *  1     1130 139       5.       3.8
5686.1 *  1     1830 223       4.       3.7  5686.0
   1     0435  56       0.       .0  5682.4 *  1     1135 140       5.       3.8
5686.1 *  1     1835 224       4.       3.7  5686.0
   1     0440  57       0.       .0  5682.4 *  1     1140 141       5.       3.8
5686.1 *  1     1840 225       4.       3.7  5686.0
   1     0445  58       0.       .0  5682.4 *  1     1145 142       5.       3.8
5686.1 *  1     1845 226       4.       3.7  5686.0
   1     0450  59       0.       .0  5682.4 *  1     1150 143       5.       3.8
5686.1 *  1     1850 227       4.       3.7  5686.0
   1     0455  60       0.       .0  5682.4 *  1     1155 144       5.       3.8
5686.1 *  1     1855 228       4.       3.7  5686.0
   1     0500  61       0.       .0  5682.4 *  1     1200 145       5.       3.8
5686.1 *  1     1900 229       4.       3.7  5686.0
   1     0505  62       0.       .0  5682.4 *  1     1205 146       5.       3.8
5686.1 *  1     1905 230       4.       3.7  5686.0
   1     0510  63       0.       .0  5682.4 *  1     1210 147       5.       3.8
5686.1 *  1     1910 231       4.       3.7  5686.0
   1     0515  64       0.       .0  5682.4 *  1     1215 148       5.       3.8
5686.1 *  1     1915 232       4.       3.7  5686.0
   1     0520  65       0.       .0  5682.4 *  1     1220 149       6.       3.8
5686.1 *  1     1920 233       4.       3.7  5686.0
   1     0525  66       0.       .0  5682.4 *  1     1225 150       6.       3.8
5686.1 *  1     1925 234       4.       3.7  5686.0
   1     0530  67       0.       .0  5682.4 *  1     1230 151       6.       3.8
5686.1 *  1     1930 235       4.       3.7  5686.0
   1     0535  68       0.       .0  5682.4 *  1     1235 152       6.       3.8
5686.1 *  1     1935 236       4.       3.7  5686.0
   1     0540  69       0.       .1  5682.5 *  1     1240 153       6.       3.8
5686.1 *  1     1940 237       4.       3.7  5686.0
   1     0545  70       0.       .3  5682.8 *  1     1245 154       6.       3.8
5686.1 *  1     1945 238       4.       3.7  5686.0
   1     0550  71       1.       .7  5683.4 *  1     1250 155       6.       3.8
5686.1 *  1     1950 239       4.       3.7  5686.0
   1     0555  72       2.      1.4  5684.2 *  1     1255 156       6.       3.8
5686.1 *  1     1955 240       4.       3.7  5686.0
   1     0600  73       2.      2.3  5684.9 *  1     1300 157       6.       3.8
5686.1 *  1     2000 241       4.       3.7  5686.0
   1     0605  74       2.      3.4  5685.8 *  1     1305 158       6.       3.8
5686.1 *  1     2005 242       4.       3.7  5686.0
   1     0610  75      34.      4.3  5686.8 *  1     1310 159       5.       3.8
5686.1 *  1     2010 243       4.       3.7  5686.0
   1     0615  76      63.      4.9  5687.5 *  1     1315 160       5.       3.8
5686.1 *  1     2015 244       4.       3.7  5686.0
   1     0620  77      81.      5.3  5688.0 *  1     1320 161       5.       3.8
5686.1 *  1     2020 245       3.       3.7  5686.0
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   1     0625  78      88.      5.4  5688.1 *  1     1325 162       5.       3.8
5686.1 *  1     2025 246       3.      3.7  5686.0
   1     0630  79      84.      5.3  5688.0 *  1     1330 163       5.       3.8
5686.1 *  1     2030 247       3.      3.7  5686.0
   1     0635  80      76.      5.2  5687.9 *  1     1335 164       5.       3.8
5686.1 *  1     2035 248       3.      3.7  5686.0
   1     0640  81      67.      5.0  5687.6 *  1     1340 165       5.       3.8
5686.1 *  1     2040 249       3.      3.7  5686.0
   1     0645  82      58.      4.8  5687.4 *  1     1345 166       5.       3.8
5686.1 *  1     2045 250       2.      3.7  5686.0
   1     0650  83      51.      4.7  5687.2 *  1     1350 167       5.       3.8
5686.1 *
   1     0655  84      44.      4.5  5687.0 *  1     1355 168       5.       3.8
5686.1 *
                                            *
   *

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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+      88.      6.42                 18.          7.          7.            7.
                        (INCHES)      .621        .835        .835          .835
                         (AC-FT)        9.         12.         12.           12.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     20.75-HR
+  (AC-FT)      (HR)
        5.      6.42                    4.          3.          3.            3.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     20.75-HR
+   (FEET)      (HR)
   5688.09      6.42               5686.40     5685.10     5685.10       5685.10

                         CUMULATIVE AREA =     .27 SQ MI


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                                                   HYDROGRAPH AT STATION   DB6020
                                                       PLAN 1,   RATIO =  1.00


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                                            *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                            *
   *
   1     0000   1       0.        .0  5682.4 *  1     0700  85      70.      5.0
5687.7 *  1     1400 169       8.      3.8  5686.2
   1     0005   2       0.        .0  5682.4 *  1     0705  86      61.      4.9
5687.5 *  1     1405 170       8.      3.8  5686.2
   1     0010   3       0.        .0  5682.4 *  1     0710  87      54.      4.7
5687.3 *  1     1410 171       8.      3.8  5686.1
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   1     0015   4        0.         .0  5682.4 *  1     0715  88       47.        4.6
5687.1 *  1     1415 172       8.        3.8  5686.1
   1     0020   5        0.         .0  5682.4 *  1     0720  89       42.        4.5
5687.0 *  1     1420 173       8.        3.8  5686.1
   1     0025   6        0.         .0  5682.4 *  1     0725  90       38.        4.4
5686.9 *  1     1425 174       8.        3.8  5686.1
   1     0030   7        0.         .0  5682.4 *  1     0730  91       34.        4.3
5686.8 *  1     1430 175       8.        3.8  5686.1
   1     0035   8        0.         .0  5682.4 *  1     0735  92       31.        4.3
5686.7 *  1     1435 176       8.        3.8  5686.1
   1     0040   9        0.         .0  5682.4 *  1     0740  93       29.        4.2
5686.7 *  1     1440 177       8.        3.8  5686.1
   1     0045   10       0.         .0  5682.4 *  1     0745  94       28.        4.2
5686.6 *  1     1445 178       8.        3.8  5686.1
   1     0050   11       0.         .0  5682.4 *  1     0750  95       27.        4.2
5686.6 *  1     1450 179       7.        3.8  5686.1
   1     0055   12       0.         .0  5682.4 *  1     0755  96       26.        4.2
5686.6 *  1     1455 180       7.        3.8  5686.1
   1     0100   13       0.         .0  5682.4 *  1     0800  97       25.        4.2
5686.6 *  1     1500 181       7.        3.8  5686.1
   1     0105   14       0.         .0  5682.4 *  1     0805  98       25.        4.1
5686.6 *  1     1505 182       7.        3.8  5686.1
   1     0110   15       0.         .0  5682.4 *  1     0810  99       24.        4.1
5686.5 *  1     1510 183       7.        3.8  5686.1
   1     0115   16       0.         .0  5682.4 *  1     0815 100       23.        4.1
5686.5 *  1     1515 184       7.        3.8  5686.1
   1     0120   17       0.         .0  5682.4 *  1     0820 101       21.        4.1
5686.5 *  1     1520 185       7.        3.8  5686.1
   1     0125   18       0.         .0  5682.4 *  1     0825 102       19.        4.0
5686.4 *  1     1525 186       7.        3.8  5686.1
   1     0130   19       0.         .0  5682.4 *  1     0830 103       18.        4.0
5686.4 *  1     1530 187       7.        3.8  5686.1
   1     0135   20       0.         .0  5682.4 *  1     0835 104       16.        4.0
5686.4 *  1     1535 188       7.        3.8  5686.1
   1     0140   21       0.         .0  5682.4 *  1     0840 105       15.        4.0
5686.3 *  1     1540 189       7.        3.8  5686.1
   1     0145   22       0.         .0  5682.4 *  1     0845 106       14.        3.9
5686.3 *  1     1545 190       6.        3.8  5686.1
   1     0150   23       0.         .0  5682.4 *  1     0850 107       14.        3.9
5686.3 *  1     1550 191       6.        3.8  5686.1
   1     0155   24       0.         .0  5682.4 *  1     0855 108       13.        3.9
5686.3 *  1     1555 192       6.        3.8  5686.1
   1     0200   25       0.         .0  5682.4 *  1     0900 109       13.        3.9
5686.3 *  1     1600 193       6.        3.8  5686.1
   1     0205   26       0.         .0  5682.4 *  1     0905 110       13.        3.9
5686.3 *  1     1605 194       6.        3.8  5686.1
   1     0210   27       0.         .0  5682.4 *  1     0910 111       12.        3.9
5686.3 *  1     1610 195       6.        3.8  5686.1
   1     0215   28       0.         .0  5682.4 *  1     0915 112       12.        3.9
5686.3 *  1     1615 196       6.        3.8  5686.1
   1     0220   29       0.         .0  5682.4 *  1     0920 113       12.        3.9
5686.3 *  1     1620 197       6.        3.8  5686.1
   1     0225   30       0.         .0  5682.4 *  1     0925 114       12.        3.9
5686.3 *  1     1625 198       6.        3.8  5686.1
   1     0230   31       0.         .0  5682.4 *  1     0930 115       12.        3.9
5686.3 *  1     1630 199       6.        3.8  5686.1
   1     0235   32       0.         .0  5682.4 *  1     0935 116       12.        3.9
5686.3 *  1     1635 200       6.        3.8  5686.1
   1     0240   33       0.         .0  5682.4 *  1     0940 117       12.        3.9
5686.3 *  1     1640 201       6.        3.8  5686.1
   1     0245   34       0.         .0  5682.4 *  1     0945 118       12.        3.9
5686.3 *  1     1645 202       6.        3.8  5686.1
   1     0250   35       0.         .0  5682.4 *  1     0950 119       12.        3.9
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5686.3 *  1     1650 203       6.      3.8  5686.1
   1     0255  36       0.       .0  5682.4 *  1     0955 120      12.      3.9
5686.3 *  1     1655 204       6.      3.8  5686.1
   1     0300  37       0.       .0  5682.4 *  1     1000 121      12.      3.9
5686.3 *  1     1700 205       6.      3.8  5686.1
   1     0305  38       0.       .0  5682.4 *  1     1005 122      12.      3.9
5686.2 *  1     1705 206       6.      3.8  5686.1
   1     0310  39       0.       .0  5682.4 *  1     1010 123      12.      3.9
5686.2 *  1     1710 207       6.      3.8  5686.1
   1     0315  40       0.       .0  5682.4 *  1     1015 124      12.      3.9
5686.2 *  1     1715 208       6.      3.8  5686.1
   1     0320  41       0.       .0  5682.4 *  1     1020 125      11.      3.9
5686.2 *  1     1720 209       6.      3.8  5686.1
   1     0325  42       0.       .0  5682.4 *  1     1025 126      11.      3.9
5686.2 *  1     1725 210       6.      3.8  5686.1
   1     0330  43       0.       .0  5682.4 *  1     1030 127      11.      3.9
5686.2 *  1     1730 211       6.      3.8  5686.1
   1     0335  44       0.       .0  5682.4 *  1     1035 128      10.      3.9
5686.2 *  1     1735 212       6.      3.8  5686.1
   1     0340  45       0.       .0  5682.4 *  1     1040 129      10.      3.9
5686.2 *  1     1740 213       6.      3.8  5686.1
   1     0345  46       0.       .0  5682.4 *  1     1045 130      10.      3.9
5686.2 *  1     1745 214       6.      3.8  5686.1
   1     0350  47       0.       .0  5682.4 *  1     1050 131      10.      3.8
5686.2 *  1     1750 215       6.      3.8  5686.1
   1     0355  48       0.       .0  5682.4 *  1     1055 132       9.      3.8
5686.2 *  1     1755 216       6.      3.8  5686.1
   1     0400  49       0.       .0  5682.4 *  1     1100 133       9.      3.8
5686.2 *  1     1800 217       6.      3.8  5686.1
   1     0405  50       0.       .0  5682.4 *  1     1105 134       9.      3.8
5686.2 *  1     1805 218       6.      3.8  5686.1
   1     0410  51       0.       .0  5682.4 *  1     1110 135       9.      3.8
5686.2 *  1     1810 219       6.      3.8  5686.1
   1     0415  52       0.       .0  5682.4 *  1     1115 136       9.      3.8
5686.2 *  1     1815 220       6.      3.8  5686.1
   1     0420  53       0.       .0  5682.4 *  1     1120 137       9.      3.8
5686.2 *  1     1820 221       6.      3.8  5686.1
   1     0425  54       0.       .0  5682.4 *  1     1125 138       9.      3.8
5686.2 *  1     1825 222       6.      3.8  5686.1
   1     0430  55       0.       .0  5682.4 *  1     1130 139       9.      3.8
5686.2 *  1     1830 223       6.      3.8  5686.1
   1     0435  56       0.       .0  5682.4 *  1     1135 140       9.      3.8
5686.2 *  1     1835 224       6.      3.8  5686.1
   1     0440  57       0.       .0  5682.4 *  1     1140 141       9.      3.8
5686.2 *  1     1840 225       6.      3.8  5686.1
   1     0445  58       0.       .0  5682.4 *  1     1145 142       9.      3.8
5686.2 *  1     1845 226       6.      3.8  5686.1
   1     0450  59       0.       .0  5682.4 *  1     1150 143       9.      3.8
5686.2 *  1     1850 227       6.      3.8  5686.1
   1     0455  60       0.       .0  5682.4 *  1     1155 144       9.      3.8
5686.2 *  1     1855 228       6.      3.8  5686.1
   1     0500  61       0.       .0  5682.4 *  1     1200 145       9.      3.8
5686.2 *  1     1900 229       6.      3.8  5686.1
   1     0505  62       0.       .0  5682.4 *  1     1205 146       9.      3.8
5686.2 *  1     1905 230       6.      3.8  5686.1
   1     0510  63       0.       .0  5682.4 *  1     1210 147       9.      3.8
5686.2 *  1     1910 231       6.      3.8  5686.1
   1     0515  64       0.       .0  5682.4 *  1     1215 148       9.      3.8
5686.2 *  1     1915 232       6.      3.8  5686.1
   1     0520  65       0.       .0  5682.4 *  1     1220 149       9.      3.8
5686.2 *  1     1920 233       6.      3.8  5686.1
   1     0525  66       0.       .0  5682.4 *  1     1225 150       9.      3.8
5686.2 *  1     1925 234       6.      3.8  5686.1
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```
   1     0530  67       0.       .0  5682.4 *  1     1230 151       9.      3.8
5686.2 *  1     1930 235       6.       3.8  5686.1
   1     0535  68       0.       .0  5682.5 *  1     1235 152       9.      3.8
5686.2 *  1     1935 236       6.       3.8  5686.1
   1     0540  69       0.       .2  5682.7 *  1     1240 153       9.      3.8
5686.2 *  1     1940 237       6.       3.8  5686.1
   1     0545  70       1.       .8  5683.5 *  1     1245 154       9.      3.8
5686.2 *  1     1945 238       6.       3.8  5686.1
   1     0550  71       2.      1.7  5684.5 *  1     1250 155       9.      3.8
5686.2 *  1     1950 239       6.       3.8  5686.1
   1     0555  72       2.      3.1  5685.6 *  1     1255 156       9.      3.8
5686.2 *  1     1955 240       6.       3.8  5686.1
   1     0600  73      57.      4.8  5687.4 *  1     1300 157       9.      3.8
5686.2 *  1     2000 241       6.       3.8  5686.1
   1     0605  74     160.      6.4  5689.2 *  1     1305 158       9.      3.8
5686.2 *  1     2005 242       6.       3.8  5686.1
   1     0610  75     218.      7.5  5690.2 *  1     1310 159       9.      3.8
5686.2 *  1     2010 243       6.       3.8  5686.1
   1     0615  76     223.      8.0  5690.5 *  1     1315 160       9.      3.8
5686.2 *  1     2015 244       6.       3.8  5686.1
   1     0620  77     223.      8.0  5690.5 *  1     1320 161       9.      3.8
5686.2 *  1     2020 245       6.       3.8  5686.1
   1     0625  78     220.      7.7  5690.3 *  1     1325 162       9.      3.8
5686.2 *  1     2025 246       5.       3.8  5686.1
   1     0630  79     217.      7.3  5690.1 *  1     1330 163       9.      3.8
5686.2 *  1     2030 247       5.       3.8  5686.1
   1     0635  80     197.      6.9  5689.7 *  1     1335 164       8.      3.8
5686.2 *  1     2035 248       4.       3.7  5686.1
   1     0640  81     164.      6.4  5689.2 *  1     1340 165       8.      3.8
5686.2 *  1     2040 249       4.       3.7  5686.1
   1     0645  82     132.      6.0  5688.8 *  1     1345 166       8.      3.8
5686.2 *  1     2045 250       4.       3.7  5686.0
   1     0650  83     103.      5.6  5688.3 *  1     1350 167       8.      3.8
5686.2 *
   1     0655  84      82.      5.3  5688.0 *  1     1355 168       8.      3.8
5686.2 *
                                            *
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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+     223.      6.25                   43.         15.         15.          15.
                        (INCHES)     1.480       1.838       1.838        1.838
                         (AC-FT)       21.         26.         26.          26.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     20.75-HR
+  (AC-FT)      (HR)
        8.      6.25                    4.          3.          3.           3.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     20.75-HR
+   (FEET)      (HR)
   5690.47      6.25               5686.89     5685.31     5685.31      5685.31

                         CUMULATIVE AREA =     .27 SQ MI
```

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


             **************
             *            *
  140 KK     *     E7005  *
             *            *
             **************

  141 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           1  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                                          RUNOFF FROM BAS 7005


                SUBBASIN RUNOFF DATA

  143 BA          SUBBASIN CHARACTERISTICS
                        TAREA         .26  SUBBASIN AREA

                  PRECIPITATION DATA

   22 PB                STORM        4.40  BASIN TOTAL PRECIPITATION

   23 PI            INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .01       .01       .01       .01       .01
.10       .10       .10       .10
                        .10       .10       .01       .01       .01       .01
.01       .01       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
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.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00

  144 LS          SCS LOSS RATE
                        STRTL         .73  INITIAL ABSTRACTION
                       CRVNBR       73.30  CURVE NUMBER
                        RTIMP         .00  PERCENT IMPERVIOUS AREA

  145 UD          SCS DIMENSIONLESS UNITGRAPH
                         TLAG         .37  LAG

                                                                 ***

                                                           UNIT HYDROGRAPH
                                                      24 END-OF-PERIOD ORDINATES
                 31.       98.      206.      285.      303.      277.      228.
 160.      112.       81.
                 59.       42.       30.       22.       15.       11.        8.
   6.        4.        3.
                  2.        2.        1.        0.

************************************************************************************
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                                                   HYDROGRAPH AT STATION    E7005

************************************************************************************
***********************************************
                                                                  *
        DA MON HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q       *       DA MON
HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q
                                                                  *
         1     0000    1     .00     .00     .00         0.       *        1
1025  126     .01     .00     .00         9.
         1     0005    2     .00     .00     .00         0.       *        1
1030  127     .01     .00     .00         9.
         1     0010    3     .00     .00     .00         0.       *        1
1035  128     .01     .00     .00         9.
         1     0015    4     .00     .00     .00         0.       *        1
1040  129     .01     .00     .00         8.
         1     0020    5     .00     .00     .00         0.       *        1
1045  130     .01     .00     .00         8.
         1     0025    6     .00     .00     .00         0.       *        1
1050  131     .01     .00     .00         8.
         1     0030    7     .00     .00     .00         0.       *        1
1055  132     .01     .00     .00         8.
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        1     0035    8      .00     .00     .00         0.        *        1
1100  133     .01     .00     .00         8.
        1     0040    9      .00     .00     .00         0.        *        1
1105  134     .01     .00     .00         8.
        1     0045    10     .00     .00     .00         0.        *        1
1110  135     .01     .00     .00         8.
        1     0050    11     .00     .00     .00         0.        *        1
1115  136     .01     .00     .00         8.
        1     0055    12     .00     .00     .00         0.        *        1
1120  137     .01     .00     .00         8.
        1     0100    13     .00     .00     .00         0.        *        1
1125  138     .01     .00     .00         8.
        1     0105    14     .00     .00     .00         0.        *        1
1130  139     .01     .00     .00         8.
        1     0110    15     .00     .00     .00         0.        *        1
1135  140     .01     .00     .00         8.
        1     0115    16     .00     .00     .00         0.        *        1
1140  141     .01     .00     .00         8.
        1     0120    17     .00     .00     .00         0.        *        1
1145  142     .01     .00     .00         8.
        1     0125    18     .00     .00     .00         0.        *        1
1150  143     .01     .00     .00         8.
        1     0130    19     .00     .00     .00         0.        *        1
1155  144     .01     .00     .00         8.
        1     0135    20     .00     .00     .00         0.        *        1
1200  145     .01     .00     .00         8.
        1     0140    21     .00     .00     .00         0.        *        1
1205  146     .01     .00     .00         8.
        1     0145    22     .00     .00     .00         0.        *        1
1210  147     .01     .00     .00         8.
        1     0150    23     .00     .00     .00         0.        *        1
1215  148     .01     .00     .00         8.
        1     0155    24     .00     .00     .00         0.        *        1
1220  149     .01     .00     .00         8.
        1     0200    25     .00     .00     .00         0.        *        1
1225  150     .01     .00     .00         8.
        1     0205    26     .00     .00     .00         0.        *        1
1230  151     .01     .00     .00         8.
        1     0210    27     .00     .00     .00         0.        *        1
1235  152     .01     .00     .00         8.
        1     0215    28     .00     .00     .00         0.        *        1
1240  153     .01     .00     .00         8.
        1     0220    29     .00     .00     .00         0.        *        1
1245  154     .01     .00     .00         8.
        1     0225    30     .00     .00     .00         0.        *        1
1250  155     .01     .00     .00         8.
        1     0230    31     .00     .00     .00         0.        *        1
1255  156     .01     .00     .00         8.
        1     0235    32     .00     .00     .00         0.        *        1
1300  157     .01     .00     .00         8.
        1     0240    33     .00     .00     .00         0.        *        1
1305  158     .00     .00     .00         8.
        1     0245    34     .00     .00     .00         0.        *        1
1310  159     .00     .00     .00         8.
        1     0250    35     .00     .00     .00         0.        *        1
1315  160     .00     .00     .00         8.
        1     0255    36     .00     .00     .00         0.        *        1
1320  161     .00     .00     .00         8.
        1     0300    37     .00     .00     .00         0.        *        1
1325  162     .00     .00     .00         8.
        1     0305    38     .00     .00     .00         0.        *        1
1330  163     .00     .00     .00         7.
        1     0310    39     .00     .00     .00         0.        *        1
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1335  164     .00     .00     .00         7.
         1     0315   40     .00     .00     .00         0.       *        1
1340  165     .00     .00     .00         7.
         1     0320   41     .00     .00     .00         0.       *        1
1345  166     .00     .00     .00         7.
         1     0325   42     .00     .00     .00         0.       *        1
1350  167     .00     .00     .00         7.
         1     0330   43     .00     .00     .00         0.       *        1
1355  168     .00     .00     .00         7.
         1     0335   44     .00     .00     .00         0.       *        1
1400  169     .00     .00     .00         7.
         1     0340   45     .00     .00     .00         0.       *        1
1405  170     .00     .00     .00         7.
         1     0345   46     .00     .00     .00         0.       *        1
1410  171     .00     .00     .00         7.
         1     0350   47     .01     .01     .00         0.       *        1
1415  172     .00     .00     .00         7.
         1     0355   48     .01     .01     .00         0.       *        1
1420  173     .00     .00     .00         7.
         1     0400   49     .01     .01     .00         0.       *        1
1425  174     .00     .00     .00         7.
         1     0405   50     .01     .01     .00         0.       *        1
1430  175     .00     .00     .00         7.
         1     0410   51     .01     .01     .00         0.       *        1
1435  176     .00     .00     .00         7.
         1     0415   52     .01     .01     .00         0.       *        1
1440  177     .00     .00     .00         7.
         1     0420   53     .01     .01     .00         0.       *        1
1445  178     .00     .00     .00         7.
         1     0425   54     .01     .01     .00         0.       *        1
1450  179     .00     .00     .00         7.
         1     0430   55     .01     .01     .00         0.       *        1
1455  180     .00     .00     .00         7.
         1     0435   56     .01     .01     .00         0.       *        1
1500  181     .00     .00     .00         7.
         1     0440   57     .01     .01     .00         0.       *        1
1505  182     .00     .00     .00         7.
         1     0445   58     .01     .01     .00         0.       *        1
1510  183     .00     .00     .00         6.
         1     0450   59     .01     .01     .00         0.       *        1
1515  184     .00     .00     .00         6.
         1     0455   60     .01     .01     .00         0.       *        1
1520  185     .00     .00     .00         6.
         1     0500   61     .01     .01     .00         0.       *        1
1525  186     .00     .00     .00         6.
         1     0505   62     .02     .02     .00         0.       *        1
1530  187     .00     .00     .00         6.
         1     0510   63     .02     .02     .00         0.       *        1
1535  188     .00     .00     .00         6.
         1     0515   64     .02     .02     .00         0.       *        1
1540  189     .00     .00     .00         6.
         1     0520   65     .04     .04     .00         0.       *        1
1545  190     .00     .00     .00         6.
         1     0525   66     .04     .04     .00         0.       *        1
1550  191     .00     .00     .00         6.
         1     0530   67     .04     .04     .00         0.       *        1
1555  192     .00     .00     .00         6.
         1     0535   68     .45     .44     .01         0.       *        1
1600  193     .00     .00     .00         6.
         1     0540   69     .45     .37     .08         3.       *        1
1605  194     .00     .00     .00         5.
         1     0545   70     .45     .30     .15        14.       *        1
1610  195     .00     .00     .00         5.
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         1     0550   71      .45     .24     .20        40.        *         1
1615  196     .00     .00     .00          5.
         1     0555   72      .45     .21     .24        84.        *         1
1620  197     .00     .00     .00          5.
         1     0600   73      .45     .18     .27       143.        *         1
1625  198     .00     .00     .00          5.
         1     0605   74      .04     .01     .02       204.        *         1
1630  199     .00     .00     .00          5.
         1     0610   75      .04     .01     .02       250.        *         1
1635  200     .00     .00     .00          5.
         1     0615   76      .04     .01     .02       263.        *         1
1640  201     .00     .00     .00          5.
         1     0620   77      .04     .01     .02       244.        *         1
1645  202     .00     .00     .00          5.
         1     0625   78      .04     .01     .02       209.        *         1
1650  203     .00     .00     .00          5.
         1     0630   79      .04     .01     .02       169.        *         1
1655  204     .00     .00     .00          5.
         1     0635   80      .02     .01     .01       134.        *         1
1700  205     .00     .00     .00          5.
         1     0640   81      .02     .01     .01       108.        *         1
1705  206     .00     .00     .00          5.
         1     0645   82      .02     .01     .01        89.        *         1
1710  207     .00     .00     .00          5.
         1     0650   83      .02     .01     .01        74.        *         1
1715  208     .00     .00     .00          5.
         1     0655   84      .02     .01     .02        62.        *         1
1720  209     .00     .00     .00          5.
         1     0700   85      .02     .01     .02        53.        *         1
1725  210     .00     .00     .00          5.
         1     0705   86      .01     .00     .01        46.        *         1
1730  211     .00     .00     .00          5.
         1     0710   87      .01     .00     .01        41.        *         1
1735  212     .00     .00     .00          5.
         1     0715   88      .01     .00     .01        37.        *         1
1740  213     .00     .00     .00          5.
         1     0720   89      .01     .00     .01        33.        *         1
1745  214     .00     .00     .00          5.
         1     0725   90      .01     .00     .01        30.        *         1
1750  215     .00     .00     .00          5.
         1     0730   91      .01     .00     .01        27.        *         1
1755  216     .00     .00     .00          5.
         1     0735   92      .01     .00     .01        25.        *         1
1800  217     .00     .00     .00          5.
         1     0740   93      .01     .00     .01        24.        *         1
1805  218     .00     .00     .00          5.
         1     0745   94      .01     .00     .01        23.        *         1
1810  219     .00     .00     .00          6.
         1     0750   95      .01     .00     .01        22.        *         1
1815  220     .00     .00     .00          6.
         1     0755   96      .01     .00     .01        21.        *         1
1820  221     .00     .00     .00          6.
         1     0800   97      .01     .00     .01        21.        *         1
1825  222     .00     .00     .00          6.
         1     0805   98      .01     .00     .01        21.        *         1
1830  223     .00     .00     .00          6.
         1     0810   99      .01     .00     .01        20.        *         1
1835  224     .00     .00     .00          6.
         1     0815  100      .01     .00     .01        19.        *         1
1840  225     .00     .00     .00          6.
         1     0820  101      .01     .00     .01        17.        *         1
1845  226     .00     .00     .00          6.
         1     0825  102      .01     .00     .01        16.        *         1
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1850  227     .00     .00     .00         6.
         1     0830  103     .01     .00     .01        14.       *        1
1855  228     .00     .00     .00         6.
         1     0835  104     .01     .00     .01        13.       *        1
1900  229     .00     .00     .00         6.
         1     0840  105     .01     .00     .01        12.       *        1
1905  230     .00     .00     .00         6.
         1     0845  106     .01     .00     .01        12.       *        1
1910  231     .00     .00     .00         6.
         1     0850  107     .01     .00     .01        11.       *        1
1915  232     .00     .00     .00         6.
         1     0855  108     .01     .00     .01        11.       *        1
1920  233     .00     .00     .00         6.
         1     0900  109     .01     .00     .01        11.       *        1
1925  234     .00     .00     .00         6.
         1     0905  110     .01     .00     .01        11.       *        1
1930  235     .00     .00     .00         6.
         1     0910  111     .01     .00     .01        11.       *        1
1935  236     .00     .00     .00         6.
         1     0915  112     .01     .00     .01        11.       *        1
1940  237     .00     .00     .00         6.
         1     0920  113     .01     .00     .01        10.       *        1
1945  238     .00     .00     .00         6.
         1     0925  114     .01     .00     .01        10.       *        1
1950  239     .00     .00     .00         6.
         1     0930  115     .01     .00     .01        10.       *        1
1955  240     .00     .00     .00         6.
         1     0935  116     .01     .00     .01        10.       *        1
2000  241     .00     .00     .00         6.
         1     0940  117     .01     .00     .01        10.       *        1
2005  242     .00     .00     .00         6.
         1     0945  118     .01     .00     .01        10.       *        1
2010  243     .00     .00     .00         5.
         1     0950  119     .01     .00     .01        10.       *        1
2015  244     .00     .00     .00         5.
         1     0955  120     .01     .00     .01        10.       *        1
2020  245     .00     .00     .00         5.
         1     1000  121     .01     .00     .01        10.       *        1
2025  246     .00     .00     .00         4.
         1     1005  122     .01     .00     .00        10.       *        1
2030  247     .00     .00     .00         4.
         1     1010  123     .01     .00     .00        10.       *        1
2035  248     .00     .00     .00         4.
         1     1015  124     .01     .00     .00        10.       *        1
2040  249     .00     .00     .00         3.
         1     1020  125     .01     .00     .00        10.       *        1
2045  250     .00     .00     .00         3.
                                                                  *

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     TOTAL RAINFALL =    4.40, TOTAL LOSS =    2.56, TOTAL EXCESS =    1.84

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR      20.75-HR
+   (CFS)       (HR)
                           (CFS)
+     263.      6.25                   41.         15.         15.          15.
                        (INCHES)     1.493       1.834       1.834        1.834
                         (AC-FT)       20.         25.         25.          25.

                         CUMULATIVE AREA =     .26 SQ MI
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                                                   HYDROGRAPH AT STATION    E7005
                                                       PLAN 1,   RATIO =   .47


************************************************************************************
***********************************************
                                                                  *
        DA MON HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q       *       DA MON
HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q
                                                                  *
         1     0000    1     .00     .00     .00         0.       *        1
1025  126     .00     .00      .00        2.
         1     0005    2     .00     .00     .00         0.       *        1
1030  127     .00     .00      .00        2.
         1     0010    3     .00     .00     .00         0.       *        1
1035  128     .00     .00      .00        2.
         1     0015    4     .00     .00     .00         0.       *        1
1040  129     .00     .00      .00        2.
         1     0020    5     .00     .00     .00         0.       *        1
1045  130     .00     .00      .00        2.
         1     0025    6     .00     .00     .00         0.       *        1
1050  131     .00     .00      .00        2.
         1     0030    7     .00     .00     .00         0.       *        1
1055  132     .00     .00      .00        2.
         1     0035    8     .00     .00     .00         0.       *        1
1100  133     .00     .00      .00        2.
         1     0040    9     .00     .00     .00         0.       *        1
1105  134     .00     .00      .00        2.
         1     0045   10     .00     .00     .00         0.       *        1
1110  135     .00     .00      .00        2.
         1     0050   11     .00     .00     .00         0.       *        1
1115  136     .00     .00      .00        2.
         1     0055   12     .00     .00     .00         0.       *        1
1120  137     .00     .00      .00        2.
         1     0100   13     .00     .00     .00         0.       *        1
1125  138     .00     .00      .00        2.
         1     0105   14     .00     .00     .00         0.       *        1
1130  139     .00     .00      .00        2.
         1     0110   15     .00     .00     .00         0.       *        1
1135  140     .00     .00      .00        2.
         1     0115   16     .00     .00     .00         0.       *        1
1140  141     .00     .00      .00        2.
         1     0120   17     .00     .00     .00         0.       *        1
1145  142     .00     .00      .00        2.
         1     0125   18     .00     .00     .00         0.       *        1
1150  143     .00     .00      .00        2.
         1     0130   19     .00     .00     .00         0.       *        1
1155  144     .00     .00      .00        2.
         1     0135   20     .00     .00     .00         0.       *        1
1200  145     .00     .00      .00        2.
         1     0140   21     .00     .00     .00         0.       *        1
1205  146     .00     .00      .00        2.
         1     0145   22     .00     .00     .00         0.       *        1
1210  147     .00     .00      .00        2.
         1     0150   23     .00     .00     .00         0.       *        1
1215  148     .00     .00      .00        2.
         1     0155   24     .00     .00     .00         0.       *        1
```

```
1220  149     .00      .00      .00          2.
         1     0200   25     .00      .00      .00          0.        *         1
1225  150     .00      .00      .00          2.
         1     0205   26     .00      .00      .00          0.        *         1
1230  151     .00      .00      .00          2.
         1     0210   27     .00      .00      .00          0.        *         1
1235  152     .00      .00      .00          2.
         1     0215   28     .00      .00      .00          0.        *         1
1240  153     .00      .00      .00          2.
         1     0220   29     .00      .00      .00          0.        *         1
1245  154     .00      .00      .00          2.
         1     0225   30     .00      .00      .00          0.        *         1
1250  155     .00      .00      .00          2.
         1     0230   31     .00      .00      .00          0.        *         1
1255  156     .00      .00      .00          2.
         1     0235   32     .00      .00      .00          0.        *         1
1300  157     .00      .00      .00          2.
         1     0240   33     .00      .00      .00          0.        *         1
1305  158     .00      .00      .00          2.
         1     0245   34     .00      .00      .00          0.        *         1
1310  159     .00      .00      .00          2.
         1     0250   35     .00      .00      .00          0.        *         1
1315  160     .00      .00      .00          2.
         1     0255   36     .00      .00      .00          0.        *         1
1320  161     .00      .00      .00          2.
         1     0300   37     .00      .00      .00          0.        *         1
1325  162     .00      .00      .00          2.
         1     0305   38     .00      .00      .00          0.        *         1
1330  163     .00      .00      .00          2.
         1     0310   39     .00      .00      .00          0.        *         1
1335  164     .00      .00      .00          2.
         1     0315   40     .00      .00      .00          0.        *         1
1340  165     .00      .00      .00          2.
         1     0320   41     .00      .00      .00          0.        *         1
1345  166     .00      .00      .00          2.
         1     0325   42     .00      .00      .00          0.        *         1
1350  167     .00      .00      .00          2.
         1     0330   43     .00      .00      .00          0.        *         1
1355  168     .00      .00      .00          2.
         1     0335   44     .00      .00      .00          0.        *         1
1400  169     .00      .00      .00          2.
         1     0340   45     .00      .00      .00          0.        *         1
1405  170     .00      .00      .00          2.
         1     0345   46     .00      .00      .00          0.        *         1
1410  171     .00      .00      .00          2.
         1     0350   47     .00      .00      .00          0.        *         1
1415  172     .00      .00      .00          2.
         1     0355   48     .00      .00      .00          0.        *         1
1420  173     .00      .00      .00          2.
         1     0400   49     .00      .00      .00          0.        *         1
1425  174     .00      .00      .00          2.
         1     0405   50     .00      .00      .00          0.        *         1
1430  175     .00      .00      .00          2.
         1     0410   51     .00      .00      .00          0.        *         1
1435  176     .00      .00      .00          2.
         1     0415   52     .00      .00      .00          0.        *         1
1440  177     .00      .00      .00          2.
         1     0420   53     .00      .00      .00          0.        *         1
1445  178     .00      .00      .00          2.
         1     0425   54     .00      .00      .00          0.        *         1
1450  179     .00      .00      .00          2.
         1     0430   55     .00      .00      .00          0.        *         1
1455  180     .00      .00      .00          2.
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         1     0435   56     .00     .00     .00         0.        *        1
1500  181     .00     .00     .00         2.
         1     0440   57     .00     .00     .00         0.        *        1
1505  182     .00     .00     .00         2.
         1     0445   58     .00     .00     .00         0.        *        1
1510  183     .00     .00     .00         2.
         1     0450   59     .00     .00     .00         0.        *        1
1515  184     .00     .00     .00         2.
         1     0455   60     .00     .00     .00         0.        *        1
1520  185     .00     .00     .00         2.
         1     0500   61     .00     .00     .00         0.        *        1
1525  186     .00     .00     .00         2.
         1     0505   62     .01     .01     .00         0.        *        1
1530  187     .00     .00     .00         2.
         1     0510   63     .01     .01     .00         0.        *        1
1535  188     .00     .00     .00         2.
         1     0515   64     .01     .01     .00         0.        *        1
1540  189     .00     .00     .00         2.
         1     0520   65     .02     .02     .00         0.        *        1
1545  190     .00     .00     .00         2.
         1     0525   66     .02     .02     .00         0.        *        1
1550  191     .00     .00     .00         2.
         1     0530   67     .02     .02     .00         0.        *        1
1555  192     .00     .00     .00         2.
         1     0535   68     .21     .21     .00         0.        *        1
1600  193     .00     .00     .00         2.
         1     0540   69     .21     .21     .00         0.        *        1
1605  194     .00     .00     .00         2.
         1     0545   70     .21     .21     .00         0.        *        1
1610  195     .00     .00     .00         2.
         1     0550   71     .21     .19     .02         1.        *        1
1615  196     .00     .00     .00         2.
         1     0555   72     .21     .17     .04         4.        *        1
1620  197     .00     .00     .00         2.
         1     0600   73     .21     .15     .06        12.        *        1
1625  198     .00     .00     .00         2.
         1     0605   74     .02     .01     .01        22.        *        1
1630  199     .00     .00     .00         2.
         1     0610   75     .02     .01     .01        32.        *        1
1635  200     .00     .00     .00         2.
         1     0615   76     .02     .01     .01        38.        *        1
1640  201     .00     .00     .00         2.
         1     0620   77     .02     .01     .01        38.        *        1
1645  202     .00     .00     .00         2.
         1     0625   78     .02     .01     .01        35.        *        1
1650  203     .00     .00     .00         2.
         1     0630   79     .02     .01     .01        29.        *        1
1655  204     .00     .00     .00         2.
         1     0635   80     .01     .01     .00        24.        *        1
1700  205     .00     .00     .00         2.
         1     0640   81     .01     .01     .00        20.        *        1
1705  206     .00     .00     .00         2.
         1     0645   82     .01     .01     .00        17.        *        1
1710  207     .00     .00     .00         2.
         1     0650   83     .01     .01     .00        15.        *        1
1715  208     .00     .00     .00         2.
         1     0655   84     .01     .01     .00        13.        *        1
1720  209     .00     .00     .00         2.
         1     0700   85     .01     .01     .00        11.        *        1
1725  210     .00     .00     .00         2.
         1     0705   86     .01     .00     .00        10.        *        1
1730  211     .00     .00     .00         2.
         1     0710   87     .01     .00     .00         9.        *        1
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1735  212     .00     .00     .00         2.
         1     0715   88     .01     .00     .00         8.       *        1
1740  213     .00     .00     .00         2.
         1     0720   89     .01     .00     .00         8.       *        1
1745  214     .00     .00     .00         2.
         1     0725   90     .01     .00     .00         7.       *        1
1750  215     .00     .00     .00         2.
         1     0730   91     .01     .00     .00         7.       *        1
1755  216     .00     .00     .00         2.
         1     0735   92     .01     .00     .00         6.       *        1
1800  217     .00     .00     .00         2.
         1     0740   93     .01     .00     .00         6.       *        1
1805  218     .00     .00     .00         2.
         1     0745   94     .01     .00     .00         6.       *        1
1810  219     .00     .00     .00         2.
         1     0750   95     .01     .00     .00         5.       *        1
1815  220     .00     .00     .00         2.
         1     0755   96     .01     .00     .00         5.       *        1
1820  221     .00     .00     .00         2.
         1     0800   97     .01     .00     .00         5.       *        1
1825  222     .00     .00     .00         2.
         1     0805   98     .00     .00     .00         5.       *        1
1830  223     .00     .00     .00         2.
         1     0810   99     .00     .00     .00         5.       *        1
1835  224     .00     .00     .00         2.
         1     0815  100     .00     .00     .00         5.       *        1
1840  225     .00     .00     .00         2.
         1     0820  101     .00     .00     .00         4.       *        1
1845  226     .00     .00     .00         2.
         1     0825  102     .00     .00     .00         4.       *        1
1850  227     .00     .00     .00         2.
         1     0830  103     .00     .00     .00         4.       *        1
1855  228     .00     .00     .00         2.
         1     0835  104     .00     .00     .00         3.       *        1
1900  229     .00     .00     .00         2.
         1     0840  105     .00     .00     .00         3.       *        1
1905  230     .00     .00     .00         2.
         1     0845  106     .00     .00     .00         3.       *        1
1910  231     .00     .00     .00         2.
         1     0850  107     .00     .00     .00         3.       *        1
1915  232     .00     .00     .00         2.
         1     0855  108     .00     .00     .00         3.       *        1
1920  233     .00     .00     .00         2.
         1     0900  109     .00     .00     .00         3.       *        1
1925  234     .00     .00     .00         2.
         1     0905  110     .00     .00     .00         3.       *        1
1930  235     .00     .00     .00         2.
         1     0910  111     .00     .00     .00         3.       *        1
1935  236     .00     .00     .00         2.
         1     0915  112     .00     .00     .00         3.       *        1
1940  237     .00     .00     .00         2.
         1     0920  113     .00     .00     .00         3.       *        1
1945  238     .00     .00     .00         2.
         1     0925  114     .00     .00     .00         3.       *        1
1950  239     .00     .00     .00         2.
         1     0930  115     .00     .00     .00         3.       *        1
1955  240     .00     .00     .00         2.
         1     0935  116     .00     .00     .00         3.       *        1
2000  241     .00     .00     .00         2.
         1     0940  117     .00     .00     .00         3.       *        1
2005  242     .00     .00     .00         2.
         1     0945  118     .00     .00     .00         3.       *        1
2010  243     .00     .00     .00         2.
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         1     0950  119     .00     .00     .00          3.        *        1
2015  244     .00     .00     .00         1.
         1     0955  120     .00     .00     .00          3.        *        1
2020  245     .00     .00     .00         1.
         1     1000  121     .00     .00     .00          3.        *        1
2025  246     .00     .00     .00         1.
         1     1005  122     .00     .00     .00          3.        *        1
2030  247     .00     .00     .00         1.
         1     1010  123     .00     .00     .00          3.        *        1
2035  248     .00     .00     .00         1.
         1     1015  124     .00     .00     .00          3.        *        1
2040  249     .00     .00     .00         1.
         1     1020  125     .00     .00     .00          3.        *        1
2045  250     .00     .00     .00         1.
                                                                   *

*************************************************************************************
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     TOTAL RAINFALL =    2.07, TOTAL LOSS =    1.71, TOTAL EXCESS =      .36

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR      20.75-HR
+   (CFS)       (HR)
                           (CFS)
+      38.      6.33                    7.          3.          3.            3.
                        (INCHES)      .264        .358        .358          .358
                         (AC-FT)        4.          5.          5.            5.

                         CUMULATIVE AREA =     .26 SQ MI


*************************************************************************************
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                                                   HYDROGRAPH AT STATION    E7005
                                                       PLAN 1,   RATIO =   .56


*************************************************************************************
***********************************************
                                                                   *
        DA MON HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q        *      DA MON
HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q
                                                                   *
         1     0000    1     .00     .00     .00          0.        *        1
1025  126     .00     .00     .00         4.
         1     0005    2     .00     .00     .00          0.        *        1
1030  127     .00     .00     .00         3.
         1     0010    3     .00     .00     .00          0.        *        1
1035  128     .00     .00     .00         3.
         1     0015    4     .00     .00     .00          0.        *        1
1040  129     .00     .00     .00         3.
         1     0020    5     .00     .00     .00          0.        *        1
1045  130     .00     .00     .00         3.
         1     0025    6     .00     .00     .00          0.        *        1
1050  131     .00     .00     .00         3.
         1     0030    7     .00     .00     .00          0.        *        1
1055  132     .00     .00     .00         3.
         1     0035    8     .00     .00     .00          0.        *        1
1100  133     .00     .00     .00         3.
         1     0040    9     .00     .00     .00          0.        *        1
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1105  134     .00     .00     .00        3.
         1     0045   10     .00     .00     .00         0.        *         1
1110  135     .00     .00     .00        3.
         1     0050   11     .00     .00     .00         0.        *         1
1115  136     .00     .00     .00        3.
         1     0055   12     .00     .00     .00         0.        *         1
1120  137     .00     .00     .00        3.
         1     0100   13     .00     .00     .00         0.        *         1
1125  138     .00     .00     .00        3.
         1     0105   14     .00     .00     .00         0.        *         1
1130  139     .00     .00     .00        3.
         1     0110   15     .00     .00     .00         0.        *         1
1135  140     .00     .00     .00        3.
         1     0115   16     .00     .00     .00         0.        *         1
1140  141     .00     .00     .00        3.
         1     0120   17     .00     .00     .00         0.        *         1
1145  142     .00     .00     .00        3.
         1     0125   18     .00     .00     .00         0.        *         1
1150  143     .00     .00     .00        3.
         1     0130   19     .00     .00     .00         0.        *         1
1155  144     .00     .00     .00        3.
         1     0135   20     .00     .00     .00         0.        *         1
1200  145     .00     .00     .00        3.
         1     0140   21     .00     .00     .00         0.        *         1
1205  146     .00     .00     .00        3.
         1     0145   22     .00     .00     .00         0.        *         1
1210  147     .00     .00     .00        3.
         1     0150   23     .00     .00     .00         0.        *         1
1215  148     .00     .00     .00        3.
         1     0155   24     .00     .00     .00         0.        *         1
1220  149     .00     .00     .00        3.
         1     0200   25     .00     .00     .00         0.        *         1
1225  150     .00     .00     .00        3.
         1     0205   26     .00     .00     .00         0.        *         1
1230  151     .00     .00     .00        3.
         1     0210   27     .00     .00     .00         0.        *         1
1235  152     .00     .00     .00        3.
         1     0215   28     .00     .00     .00         0.        *         1
1240  153     .00     .00     .00        3.
         1     0220   29     .00     .00     .00         0.        *         1
1245  154     .00     .00     .00        3.
         1     0225   30     .00     .00     .00         0.        *         1
1250  155     .00     .00     .00        3.
         1     0230   31     .00     .00     .00         0.        *         1
1255  156     .00     .00     .00        3.
         1     0235   32     .00     .00     .00         0.        *         1
1300  157     .00     .00     .00        3.
         1     0240   33     .00     .00     .00         0.        *         1
1305  158     .00     .00     .00        3.
         1     0245   34     .00     .00     .00         0.        *         1
1310  159     .00     .00     .00        3.
         1     0250   35     .00     .00     .00         0.        *         1
1315  160     .00     .00     .00        3.
         1     0255   36     .00     .00     .00         0.        *         1
1320  161     .00     .00     .00        3.
         1     0300   37     .00     .00     .00         0.        *         1
1325  162     .00     .00     .00        3.
         1     0305   38     .00     .00     .00         0.        *         1
1330  163     .00     .00     .00        3.
         1     0310   39     .00     .00     .00         0.        *         1
1335  164     .00     .00     .00        3.
         1     0315   40     .00     .00     .00         0.        *         1
1340  165     .00     .00     .00        3.
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```
         1      0320   41      .00      .00      .00          0.        *         1
1345  166      .00     .00      .00          3.
         1      0325   42      .00      .00      .00          0.        *         1
1350  167      .00     .00      .00          3.
         1      0330   43      .00      .00      .00          0.        *         1
1355  168      .00     .00      .00          3.
         1      0335   44      .00      .00      .00          0.        *         1
1400  169      .00     .00      .00          3.
         1      0340   45      .00      .00      .00          0.        *         1
1405  170      .00     .00      .00          3.
         1      0345   46      .00      .00      .00          0.        *         1
1410  171      .00     .00      .00          3.
         1      0350   47      .00      .00      .00          0.        *         1
1415  172      .00     .00      .00          3.
         1      0355   48      .00      .00      .00          0.        *         1
1420  173      .00     .00      .00          3.
         1      0400   49      .00      .00      .00          0.        *         1
1425  174      .00     .00      .00          3.
         1      0405   50      .01      .01      .00          0.        *         1
1430  175      .00     .00      .00          3.
         1      0410   51      .01      .01      .00          0.        *         1
1435  176      .00     .00      .00          3.
         1      0415   52      .01      .01      .00          0.        *         1
1440  177      .00     .00      .00          3.
         1      0420   53      .01      .01      .00          0.        *         1
1445  178      .00     .00      .00          3.
         1      0425   54      .01      .01      .00          0.        *         1
1450  179      .00     .00      .00          3.
         1      0430   55      .01      .01      .00          0.        *         1
1455  180      .00     .00      .00          3.
         1      0435   56      .01      .01      .00          0.        *         1
1500  181      .00     .00      .00          3.
         1      0440   57      .01      .01      .00          0.        *         1
1505  182      .00     .00      .00          3.
         1      0445   58      .01      .01      .00          0.        *         1
1510  183      .00     .00      .00          3.
         1      0450   59      .01      .01      .00          0.        *         1
1515  184      .00     .00      .00          2.
         1      0455   60      .01      .01      .00          0.        *         1
1520  185      .00     .00      .00          2.
         1      0500   61      .01      .01      .00          0.        *         1
1525  186      .00     .00      .00          2.
         1      0505   62      .01      .01      .00          0.        *         1
1530  187      .00     .00      .00          2.
         1      0510   63      .01      .01      .00          0.        *         1
1535  188      .00     .00      .00          2.
         1      0515   64      .01      .01      .00          0.        *         1
1540  189      .00     .00      .00          2.
         1      0520   65      .02      .02      .00          0.        *         1
1545  190      .00     .00      .00          2.
         1      0525   66      .02      .02      .00          0.        *         1
1550  191      .00     .00      .00          2.
         1      0530   67      .02      .02      .00          0.        *         1
1555  192      .00     .00      .00          2.
         1      0535   68      .25      .25      .00          0.        *         1
1600  193      .00     .00      .00          2.
         1      0540   69      .25      .25      .00          0.        *         1
1605  194      .00     .00      .00          2.
         1      0545   70      .25      .23      .02          1.        *         1
1610  195      .00     .00      .00          2.
         1      0550   71      .25      .20      .05          3.        *         1
1615  196      .00     .00      .00          2.
         1      0555   72      .25      .18      .07         11.        *         1
```

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1620  197     .00     .00     .00         2.
         1    0600    73     .25     .16     .09        25.       *        1
1625  198     .00     .00     .00         2.
         1    0605    74     .02     .01     .01        42.       *        1
1630  199     .00     .00     .00         2.
         1    0610    75     .02     .01     .01        59.       *        1
1635  200     .00     .00     .00         2.
         1    0615    76     .02     .01     .01        67.       *        1
1640  201     .00     .00     .00         2.
         1    0620    77     .02     .01     .01        65.       *        1
1645  202     .00     .00     .00         2.
         1    0625    78     .02     .01     .01        58.       *        1
1650  203     .00     .00     .00         2.
         1    0630    79     .02     .01     .01        48.       *        1
1655  204     .00     .00     .00         2.
         1    0635    80     .01     .01     .01        39.       *        1
1700  205     .00     .00     .00         2.
         1    0640    81     .01     .01     .01        32.       *        1
1705  206     .00     .00     .00         2.
         1    0645    82     .01     .01     .01        27.       *        1
1710  207     .00     .00     .00         2.
         1    0650    83     .01     .01     .01        23.       *        1
1715  208     .00     .00     .00         2.
         1    0655    84     .01     .01     .01        20.       *        1
1720  209     .00     .00     .00         2.
         1    0700    85     .01     .01     .01        17.       *        1
1725  210     .00     .00     .00         2.
         1    0705    86     .01     .00     .00        15.       *        1
1730  211     .00     .00     .00         2.
         1    0710    87     .01     .00     .00        14.       *        1
1735  212     .00     .00     .00         2.
         1    0715    88     .01     .00     .00        13.       *        1
1740  213     .00     .00     .00         2.
         1    0720    89     .01     .00     .00        11.       *        1
1745  214     .00     .00     .00         2.
         1    0725    90     .01     .00     .00        10.       *        1
1750  215     .00     .00     .00         2.
         1    0730    91     .01     .00     .00        10.       *        1
1755  216     .00     .00     .00         2.
         1    0735    92     .01     .00     .00         9.       *        1
1800  217     .00     .00     .00         2.
         1    0740    93     .01     .00     .00         9.       *        1
1805  218     .00     .00     .00         2.
         1    0745    94     .01     .00     .00         8.       *        1
1810  219     .00     .00     .00         2.
         1    0750    95     .01     .00     .00         8.       *        1
1815  220     .00     .00     .00         2.
         1    0755    96     .01     .00     .00         8.       *        1
1820  221     .00     .00     .00         2.
         1    0800    97     .01     .00     .00         8.       *        1
1825  222     .00     .00     .00         2.
         1    0805    98     .00     .00     .00         8.       *        1
1830  223     .00     .00     .00         2.
         1    0810    99     .00     .00     .00         7.       *        1
1835  224     .00     .00     .00         2.
         1    0815   100     .00     .00     .00         7.       *        1
1840  225     .00     .00     .00         2.
         1    0820   101     .00     .00     .00         6.       *        1
1845  226     .00     .00     .00         2.
         1    0825   102     .00     .00     .00         6.       *        1
1850  227     .00     .00     .00         2.
         1    0830   103     .00     .00     .00         5.       *        1
1855  228     .00     .00     .00         2.
```

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         1     0835  104     .00     .00     .00         5.       *        1
1900  229     .00     .00     .00         2.
         1     0840  105     .00     .00     .00         5.       *        1
1905  230     .00     .00     .00         2.
         1     0845  106     .00     .00     .00         4.       *        1
1910  231     .00     .00     .00         2.
         1     0850  107     .00     .00     .00         4.       *        1
1915  232     .00     .00     .00         2.
         1     0855  108     .00     .00     .00         4.       *        1
1920  233     .00     .00     .00         2.
         1     0900  109     .00     .00     .00         4.       *        1
1925  234     .00     .00     .00         2.
         1     0905  110     .00     .00     .00         4.       *        1
1930  235     .00     .00     .00         2.
         1     0910  111     .00     .00     .00         4.       *        1
1935  236     .00     .00     .00         2.
         1     0915  112     .00     .00     .00         4.       *        1
1940  237     .00     .00     .00         2.
         1     0920  113     .00     .00     .00         4.       *        1
1945  238     .00     .00     .00         2.
         1     0925  114     .00     .00     .00         4.       *        1
1950  239     .00     .00     .00         2.
         1     0930  115     .00     .00     .00         4.       *        1
1955  240     .00     .00     .00         2.
         1     0935  116     .00     .00     .00         4.       *        1
2000  241     .00     .00     .00         2.
         1     0940  117     .00     .00     .00         4.       *        1
2005  242     .00     .00     .00         2.
         1     0945  118     .00     .00     .00         4.       *        1
2010  243     .00     .00     .00         2.
         1     0950  119     .00     .00     .00         4.       *        1
2015  244     .00     .00     .00         2.
         1     0955  120     .00     .00     .00         4.       *        1
2020  245     .00     .00     .00         2.
         1     1000  121     .00     .00     .00         4.       *        1
2025  246     .00     .00     .00         2.
         1     1005  122     .00     .00     .00         4.       *        1
2030  247     .00     .00     .00         2.
         1     1010  123     .00     .00     .00         4.       *        1
2035  248     .00     .00     .00         1.
         1     1015  124     .00     .00     .00         4.       *        1
2040  249     .00     .00     .00         1.
         1     1020  125     .00     .00     .00         4.       *        1
2045  250     .00     .00     .00         1.
                                                                  *

************************************************************************************
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     TOTAL RAINFALL =    2.46, TOTAL LOSS =    1.90, TOTAL EXCESS =     .56

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+      67.      6.25                   12.          4.          4.           4.
                        (INCHES)      .425        .556        .556         .556
                         (AC-FT)        6.          8.          8.           8.

                         CUMULATIVE AREA =     .26 SQ MI
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                                                   HYDROGRAPH AT STATION    E7005
                                                       PLAN 1,   RATIO =   .70


*************************************************************************************
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                                                                  *
        DA MON HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q       *        DA MON
HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q
                                                                  *
         1     0000    1     .00     .00     .00         0.       *        1
1025  126     .00     .00     .00         5.
         1     0005    2     .00     .00     .00         0.       *        1
1030  127     .00     .00     .00         5.
         1     0010    3     .00     .00     .00         0.       *        1
1035  128     .00     .00     .00         5.
         1     0015    4     .00     .00     .00         0.       *        1
1040  129     .00     .00     .00         5.
         1     0020    5     .00     .00     .00         0.       *        1
1045  130     .00     .00     .00         5.
         1     0025    6     .00     .00     .00         0.       *        1
1050  131     .00     .00     .00         5.
         1     0030    7     .00     .00     .00         0.       *        1
1055  132     .00     .00     .00         5.
         1     0035    8     .00     .00     .00         0.       *        1
1100  133     .00     .00     .00         5.
         1     0040    9     .00     .00     .00         0.       *        1
1105  134     .00     .00     .00         5.
         1     0045   10     .00     .00     .00         0.       *        1
1110  135     .00     .00     .00         5.
         1     0050   11     .00     .00     .00         0.       *        1
1115  136     .00     .00     .00         5.
         1     0055   12     .00     .00     .00         0.       *        1
1120  137     .00     .00     .00         5.
         1     0100   13     .00     .00     .00         0.       *        1
1125  138     .00     .00     .00         5.
         1     0105   14     .00     .00     .00         0.       *        1
1130  139     .00     .00     .00         5.
         1     0110   15     .00     .00     .00         0.       *        1
1135  140     .00     .00     .00         5.
         1     0115   16     .00     .00     .00         0.       *        1
1140  141     .00     .00     .00         5.
         1     0120   17     .00     .00     .00         0.       *        1
1145  142     .00     .00     .00         5.
         1     0125   18     .00     .00     .00         0.       *        1
1150  143     .00     .00     .00         5.
         1     0130   19     .00     .00     .00         0.       *        1
1155  144     .00     .00     .00         5.
         1     0135   20     .00     .00     .00         0.       *        1
1200  145     .00     .00     .00         5.
         1     0140   21     .00     .00     .00         0.       *        1
1205  146     .00     .00     .00         5.
         1     0145   22     .00     .00     .00         0.       *        1
1210  147     .00     .00     .00         5.
         1     0150   23     .00     .00     .00         0.       *        1
1215  148     .00     .00     .00         5.
         1     0155   24     .00     .00     .00         0.       *        1
1220  149     .00     .00     .00         5.
         1     0200   25     .00     .00     .00         0.       *        1
1225  150     .00     .00     .00         5.
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         1     0205   26     .00     .00     .00         0.       *        1
1230  151     .00    .00     .00         5.
         1     0210   27     .00     .00     .00         0.       *        1
1235  152     .00    .00     .00         5.
         1     0215   28     .00     .00     .00         0.       *        1
1240  153     .00    .00     .00         5.
         1     0220   29     .00     .00     .00         0.       *        1
1245  154     .00    .00     .00         5.
         1     0225   30     .00     .00     .00         0.       *        1
1250  155     .00    .00     .00         5.
         1     0230   31     .00     .00     .00         0.       *        1
1255  156     .00    .00     .00         5.
         1     0235   32     .00     .00     .00         0.       *        1
1300  157     .00    .00     .00         5.
         1     0240   33     .00     .00     .00         0.       *        1
1305  158     .00    .00     .00         5.
         1     0245   34     .00     .00     .00         0.       *        1
1310  159     .00    .00     .00         5.
         1     0250   35     .00     .00     .00         0.       *        1
1315  160     .00    .00     .00         5.
         1     0255   36     .00     .00     .00         0.       *        1
1320  161     .00    .00     .00         4.
         1     0300   37     .00     .00     .00         0.       *        1
1325  162     .00    .00     .00         4.
         1     0305   38     .00     .00     .00         0.       *        1
1330  163     .00    .00     .00         4.
         1     0310   39     .00     .00     .00         0.       *        1
1335  164     .00    .00     .00         4.
         1     0315   40     .00     .00     .00         0.       *        1
1340  165     .00    .00     .00         4.
         1     0320   41     .00     .00     .00         0.       *        1
1345  166     .00    .00     .00         4.
         1     0325   42     .00     .00     .00         0.       *        1
1350  167     .00    .00     .00         4.
         1     0330   43     .00     .00     .00         0.       *        1
1355  168     .00    .00     .00         4.
         1     0335   44     .00     .00     .00         0.       *        1
1400  169     .00    .00     .00         4.
         1     0340   45     .00     .00     .00         0.       *        1
1405  170     .00    .00     .00         4.
         1     0345   46     .00     .00     .00         0.       *        1
1410  171     .00    .00     .00         4.
         1     0350   47     .00     .00     .00         0.       *        1
1415  172     .00    .00     .00         4.
         1     0355   48     .00     .00     .00         0.       *        1
1420  173     .00    .00     .00         4.
         1     0400   49     .00     .00     .00         0.       *        1
1425  174     .00    .00     .00         4.
         1     0405   50     .01     .01     .00         0.       *        1
1430  175     .00    .00     .00         4.
         1     0410   51     .01     .01     .00         0.       *        1
1435  176     .00    .00     .00         4.
         1     0415   52     .01     .01     .00         0.       *        1
1440  177     .00    .00     .00         4.
         1     0420   53     .01     .01     .00         0.       *        1
1445  178     .00    .00     .00         4.
         1     0425   54     .01     .01     .00         0.       *        1
1450  179     .00    .00     .00         4.
         1     0430   55     .01     .01     .00         0.       *        1
1455  180     .00    .00     .00         4.
         1     0435   56     .01     .01     .00         0.       *        1
1500  181     .00    .00     .00         4.
         1     0440   57     .01     .01     .00         0.       *        1
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1505  182     .00     .00    .00          4.
         1    0445    58     .01     .01     .00         0.       *        1
1510  183     .00     .00    .00          4.
         1    0450    59     .01     .01     .00         0.       *        1
1515  184     .00     .00    .00          4.
         1    0455    60     .01     .01     .00         0.       *        1
1520  185     .00     .00    .00          4.
         1    0500    61     .01     .01     .00         0.       *        1
1525  186     .00     .00    .00          3.
         1    0505    62     .02     .02     .00         0.       *        1
1530  187     .00     .00    .00          3.
         1    0510    63     .02     .02     .00         0.       *        1
1535  188     .00     .00    .00          3.
         1    0515    64     .02     .02     .00         0.       *        1
1540  189     .00     .00    .00          3.
         1    0520    65     .03     .03     .00         0.       *        1
1545  190     .00     .00    .00          3.
         1    0525    66     .03     .03     .00         0.       *        1
1550  191     .00     .00    .00          3.
         1    0530    67     .03     .03     .00         0.       *        1
1555  192     .00     .00    .00          3.
         1    0535    68     .31     .31     .00         0.       *        1
1600  193     .00     .00    .00          3.
         1    0540    69     .31     .30     .01         0.       *        1
1605  194     .00     .00    .00          3.
         1    0545    70     .31     .26     .05         3.       *        1
1610  195     .00     .00    .00          3.
         1    0550    71     .31     .22     .09        11.       *        1
1615  196     .00     .00    .00          3.
         1    0555    72     .31     .19     .12        27.       *        1
1620  197     .00     .00    .00          3.
         1    0600    73     .31     .17     .14        54.       *        1
1625  198     .00     .00    .00          3.
         1    0605    74     .03     .01     .01        84.       *        1
1630  199     .00     .00    .00          3.
         1    0610    75     .03     .01     .01       110.       *        1
1635  200     .00     .00    .00          3.
         1    0615    76     .03     .01     .01       121.       *        1
1640  201     .00     .00    .00          3.
         1    0620    77     .03     .01     .01       115.       *        1
1645  202     .00     .00    .00          3.
         1    0625    78     .03     .01     .01       101.       *        1
1650  203     .00     .00    .00          3.
         1    0630    79     .03     .01     .01        83.       *        1
1655  204     .00     .00    .00          3.
         1    0635    80     .02     .01     .01        66.       *        1
1700  205     .00     .00    .00          3.
         1    0640    81     .02     .01     .01        54.       *        1
1705  206     .00     .00    .00          3.
         1    0645    82     .02     .01     .01        45.       *        1
1710  207     .00     .00    .00          3.
         1    0650    83     .02     .01     .01        38.       *        1
1715  208     .00     .00    .00          3.
         1    0655    84     .02     .01     .01        32.       *        1
1720  209     .00     .00    .00          3.
         1    0700    85     .02     .01     .01        28.       *        1
1725  210     .00     .00    .00          3.
         1    0705    86     .01     .00     .01        25.       *        1
1730  211     .00     .00    .00          3.
         1    0710    87     .01     .00     .01        22.       *        1
1735  212     .00     .00    .00          3.
         1    0715    88     .01     .00     .01        20.       *        1
1740  213     .00     .00    .00          3.
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          1     0720   89     .01     .00     .01        18.        *        1
1745  214     .00     .00     .00         3.
          1     0725   90     .01     .00     .01        16.        *        1
1750  215     .00     .00     .00         3.
          1     0730   91     .01     .00     .01        15.        *        1
1755  216     .00     .00     .00         3.
          1     0735   92     .01     .00     .01        14.        *        1
1800  217     .00     .00     .00         3.
          1     0740   93     .01     .00     .01        13.        *        1
1805  218     .00     .00     .00         3.
          1     0745   94     .01     .00     .01        13.        *        1
1810  219     .00     .00     .00         3.
          1     0750   95     .01     .00     .01        12.        *        1
1815  220     .00     .00     .00         3.
          1     0755   96     .01     .00     .01        12.        *        1
1820  221     .00     .00     .00         3.
          1     0800   97     .01     .00     .01        12.        *        1
1825  222     .00     .00     .00         3.
          1     0805   98     .01     .00     .00        12.        *        1
1830  223     .00     .00     .00         3.
          1     0810   99     .01     .00     .00        11.        *        1
1835  224     .00     .00     .00         3.
          1     0815  100     .01     .00     .00        11.        *        1
1840  225     .00     .00     .00         3.
          1     0820  101     .01     .00     .00        10.        *        1
1845  226     .00     .00     .00         3.
          1     0825  102     .01     .00     .00         9.        *        1
1850  227     .00     .00     .00         3.
          1     0830  103     .01     .00     .00         8.        *        1
1855  228     .00     .00     .00         3.
          1     0835  104     .01     .00     .00         7.        *        1
1900  229     .00     .00     .00         3.
          1     0840  105     .01     .00     .00         7.        *        1
1905  230     .00     .00     .00         3.
          1     0845  106     .01     .00     .00         7.        *        1
1910  231     .00     .00     .00         3.
          1     0850  107     .01     .00     .00         6.        *        1
1915  232     .00     .00     .00         3.
          1     0855  108     .01     .00     .00         6.        *        1
1920  233     .00     .00     .00         3.
          1     0900  109     .01     .00     .00         6.        *        1
1925  234     .00     .00     .00         3.
          1     0905  110     .01     .00     .00         6.        *        1
1930  235     .00     .00     .00         3.
          1     0910  111     .01     .00     .00         6.        *        1
1935  236     .00     .00     .00         3.
          1     0915  112     .01     .00     .00         6.        *        1
1940  237     .00     .00     .00         3.
          1     0920  113     .01     .00     .00         6.        *        1
1945  238     .00     .00     .00         3.
          1     0925  114     .01     .00     .00         6.        *        1
1950  239     .00     .00     .00         3.
          1     0930  115     .01     .00     .00         6.        *        1
1955  240     .00     .00     .00         3.
          1     0935  116     .01     .00     .00         6.        *        1
2000  241     .00     .00     .00         3.
          1     0940  117     .01     .00     .00         6.        *        1
2005  242     .00     .00     .00         3.
          1     0945  118     .01     .00     .00         6.        *        1
2010  243     .00     .00     .00         3.
          1     0950  119     .01     .00     .00         6.        *        1
2015  244     .00     .00     .00         3.
          1     0955  120     .01     .00     .00         6.        *        1
```

```
2020  245     .00     .00     .00         3.
         1     1000  121     .01     .00      .00          6.       *         1
2025  246     .00     .00     .00         3.
         1     1005  122     .00     .00      .00          6.       *         1
2030  247     .00     .00     .00         2.
         1     1010  123     .00     .00      .00          6.       *         1
2035  248     .00     .00     .00         2.
         1     1015  124     .00     .00      .00          6.       *         1
2040  249     .00     .00     .00         2.
         1     1020  125     .00     .00      .00          6.       *         1
2045  250     .00     .00     .00         2.
                                                                    *

***************************************************************************************
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     TOTAL RAINFALL =    3.08, TOTAL LOSS =    2.16, TOTAL EXCESS =     .92

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR     20.75-HR
+   (CFS)       (HR)
                             (CFS)
+     121.      6.25                   20.          7.           7.            7.
                           (INCHES)   .722        .917         .917          .917
                            (AC-FT)    10.         13.          13.           13.

                            CUMULATIVE AREA =     .26 SQ MI


***************************************************************************************
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                                                         HYDROGRAPH AT STATION    E7005
                                                             PLAN 1,   RATIO =  1.00


***************************************************************************************
***********************************************
                                                                    *
        DA MON HRMN   ORD    RAIN    LOSS  EXCESS     COMP Q        *       DA MON
HRMN  ORD    RAIN   LOSS  EXCESS     COMP Q
                                                                    *
         1     0000    1     .00     .00      .00          0.       *         1
1025  126     .01     .00     .00         9.
         1     0005    2     .00     .00      .00          0.       *         1
1030  127     .01     .00     .00         9.
         1     0010    3     .00     .00      .00          0.       *         1
1035  128     .01     .00     .00         9.
         1     0015    4     .00     .00      .00          0.       *         1
1040  129     .01     .00     .00         8.
         1     0020    5     .00     .00      .00          0.       *         1
1045  130     .01     .00     .00         8.
         1     0025    6     .00     .00      .00          0.       *         1
1050  131     .01     .00     .00         8.
         1     0030    7     .00     .00      .00          0.       *         1
1055  132     .01     .00     .00         8.
         1     0035    8     .00     .00      .00          0.       *         1
1100  133     .01     .00     .00         8.
         1     0040    9     .00     .00      .00          0.       *         1
1105  134     .01     .00     .00         8.
         1     0045   10     .00     .00      .00          0.       *         1
1110  135     .01     .00     .00         8.
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          1     0050   11     .00     .00     .00         0.       *        1
1115  136     .01     .00     .00         8.
          1     0055   12     .00     .00     .00         0.       *        1
1120  137     .01     .00     .00         8.
          1     0100   13     .00     .00     .00         0.       *        1
1125  138     .01     .00     .00         8.
          1     0105   14     .00     .00     .00         0.       *        1
1130  139     .01     .00     .00         8.
          1     0110   15     .00     .00     .00         0.       *        1
1135  140     .01     .00     .00         8.
          1     0115   16     .00     .00     .00         0.       *        1
1140  141     .01     .00     .00         8.
          1     0120   17     .00     .00     .00         0.       *        1
1145  142     .01     .00     .00         8.
          1     0125   18     .00     .00     .00         0.       *        1
1150  143     .01     .00     .00         8.
          1     0130   19     .00     .00     .00         0.       *        1
1155  144     .01     .00     .00         8.
          1     0135   20     .00     .00     .00         0.       *        1
1200  145     .01     .00     .00         8.
          1     0140   21     .00     .00     .00         0.       *        1
1205  146     .01     .00     .00         8.
          1     0145   22     .00     .00     .00         0.       *        1
1210  147     .01     .00     .00         8.
          1     0150   23     .00     .00     .00         0.       *        1
1215  148     .01     .00     .00         8.
          1     0155   24     .00     .00     .00         0.       *        1
1220  149     .01     .00     .00         8.
          1     0200   25     .00     .00     .00         0.       *        1
1225  150     .01     .00     .00         8.
          1     0205   26     .00     .00     .00         0.       *        1
1230  151     .01     .00     .00         8.
          1     0210   27     .00     .00     .00         0.       *        1
1235  152     .01     .00     .00         8.
          1     0215   28     .00     .00     .00         0.       *        1
1240  153     .01     .00     .00         8.
          1     0220   29     .00     .00     .00         0.       *        1
1245  154     .01     .00     .00         8.
          1     0225   30     .00     .00     .00         0.       *        1
1250  155     .01     .00     .00         8.
          1     0230   31     .00     .00     .00         0.       *        1
1255  156     .01     .00     .00         8.
          1     0235   32     .00     .00     .00         0.       *        1
1300  157     .01     .00     .00         8.
          1     0240   33     .00     .00     .00         0.       *        1
1305  158     .00     .00     .00         8.
          1     0245   34     .00     .00     .00         0.       *        1
1310  159     .00     .00     .00         8.
          1     0250   35     .00     .00     .00         0.       *        1
1315  160     .00     .00     .00         8.
          1     0255   36     .00     .00     .00         0.       *        1
1320  161     .00     .00     .00         8.
          1     0300   37     .00     .00     .00         0.       *        1
1325  162     .00     .00     .00         8.
          1     0305   38     .00     .00     .00         0.       *        1
1330  163     .00     .00     .00         7.
          1     0310   39     .00     .00     .00         0.       *        1
1335  164     .00     .00     .00         7.
          1     0315   40     .00     .00     .00         0.       *        1
1340  165     .00     .00     .00         7.
          1     0320   41     .00     .00     .00         0.       *        1
1345  166     .00     .00     .00         7.
          1     0325   42     .00     .00     .00         0.       *        1
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1350  167     .00     .00     .00         7.
         1     0330   43     .00     .00     .00         0.       *        1
1355  168     .00     .00     .00         7.
         1     0335   44     .00     .00     .00         0.       *        1
1400  169     .00     .00     .00         7.
         1     0340   45     .00     .00     .00         0.       *        1
1405  170     .00     .00     .00         7.
         1     0345   46     .00     .00     .00         0.       *        1
1410  171     .00     .00     .00         7.
         1     0350   47     .01     .01     .00         0.       *        1
1415  172     .00     .00     .00         7.
         1     0355   48     .01     .01     .00         0.       *        1
1420  173     .00     .00     .00         7.
         1     0400   49     .01     .01     .00         0.       *        1
1425  174     .00     .00     .00         7.
         1     0405   50     .01     .01     .00         0.       *        1
1430  175     .00     .00     .00         7.
         1     0410   51     .01     .01     .00         0.       *        1
1435  176     .00     .00     .00         7.
         1     0415   52     .01     .01     .00         0.       *        1
1440  177     .00     .00     .00         7.
         1     0420   53     .01     .01     .00         0.       *        1
1445  178     .00     .00     .00         7.
         1     0425   54     .01     .01     .00         0.       *        1
1450  179     .00     .00     .00         7.
         1     0430   55     .01     .01     .00         0.       *        1
1455  180     .00     .00     .00         7.
         1     0435   56     .01     .01     .00         0.       *        1
1500  181     .00     .00     .00         7.
         1     0440   57     .01     .01     .00         0.       *        1
1505  182     .00     .00     .00         7.
         1     0445   58     .01     .01     .00         0.       *        1
1510  183     .00     .00     .00         6.
         1     0450   59     .01     .01     .00         0.       *        1
1515  184     .00     .00     .00         6.
         1     0455   60     .01     .01     .00         0.       *        1
1520  185     .00     .00     .00         6.
         1     0500   61     .01     .01     .00         0.       *        1
1525  186     .00     .00     .00         6.
         1     0505   62     .02     .02     .00         0.       *        1
1530  187     .00     .00     .00         6.
         1     0510   63     .02     .02     .00         0.       *        1
1535  188     .00     .00     .00         6.
         1     0515   64     .02     .02     .00         0.       *        1
1540  189     .00     .00     .00         6.
         1     0520   65     .04     .04     .00         0.       *        1
1545  190     .00     .00     .00         6.
         1     0525   66     .04     .04     .00         0.       *        1
1550  191     .00     .00     .00         6.
         1     0530   67     .04     .04     .00         0.       *        1
1555  192     .00     .00     .00         6.
         1     0535   68     .45     .44     .01         0.       *        1
1600  193     .00     .00     .00         6.
         1     0540   69     .45     .37     .08         3.       *        1
1605  194     .00     .00     .00         5.
         1     0545   70     .45     .30     .15        14.       *        1
1610  195     .00     .00     .00         5.
         1     0550   71     .45     .24     .20        40.       *        1
1615  196     .00     .00     .00         5.
         1     0555   72     .45     .21     .24        84.       *        1
1620  197     .00     .00     .00         5.
         1     0600   73     .45     .18     .27       143.       *        1
1625  198     .00     .00     .00         5.
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        1     0605   74      .04     .01     .02       204.        *        1
1630  199     .00     .00     .00           5.
        1     0610   75      .04     .01     .02       250.        *        1
1635  200     .00     .00     .00           5.
        1     0615   76      .04     .01     .02       263.        *        1
1640  201     .00     .00     .00           5.
        1     0620   77      .04     .01     .02       244.        *        1
1645  202     .00     .00     .00           5.
        1     0625   78      .04     .01     .02       209.        *        1
1650  203     .00     .00     .00           5.
        1     0630   79      .04     .01     .02       169.        *        1
1655  204     .00     .00     .00           5.
        1     0635   80      .02     .01     .01       134.        *        1
1700  205     .00     .00     .00           5.
        1     0640   81      .02     .01     .01       108.        *        1
1705  206     .00     .00     .00           5.
        1     0645   82      .02     .01     .01        89.        *        1
1710  207     .00     .00     .00           5.
        1     0650   83      .02     .01     .01        74.        *        1
1715  208     .00     .00     .00           5.
        1     0655   84      .02     .01     .02        62.        *        1
1720  209     .00     .00     .00           5.
        1     0700   85      .02     .01     .02        53.        *        1
1725  210     .00     .00     .00           5.
        1     0705   86      .01     .00     .01        46.        *        1
1730  211     .00     .00     .00           5.
        1     0710   87      .01     .00     .01        41.        *        1
1735  212     .00     .00     .00           5.
        1     0715   88      .01     .00     .01        37.        *        1
1740  213     .00     .00     .00           5.
        1     0720   89      .01     .00     .01        33.        *        1
1745  214     .00     .00     .00           5.
        1     0725   90      .01     .00     .01        30.        *        1
1750  215     .00     .00     .00           5.
        1     0730   91      .01     .00     .01        27.        *        1
1755  216     .00     .00     .00           5.
        1     0735   92      .01     .00     .01        25.        *        1
1800  217     .00     .00     .00           5.
        1     0740   93      .01     .00     .01        24.        *        1
1805  218     .00     .00     .00           5.
        1     0745   94      .01     .00     .01        23.        *        1
1810  219     .00     .00     .00           6.
        1     0750   95      .01     .00     .01        22.        *        1
1815  220     .00     .00     .00           6.
        1     0755   96      .01     .00     .01        21.        *        1
1820  221     .00     .00     .00           6.
        1     0800   97      .01     .00     .01        21.        *        1
1825  222     .00     .00     .00           6.
        1     0805   98      .01     .00     .01        21.        *        1
1830  223     .00     .00     .00           6.
        1     0810   99      .01     .00     .01        20.        *        1
1835  224     .00     .00     .00           6.
        1     0815  100      .01     .00     .01        19.        *        1
1840  225     .00     .00     .00           6.
        1     0820  101      .01     .00     .01        17.        *        1
1845  226     .00     .00     .00           6.
        1     0825  102      .01     .00     .01        16.        *        1
1850  227     .00     .00     .00           6.
        1     0830  103      .01     .00     .01        14.        *        1
1855  228     .00     .00     .00           6.
        1     0835  104      .01     .00     .01        13.        *        1
1900  229     .00     .00     .00           6.
        1     0840  105      .01     .00     .01        12.        *        1
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1905  230     .00     .00     .00         6.
         1    0845  106     .01     .00     .01         12.        *         1
1910  231     .00     .00     .00         6.
         1    0850  107     .01     .00     .01         11.        *         1
1915  232     .00     .00     .00         6.
         1    0855  108     .01     .00     .01         11.        *         1
1920  233     .00     .00     .00         6.
         1    0900  109     .01     .00     .01         11.        *         1
1925  234     .00     .00     .00         6.
         1    0905  110     .01     .00     .01         11.        *         1
1930  235     .00     .00     .00         6.
         1    0910  111     .01     .00     .01         11.        *         1
1935  236     .00     .00     .00         6.
         1    0915  112     .01     .00     .01         11.        *         1
1940  237     .00     .00     .00         6.
         1    0920  113     .01     .00     .01         10.        *         1
1945  238     .00     .00     .00         6.
         1    0925  114     .01     .00     .01         10.        *         1
1950  239     .00     .00     .00         6.
         1    0930  115     .01     .00     .01         10.        *         1
1955  240     .00     .00     .00         6.
         1    0935  116     .01     .00     .01         10.        *         1
2000  241     .00     .00     .00         6.
         1    0940  117     .01     .00     .01         10.        *         1
2005  242     .00     .00     .00         6.
         1    0945  118     .01     .00     .01         10.        *         1
2010  243     .00     .00     .00         5.
         1    0950  119     .01     .00     .01         10.        *         1
2015  244     .00     .00     .00         5.
         1    0955  120     .01     .00     .01         10.        *         1
2020  245     .00     .00     .00         5.
         1    1000  121     .01     .00     .01         10.        *         1
2025  246     .00     .00     .00         4.
         1    1005  122     .01     .00     .00         10.        *         1
2030  247     .00     .00     .00         4.
         1    1010  123     .01     .00     .00         10.        *         1
2035  248     .00     .00     .00         4.
         1    1015  124     .01     .00     .00         10.        *         1
2040  249     .00     .00     .00         3.
         1    1020  125     .01     .00     .00         10.        *         1
2045  250     .00     .00     .00         3.
                                                                   *

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     TOTAL RAINFALL =    4.40, TOTAL LOSS =    2.56, TOTAL EXCESS =    1.84

  PEAK FLOW     TIME                             MAXIMUM AVERAGE FLOW
                                         6-HR        24-HR        72-HR      20.75-HR
+   (CFS)       (HR)
                                 (CFS)
+     263.      6.25                      41.          15.          15.           15.
                              (INCHES)   1.493        1.834        1.834         1.834
                               (AC-FT)     20.          25.          25.           25.

                               CUMULATIVE AREA =     .26 SQ MI



 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
*** *** *** *** *** *** *** *** *** *** *** ***
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             *            *
  146 KK     *    DB7006  *
             *            *
             **************

  147 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           1  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                                          ROUTE BASIN 7005 THROUGH FSD DETENTION
BASIN 7006

                HYDROGRAPH ROUTING DATA

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

  150 SV            STORAGE          .0         .1         .2         .5        1.8
 2.7       3.8       5.1       6.7       8.4


  151 SE          ELEVATION     5746.10   5748.00   5749.00   5750.00   5752.00
5753.00   5754.00   5755.00   5756.00   5757.00


  152 SQ          DISCHARGE          0.         1.        19.        20.        59.
 76.       88.      105.      110.      115.


  153 SE          ELEVATION     5748.00   5752.50   5753.00   5753.50   5754.00
5754.50   5755.00   5756.00   5757.00   5758.00


                                                                  ***

                                              COMPUTED STORAGE-OUTFLOW-ELEVATION
DATA

             STORAGE         .00        .05        .20        .52       1.76       2.22
  2.69      3.25      3.81      4.47
             OUTFLOW         .00        .00        .22        .44        .89       1.00
 19.30     20.00     58.90     75.50
           ELEVATION     5746.10    5748.00    5749.00    5750.00    5752.00    5752.50
5753.00   5753.50   5754.00   5754.50

             STORAGE        5.12       6.65       8.43      10.21
             OUTFLOW       88.20     104.50     109.90     115.00
           ELEVATION     5755.00    5756.00    5757.00    5758.00

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                                                   HYDROGRAPH AT STATION   DB7006
                                                       PLAN 1,   RATIO =   .47
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                                            *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                            *
   *
   1     0000   1       0.       .0  5746.1 *  1     0700  85        1.       2.1
5752.3 *  1     1400 169       2.       2.3  5752.5
   1     0005   2       0.       .0  5746.1 *  1     0705  86        1.       2.1
5752.4 *  1     1405 170       2.       2.3  5752.5
   1     0010   3       0.       .0  5746.1 *  1     0710  87        1.       2.2
5752.5 *  1     1410 171       2.       2.3  5752.5
   1     0015   4       0.       .0  5746.1 *  1     0715  88        2.       2.2
5752.5 *  1     1415 172       2.       2.2  5752.5
   1     0020   5       0.       .0  5746.1 *  1     0720  89        3.       2.3
5752.6 *  1     1420 173       2.       2.2  5752.5
   1     0025   6       0.       .0  5746.1 *  1     0725  90        4.       2.3
5752.6 *  1     1425 174       2.       2.2  5752.5
   1     0030   7       0.       .0  5746.1 *  1     0730  91        5.       2.3
5752.6 *  1     1430 175       2.       2.2  5752.5
   1     0035   8       0.       .0  5746.1 *  1     0735  92        5.       2.3
5752.6 *  1     1435 176       2.       2.2  5752.5
   1     0040   9       0.       .0  5746.1 *  1     0740  93        5.       2.3
5752.6 *  1     1440 177       2.       2.2  5752.5
   1     0045  10       0.       .0  5746.1 *  1     0745  94        5.       2.3
5752.6 *  1     1445 178       2.       2.2  5752.5
   1     0050  11       0.       .0  5746.1 *  1     0750  95        5.       2.3
5752.6 *  1     1450 179       2.       2.2  5752.5
   1     0055  12       0.       .0  5746.1 *  1     0755  96        5.       2.3
5752.6 *  1     1455 180       2.       2.2  5752.5
   1     0100  13       0.       .0  5746.1 *  1     0800  97        5.       2.3
5752.6 *  1     1500 181       2.       2.2  5752.5
   1     0105  14       0.       .0  5746.1 *  1     0805  98        5.       2.3
5752.6 *  1     1505 182       2.       2.2  5752.5
   1     0110  15       0.       .0  5746.1 *  1     0810  99        5.       2.3
5752.6 *  1     1510 183       2.       2.2  5752.5
   1     0115  16       0.       .0  5746.1 *  1     0815 100        5.       2.3
5752.6 *  1     1515 184       2.       2.2  5752.5
   1     0120  17       0.       .0  5746.1 *  1     0820 101        5.       2.3
5752.6 *  1     1520 185       2.       2.2  5752.5
   1     0125  18       0.       .0  5746.1 *  1     0825 102        5.       2.3
5752.6 *  1     1525 186       2.       2.2  5752.5
   1     0130  19       0.       .0  5746.1 *  1     0830 103        5.       2.3
5752.6 *  1     1530 187       2.       2.2  5752.5
   1     0135  20       0.       .0  5746.1 *  1     0835 104        4.       2.3
5752.6 *  1     1535 188       2.       2.2  5752.5
   1     0140  21       0.       .0  5746.1 *  1     0840 105        4.       2.3
5752.6 *  1     1540 189       2.       2.2  5752.5
   1     0145  22       0.       .0  5746.1 *  1     0845 106        4.       2.3
5752.6 *  1     1545 190       2.       2.2  5752.5
   1     0150  23       0.       .0  5746.1 *  1     0850 107        4.       2.3
5752.6 *  1     1550 191       2.       2.2  5752.5
   1     0155  24       0.       .0  5746.1 *  1     0855 108        4.       2.3
5752.6 *  1     1555 192       2.       2.2  5752.5
   1     0200  25       0.       .0  5746.1 *  1     0900 109        3.       2.3
5752.6 *  1     1600 193       2.       2.2  5752.5
   1     0205  26       0.       .0  5746.1 *  1     0905 110        3.       2.3
5752.6 *  1     1605 194       2.       2.2  5752.5
   1     0210  27       0.       .0  5746.1 *  1     0910 111        3.       2.3
5752.6 *  1     1610 195       2.       2.2  5752.5
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   1     0215  28        0.       .0  5746.1 *  1     0915 112        3.      2.3
5752.6 *  1     1615 196       2.       2.2  5752.5
   1     0220  29        0.       .0  5746.1 *  1     0920 113        3.      2.3
5752.6 *  1     1620 197       2.       2.2  5752.5
   1     0225  30        0.       .0  5746.1 *  1     0925 114        3.      2.3
5752.6 *  1     1625 198       2.       2.2  5752.5
   1     0230  31        0.       .0  5746.1 *  1     0930 115        3.      2.3
5752.6 *  1     1630 199       2.       2.2  5752.5
   1     0235  32        0.       .0  5746.1 *  1     0935 116        3.      2.3
5752.6 *  1     1635 200       2.       2.2  5752.5
   1     0240  33        0.       .0  5746.1 *  1     0940 117        3.      2.3
5752.6 *  1     1640 201       2.       2.2  5752.5
   1     0245  34        0.       .0  5746.1 *  1     0945 118        3.      2.3
5752.5 *  1     1645 202       2.       2.2  5752.5
   1     0250  35        0.       .0  5746.1 *  1     0950 119        3.      2.3
5752.5 *  1     1650 203       2.       2.2  5752.5
   1     0255  36        0.       .0  5746.1 *  1     0955 120        3.      2.3
5752.5 *  1     1655 204       2.       2.2  5752.5
   1     0300  37        0.       .0  5746.1 *  1     1000 121        3.      2.3
5752.5 *  1     1700 205       2.       2.2  5752.5
   1     0305  38        0.       .0  5746.1 *  1     1005 122        3.      2.3
5752.5 *  1     1705 206       2.       2.2  5752.5
   1     0310  39        0.       .0  5746.1 *  1     1010 123        3.      2.3
5752.5 *  1     1710 207       2.       2.2  5752.5
   1     0315  40        0.       .0  5746.1 *  1     1015 124        3.      2.3
5752.5 *  1     1715 208       2.       2.2  5752.5
   1     0320  41        0.       .0  5746.1 *  1     1020 125        3.      2.3
5752.5 *  1     1720 209       2.       2.2  5752.5
   1     0325  42        0.       .0  5746.1 *  1     1025 126        3.      2.3
5752.5 *  1     1725 210       2.       2.2  5752.5
   1     0330  43        0.       .0  5746.1 *  1     1030 127        3.      2.3
5752.5 *  1     1730 211       2.       2.2  5752.5
   1     0335  44        0.       .0  5746.1 *  1     1035 128        3.      2.3
5752.5 *  1     1735 212       2.       2.2  5752.5
   1     0340  45        0.       .0  5746.1 *  1     1040 129        2.      2.3
5752.5 *  1     1740 213       2.       2.2  5752.5
   1     0345  46        0.       .0  5746.1 *  1     1045 130        2.      2.3
5752.5 *  1     1745 214       2.       2.2  5752.5
   1     0350  47        0.       .0  5746.1 *  1     1050 131        2.      2.3
5752.5 *  1     1750 215       2.       2.2  5752.5
   1     0355  48        0.       .0  5746.1 *  1     1055 132        2.      2.3
5752.5 *  1     1755 216       2.       2.2  5752.5
   1     0400  49        0.       .0  5746.1 *  1     1100 133        2.      2.3
5752.5 *  1     1800 217       2.       2.2  5752.5
   1     0405  50        0.       .0  5746.1 *  1     1105 134        2.      2.3
5752.5 *  1     1805 218       2.       2.2  5752.5
   1     0410  51        0.       .0  5746.1 *  1     1110 135        2.      2.3
5752.5 *  1     1810 219       2.       2.2  5752.5
   1     0415  52        0.       .0  5746.1 *  1     1115 136        2.      2.3
5752.5 *  1     1815 220       2.       2.2  5752.5
   1     0420  53        0.       .0  5746.1 *  1     1120 137        2.      2.3
5752.5 *  1     1820 221       2.       2.2  5752.5
   1     0425  54        0.       .0  5746.1 *  1     1125 138        2.      2.3
5752.5 *  1     1825 222       2.       2.2  5752.5
   1     0430  55        0.       .0  5746.1 *  1     1130 139        2.      2.3
5752.5 *  1     1830 223       2.       2.2  5752.5
   1     0435  56        0.       .0  5746.1 *  1     1135 140        2.      2.3
5752.5 *  1     1835 224       2.       2.2  5752.5
   1     0440  57        0.       .0  5746.1 *  1     1140 141        2.      2.3
5752.5 *  1     1840 225       2.       2.2  5752.5
   1     0445  58        0.       .0  5746.1 *  1     1145 142        2.      2.3
5752.5 *  1     1845 226       2.       2.2  5752.5
   1     0450  59        0.       .0  5746.1 *  1     1150 143        2.      2.3
```

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5752.5 *  1     1850 227       2.      2.2  5752.5
   1     0455  60       0.       .0  5746.1 *  1     1155 144       2.      2.3
5752.5 *  1     1855 228       2.      2.2  5752.5
   1     0500  61       0.       .0  5746.1 *  1     1200 145       2.      2.3
5752.5 *  1     1900 229       2.      2.2  5752.5
   1     0505  62       0.       .0  5746.1 *  1     1205 146       2.      2.3
5752.5 *  1     1905 230       2.      2.2  5752.5
   1     0510  63       0.       .0  5746.1 *  1     1210 147       2.      2.3
5752.5 *  1     1910 231       2.      2.2  5752.5
   1     0515  64       0.       .0  5746.1 *  1     1215 148       2.      2.3
5752.5 *  1     1915 232       2.      2.2  5752.5
   1     0520  65       0.       .0  5746.1 *  1     1220 149       2.      2.3
5752.5 *  1     1920 233       2.      2.2  5752.5
   1     0525  66       0.       .0  5746.1 *  1     1225 150       2.      2.3
5752.5 *  1     1925 234       2.      2.2  5752.5
   1     0530  67       0.       .0  5746.1 *  1     1230 151       2.      2.3
5752.5 *  1     1930 235       2.      2.2  5752.5
   1     0535  68       0.       .0  5746.1 *  1     1235 152       2.      2.3
5752.5 *  1     1935 236       2.      2.2  5752.5
   1     0540  69       0.       .0  5746.1 *  1     1240 153       2.      2.3
5752.5 *  1     1940 237       2.      2.2  5752.5
   1     0545  70       0.       .0  5746.1 *  1     1245 154       2.      2.3
5752.5 *  1     1945 238       2.      2.2  5752.5
   1     0550  71       0.       .0  5746.3 *  1     1250 155       2.      2.3
5752.5 *  1     1950 239       2.      2.2  5752.5
   1     0555  72       0.       .0  5747.0 *  1     1255 156       2.      2.3
5752.5 *  1     1955 240       2.      2.2  5752.5
   1     0600  73       0.       .1  5748.2 *  1     1300 157       2.      2.3
5752.5 *  1     2000 241       2.      2.2  5752.5
   1     0605  74       0.       .2  5748.9 *  1     1305 158       2.      2.3
5752.5 *  1     2005 242       2.      2.2  5752.5
   1     0610  75       0.       .4  5749.6 *  1     1310 159       2.      2.3
5752.5 *  1     2010 243       2.      2.2  5752.5
   1     0615  76       0.       .6  5750.2 *  1     1315 160       2.      2.3
5752.5 *  1     2015 244       2.      2.2  5752.5
   1     0620  77       1.       .9  5750.6 *  1     1320 161       2.      2.3
5752.5 *  1     2020 245       2.      2.2  5752.5
   1     0625  78       1.      1.1  5751.0 *  1     1325 162       2.      2.3
5752.5 *  1     2025 246       1.      2.2  5752.5
   1     0630  79       1.      1.3  5751.3 *  1     1330 163       2.      2.3
5752.5 *  1     2030 247       1.      2.2  5752.5
   1     0635  80       1.      1.5  5751.6 *  1     1335 164       2.      2.3
5752.5 *  1     2035 248       1.      2.2  5752.5
   1     0640  81       1.      1.7  5751.8 *  1     1340 165       2.      2.3
5752.5 *  1     2040 249       1.      2.2  5752.5
   1     0645  82       1.      1.8  5752.0 *  1     1345 166       2.      2.3
5752.5 *  1     2045 250       1.      2.2  5752.5
   1     0650  83       1.      1.9  5752.1 *  1     1350 167       2.      2.3
5752.5 *
   1     0655  84       1.      2.0  5752.2 *  1     1355 168       2.      2.3
5752.5 *
                                            *
   *

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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR      20.75-HR
+   (CFS)       (HR)
                           (CFS)
+       5.      7.83                    3.          2.          2.            2.
                        (INCHES)      .112        .194        .194          .194
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                              (AC-FT)        2.          3.          3.            3.

  PEAK STORAGE   TIME                              MAXIMUM AVERAGE STORAGE
                                             6-HR        24-HR       72-HR     20.75-HR
+  (AC-FT)       (HR)
        2.       7.75                          2.          2.          2.            2.

   PEAK STAGE    TIME                               MAXIMUM AVERAGE STAGE
                                             6-HR        24-HR       72-HR     20.75-HR
+   (FEET)       (HR)
    5752.62      7.83                     5752.56     5750.60     5750.60      5750.60

                              CUMULATIVE AREA =     .26 SQ MI


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                                                          HYDROGRAPH AT STATION   DB7006
                                                              PLAN 1,   RATIO =   .56


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                                                 *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                                 *
   *
   1     0000   1       0.        .0  5746.1 *  1     0700  85      20.       2.9
5753.1 *  1     1400 169       3.       2.3  5752.6
   1     0005   2       0.        .0  5746.1 *  1     0705  86      19.       2.8
5753.1 *  1     1405 170       3.       2.3  5752.5
   1     0010   3       0.        .0  5746.1 *  1     0710  87      19.       2.8
5753.1 *  1     1410 171       3.       2.3  5752.5
   1     0015   4       0.        .0  5746.1 *  1     0715  88      19.       2.8
5753.1 *  1     1415 172       3.       2.3  5752.5
   1     0020   5       0.        .0  5746.1 *  1     0720  89      19.       2.7
5753.0 *  1     1420 173       3.       2.3  5752.5
   1     0025   6       0.        .0  5746.1 *  1     0725  90      18.       2.7
5753.0 *  1     1425 174       3.       2.3  5752.5
   1     0030   7       0.        .0  5746.1 *  1     0730  91      16.       2.6
5752.9 *  1     1430 175       3.       2.3  5752.5
   1     0035   8       0.        .0  5746.1 *  1     0735  92      14.       2.6
5752.9 *  1     1435 176       3.       2.3  5752.5
   1     0040   9       0.        .0  5746.1 *  1     0740  93      13.       2.5
5752.8 *  1     1440 177       3.       2.3  5752.5
   1     0045  10       0.        .0  5746.1 *  1     0745  94      12.       2.5
5752.8 *  1     1445 178       3.       2.3  5752.5
   1     0050  11       0.        .0  5746.1 *  1     0750  95      11.       2.5
5752.8 *  1     1450 179       3.       2.3  5752.5
   1     0055  12       0.        .0  5746.1 *  1     0755  96      10.       2.5
5752.8 *  1     1455 180       3.       2.3  5752.5
   1     0100  13       0.        .0  5746.1 *  1     0800  97      10.       2.4
5752.7 *  1     1500 181       3.       2.3  5752.5
   1     0105  14       0.        .0  5746.1 *  1     0805  98       9.       2.4
5752.7 *  1     1505 182       3.       2.3  5752.5
   1     0110  15       0.        .0  5746.1 *  1     0810  99       9.       2.4
5752.7 *  1     1510 183       3.       2.3  5752.5
   1     0115  16       0.        .0  5746.1 *  1     0815 100       8.       2.4
5752.7 *  1     1515 184       3.       2.3  5752.5
```

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   1     0120  17       0.       .0  5746.1 *  1     0820 101       8.      2.4
5752.7 *  1     1520 185       3.      2.3  5752.5
   1     0125  18       0.       .0  5746.1 *  1     0825 102       8.      2.4
5752.7 *  1     1525 186       3.      2.3  5752.5
   1     0130  19       0.       .0  5746.1 *  1     0830 103       7.      2.4
5752.7 *  1     1530 187       2.      2.3  5752.5
   1     0135  20       0.       .0  5746.1 *  1     0835 104       7.      2.4
5752.7 *  1     1535 188       2.      2.3  5752.5
   1     0140  21       0.       .0  5746.1 *  1     0840 105       6.      2.4
5752.6 *  1     1540 189       2.      2.3  5752.5
   1     0145  22       0.       .0  5746.1 *  1     0845 106       6.      2.3
5752.6 *  1     1545 190       2.      2.3  5752.5
   1     0150  23       0.       .0  5746.1 *  1     0850 107       5.      2.3
5752.6 *  1     1550 191       2.      2.3  5752.5
   1     0155  24       0.       .0  5746.1 *  1     0855 108       5.      2.3
5752.6 *  1     1555 192       2.      2.3  5752.5
   1     0200  25       0.       .0  5746.1 *  1     0900 109       5.      2.3
5752.6 *  1     1600 193       2.      2.3  5752.5
   1     0205  26       0.       .0  5746.1 *  1     0905 110       5.      2.3
5752.6 *  1     1605 194       2.      2.3  5752.5
   1     0210  27       0.       .0  5746.1 *  1     0910 111       5.      2.3
5752.6 *  1     1610 195       2.      2.3  5752.5
   1     0215  28       0.       .0  5746.1 *  1     0915 112       4.      2.3
5752.6 *  1     1615 196       2.      2.3  5752.5
   1     0220  29       0.       .0  5746.1 *  1     0920 113       4.      2.3
5752.6 *  1     1620 197       2.      2.3  5752.5
   1     0225  30       0.       .0  5746.1 *  1     0925 114       4.      2.3
5752.6 *  1     1625 198       2.      2.3  5752.5
   1     0230  31       0.       .0  5746.1 *  1     0930 115       4.      2.3
5752.6 *  1     1630 199       2.      2.3  5752.5
   1     0235  32       0.       .0  5746.1 *  1     0935 116       4.      2.3
5752.6 *  1     1635 200       2.      2.3  5752.5
   1     0240  33       0.       .0  5746.1 *  1     0940 117       4.      2.3
5752.6 *  1     1640 201       2.      2.3  5752.5
   1     0245  34       0.       .0  5746.1 *  1     0945 118       4.      2.3
5752.6 *  1     1645 202       2.      2.3  5752.5
   1     0250  35       0.       .0  5746.1 *  1     0950 119       4.      2.3
5752.6 *  1     1650 203       2.      2.3  5752.5
   1     0255  36       0.       .0  5746.1 *  1     0955 120       4.      2.3
5752.6 *  1     1655 204       2.      2.3  5752.5
   1     0300  37       0.       .0  5746.1 *  1     1000 121       4.      2.3
5752.6 *  1     1700 205       2.      2.3  5752.5
   1     0305  38       0.       .0  5746.1 *  1     1005 122       4.      2.3
5752.6 *  1     1705 206       2.      2.3  5752.5
   1     0310  39       0.       .0  5746.1 *  1     1010 123       4.      2.3
5752.6 *  1     1710 207       2.      2.3  5752.5
   1     0315  40       0.       .0  5746.1 *  1     1015 124       4.      2.3
5752.6 *  1     1715 208       2.      2.3  5752.5
   1     0320  41       0.       .0  5746.1 *  1     1020 125       4.      2.3
5752.6 *  1     1720 209       2.      2.3  5752.5
   1     0325  42       0.       .0  5746.1 *  1     1025 126       4.      2.3
5752.6 *  1     1725 210       2.      2.3  5752.5
   1     0330  43       0.       .0  5746.1 *  1     1030 127       4.      2.3
5752.6 *  1     1730 211       2.      2.3  5752.5
   1     0335  44       0.       .0  5746.1 *  1     1035 128       4.      2.3
5752.6 *  1     1735 212       2.      2.3  5752.5
   1     0340  45       0.       .0  5746.1 *  1     1040 129       4.      2.3
5752.6 *  1     1740 213       2.      2.3  5752.5
   1     0345  46       0.       .0  5746.1 *  1     1045 130       3.      2.3
5752.6 *  1     1745 214       2.      2.3  5752.5
   1     0350  47       0.       .0  5746.1 *  1     1050 131       3.      2.3
5752.6 *  1     1750 215       2.      2.3  5752.5
   1     0355  48       0.       .0  5746.1 *  1     1055 132       3.      2.3
```

```
5752.6 *  1     1755 216       2.      2.3  5752.5
   1     0400  49       0.       .0  5746.1 *  1     1100 133       3.      2.3
5752.6 *  1     1800 217       2.      2.3  5752.5
   1     0405  50       0.       .0  5746.1 *  1     1105 134       3.      2.3
5752.6 *  1     1805 218       2.      2.3  5752.5
   1     0410  51       0.       .0  5746.1 *  1     1110 135       3.      2.3
5752.6 *  1     1810 219       2.      2.3  5752.5
   1     0415  52       0.       .0  5746.1 *  1     1115 136       3.      2.3
5752.6 *  1     1815 220       2.      2.3  5752.5
   1     0420  53       0.       .0  5746.1 *  1     1120 137       3.      2.3
5752.6 *  1     1820 221       2.      2.3  5752.5
   1     0425  54       0.       .0  5746.1 *  1     1125 138       3.      2.3
5752.6 *  1     1825 222       2.      2.3  5752.5
   1     0430  55       0.       .0  5746.1 *  1     1130 139       3.      2.3
5752.6 *  1     1830 223       2.      2.3  5752.5
   1     0435  56       0.       .0  5746.1 *  1     1135 140       3.      2.3
5752.6 *  1     1835 224       2.      2.3  5752.5
   1     0440  57       0.       .0  5746.1 *  1     1140 141       3.      2.3
5752.6 *  1     1840 225       2.      2.3  5752.5
   1     0445  58       0.       .0  5746.1 *  1     1145 142       3.      2.3
5752.6 *  1     1845 226       2.      2.3  5752.5
   1     0450  59       0.       .0  5746.1 *  1     1150 143       3.      2.3
5752.6 *  1     1850 227       2.      2.3  5752.5
   1     0455  60       0.       .0  5746.1 *  1     1155 144       3.      2.3
5752.6 *  1     1855 228       2.      2.3  5752.5
   1     0500  61       0.       .0  5746.1 *  1     1200 145       3.      2.3
5752.6 *  1     1900 229       2.      2.3  5752.5
   1     0505  62       0.       .0  5746.1 *  1     1205 146       3.      2.3
5752.6 *  1     1905 230       2.      2.3  5752.5
   1     0510  63       0.       .0  5746.1 *  1     1210 147       3.      2.3
5752.6 *  1     1910 231       2.      2.3  5752.5
   1     0515  64       0.       .0  5746.1 *  1     1215 148       3.      2.3
5752.6 *  1     1915 232       2.      2.3  5752.5
   1     0520  65       0.       .0  5746.1 *  1     1220 149       3.      2.3
5752.6 *  1     1920 233       2.      2.3  5752.5
   1     0525  66       0.       .0  5746.1 *  1     1225 150       3.      2.3
5752.6 *  1     1925 234       2.      2.3  5752.5
   1     0530  67       0.       .0  5746.1 *  1     1230 151       3.      2.3
5752.6 *  1     1930 235       2.      2.3  5752.5
   1     0535  68       0.       .0  5746.1 *  1     1235 152       3.      2.3
5752.6 *  1     1935 236       2.      2.3  5752.5
   1     0540  69       0.       .0  5746.1 *  1     1240 153       3.      2.3
5752.6 *  1     1940 237       2.      2.3  5752.5
   1     0545  70       0.       .0  5746.2 *  1     1245 154       3.      2.3
5752.6 *  1     1945 238       2.      2.3  5752.5
   1     0550  71       0.       .0  5746.7 *  1     1250 155       3.      2.3
5752.6 *  1     1950 239       2.      2.3  5752.5
   1     0555  72       0.       .1  5748.1 *  1     1255 156       3.      2.3
5752.6 *  1     1955 240       2.      2.3  5752.5
   1     0600  73       0.       .2  5748.9 *  1     1300 157       3.      2.3
5752.6 *  1     2000 241       2.      2.3  5752.5
   1     0605  74       0.       .4  5749.7 *  1     1305 158       3.      2.3
5752.6 *  1     2005 242       2.      2.3  5752.5
   1     0610  75       1.       .8  5750.4 *  1     1310 159       3.      2.3
5752.6 *  1     2010 243       2.      2.3  5752.5
   1     0615  76       1.      1.2  5751.1 *  1     1315 160       3.      2.3
5752.6 *  1     2015 244       2.      2.3  5752.5
   1     0620  77       1.      1.6  5751.8 *  1     1320 161       3.      2.3
5752.6 *  1     2020 245       2.      2.3  5752.5
   1     0625  78       1.      2.1  5752.3 *  1     1325 162       3.      2.3
5752.6 *  1     2025 246       2.      2.3  5752.5
   1     0630  79       8.      2.4  5752.7 *  1     1330 163       3.      2.3
5752.6 *  1     2030 247       2.      2.2  5752.5
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   1     0635  80      16.      2.6  5752.9 *  1     1335 164       3.       2.3
5752.6 *  1     2035 248       2.      2.2  5752.5
   1     0640  81      19.      2.7  5753.0 *  1     1340 165       3.       2.3
5752.6 *  1     2040 249       2.      2.2  5752.5
   1     0645  82      19.      2.8  5753.1 *  1     1345 166       3.       2.3
5752.6 *  1     2045 250       2.      2.2  5752.5
   1     0650  83      19.      2.8  5753.1 *  1     1350 167       3.       2.3
5752.6 *
   1     0655  84      20.      2.9  5753.2 *  1     1355 168       3.       2.3
5752.6 *
                                            *
   *

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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+      20.      6.92                    7.          3.          3.           3.
                        (INCHES)      .268        .393        .393         .393
                         (AC-FT)        4.          5.          5.           5.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     20.75-HR
+  (AC-FT)      (HR)
        3.      6.92                    2.          2.          2.           2.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     20.75-HR
+   (FEET)      (HR)
   5753.15      6.92               5752.69     5750.69     5750.69      5750.69

                         CUMULATIVE AREA =     .26 SQ MI


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                                                   HYDROGRAPH AT STATION   DB7006
                                                       PLAN 1,   RATIO =   .70


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                                            *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                            *
   *
   1     0000   1       0.       .0  5746.1 *  1     0700  85      41.       3.5
5753.8 *  1     1400 169       4.      2.3  5752.6
   1     0005   2       0.       .0  5746.1 *  1     0705  86      35.       3.5
5753.7 *  1     1405 170       4.      2.3  5752.6
   1     0010   3       0.       .0  5746.1 *  1     0710  87      31.       3.4
5753.6 *  1     1410 171       4.      2.3  5752.6
   1     0015   4       0.       .0  5746.1 *  1     0715  88      27.       3.3
5753.6 *  1     1415 172       4.      2.3  5752.6
   1     0020   5       0.       .0  5746.1 *  1     0720  89      24.       3.3
5753.5 *  1     1420 173       4.      2.3  5752.6
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   1     0025   6        0.        .0  5746.1 *  1     0725  90       21.       3.3
5753.5 *  1     1425 174       4.      2.3  5752.6
   1     0030   7        0.        .0  5746.1 *  1     0730  91       20.       3.2
5753.5 *  1     1430 175       4.      2.3  5752.6
   1     0035   8        0.        .0  5746.1 *  1     0735  92       20.       3.2
5753.5 *  1     1435 176       4.      2.3  5752.6
   1     0040   9        0.        .0  5746.1 *  1     0740  93       20.       3.2
5753.4 *  1     1440 177       4.      2.3  5752.6
   1     0045   10       0.        .0  5746.1 *  1     0745  94       20.       3.1
5753.4 *  1     1445 178       4.      2.3  5752.6
   1     0050   11       0.        .0  5746.1 *  1     0750  95       20.       3.1
5753.3 *  1     1450 179       4.      2.3  5752.6
   1     0055   12       0.        .0  5746.1 *  1     0755  96       20.       3.0
5753.3 *  1     1455 180       4.      2.3  5752.6
   1     0100   13       0.        .0  5746.1 *  1     0800  97       20.       2.9
5753.2 *  1     1500 181       4.      2.3  5752.6
   1     0105   14       0.        .0  5746.1 *  1     0805  98       20.       2.9
5753.2 *  1     1505 182       4.      2.3  5752.6
   1     0110   15       0.        .0  5746.1 *  1     0810  99       19.       2.8
5753.1 *  1     1510 183       4.      2.3  5752.6
   1     0115   16       0.        .0  5746.1 *  1     0815 100       19.       2.8
5753.1 *  1     1515 184       4.      2.3  5752.6
   1     0120   17       0.        .0  5746.1 *  1     0820 101       19.       2.7
5753.0 *  1     1520 185       4.      2.3  5752.6
   1     0125   18       0.        .0  5746.1 *  1     0825 102       18.       2.6
5753.0 *  1     1525 186       4.      2.3  5752.6
   1     0130   19       0.        .0  5746.1 *  1     0830 103       15.       2.6
5752.9 *  1     1530 187       4.      2.3  5752.6
   1     0135   20       0.        .0  5746.1 *  1     0835 104       14.       2.5
5752.8 *  1     1535 188       4.      2.3  5752.6
   1     0140   21       0.        .0  5746.1 *  1     0840 105       12.       2.5
5752.8 *  1     1540 189       4.      2.3  5752.6
   1     0145   22       0.        .0  5746.1 *  1     0845 106       11.       2.5
5752.8 *  1     1545 190       3.      2.3  5752.6
   1     0150   23       0.        .0  5746.1 *  1     0850 107       10.       2.4
5752.7 *  1     1550 191       3.      2.3  5752.6
   1     0155   24       0.        .0  5746.1 *  1     0855 108        9.       2.4
5752.7 *  1     1555 192       3.      2.3  5752.6
   1     0200   25       0.        .0  5746.1 *  1     0900 109        8.       2.4
5752.7 *  1     1600 193       3.      2.3  5752.6
   1     0205   26       0.        .0  5746.1 *  1     0905 110        8.       2.4
5752.7 *  1     1605 194       3.      2.3  5752.6
   1     0210   27       0.        .0  5746.1 *  1     0910 111        7.       2.4
5752.7 *  1     1610 195       3.      2.3  5752.6
   1     0215   28       0.        .0  5746.1 *  1     0915 112        7.       2.4
5752.7 *  1     1615 196       3.      2.3  5752.6
   1     0220   29       0.        .0  5746.1 *  1     0920 113        7.       2.4
5752.7 *  1     1620 197       3.      2.3  5752.6
   1     0225   30       0.        .0  5746.1 *  1     0925 114        7.       2.4
5752.7 *  1     1625 198       3.      2.3  5752.6
   1     0230   31       0.        .0  5746.1 *  1     0930 115        6.       2.4
5752.6 *  1     1630 199       3.      2.3  5752.6
   1     0235   32       0.        .0  5746.1 *  1     0935 116        6.       2.4
5752.6 *  1     1635 200       3.      2.3  5752.6
   1     0240   33       0.        .0  5746.1 *  1     0940 117        6.       2.4
5752.6 *  1     1640 201       3.      2.3  5752.6
   1     0245   34       0.        .0  5746.1 *  1     0945 118        6.       2.4
5752.6 *  1     1645 202       3.      2.3  5752.6
   1     0250   35       0.        .0  5746.1 *  1     0950 119        6.       2.4
5752.6 *  1     1650 203       3.      2.3  5752.6
   1     0255   36       0.        .0  5746.1 *  1     0955 120        6.       2.4
5752.6 *  1     1655 204       3.      2.3  5752.6
   1     0300   37       0.        .0  5746.1 *  1     1000 121        6.       2.4
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5752.6 *  1     1700 205       3.       2.3  5752.6
   1     0305  38        0.        .0  5746.1 *  1     1005 122       6.      2.4
5752.6 *  1     1705 206       3.       2.3  5752.6
   1     0310  39        0.        .0  5746.1 *  1     1010 123       6.      2.4
5752.6 *  1     1710 207       3.       2.3  5752.6
   1     0315  40        0.        .0  5746.1 *  1     1015 124       6.      2.4
5752.6 *  1     1715 208       3.       2.3  5752.6
   1     0320  41        0.        .0  5746.1 *  1     1020 125       6.      2.3
5752.6 *  1     1720 209       3.       2.3  5752.6
   1     0325  42        0.        .0  5746.1 *  1     1025 126       6.      2.3
5752.6 *  1     1725 210       3.       2.3  5752.6
   1     0330  43        0.        .0  5746.1 *  1     1030 127       6.      2.3
5752.6 *  1     1730 211       3.       2.3  5752.6
   1     0335  44        0.        .0  5746.1 *  1     1035 128       5.      2.3
5752.6 *  1     1735 212       3.       2.3  5752.6
   1     0340  45        0.        .0  5746.1 *  1     1040 129       5.      2.3
5752.6 *  1     1740 213       3.       2.3  5752.6
   1     0345  46        0.        .0  5746.1 *  1     1045 130       5.      2.3
5752.6 *  1     1745 214       3.       2.3  5752.6
   1     0350  47        0.        .0  5746.1 *  1     1050 131       5.      2.3
5752.6 *  1     1750 215       3.       2.3  5752.6
   1     0355  48        0.        .0  5746.1 *  1     1055 132       5.      2.3
5752.6 *  1     1755 216       3.       2.3  5752.6
   1     0400  49        0.        .0  5746.1 *  1     1100 133       5.      2.3
5752.6 *  1     1800 217       3.       2.3  5752.6
   1     0405  50        0.        .0  5746.1 *  1     1105 134       5.      2.3
5752.6 *  1     1805 218       3.       2.3  5752.6
   1     0410  51        0.        .0  5746.1 *  1     1110 135       5.      2.3
5752.6 *  1     1810 219       3.       2.3  5752.6
   1     0415  52        0.        .0  5746.1 *  1     1115 136       5.      2.3
5752.6 *  1     1815 220       3.       2.3  5752.6
   1     0420  53        0.        .0  5746.1 *  1     1120 137       5.      2.3
5752.6 *  1     1820 221       3.       2.3  5752.6
   1     0425  54        0.        .0  5746.1 *  1     1125 138       5.      2.3
5752.6 *  1     1825 222       3.       2.3  5752.6
   1     0430  55        0.        .0  5746.1 *  1     1130 139       5.      2.3
5752.6 *  1     1830 223       3.       2.3  5752.6
   1     0435  56        0.        .0  5746.1 *  1     1135 140       5.      2.3
5752.6 *  1     1835 224       3.       2.3  5752.6
   1     0440  57        0.        .0  5746.1 *  1     1140 141       5.      2.3
5752.6 *  1     1840 225       3.       2.3  5752.6
   1     0445  58        0.        .0  5746.1 *  1     1145 142       5.      2.3
5752.6 *  1     1845 226       3.       2.3  5752.6
   1     0450  59        0.        .0  5746.1 *  1     1150 143       5.      2.3
5752.6 *  1     1850 227       3.       2.3  5752.6
   1     0455  60        0.        .0  5746.1 *  1     1155 144       5.      2.3
5752.6 *  1     1855 228       3.       2.3  5752.6
   1     0500  61        0.        .0  5746.1 *  1     1200 145       5.      2.3
5752.6 *  1     1900 229       3.       2.3  5752.6
   1     0505  62        0.        .0  5746.1 *  1     1205 146       5.      2.3
5752.6 *  1     1905 230       3.       2.3  5752.6
   1     0510  63        0.        .0  5746.1 *  1     1210 147       5.      2.3
5752.6 *  1     1910 231       3.       2.3  5752.6
   1     0515  64        0.        .0  5746.1 *  1     1215 148       5.      2.3
5752.6 *  1     1915 232       3.       2.3  5752.6
   1     0520  65        0.        .0  5746.1 *  1     1220 149       5.      2.3
5752.6 *  1     1920 233       3.       2.3  5752.6
   1     0525  66        0.        .0  5746.1 *  1     1225 150       5.      2.3
5752.6 *  1     1925 234       3.       2.3  5752.6
   1     0530  67        0.        .0  5746.1 *  1     1230 151       5.      2.3
5752.6 *  1     1930 235       3.       2.3  5752.6
   1     0535  68        0.        .0  5746.1 *  1     1235 152       5.      2.3
5752.6 *  1     1935 236       3.       2.3  5752.6
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   1     0540  69       0.        .0  5746.1 *  1     1240 153        5.      2.3
5752.6 *  1    1940 237       3.       2.3  5752.6
   1     0545  70       0.        .0  5746.6 *  1     1245 154        5.      2.3
5752.6 *  1    1945 238       3.       2.3  5752.6
   1     0550  71       0.        .1  5748.1 *  1     1250 155        5.      2.3
5752.6 *  1    1950 239       3.       2.3  5752.6
   1     0555  72       0.        .2  5748.9 *  1     1255 156        5.      2.3
5752.6 *  1    1955 240       3.       2.3  5752.6
   1     0600  73       0.        .5  5749.8 *  1     1300 157        5.      2.3
5752.6 *  1    2000 241       3.       2.3  5752.6
   1     0605  74       1.        .9  5750.7 *  1     1305 158        5.      2.3
5752.6 *  1    2005 242       3.       2.3  5752.6
   1     0610  75       1.       1.6  5751.7 *  1     1310 159        5.      2.3
5752.6 *  1    2010 243       3.       2.3  5752.6
   1     0615  76       7.       2.4  5752.7 *  1     1315 160        5.      2.3
5752.6 *  1    2015 244       3.       2.3  5752.6
   1     0620  77      20.       3.1  5753.4 *  1     1320 161        5.      2.3
5752.6 *  1    2020 245       3.       2.3  5752.6
   1     0625  78      45.       3.6  5753.8 *  1     1325 162        5.      2.3
5752.6 *  1    2025 246       3.       2.3  5752.6
   1     0630  79      61.       3.9  5754.1 *  1     1330 163        4.      2.3
5752.6 *  1    2030 247       3.       2.3  5752.6
   1     0635  80      63.       4.0  5754.1 *  1     1335 164        4.      2.3
5752.6 *  1    2035 248       3.       2.3  5752.5
   1     0640  81      62.       3.9  5754.1 *  1     1340 165        4.      2.3
5752.6 *  1    2040 249       3.       2.3  5752.5
   1     0645  82      60.       3.9  5754.0 *  1     1345 166        4.      2.3
5752.6 *  1    2045 250       2.       2.3  5752.5
   1     0650  83      55.       3.8  5754.0 *  1     1350 167        4.      2.3
5752.6 *
   1     0655  84      47.       3.6  5753.9 *  1     1355 168        4.      2.3
5752.6 *
                                            *
   *

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  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR     20.75-HR

+   (CFS)       (HR)
                                 (CFS)
+      63.      6.58                    16.           6.           6.           6.
                              (INCHES)  .564         .752         .752         .752
                               (AC-FT)    8.          10.          10.          10.

 PEAK STORAGE   TIME                           MAXIMUM AVERAGE STORAGE
                                        6-HR        24-HR        72-HR     20.75-HR

+  (AC-FT)      (HR)
        4.      6.58                      3.           2.           2.           2.

  PEAK STAGE    TIME                            MAXIMUM AVERAGE STAGE
                                        6-HR        24-HR        72-HR     20.75-HR

+   (FEET)      (HR)
   5754.12      6.58                 5752.97      5750.82      5750.82      5750.82

                         CUMULATIVE AREA =     .26 SQ MI


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                                                   HYDROGRAPH AT STATION   DB7006
                                                       PLAN 1,   RATIO =  1.00


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                                            *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                            *
   *
   1     0000   1       0.       .0  5746.1 *  1     0700  85     106.      7.2
5756.3 *  1     1400 169      7.      2.4  5752.7
   1     0005   2       0.       .0  5746.1 *  1     0705  86     105.      6.8
5756.1 *  1     1405 170      7.      2.4  5752.7
   1     0010   3       0.       .0  5746.1 *  1     0710  87     102.      6.4
5755.8 *  1     1410 171      7.      2.4  5752.7
   1     0015   4       0.       .0  5746.1 *  1     0715  88      97.      6.0
5755.6 *  1     1415 172      7.      2.4  5752.7
   1     0020   5       0.       .0  5746.1 *  1     0720  89      93.      5.6
5755.3 *  1     1420 173      7.      2.4  5752.7
   1     0025   6       0.       .0  5746.1 *  1     0725  90      89.      5.2
5755.0 *  1     1425 174      7.      2.4  5752.7
   1     0030   7       0.       .0  5746.1 *  1     0730  91      81.      4.8
5754.7 *  1     1430 175      7.      2.4  5752.7
   1     0035   8       0.       .0  5746.1 *  1     0735  92      74.      4.4
5754.5 *  1     1435 176      7.      2.4  5752.7
   1     0040   9       0.       .0  5746.1 *  1     0740  93      66.      4.1
5754.2 *  1     1440 177      7.      2.4  5752.7
   1     0045  10       0.       .0  5746.1 *  1     0745  94      59.      3.8
5754.0 *  1     1445 178      7.      2.4  5752.7
   1     0050  11       0.       .0  5746.1 *  1     0750  95      45.      3.6
5753.8 *  1     1450 179      7.      2.4  5752.7
   1     0055  12       0.       .0  5746.1 *  1     0755  96      36.      3.5
5753.7 *  1     1455 180      7.      2.4  5752.7
   1     0100  13       0.       .0  5746.1 *  1     0800  97      30.      3.4
5753.6 *  1     1500 181      7.      2.4  5752.7
   1     0105  14       0.       .0  5746.1 *  1     0805  98      27.      3.3
5753.6 *  1     1505 182      7.      2.4  5752.7
   1     0110  15       0.       .0  5746.1 *  1     0810  99      24.      3.3
5753.6 *  1     1510 183      7.      2.4  5752.7
   1     0115  16       0.       .0  5746.1 *  1     0815 100      22.      3.3
5753.5 *  1     1515 184      7.      2.4  5752.7
   1     0120  17       0.       .0  5746.1 *  1     0820 101      21.      3.3
5753.5 *  1     1520 185      6.      2.4  5752.6
   1     0125  18       0.       .0  5746.1 *  1     0825 102      20.      3.2
5753.5 *  1     1525 186      6.      2.4  5752.6
   1     0130  19       0.       .0  5746.1 *  1     0830 103      20.      3.2
5753.5 *  1     1530 187      6.      2.4  5752.6
   1     0135  20       0.       .0  5746.1 *  1     0835 104      20.      3.2
5753.4 *  1     1535 188      6.      2.4  5752.6
   1     0140  21       0.       .0  5746.1 *  1     0840 105      20.      3.1
5753.4 *  1     1540 189      6.      2.4  5752.6
   1     0145  22       0.       .0  5746.1 *  1     0845 106      20.      3.1
5753.3 *  1     1545 190      6.      2.4  5752.6
   1     0150  23       0.       .0  5746.1 *  1     0850 107      20.      3.0
5753.3 *  1     1550 191      6.      2.3  5752.6
   1     0155  24       0.       .0  5746.1 *  1     0855 108      20.      2.9
5753.2 *  1     1555 192      6.      2.3  5752.6
   1     0200  25       0.       .0  5746.1 *  1     0900 109      20.      2.9
5753.2 *  1     1600 193      6.      2.3  5752.6
   1     0205  26       0.       .0  5746.1 *  1     0905 110      19.      2.8
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5753.1 *  1     1605 194       6.       2.3  5752.6
   1     0210  27        0.         .0  5746.1 *  1     0910 111       19.      2.8
5753.1 *  1     1610 195       6.       2.3  5752.6
   1     0215  28        0.         .0  5746.1 *  1     0915 112       19.      2.7
5753.0 *  1     1615 196       6.       2.3  5752.6
   1     0220  29        0.         .0  5746.1 *  1     0920 113       18.      2.6
5753.0 *  1     1620 197       6.       2.3  5752.6
   1     0225  30        0.         .0  5746.1 *  1     0925 114       16.      2.6
5752.9 *  1     1625 198       6.       2.3  5752.6
   1     0230  31        0.         .0  5746.1 *  1     0930 115       15.      2.6
5752.9 *  1     1630 199       6.       2.3  5752.6
   1     0235  32        0.         .0  5746.1 *  1     0935 116       14.      2.5
5752.8 *  1     1635 200       6.       2.3  5752.6
   1     0240  33        0.         .0  5746.1 *  1     0940 117       13.      2.5
5752.8 *  1     1640 201       5.       2.3  5752.6
   1     0245  34        0.         .0  5746.1 *  1     0945 118       12.      2.5
5752.8 *  1     1645 202       5.       2.3  5752.6
   1     0250  35        0.         .0  5746.1 *  1     0950 119       12.      2.5
5752.8 *  1     1650 203       5.       2.3  5752.6
   1     0255  36        0.         .0  5746.1 *  1     0955 120       12.      2.5
5752.8 *  1     1655 204       5.       2.3  5752.6
   1     0300  37        0.         .0  5746.1 *  1     1000 121       11.      2.5
5752.8 *  1     1700 205       5.       2.3  5752.6
   1     0305  38        0.         .0  5746.1 *  1     1005 122       11.      2.5
5752.8 *  1     1705 206       5.       2.3  5752.6
   1     0310  39        0.         .0  5746.1 *  1     1010 123       11.      2.5
5752.8 *  1     1710 207       5.       2.3  5752.6
   1     0315  40        0.         .0  5746.1 *  1     1015 124       11.      2.5
5752.8 *  1     1715 208       5.       2.3  5752.6
   1     0320  41        0.         .0  5746.1 *  1     1020 125       11.      2.5
5752.8 *  1     1720 209       5.       2.3  5752.6
   1     0325  42        0.         .0  5746.1 *  1     1025 126       10.      2.5
5752.8 *  1     1725 210       5.       2.3  5752.6
   1     0330  43        0.         .0  5746.1 *  1     1030 127       10.      2.5
5752.7 *  1     1730 211       5.       2.3  5752.6
   1     0335  44        0.         .0  5746.1 *  1     1035 128       10.      2.4
5752.7 *  1     1735 212       5.       2.3  5752.6
   1     0340  45        0.         .0  5746.1 *  1     1040 129        9.      2.4
5752.7 *  1     1740 213       5.       2.3  5752.6
   1     0345  46        0.         .0  5746.1 *  1     1045 130        9.      2.4
5752.7 *  1     1745 214       5.       2.3  5752.6
   1     0350  47        0.         .0  5746.1 *  1     1050 131        9.      2.4
5752.7 *  1     1750 215       5.       2.3  5752.6
   1     0355  48        0.         .0  5746.1 *  1     1055 132        9.      2.4
5752.7 *  1     1755 216       5.       2.3  5752.6
   1     0400  49        0.         .0  5746.1 *  1     1100 133        9.      2.4
5752.7 *  1     1800 217       5.       2.3  5752.6
   1     0405  50        0.         .0  5746.1 *  1     1105 134        8.      2.4
5752.7 *  1     1805 218       5.       2.3  5752.6
   1     0410  51        0.         .0  5746.1 *  1     1110 135        8.      2.4
5752.7 *  1     1810 219       5.       2.3  5752.6
   1     0415  52        0.         .0  5746.1 *  1     1115 136        8.      2.4
5752.7 *  1     1815 220       5.       2.3  5752.6
   1     0420  53        0.         .0  5746.1 *  1     1120 137        8.      2.4
5752.7 *  1     1820 221       5.       2.3  5752.6
   1     0425  54        0.         .0  5746.1 *  1     1125 138        8.      2.4
5752.7 *  1     1825 222       5.       2.3  5752.6
   1     0430  55        0.         .0  5746.1 *  1     1130 139        8.      2.4
5752.7 *  1     1830 223       6.       2.3  5752.6
   1     0435  56        0.         .0  5746.1 *  1     1135 140        8.      2.4
5752.7 *  1     1835 224       6.       2.3  5752.6
   1     0440  57        0.         .0  5746.1 *  1     1140 141        8.      2.4
5752.7 *  1     1840 225       6.       2.3  5752.6
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  1     0445  58       0.       .0  5746.1 *  1     1145 142       8.      2.4
5752.7 *  1    1845 226       6.       2.3  5752.6
  1     0450  59       0.       .0  5746.1 *  1     1150 143       8.      2.4
5752.7 *  1    1850 227       6.       2.3  5752.6
  1     0455  60       0.       .0  5746.1 *  1     1155 144       8.      2.4
5752.7 *  1    1855 228       6.       2.3  5752.6
  1     0500  61       0.       .0  5746.1 *  1     1200 145       8.      2.4
5752.7 *  1    1900 229       6.       2.3  5752.6
  1     0505  62       0.       .0  5746.1 *  1     1205 146       8.      2.4
5752.7 *  1    1905 230       6.       2.3  5752.6
  1     0510  63       0.       .0  5746.1 *  1     1210 147       8.      2.4
5752.7 *  1    1910 231       6.       2.3  5752.6
  1     0515  64       0.       .0  5746.1 *  1     1215 148       8.      2.4
5752.7 *  1    1915 232       6.       2.3  5752.6
  1     0520  65       0.       .0  5746.1 *  1     1220 149       8.      2.4
5752.7 *  1    1920 233       6.       2.3  5752.6
  1     0525  66       0.       .0  5746.1 *  1     1225 150       8.      2.4
5752.7 *  1    1925 234       6.       2.3  5752.6
  1     0530  67       0.       .0  5746.1 *  1     1230 151       8.      2.4
5752.7 *  1    1930 235       6.       2.3  5752.6
  1     0535  68       0.       .0  5746.1 *  1     1235 152       8.      2.4
5752.7 *  1    1935 236       6.       2.3  5752.6
  1     0540  69       0.       .0  5746.6 *  1     1240 153       8.      2.4
5752.7 *  1    1940 237       6.       2.3  5752.6
  1     0545  70       0.       .1  5748.2 *  1     1245 154       8.      2.4
5752.7 *  1    1945 238       6.       2.3  5752.6
  1     0550  71       0.       .3  5749.2 *  1     1250 155       8.      2.4
5752.7 *  1    1950 239       6.       2.3  5752.6
  1     0555  72       1.       .7  5750.3 *  1     1255 156       8.      2.4
5752.7 *  1    1955 240       6.       2.3  5752.6
  1     0600  73       1.      1.5  5751.5 *  1     1300 157       8.      2.4
5752.7 *  1    2000 241       6.       2.3  5752.6
  1     0605  74      16.      2.6  5752.9 *  1     1305 158       8.      2.4
5752.7 *  1    2005 242       6.       2.3  5752.6
  1     0610  75      61.      3.9  5754.1 *  1     1310 159       8.      2.4
5752.7 *  1    2010 243       6.       2.3  5752.6
  1     0615  76      89.      5.2  5755.0 *  1     1315 160       8.      2.4
5752.7 *  1    2015 244       5.       2.3  5752.6
  1     0620  77     100.      6.2  5755.7 *  1     1320 161       8.      2.4
5752.7 *  1    2020 245       5.       2.3  5752.6
  1     0625  78     106.      7.1  5756.3 *  1     1325 162       8.      2.4
5752.7 *  1    2025 246       5.       2.3  5752.6
  1     0630  79     108.      7.7  5756.6 *  1     1330 163       8.      2.4
5752.7 *  1    2030 247       5.       2.3  5752.6
  1     0635  80     108.      8.0  5756.7 *  1     1335 164       8.      2.4
5752.7 *  1    2035 248       5.       2.3  5752.6
  1     0640  81     109.      8.0  5756.8 *  1     1340 165       8.      2.4
5752.7 *  1    2040 249       4.       2.3  5752.6
  1     0645  82     109.      8.0  5756.7 *  1     1345 166       7.      2.4
5752.7 *  1    2045 250       4.       2.3  5752.6
  1     0650  83     108.      7.8  5756.6 *  1     1350 167       7.      2.4
5752.7 *
  1     0655  84     107.      7.5  5756.5 *  1     1355 168       7.      2.4
5752.7 *
                                            *
  *

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  PEAK FLOW     TIME                         MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR       72-HR     20.75-HR

+   (CFS)       (HR)
```

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                                  (CFS)
+     109.      6.67                        37.          13.          13.           13.
                               (INCHES)     1.334        1.666        1.666         1.666
                                (AC-FT)       18.          23.          23.           23.

 PEAK STORAGE   TIME                                 MAXIMUM AVERAGE STORAGE
                                             6-HR         24-HR        72-HR     20.75-HR
+  (AC-FT)      (HR)
         8.     6.67                          4.           2.           2.            2.

  PEAK STAGE    TIME                                 MAXIMUM AVERAGE STAGE
                                             6-HR         24-HR        72-HR     20.75-HR
+   (FEET)      (HR)
   5756.78      6.67                      5753.72      5751.11      5751.11       5751.11

                                 CUMULATIVE AREA =      .26 SQ MI


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


             **************
             *            *
  181 KK     *    E7040   *
             *            *
             **************

  183 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           5  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE


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


             **************
             *            *
  204 KK     *    E8005   *
             *            *
             **************

  205 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           1  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                                          RUNOFF FROM BAS 8005


                SUBBASIN RUNOFF DATA

  207 BA          SUBBASIN CHARACTERISTICS
                        TAREA         .10  SUBBASIN AREA

                  PRECIPITATION DATA
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   22 PB                STORM        4.40  BASIN TOTAL PRECIPITATION

   23 PI            INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .01       .01       .01       .01       .01
.10       .10       .10       .10
                        .10       .10       .01       .01       .01       .01
.01       .01       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00
.00       .00       .00

  208 LS          SCS LOSS RATE
                        STRTL         .35  INITIAL ABSTRACTION
                       CRVNBR       85.00  CURVE NUMBER
                        RTIMP         .00  PERCENT IMPERVIOUS AREA

  209 UD          SCS DIMENSIONLESS UNITGRAPH
                         TLAG         .10  LAG

                                                                  ***
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 WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

                                                                   UNIT HYDROGRAPH
                                                               8 END-OF-PERIOD ORDINATES
               215.      336.      154.       62.       24.        9.        4.
   1.


***********************************************************************************
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                                                           HYDROGRAPH AT STATION    E8005


***********************************************************************************
***********************************************
                                                                         *
        DA MON HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q              *       DA MON
HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q
                                                                         *
         1     0000   1     .00     .00     .00          0.              *         1
1025  126     .01     .00     .00         4.
         1     0005   2     .00     .00     .00          0.              *         1
1030  127     .01     .00     .00         4.
         1     0010   3     .00     .00     .00          0.              *         1
1035  128     .01     .00     .01         4.
         1     0015   4     .00     .00     .00          0.              *         1
1040  129     .01     .00     .01         4.
         1     0020   5     .00     .00     .00          0.              *         1
1045  130     .01     .00     .01         4.
         1     0025   6     .00     .00     .00          0.              *         1
1050  131     .01     .00     .00         4.
         1     0030   7     .00     .00     .00          0.              *         1
1055  132     .01     .00     .00         4.
         1     0035   8     .00     .00     .00          0.              *         1
1100  133     .01     .00     .00         4.
         1     0040   9     .00     .00     .00          0.              *         1
1105  134     .01     .00     .01         4.
         1     0045  10     .00     .00     .00          0.              *         1
1110  135     .01     .00     .01         4.
         1     0050  11     .00     .00     .00          0.              *         1
1115  136     .01     .00     .01         4.
         1     0055  12     .00     .00     .00          0.              *         1
1120  137     .01     .00     .00         4.
         1     0100  13     .00     .00     .00          0.              *         1
1125  138     .01     .00     .00         4.
         1     0105  14     .00     .00     .00          0.              *         1
1130  139     .01     .00     .00         4.
         1     0110  15     .00     .00     .00          0.              *         1
1135  140     .01     .00     .01         4.
         1     0115  16     .00     .00     .00          0.              *         1
1140  141     .01     .00     .01         4.
         1     0120  17     .00     .00     .00          0.              *         1
1145  142     .01     .00     .01         4.
         1     0125  18     .00     .00     .00          0.              *         1
1150  143     .01     .00     .00         4.
         1     0130  19     .00     .00     .00          0.              *         1
1155  144     .01     .00     .00         4.
         1     0135  20     .00     .00     .00          0.              *         1
1200  145     .01     .00     .00         4.
         1     0140  21     .00     .00     .00          0.              *         1
1205  146     .01     .00     .01         4.
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         1     0145   22     .00     .00     .00         0.       *         1
1210  147     .01     .00     .01         4.
         1     0150   23     .00     .00     .00         0.       *         1
1215  148     .01     .00     .01         4.
         1     0155   24     .00     .00     .00         0.       *         1
1220  149     .01     .00     .00         4.
         1     0200   25     .00     .00     .00         0.       *         1
1225  150     .01     .00     .00         4.
         1     0205   26     .00     .00     .00         0.       *         1
1230  151     .01     .00     .00         4.
         1     0210   27     .00     .00     .00         0.       *         1
1235  152     .01     .00     .01         4.
         1     0215   28     .00     .00     .00         0.       *         1
1240  153     .01     .00     .01         4.
         1     0220   29     .00     .00     .00         0.       *         1
1245  154     .01     .00     .01         4.
         1     0225   30     .00     .00     .00         0.       *         1
1250  155     .01     .00     .00         4.
         1     0230   31     .00     .00     .00         0.       *         1
1255  156     .01     .00     .00         4.
         1     0235   32     .00     .00     .00         0.       *         1
1300  157     .01     .00     .00         4.
         1     0240   33     .00     .00     .00         0.       *         1
1305  158     .00     .00     .00         4.
         1     0245   34     .00     .00     .00         0.       *         1
1310  159     .00     .00     .00         4.
         1     0250   35     .00     .00     .00         0.       *         1
1315  160     .00     .00     .00         4.
         1     0255   36     .00     .00     .00         0.       *         1
1320  161     .00     .00     .00         4.
         1     0300   37     .00     .00     .00         0.       *         1
1325  162     .00     .00     .00         3.
         1     0305   38     .00     .00     .00         0.       *         1
1330  163     .00     .00     .00         3.
         1     0310   39     .00     .00     .00         0.       *         1
1335  164     .00     .00     .00         3.
         1     0315   40     .00     .00     .00         0.       *         1
1340  165     .00     .00     .00         4.
         1     0320   41     .00     .00     .00         0.       *         1
1345  166     .00     .00     .00         4.
         1     0325   42     .00     .00     .00         0.       *         1
1350  167     .00     .00     .00         4.
         1     0330   43     .00     .00     .00         0.       *         1
1355  168     .00     .00     .00         3.
         1     0335   44     .00     .00     .00         0.       *         1
1400  169     .00     .00     .00         3.
         1     0340   45     .00     .00     .00         0.       *         1
1405  170     .00     .00     .00         3.
         1     0345   46     .00     .00     .00         0.       *         1
1410  171     .00     .00     .00         3.
         1     0350   47     .01     .01     .00         0.       *         1
1415  172     .00     .00     .00         3.
         1     0355   48     .01     .01     .00         0.       *         1
1420  173     .00     .00     .00         3.
         1     0400   49     .01     .01     .00         0.       *         1
1425  174     .00     .00     .00         3.
         1     0405   50     .01     .01     .00         0.       *         1
1430  175     .00     .00     .00         3.
         1     0410   51     .01     .01     .00         0.       *         1
1435  176     .00     .00     .00         3.
         1     0415   52     .01     .01     .00         0.       *         1
1440  177     .00     .00     .00         3.
         1     0420   53     .01     .01     .00         0.       *         1
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1445  178     .00     .00      .00         3.
         1    0425    54     .01     .01     .00         0.       *        1
1450  179     .00     .00      .00         3.
         1    0430    55     .01     .01     .00         0.       *        1
1455  180     .00     .00      .00         3.
         1    0435    56     .01     .01     .00         0.       *        1
1500  181     .00     .00      .00         3.
         1    0440    57     .01     .01     .00         0.       *        1
1505  182     .00     .00      .00         3.
         1    0445    58     .01     .01     .00         0.       *        1
1510  183     .00     .00      .00         3.
         1    0450    59     .01     .01     .00         0.       *        1
1515  184     .00     .00      .00         3.
         1    0455    60     .01     .01     .00         0.       *        1
1520  185     .00     .00      .00         3.
         1    0500    61     .01     .01     .00         0.       *        1
1525  186     .00     .00      .00         3.
         1    0505    62     .02     .02     .00         0.       *        1
1530  187     .00     .00      .00         3.
         1    0510    63     .02     .02     .00         0.       *        1
1535  188     .00     .00      .00         3.
         1    0515    64     .02     .02     .00         0.       *        1
1540  189     .00     .00      .00         3.
         1    0520    65     .04     .04     .00         0.       *        1
1545  190     .00     .00      .00         3.
         1    0525    66     .04     .04     .00         0.       *        1
1550  191     .00     .00      .00         3.
         1    0530    67     .04     .03     .00         1.       *        1
1555  192     .00     .00      .00         3.
         1    0535    68     .45     .32     .12        28.       *        1
1600  193     .00     .00      .00         3.
         1    0540    69     .45     .22     .23        91.       *        1
1605  194     .00     .00      .00         3.
         1    0545    70     .45     .16     .29       158.       *        1
1610  195     .00     .00      .00         3.
         1    0550    71     .45     .12     .33       211.       *        1
1615  196     .00     .00      .00         3.
         1    0555    72     .45     .09     .35       248.       *        1
1620  197     .00     .00      .00         3.
         1    0600    73     .45     .07     .37       274.       *        1
1625  198     .00     .00      .00         3.
         1    0605    74     .04     .01     .03       216.       *        1
1630  199     .00     .00      .00         3.
         1    0610    75     .04     .01     .03       108.       *        1
1635  200     .00     .00      .00         3.
         1    0615    76     .04     .01     .03        58.       *        1
1640  201     .00     .00      .00         3.
         1    0620    77     .04     .01     .03        38.       *        1
1645  202     .00     .00      .00         3.
         1    0625    78     .04     .01     .03        31.       *        1
1650  203     .00     .00      .00         3.
         1    0630    79     .04     .01     .03        27.       *        1
1655  204     .00     .00      .00         3.
         1    0635    80     .02     .00     .02        24.       *        1
1700  205     .00     .00      .00         3.
         1    0640    81     .02     .00     .02        19.       *        1
1705  206     .00     .00      .00         3.
         1    0645    82     .02     .00     .02        17.       *        1
1710  207     .00     .00      .00         3.
         1    0650    83     .02     .00     .02        16.       *        1
1715  208     .00     .00      .00         3.
         1    0655    84     .02     .00     .02        16.       *        1
1720  209     .00     .00      .00         3.
```

```
        1     0700   85     .02     .00     .02        16.        *        1
1725  210     .00     .00     .00        3.
        1     0705   86     .01     .00     .01        14.        *        1
1730  211     .00     .00     .00        3.
        1     0710   87     .01     .00     .01        12.        *        1
1735  212     .00     .00     .00        3.
        1     0715   88     .01     .00     .01        11.        *        1
1740  213     .00     .00     .00        3.
        1     0720   89     .01     .00     .01        11.        *        1
1745  214     .00     .00     .00        3.
        1     0725   90     .01     .00     .01        11.        *        1
1750  215     .00     .00     .00        3.
        1     0730   91     .01     .00     .01        11.        *        1
1755  216     .00     .00     .00        3.
        1     0735   92     .01     .00     .01        11.        *        1
1800  217     .00     .00     .00        3.
        1     0740   93     .01     .00     .01        11.        *        1
1805  218     .00     .00     .00        3.
        1     0745   94     .01     .00     .01        11.        *        1
1810  219     .00     .00     .00        3.
        1     0750   95     .01     .00     .01        11.        *        1
1815  220     .00     .00     .00        3.
        1     0755   96     .01     .00     .01        11.        *        1
1820  221     .00     .00     .00        3.
        1     0800   97     .01     .00     .01        11.        *        1
1825  222     .00     .00     .00        3.
        1     0805   98     .01     .00     .01         9.        *        1
1830  223     .00     .00     .00        3.
        1     0810   99     .01     .00     .01         7.        *        1
1835  224     .00     .00     .00        3.
        1     0815  100     .01     .00     .01         6.        *        1
1840  225     .00     .00     .00        3.
        1     0820  101     .01     .00     .01         6.        *        1
1845  226     .00     .00     .00        3.
        1     0825  102     .01     .00     .01         5.        *        1
1850  227     .00     .00     .00        3.
        1     0830  103     .01     .00     .01         5.        *        1
1855  228     .00     .00     .00        3.
        1     0835  104     .01     .00     .01         5.        *        1
1900  229     .00     .00     .00        3.
        1     0840  105     .01     .00     .01         5.        *        1
1905  230     .00     .00     .00        3.
        1     0845  106     .01     .00     .01         5.        *        1
1910  231     .00     .00     .00        3.
        1     0850  107     .01     .00     .01         5.        *        1
1915  232     .00     .00     .00        3.
        1     0855  108     .01     .00     .01         5.        *        1
1920  233     .00     .00     .00        3.
        1     0900  109     .01     .00     .01         5.        *        1
1925  234     .00     .00     .00        3.
        1     0905  110     .01     .00     .01         5.        *        1
1930  235     .00     .00     .00        3.
        1     0910  111     .01     .00     .01         5.        *        1
1935  236     .00     .00     .00        3.
        1     0915  112     .01     .00     .01         5.        *        1
1940  237     .00     .00     .00        3.
        1     0920  113     .01     .00     .01         5.        *        1
1945  238     .00     .00     .00        3.
        1     0925  114     .01     .00     .01         5.        *        1
1950  239     .00     .00     .00        3.
        1     0930  115     .01     .00     .01         5.        *        1
1955  240     .00     .00     .00        3.
        1     0935  116     .01     .00     .01         5.        *        1
```

```
2000  241     .00     .00     .00         3.
         1     0940  117     .01     .00     .01         5.        *        1
2005  242     .00     .00     .00         2.
         1     0945  118     .01     .00     .01         5.        *        1
2010  243     .00     .00     .00         2.
         1     0950  119     .01     .00     .01         5.        *        1
2015  244     .00     .00     .00         2.
         1     0955  120     .01     .00     .01         5.        *        1
2020  245     .00     .00     .00         1.
         1     1000  121     .01     .00     .01         5.        *        1
2025  246     .00     .00     .00         1.
         1     1005  122     .01     .00     .01         5.        *        1
2030  247     .00     .00     .00         1.
         1     1010  123     .01     .00     .01         4.        *        1
2035  248     .00     .00     .00         1.
         1     1015  124     .01     .00     .01         4.        *        1
2040  249     .00     .00     .00         1.
         1     1020  125     .01     .00     .00         4.        *        1
2045  250     .00     .00     .00         1.
                                                                  *

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     TOTAL RAINFALL =    4.40, TOTAL LOSS =    1.58, TOTAL EXCESS =    2.82

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+     274.      6.00                   27.          9.          9.            9.
                        (INCHES)     2.401       2.815       2.815        2.815
                         (AC-FT)       13.         16.         16.          16.

                         CUMULATIVE AREA =     .10 SQ MI

 WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

************************************************************************************
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                                                   HYDROGRAPH AT STATION    E8005
                                                       PLAN 1,   RATIO =   .47

************************************************************************************
***********************************************
                                                                  *
        DA MON HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q       *        DA MON
HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q
                                                                  *
         1     0000    1     .00     .00     .00         0.       *        1
1025  126     .00     .00     .00         1.
         1     0005    2     .00     .00     .00         0.       *        1
1030  127     .00     .00     .00         1.
         1     0010    3     .00     .00     .00         0.       *        1
1035  128     .00     .00     .00         1.
         1     0015    4     .00     .00     .00         0.       *        1
1040  129     .00     .00     .00         1.
         1     0020    5     .00     .00     .00         0.       *        1
1045  130     .00     .00     .00         2.
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         1     0025    6     .00     .00     .00         0.        *        1
1050  131     .00     .00     .00           1.
         1     0030    7     .00     .00     .00         0.        *        1
1055  132     .00     .00     .00           1.
         1     0035    8     .00     .00     .00         0.        *        1
1100  133     .00     .00     .00           1.
         1     0040    9     .00     .00     .00         0.        *        1
1105  134     .00     .00     .00           1.
         1     0045   10     .00     .00     .00         0.        *        1
1110  135     .00     .00     .00           2.
         1     0050   11     .00     .00     .00         0.        *        1
1115  136     .00     .00     .00           2.
         1     0055   12     .00     .00     .00         0.        *        1
1120  137     .00     .00     .00           2.
         1     0100   13     .00     .00     .00         0.        *        1
1125  138     .00     .00     .00           1.
         1     0105   14     .00     .00     .00         0.        *        1
1130  139     .00     .00     .00           1.
         1     0110   15     .00     .00     .00         0.        *        1
1135  140     .00     .00     .00           1.
         1     0115   16     .00     .00     .00         0.        *        1
1140  141     .00     .00     .00           2.
         1     0120   17     .00     .00     .00         0.        *        1
1145  142     .00     .00     .00           2.
         1     0125   18     .00     .00     .00         0.        *        1
1150  143     .00     .00     .00           2.
         1     0130   19     .00     .00     .00         0.        *        1
1155  144     .00     .00     .00           1.
         1     0135   20     .00     .00     .00         0.        *        1
1200  145     .00     .00     .00           1.
         1     0140   21     .00     .00     .00         0.        *        1
1205  146     .00     .00     .00           1.
         1     0145   22     .00     .00     .00         0.        *        1
1210  147     .00     .00     .00           2.
         1     0150   23     .00     .00     .00         0.        *        1
1215  148     .00     .00     .00           2.
         1     0155   24     .00     .00     .00         0.        *        1
1220  149     .00     .00     .00           2.
         1     0200   25     .00     .00     .00         0.        *        1
1225  150     .00     .00     .00           1.
         1     0205   26     .00     .00     .00         0.        *        1
1230  151     .00     .00     .00           1.
         1     0210   27     .00     .00     .00         0.        *        1
1235  152     .00     .00     .00           2.
         1     0215   28     .00     .00     .00         0.        *        1
1240  153     .00     .00     .00           2.
         1     0220   29     .00     .00     .00         0.        *        1
1245  154     .00     .00     .00           2.
         1     0225   30     .00     .00     .00         0.        *        1
1250  155     .00     .00     .00           2.
         1     0230   31     .00     .00     .00         0.        *        1
1255  156     .00     .00     .00           2.
         1     0235   32     .00     .00     .00         0.        *        1
1300  157     .00     .00     .00           1.
         1     0240   33     .00     .00     .00         0.        *        1
1305  158     .00     .00     .00           1.
         1     0245   34     .00     .00     .00         0.        *        1
1310  159     .00     .00     .00           1.
         1     0250   35     .00     .00     .00         0.        *        1
1315  160     .00     .00     .00           1.
         1     0255   36     .00     .00     .00         0.        *        1
1320  161     .00     .00     .00           1.
         1     0300   37     .00     .00     .00         0.        *        1
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1325  162     .00     .00     .00         1.
         1     0305   38     .00     .00     .00         0.       *        1
1330  163     .00     .00     .00         1.
         1     0310   39     .00     .00     .00         0.       *        1
1335  164     .00     .00     .00         1.
         1     0315   40     .00     .00     .00         0.       *        1
1340  165     .00     .00     .00         1.
         1     0320   41     .00     .00     .00         0.       *        1
1345  166     .00     .00     .00         1.
         1     0325   42     .00     .00     .00         0.       *        1
1350  167     .00     .00     .00         1.
         1     0330   43     .00     .00     .00         0.       *        1
1355  168     .00     .00     .00         1.
         1     0335   44     .00     .00     .00         0.       *        1
1400  169     .00     .00     .00         1.
         1     0340   45     .00     .00     .00         0.       *        1
1405  170     .00     .00     .00         1.
         1     0345   46     .00     .00     .00         0.       *        1
1410  171     .00     .00     .00         1.
         1     0350   47     .00     .00     .00         0.       *        1
1415  172     .00     .00     .00         1.
         1     0355   48     .00     .00     .00         0.       *        1
1420  173     .00     .00     .00         1.
         1     0400   49     .00     .00     .00         0.       *        1
1425  174     .00     .00     .00         1.
         1     0405   50     .00     .00     .00         0.       *        1
1430  175     .00     .00     .00         1.
         1     0410   51     .00     .00     .00         0.       *        1
1435  176     .00     .00     .00         1.
         1     0415   52     .00     .00     .00         0.       *        1
1440  177     .00     .00     .00         1.
         1     0420   53     .00     .00     .00         0.       *        1
1445  178     .00     .00     .00         1.
         1     0425   54     .00     .00     .00         0.       *        1
1450  179     .00     .00     .00         1.
         1     0430   55     .00     .00     .00         0.       *        1
1455  180     .00     .00     .00         1.
         1     0435   56     .00     .00     .00         0.       *        1
1500  181     .00     .00     .00         1.
         1     0440   57     .00     .00     .00         0.       *        1
1505  182     .00     .00     .00         1.
         1     0445   58     .00     .00     .00         0.       *        1
1510  183     .00     .00     .00         1.
         1     0450   59     .00     .00     .00         0.       *        1
1515  184     .00     .00     .00         1.
         1     0455   60     .00     .00     .00         0.       *        1
1520  185     .00     .00     .00         1.
         1     0500   61     .00     .00     .00         0.       *        1
1525  186     .00     .00     .00         1.
         1     0505   62     .01     .01     .00         0.       *        1
1530  187     .00     .00     .00         1.
         1     0510   63     .01     .01     .00         0.       *        1
1535  188     .00     .00     .00         1.
         1     0515   64     .01     .01     .00         0.       *        1
1540  189     .00     .00     .00         1.
         1     0520   65     .02     .02     .00         0.       *        1
1545  190     .00     .00     .00         1.
         1     0525   66     .02     .02     .00         0.       *        1
1550  191     .00     .00     .00         1.
         1     0530   67     .02     .02     .00         0.       *        1
1555  192     .00     .00     .00         1.
         1     0535   68     .21     .21     .00         1.       *        1
1600  193     .00     .00     .00         1.
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        1     0540   69     .21     .17     .04         8.        *        1
1605  194    .00    .00     .00         1.
        1     0545   70     .21     .14     .07        27.        *        1
1610  195    .00    .00     .00         1.
        1     0550   71     .21     .12     .09        48.        *        1
1615  196    .00    .00     .00         1.
        1     0555   72     .21     .10     .11        68.        *        1
1620  197    .00    .00     .00         1.
        1     0600   73     .21     .08     .13        83.        *        1
1625  198    .00    .00     .00         1.
        1     0605   74     .02     .01     .01        69.        *        1
1630  199    .00    .00     .00         1.
        1     0610   75     .02     .01     .01        35.        *        1
1635  200    .00    .00     .00         1.
        1     0615   76     .02     .01     .01        19.        *        1
1640  201    .00    .00     .00         1.
        1     0620   77     .02     .01     .01        13.        *        1
1645  202    .00    .00     .00         1.
        1     0625   78     .02     .01     .01        11.        *        1
1650  203    .00    .00     .00         1.
        1     0630   79     .02     .01     .01        10.        *        1
1655  204    .00    .00     .00         1.
        1     0635   80     .01     .00     .01         8.        *        1
1700  205    .00    .00     .00         1.
        1     0640   81     .01     .00     .01         7.        *        1
1705  206    .00    .00     .00         1.
        1     0645   82     .01     .00     .01         6.        *        1
1710  207    .00    .00     .00         1.
        1     0650   83     .01     .00     .01         6.        *        1
1715  208    .00    .00     .00         1.
        1     0655   84     .01     .00     .01         6.        *        1
1720  209    .00    .00     .00         1.
        1     0700   85     .01     .00     .01         6.        *        1
1725  210    .00    .00     .00         1.
        1     0705   86     .01     .00     .00         5.        *        1
1730  211    .00    .00     .00         1.
        1     0710   87     .01     .00     .00         4.        *        1
1735  212    .00    .00     .00         1.
        1     0715   88     .01     .00     .00         4.        *        1
1740  213    .00    .00     .00         1.
        1     0720   89     .01     .00     .00         4.        *        1
1745  214    .00    .00     .00         1.
        1     0725   90     .01     .00     .00         4.        *        1
1750  215    .00    .00     .00         1.
        1     0730   91     .01     .00     .00         4.        *        1
1755  216    .00    .00     .00         1.
        1     0735   92     .01     .00     .00         4.        *        1
1800  217    .00    .00     .00         1.
        1     0740   93     .01     .00     .00         4.        *        1
1805  218    .00    .00     .00         1.
        1     0745   94     .01     .00     .00         4.        *        1
1810  219    .00    .00     .00         1.
        1     0750   95     .01     .00     .00         4.        *        1
1815  220    .00    .00     .00         1.
        1     0755   96     .01     .00     .00         4.        *        1
1820  221    .00    .00     .00         1.
        1     0800   97     .01     .00     .00         4.        *        1
1825  222    .00    .00     .00         1.
        1     0805   98     .00     .00     .00         3.        *        1
1830  223    .00    .00     .00         1.
        1     0810   99     .00     .00     .00         3.        *        1
1835  224    .00    .00     .00         1.
        1     0815  100     .00     .00     .00         2.        *        1
```

```
1840  225     .00     .00     .00         1.
         1     0820  101     .00     .00     .00         2.       *        1
1845  226     .00     .00     .00         1.
         1     0825  102     .00     .00     .00         2.       *        1
1850  227     .00     .00     .00         1.
         1     0830  103     .00     .00     .00         2.       *        1
1855  228     .00     .00     .00         1.
         1     0835  104     .00     .00     .00         2.       *        1
1900  229     .00     .00     .00         1.
         1     0840  105     .00     .00     .00         2.       *        1
1905  230     .00     .00     .00         1.
         1     0845  106     .00     .00     .00         2.       *        1
1910  231     .00     .00     .00         1.
         1     0850  107     .00     .00     .00         2.       *        1
1915  232     .00     .00     .00         1.
         1     0855  108     .00     .00     .00         2.       *        1
1920  233     .00     .00     .00         1.
         1     0900  109     .00     .00     .00         2.       *        1
1925  234     .00     .00     .00         1.
         1     0905  110     .00     .00     .00         2.       *        1
1930  235     .00     .00     .00         1.
         1     0910  111     .00     .00     .00         2.       *        1
1935  236     .00     .00     .00         1.
         1     0915  112     .00     .00     .00         2.       *        1
1940  237     .00     .00     .00         1.
         1     0920  113     .00     .00     .00         2.       *        1
1945  238     .00     .00     .00         1.
         1     0925  114     .00     .00     .00         2.       *        1
1950  239     .00     .00     .00         1.
         1     0930  115     .00     .00     .00         2.       *        1
1955  240     .00     .00     .00         1.
         1     0935  116     .00     .00     .00         2.       *        1
2000  241     .00     .00     .00         1.
         1     0940  117     .00     .00     .00         2.       *        1
2005  242     .00     .00     .00         1.
         1     0945  118     .00     .00     .00         2.       *        1
2010  243     .00     .00     .00         1.
         1     0950  119     .00     .00     .00         2.       *        1
2015  244     .00     .00     .00         1.
         1     0955  120     .00     .00     .00         2.       *        1
2020  245     .00     .00     .00         1.
         1     1000  121     .00     .00     .00         2.       *        1
2025  246     .00     .00     .00         1.
         1     1005  122     .00     .00     .00         2.       *        1
2030  247     .00     .00     .00         1.
         1     1010  123     .00     .00     .00         2.       *        1
2035  248     .00     .00     .00         1.
         1     1015  124     .00     .00     .00         2.       *        1
2040  249     .00     .00     .00         1.
         1     1020  125     .00     .00     .00         2.       *        1
2045  250     .00     .00     .00         1.
                                                                  *

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

     TOTAL RAINFALL =    2.07, TOTAL LOSS =    1.22, TOTAL EXCESS =     .85

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+      83.      6.00                    8.          3.          3.            3.
```

```
                                 (INCHES)      .689         .844         .844          .844
                                  (AC-FT)        4.           5.           5.            5.

                                  CUMULATIVE AREA =     .10 SQ MI


 WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


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

                                                            HYDROGRAPH AT STATION    E8005
                                                                PLAN 1,   RATIO =   .56


*************************************************************************************
***********************************************
                                                                        *
        DA MON HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q             *       DA MON
HRMN   ORD    RAIN    LOSS  EXCESS     COMP Q
                                                                        *
         1     0000    1     .00     .00     .00          0.            *         1
1025   126     .00    .00     .00          2.
         1     0005    2     .00     .00     .00          0.            *         1
1030   127     .00    .00     .00          2.
         1     0010    3     .00     .00     .00          0.            *         1
1035   128     .00    .00     .00          2.
         1     0015    4     .00     .00     .00          0.            *         1
1040   129     .00    .00     .00          2.
         1     0020    5     .00     .00     .00          0.            *         1
1045   130     .00    .00     .00          2.
         1     0025    6     .00     .00     .00          0.            *         1
1050   131     .00    .00     .00          2.
         1     0030    7     .00     .00     .00          0.            *         1
1055   132     .00    .00     .00          2.
         1     0035    8     .00     .00     .00          0.            *         1
1100   133     .00    .00     .00          2.
         1     0040    9     .00     .00     .00          0.            *         1
1105   134     .00    .00     .00          2.
         1     0045   10     .00     .00     .00          0.            *         1
1110   135     .00    .00     .00          2.
         1     0050   11     .00     .00     .00          0.            *         1
1115   136     .00    .00     .00          2.
         1     0055   12     .00     .00     .00          0.            *         1
1120   137     .00    .00     .00          2.
         1     0100   13     .00     .00     .00          0.            *         1
1125   138     .00    .00     .00          2.
         1     0105   14     .00     .00     .00          0.            *         1
1130   139     .00    .00     .00          2.
         1     0110   15     .00     .00     .00          0.            *         1
1135   140     .00    .00     .00          2.
         1     0115   16     .00     .00     .00          0.            *         1
1140   141     .00    .00     .00          2.
         1     0120   17     .00     .00     .00          0.            *         1
1145   142     .00    .00     .00          2.
         1     0125   18     .00     .00     .00          0.            *         1
1150   143     .00    .00     .00          2.
         1     0130   19     .00     .00     .00          0.            *         1
1155   144     .00    .00     .00          2.
         1     0135   20     .00     .00     .00          0.            *         1
1200   145     .00    .00     .00          2.
         1     0140   21     .00     .00     .00          0.            *         1
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1205  146     .00     .00     .00         2.
         1     0145    22     .00     .00     .00         0.        *        1
1210  147     .00     .00     .00         2.
         1     0150    23     .00     .00     .00         0.        *        1
1215  148     .00     .00     .00         2.
         1     0155    24     .00     .00     .00         0.        *        1
1220  149     .00     .00     .00         2.
         1     0200    25     .00     .00     .00         0.        *        1
1225  150     .00     .00     .00         2.
         1     0205    26     .00     .00     .00         0.        *        1
1230  151     .00     .00     .00         2.
         1     0210    27     .00     .00     .00         0.        *        1
1235  152     .00     .00     .00         2.
         1     0215    28     .00     .00     .00         0.        *        1
1240  153     .00     .00     .00         2.
         1     0220    29     .00     .00     .00         0.        *        1
1245  154     .00     .00     .00         2.
         1     0225    30     .00     .00     .00         0.        *        1
1250  155     .00     .00     .00         2.
         1     0230    31     .00     .00     .00         0.        *        1
1255  156     .00     .00     .00         2.
         1     0235    32     .00     .00     .00         0.        *        1
1300  157     .00     .00     .00         2.
         1     0240    33     .00     .00     .00         0.        *        1
1305  158     .00     .00     .00         2.
         1     0245    34     .00     .00     .00         0.        *        1
1310  159     .00     .00     .00         2.
         1     0250    35     .00     .00     .00         0.        *        1
1315  160     .00     .00     .00         2.
         1     0255    36     .00     .00     .00         0.        *        1
1320  161     .00     .00     .00         2.
         1     0300    37     .00     .00     .00         0.        *        1
1325  162     .00     .00     .00         2.
         1     0305    38     .00     .00     .00         0.        *        1
1330  163     .00     .00     .00         2.
         1     0310    39     .00     .00     .00         0.        *        1
1335  164     .00     .00     .00         2.
         1     0315    40     .00     .00     .00         0.        *        1
1340  165     .00     .00     .00         2.
         1     0320    41     .00     .00     .00         0.        *        1
1345  166     .00     .00     .00         2.
         1     0325    42     .00     .00     .00         0.        *        1
1350  167     .00     .00     .00         2.
         1     0330    43     .00     .00     .00         0.        *        1
1355  168     .00     .00     .00         2.
         1     0335    44     .00     .00     .00         0.        *        1
1400  169     .00     .00     .00         2.
         1     0340    45     .00     .00     .00         0.        *        1
1405  170     .00     .00     .00         2.
         1     0345    46     .00     .00     .00         0.        *        1
1410  171     .00     .00     .00         2.
         1     0350    47     .00     .00     .00         0.        *        1
1415  172     .00     .00     .00         2.
         1     0355    48     .00     .00     .00         0.        *        1
1420  173     .00     .00     .00         2.
         1     0400    49     .00     .00     .00         0.        *        1
1425  174     .00     .00     .00         2.
         1     0405    50     .01     .01     .00         0.        *        1
1430  175     .00     .00     .00         2.
         1     0410    51     .01     .01     .00         0.        *        1
1435  176     .00     .00     .00         2.
         1     0415    52     .01     .01     .00         0.        *        1
1440  177     .00     .00     .00         2.
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         1     0420   53     .01     .01     .00         0.       *        1
1445  178     .00     .00     .00         2.
         1     0425   54     .01     .01     .00         0.       *        1
1450  179     .00     .00     .00         2.
         1     0430   55     .01     .01     .00         0.       *        1
1455  180     .00     .00     .00         2.
         1     0435   56     .01     .01     .00         0.       *        1
1500  181     .00     .00     .00         2.
         1     0440   57     .01     .01     .00         0.       *        1
1505  182     .00     .00     .00         1.
         1     0445   58     .01     .01     .00         0.       *        1
1510  183     .00     .00     .00         1.
         1     0450   59     .01     .01     .00         0.       *        1
1515  184     .00     .00     .00         1.
         1     0455   60     .01     .01     .00         0.       *        1
1520  185     .00     .00     .00         1.
         1     0500   61     .01     .01     .00         0.       *        1
1525  186     .00     .00     .00         1.
         1     0505   62     .01     .01     .00         0.       *        1
1530  187     .00     .00     .00         1.
         1     0510   63     .01     .01     .00         0.       *        1
1535  188     .00     .00     .00         1.
         1     0515   64     .01     .01     .00         0.       *        1
1540  189     .00     .00     .00         1.
         1     0520   65     .02     .02     .00         0.       *        1
1545  190     .00     .00     .00         1.
         1     0525   66     .02     .02     .00         0.       *        1
1550  191     .00     .00     .00         1.
         1     0530   67     .02     .02     .00         0.       *        1
1555  192     .00     .00     .00         1.
         1     0535   68     .25     .24     .01         2.       *        1
1600  193     .00     .00     .00         1.
         1     0540   69     .25     .19     .06        17.       *        1
1605  194     .00     .00     .00         1.
         1     0545   70     .25     .15     .10        44.       *        1
1610  195     .00     .00     .00         1.
         1     0550   71     .25     .12     .13        72.       *        1
1615  196     .00     .00     .00         1.
         1     0555   72     .25     .10     .15        95.       *        1
1620  197     .00     .00     .00         1.
         1     0600   73     .25     .08     .17       114.       *        1
1625  198     .00     .00     .00         1.
         1     0605   74     .02     .01     .01        93.       *        1
1630  199     .00     .00     .00         1.
         1     0610   75     .02     .01     .01        47.       *        1
1635  200     .00     .00     .00         1.
         1     0615   76     .02     .01     .01        26.       *        1
1640  201     .00     .00     .00         1.
         1     0620   77     .02     .01     .01        17.       *        1
1645  202     .00     .00     .00         1.
         1     0625   78     .02     .01     .01        14.       *        1
1650  203     .00     .00     .00         1.
         1     0630   79     .02     .01     .01        13.       *        1
1655  204     .00     .00     .00         1.
         1     0635   80     .01     .00     .01        11.       *        1
1700  205     .00     .00     .00         1.
         1     0640   81     .01     .00     .01         9.       *        1
1705  206     .00     .00     .00         1.
         1     0645   82     .01     .00     .01         8.       *        1
1710  207     .00     .00     .00         1.
         1     0650   83     .01     .00     .01         7.       *        1
1715  208     .00     .00     .00         1.
         1     0655   84     .01     .00     .01         7.       *        1
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1720  209     .00     .00     .00         1.
         1     0700   85     .01     .00     .01          7.        *        1
1725  210     .00     .00     .00         1.
         1     0705   86     .01     .00     .01          7.        *        1
1730  211     .00     .00     .00         1.
         1     0710   87     .01     .00     .01          6.        *        1
1735  212     .00     .00     .00         1.
         1     0715   88     .01     .00     .01          5.        *        1
1740  213     .00     .00     .00         1.
         1     0720   89     .01     .00     .01          5.        *        1
1745  214     .00     .00     .00         1.
         1     0725   90     .01     .00     .01          5.        *        1
1750  215     .00     .00     .00         1.
         1     0730   91     .01     .00     .01          5.        *        1
1755  216     .00     .00     .00         1.
         1     0735   92     .01     .00     .01          5.        *        1
1800  217     .00     .00     .00         1.
         1     0740   93     .01     .00     .01          5.        *        1
1805  218     .00     .00     .00         1.
         1     0745   94     .01     .00     .01          5.        *        1
1810  219     .00     .00     .00         1.
         1     0750   95     .01     .00     .01          5.        *        1
1815  220     .00     .00     .00         1.
         1     0755   96     .01     .00     .01          5.        *        1
1820  221     .00     .00     .00         1.
         1     0800   97     .01     .00     .01          5.        *        1
1825  222     .00     .00     .00         1.
         1     0805   98     .00     .00     .00          4.        *        1
1830  223     .00     .00     .00         1.
         1     0810   99     .00     .00     .00          3.        *        1
1835  224     .00     .00     .00         1.
         1     0815  100     .00     .00     .00          3.        *        1
1840  225     .00     .00     .00         1.
         1     0820  101     .00     .00     .00          3.        *        1
1845  226     .00     .00     .00         1.
         1     0825  102     .00     .00     .00          3.        *        1
1850  227     .00     .00     .00         1.
         1     0830  103     .00     .00     .00          3.        *        1
1855  228     .00     .00     .00         1.
         1     0835  104     .00     .00     .00          3.        *        1
1900  229     .00     .00     .00         1.
         1     0840  105     .00     .00     .00          3.        *        1
1905  230     .00     .00     .00         1.
         1     0845  106     .00     .00     .00          3.        *        1
1910  231     .00     .00     .00         1.
         1     0850  107     .00     .00     .00          3.        *        1
1915  232     .00     .00     .00         1.
         1     0855  108     .00     .00     .00          3.        *        1
1920  233     .00     .00     .00         1.
         1     0900  109     .00     .00     .00          3.        *        1
1925  234     .00     .00     .00         1.
         1     0905  110     .00     .00     .00          3.        *        1
1930  235     .00     .00     .00         1.
         1     0910  111     .00     .00     .00          3.        *        1
1935  236     .00     .00     .00         1.
         1     0915  112     .00     .00     .00          3.        *        1
1940  237     .00     .00     .00         1.
         1     0920  113     .00     .00     .00          3.        *        1
1945  238     .00     .00     .00         1.
         1     0925  114     .00     .00     .00          3.        *        1
1950  239     .00     .00     .00         1.
         1     0930  115     .00     .00     .00          3.        *        1
1955  240     .00     .00     .00         1.
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         1     0935  116     .00     .00     .00         3.        *        1
2000  241     .00     .00     .00         1.
         1     0940  117     .00     .00     .00         3.        *        1
2005  242     .00     .00     .00         1.
         1     0945  118     .00     .00     .00         3.        *        1
2010  243     .00     .00     .00         1.
         1     0950  119     .00     .00     .00         3.        *        1
2015  244     .00     .00     .00         1.
         1     0955  120     .00     .00     .00         3.        *        1
2020  245     .00     .00     .00         1.
         1     1000  121     .00     .00     .00         3.        *        1
2025  246     .00     .00     .00         1.
         1     1005  122     .00     .00     .00         2.        *        1
2030  247     .00     .00     .00         1.
         1     1010  123     .00     .00     .00         2.        *        1
2035  248     .00     .00     .00         1.
         1     1015  124     .00     .00     .00         2.        *        1
2040  249     .00     .00     .00         1.
         1     1020  125     .00     .00     .00         2.        *        1
2045  250     .00     .00     .00         1.
                                                                   *

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     TOTAL RAINFALL =    2.46, TOTAL LOSS =    1.31, TOTAL EXCESS =    1.15

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR      20.75-HR
+   (CFS)       (HR)
                           (CFS)
+     114.      6.00                   11.          4.          4.            4.
                        (INCHES)      .949       1.148       1.148         1.148
                         (AC-FT)        5.          6.          6.            6.

                         CUMULATIVE AREA =     .10 SQ MI

 WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

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                                                         HYDROGRAPH AT STATION    E8005
                                                             PLAN 1,   RATIO =   .70

*************************************************************************************
***********************************************
                                                                   *
        DA MON HRMN   ORD     RAIN    LOSS  EXCESS      COMP Q     *        DA MON
HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q
                                                                   *
         1     0000    1     .00     .00     .00         0.        *        1
1025  126     .00    .00     .00         3.
         1     0005    2     .00     .00     .00         0.        *        1
1030  127     .00    .00     .00         3.
         1     0010    3     .00     .00     .00         0.        *        1
1035  128     .00    .00     .00         3.
         1     0015    4     .00     .00     .00         0.        *        1
1040  129     .00    .00     .00         3.
         1     0020    5     .00     .00     .00         0.        *        1
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1045  130     .00     .00     .00         3.
         1     0025    6     .00     .00     .00         0.       *        1
1050  131     .00     .00     .00         3.
         1     0030    7     .00     .00     .00         0.       *        1
1055  132     .00     .00     .00         3.
         1     0035    8     .00     .00     .00         0.       *        1
1100  133     .00     .00     .00         3.
         1     0040    9     .00     .00     .00         0.       *        1
1105  134     .00     .00     .00         3.
         1     0045    10    .00     .00     .00         0.       *        1
1110  135     .00     .00     .00         3.
         1     0050    11    .00     .00     .00         0.       *        1
1115  136     .00     .00     .00         3.
         1     0055    12    .00     .00     .00         0.       *        1
1120  137     .00     .00     .00         3.
         1     0100    13    .00     .00     .00         0.       *        1
1125  138     .00     .00     .00         3.
         1     0105    14    .00     .00     .00         0.       *        1
1130  139     .00     .00     .00         3.
         1     0110    15    .00     .00     .00         0.       *        1
1135  140     .00     .00     .00         3.
         1     0115    16    .00     .00     .00         0.       *        1
1140  141     .00     .00     .00         3.
         1     0120    17    .00     .00     .00         0.       *        1
1145  142     .00     .00     .00         3.
         1     0125    18    .00     .00     .00         0.       *        1
1150  143     .00     .00     .00         3.
         1     0130    19    .00     .00     .00         0.       *        1
1155  144     .00     .00     .00         3.
         1     0135    20    .00     .00     .00         0.       *        1
1200  145     .00     .00     .00         3.
         1     0140    21    .00     .00     .00         0.       *        1
1205  146     .00     .00     .00         3.
         1     0145    22    .00     .00     .00         0.       *        1
1210  147     .00     .00     .00         3.
         1     0150    23    .00     .00     .00         0.       *        1
1215  148     .00     .00     .00         3.
         1     0155    24    .00     .00     .00         0.       *        1
1220  149     .00     .00     .00         3.
         1     0200    25    .00     .00     .00         0.       *        1
1225  150     .00     .00     .00         3.
         1     0205    26    .00     .00     .00         0.       *        1
1230  151     .00     .00     .00         3.
         1     0210    27    .00     .00     .00         0.       *        1
1235  152     .00     .00     .00         3.
         1     0215    28    .00     .00     .00         0.       *        1
1240  153     .00     .00     .00         3.
         1     0220    29    .00     .00     .00         0.       *        1
1245  154     .00     .00     .00         3.
         1     0225    30    .00     .00     .00         0.       *        1
1250  155     .00     .00     .00         3.
         1     0230    31    .00     .00     .00         0.       *        1
1255  156     .00     .00     .00         3.
         1     0235    32    .00     .00     .00         0.       *        1
1300  157     .00     .00     .00         3.
         1     0240    33    .00     .00     .00         0.       *        1
1305  158     .00     .00     .00         3.
         1     0245    34    .00     .00     .00         0.       *        1
1310  159     .00     .00     .00         2.
         1     0250    35    .00     .00     .00         0.       *        1
1315  160     .00     .00     .00         2.
         1     0255    36    .00     .00     .00         0.       *        1
1320  161     .00     .00     .00         2.
```

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         1     0300   37     .00     .00     .00         0.       *        1
1325  162     .00     .00     .00         2.
         1     0305   38     .00     .00     .00         0.       *        1
1330  163     .00     .00     .00         2.
         1     0310   39     .00     .00     .00         0.       *        1
1335  164     .00     .00     .00         2.
         1     0315   40     .00     .00     .00         0.       *        1
1340  165     .00     .00     .00         2.
         1     0320   41     .00     .00     .00         0.       *        1
1345  166     .00     .00     .00         2.
         1     0325   42     .00     .00     .00         0.       *        1
1350  167     .00     .00     .00         2.
         1     0330   43     .00     .00     .00         0.       *        1
1355  168     .00     .00     .00         2.
         1     0335   44     .00     .00     .00         0.       *        1
1400  169     .00     .00     .00         2.
         1     0340   45     .00     .00     .00         0.       *        1
1405  170     .00     .00     .00         2.
         1     0345   46     .00     .00     .00         0.       *        1
1410  171     .00     .00     .00         2.
         1     0350   47     .00     .00     .00         0.       *        1
1415  172     .00     .00     .00         2.
         1     0355   48     .00     .00     .00         0.       *        1
1420  173     .00     .00     .00         2.
         1     0400   49     .00     .00     .00         0.       *        1
1425  174     .00     .00     .00         2.
         1     0405   50     .01     .01     .00         0.       *        1
1430  175     .00     .00     .00         2.
         1     0410   51     .01     .01     .00         0.       *        1
1435  176     .00     .00     .00         2.
         1     0415   52     .01     .01     .00         0.       *        1
1440  177     .00     .00     .00         2.
         1     0420   53     .01     .01     .00         0.       *        1
1445  178     .00     .00     .00         2.
         1     0425   54     .01     .01     .00         0.       *        1
1450  179     .00     .00     .00         2.
         1     0430   55     .01     .01     .00         0.       *        1
1455  180     .00     .00     .00         2.
         1     0435   56     .01     .01     .00         0.       *        1
1500  181     .00     .00     .00         2.
         1     0440   57     .01     .01     .00         0.       *        1
1505  182     .00     .00     .00         2.
         1     0445   58     .01     .01     .00         0.       *        1
1510  183     .00     .00     .00         2.
         1     0450   59     .01     .01     .00         0.       *        1
1515  184     .00     .00     .00         2.
         1     0455   60     .01     .01     .00         0.       *        1
1520  185     .00     .00     .00         2.
         1     0500   61     .01     .01     .00         0.       *        1
1525  186     .00     .00     .00         2.
         1     0505   62     .02     .02     .00         0.       *        1
1530  187     .00     .00     .00         2.
         1     0510   63     .02     .02     .00         0.       *        1
1535  188     .00     .00     .00         2.
         1     0515   64     .02     .02     .00         0.       *        1
1540  189     .00     .00     .00         2.
         1     0520   65     .03     .03     .00         0.       *        1
1545  190     .00     .00     .00         2.
         1     0525   66     .03     .03     .00         0.       *        1
1550  191     .00     .00     .00         2.
         1     0530   67     .03     .03     .00         0.       *        1
1555  192     .00     .00     .00         2.
         1     0535   68     .31     .28     .04         8.       *        1
```

```
1600  193     .00     .00     .00         2.
         1    0540    69     .31     .20     .11        36.       *        1
1605  194     .00     .00     .00         2.
         1    0545    70     .31     .16     .16        76.       *        1
1610  195     .00     .00     .00         2.
         1    0550    71     .31     .12     .19       113.       *        1
1615  196     .00     .00     .00         2.
         1    0555    72     .31     .10     .21       142.       *        1
1620  197     .00     .00     .00         2.
         1    0600    73     .31     .08     .23       163.       *        1
1625  198     .00     .00     .00         2.
         1    0605    74     .03     .01     .02       131.       *        1
1630  199     .00     .00     .00         2.
         1    0610    75     .03     .01     .02        66.       *        1
1635  200     .00     .00     .00         2.
         1    0615    76     .03     .01     .02        36.       *        1
1640  201     .00     .00     .00         2.
         1    0620    77     .03     .01     .02        24.       *        1
1645  202     .00     .00     .00         2.
         1    0625    78     .03     .01     .02        19.       *        1
1650  203     .00     .00     .00         2.
         1    0630    79     .03     .01     .02        17.       *        1
1655  204     .00     .00     .00         2.
         1    0635    80     .02     .00     .01        15.       *        1
1700  205     .00     .00     .00         2.
         1    0640    81     .02     .00     .01        12.       *        1
1705  206     .00     .00     .00         2.
         1    0645    82     .02     .00     .01        11.       *        1
1710  207     .00     .00     .00         2.
         1    0650    83     .02     .00     .01        10.       *        1
1715  208     .00     .00     .00         2.
         1    0655    84     .02     .00     .01        10.       *        1
1720  209     .00     .00     .00         2.
         1    0700    85     .02     .00     .01        10.       *        1
1725  210     .00     .00     .00         2.
         1    0705    86     .01     .00     .01         9.       *        1
1730  211     .00     .00     .00         2.
         1    0710    87     .01     .00     .01         8.       *        1
1735  212     .00     .00     .00         2.
         1    0715    88     .01     .00     .01         7.       *        1
1740  213     .00     .00     .00         2.
         1    0720    89     .01     .00     .01         7.       *        1
1745  214     .00     .00     .00         2.
         1    0725    90     .01     .00     .01         7.       *        1
1750  215     .00     .00     .00         2.
         1    0730    91     .01     .00     .01         7.       *        1
1755  216     .00     .00     .00         2.
         1    0735    92     .01     .00     .01         7.       *        1
1800  217     .00     .00     .00         2.
         1    0740    93     .01     .00     .01         7.       *        1
1805  218     .00     .00     .00         2.
         1    0745    94     .01     .00     .01         7.       *        1
1810  219     .00     .00     .00         2.
         1    0750    95     .01     .00     .01         7.       *        1
1815  220     .00     .00     .00         2.
         1    0755    96     .01     .00     .01         7.       *        1
1820  221     .00     .00     .00         2.
         1    0800    97     .01     .00     .01         7.       *        1
1825  222     .00     .00     .00         2.
         1    0805    98     .01     .00     .00         6.       *        1
1830  223     .00     .00     .00         2.
         1    0810    99     .01     .00     .00         4.       *        1
1835  224     .00     .00     .00         2.
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         1     0815  100     .01     .00     .00          4.       *        1
1840  225     .00     .00     .00          2.
         1     0820  101     .01     .00     .00          4.       *        1
1845  226     .00     .00     .00          2.
         1     0825  102     .01     .00     .00          3.       *        1
1850  227     .00     .00     .00          2.
         1     0830  103     .01     .00     .00          3.       *        1
1855  228     .00     .00     .00          2.
         1     0835  104     .01     .00     .00          3.       *        1
1900  229     .00     .00     .00          2.
         1     0840  105     .01     .00     .00          3.       *        1
1905  230     .00     .00     .00          2.
         1     0845  106     .01     .00     .00          3.       *        1
1910  231     .00     .00     .00          2.
         1     0850  107     .01     .00     .00          3.       *        1
1915  232     .00     .00     .00          2.
         1     0855  108     .01     .00     .00          3.       *        1
1920  233     .00     .00     .00          2.
         1     0900  109     .01     .00     .00          3.       *        1
1925  234     .00     .00     .00          2.
         1     0905  110     .01     .00     .00          3.       *        1
1930  235     .00     .00     .00          2.
         1     0910  111     .01     .00     .00          3.       *        1
1935  236     .00     .00     .00          2.
         1     0915  112     .01     .00     .00          3.       *        1
1940  237     .00     .00     .00          2.
         1     0920  113     .01     .00     .00          3.       *        1
1945  238     .00     .00     .00          2.
         1     0925  114     .01     .00     .00          3.       *        1
1950  239     .00     .00     .00          2.
         1     0930  115     .01     .00     .00          3.       *        1
1955  240     .00     .00     .00          2.
         1     0935  116     .01     .00     .00          3.       *        1
2000  241     .00     .00     .00          2.
         1     0940  117     .01     .00     .00          3.       *        1
2005  242     .00     .00     .00          2.
         1     0945  118     .01     .00     .00          3.       *        1
2010  243     .00     .00     .00          1.
         1     0950  119     .01     .00     .00          3.       *        1
2015  244     .00     .00     .00          1.
         1     0955  120     .01     .00     .00          3.       *        1
2020  245     .00     .00     .00          1.
         1     1000  121     .01     .00     .00          3.       *        1
2025  246     .00     .00     .00          1.
         1     1005  122     .00     .00     .00          3.       *        1
2030  247     .00     .00     .00          1.
         1     1010  123     .00     .00     .00          3.       *        1
2035  248     .00     .00     .00          1.
         1     1015  124     .00     .00     .00          3.       *        1
2040  249     .00     .00     .00          1.
         1     1020  125     .00     .00     .00          3.       *        1
2045  250     .00     .00     .00          1.
                                                                   *

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

     TOTAL RAINFALL =    3.08, TOTAL LOSS =    1.42, TOTAL EXCESS =    1.66

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                         6-HR        24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                                 (CFS)
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+     163.      6.00                   15.         5.          5.            5.
                        (INCHES)     1.386       1.654       1.654        1.654
                         (AC-FT)        8.          9.          9.           9.

                         CUMULATIVE AREA =     .10 SQ MI


 WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


************************************************************************************
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                                                   HYDROGRAPH AT STATION    E8005
                                                       PLAN 1,   RATIO =  1.00


************************************************************************************
***********************************************
                                                                  *
        DA MON HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q       *       DA MON
HRMN  ORD    RAIN    LOSS  EXCESS     COMP Q
                                                                  *
         1     0000    1     .00     .00     .00         0.       *        1
1025  126     .01     .00     .00         4.
         1     0005    2     .00     .00     .00         0.       *        1
1030  127     .01     .00     .00         4.
         1     0010    3     .00     .00     .00         0.       *        1
1035  128     .01     .00     .01         4.
         1     0015    4     .00     .00     .00         0.       *        1
1040  129     .01     .00     .01         4.
         1     0020    5     .00     .00     .00         0.       *        1
1045  130     .01     .00     .01         4.
         1     0025    6     .00     .00     .00         0.       *        1
1050  131     .01     .00     .00         4.
         1     0030    7     .00     .00     .00         0.       *        1
1055  132     .01     .00     .00         4.
         1     0035    8     .00     .00     .00         0.       *        1
1100  133     .01     .00     .00         4.
         1     0040    9     .00     .00     .00         0.       *        1
1105  134     .01     .00     .01         4.
         1     0045   10     .00     .00     .00         0.       *        1
1110  135     .01     .00     .01         4.
         1     0050   11     .00     .00     .00         0.       *        1
1115  136     .01     .00     .01         4.
         1     0055   12     .00     .00     .00         0.       *        1
1120  137     .01     .00     .00         4.
         1     0100   13     .00     .00     .00         0.       *        1
1125  138     .01     .00     .00         4.
         1     0105   14     .00     .00     .00         0.       *        1
1130  139     .01     .00     .00         4.
         1     0110   15     .00     .00     .00         0.       *        1
1135  140     .01     .00     .01         4.
         1     0115   16     .00     .00     .00         0.       *        1
1140  141     .01     .00     .01         4.
         1     0120   17     .00     .00     .00         0.       *        1
1145  142     .01     .00     .01         4.
         1     0125   18     .00     .00     .00         0.       *        1
1150  143     .01     .00     .00         4.
         1     0130   19     .00     .00     .00         0.       *        1
1155  144     .01     .00     .00         4.
         1     0135   20     .00     .00     .00         0.       *        1
1200  145     .01     .00     .00         4.
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           1     0140   21     .00     .00     .00         0.        *        1
1205  146     .01     .00     .01          4.
           1     0145   22     .00     .00     .00         0.        *        1
1210  147     .01     .00     .01          4.
           1     0150   23     .00     .00     .00         0.        *        1
1215  148     .01     .00     .01          4.
           1     0155   24     .00     .00     .00         0.        *        1
1220  149     .01     .00     .00          4.
           1     0200   25     .00     .00     .00         0.        *        1
1225  150     .01     .00     .00          4.
           1     0205   26     .00     .00     .00         0.        *        1
1230  151     .01     .00     .00          4.
           1     0210   27     .00     .00     .00         0.        *        1
1235  152     .01     .00     .01          4.
           1     0215   28     .00     .00     .00         0.        *        1
1240  153     .01     .00     .01          4.
           1     0220   29     .00     .00     .00         0.        *        1
1245  154     .01     .00     .01          4.
           1     0225   30     .00     .00     .00         0.        *        1
1250  155     .01     .00     .00          4.
           1     0230   31     .00     .00     .00         0.        *        1
1255  156     .01     .00     .00          4.
           1     0235   32     .00     .00     .00         0.        *        1
1300  157     .01     .00     .00          4.
           1     0240   33     .00     .00     .00         0.        *        1
1305  158     .00     .00     .00          4.
           1     0245   34     .00     .00     .00         0.        *        1
1310  159     .00     .00     .00          4.
           1     0250   35     .00     .00     .00         0.        *        1
1315  160     .00     .00     .00          4.
           1     0255   36     .00     .00     .00         0.        *        1
1320  161     .00     .00     .00          4.
           1     0300   37     .00     .00     .00         0.        *        1
1325  162     .00     .00     .00          3.
           1     0305   38     .00     .00     .00         0.        *        1
1330  163     .00     .00     .00          3.
           1     0310   39     .00     .00     .00         0.        *        1
1335  164     .00     .00     .00          3.
           1     0315   40     .00     .00     .00         0.        *        1
1340  165     .00     .00     .00          4.
           1     0320   41     .00     .00     .00         0.        *        1
1345  166     .00     .00     .00          4.
           1     0325   42     .00     .00     .00         0.        *        1
1350  167     .00     .00     .00          4.
           1     0330   43     .00     .00     .00         0.        *        1
1355  168     .00     .00     .00          3.
           1     0335   44     .00     .00     .00         0.        *        1
1400  169     .00     .00     .00          3.
           1     0340   45     .00     .00     .00         0.        *        1
1405  170     .00     .00     .00          3.
           1     0345   46     .00     .00     .00         0.        *        1
1410  171     .00     .00     .00          3.
           1     0350   47     .01     .01     .00         0.        *        1
1415  172     .00     .00     .00          3.
           1     0355   48     .01     .01     .00         0.        *        1
1420  173     .00     .00     .00          3.
           1     0400   49     .01     .01     .00         0.        *        1
1425  174     .00     .00     .00          3.
           1     0405   50     .01     .01     .00         0.        *        1
1430  175     .00     .00     .00          3.
           1     0410   51     .01     .01     .00         0.        *        1
1435  176     .00     .00     .00          3.
           1     0415   52     .01     .01     .00         0.        *        1
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1440  177     .00     .00     .00         3.
         1     0420   53     .01     .01     .00          0.      *        1
1445  178     .00     .00     .00         3.
         1     0425   54     .01     .01     .00          0.      *        1
1450  179     .00     .00     .00         3.
         1     0430   55     .01     .01     .00          0.      *        1
1455  180     .00     .00     .00         3.
         1     0435   56     .01     .01     .00          0.      *        1
1500  181     .00     .00     .00         3.
         1     0440   57     .01     .01     .00          0.      *        1
1505  182     .00     .00     .00         3.
         1     0445   58     .01     .01     .00          0.      *        1
1510  183     .00     .00     .00         3.
         1     0450   59     .01     .01     .00          0.      *        1
1515  184     .00     .00     .00         3.
         1     0455   60     .01     .01     .00          0.      *        1
1520  185     .00     .00     .00         3.
         1     0500   61     .01     .01     .00          0.      *        1
1525  186     .00     .00     .00         3.
         1     0505   62     .02     .02     .00          0.      *        1
1530  187     .00     .00     .00         3.
         1     0510   63     .02     .02     .00          0.      *        1
1535  188     .00     .00     .00         3.
         1     0515   64     .02     .02     .00          0.      *        1
1540  189     .00     .00     .00         3.
         1     0520   65     .04     .04     .00          0.      *        1
1545  190     .00     .00     .00         3.
         1     0525   66     .04     .04     .00          0.      *        1
1550  191     .00     .00     .00         3.
         1     0530   67     .04     .03     .00          1.      *        1
1555  192     .00     .00     .00         3.
         1     0535   68     .45     .32     .12         28.      *        1
1600  193     .00     .00     .00         3.
         1     0540   69     .45     .22     .23         91.      *        1
1605  194     .00     .00     .00         3.
         1     0545   70     .45     .16     .29        158.      *        1
1610  195     .00     .00     .00         3.
         1     0550   71     .45     .12     .33        211.      *        1
1615  196     .00     .00     .00         3.
         1     0555   72     .45     .09     .35        248.      *        1
1620  197     .00     .00     .00         3.
         1     0600   73     .45     .07     .37        274.      *        1
1625  198     .00     .00     .00         3.
         1     0605   74     .04     .01     .03        216.      *        1
1630  199     .00     .00     .00         3.
         1     0610   75     .04     .01     .03        108.      *        1
1635  200     .00     .00     .00         3.
         1     0615   76     .04     .01     .03         58.      *        1
1640  201     .00     .00     .00         3.
         1     0620   77     .04     .01     .03         38.      *        1
1645  202     .00     .00     .00         3.
         1     0625   78     .04     .01     .03         31.      *        1
1650  203     .00     .00     .00         3.
         1     0630   79     .04     .01     .03         27.      *        1
1655  204     .00     .00     .00         3.
         1     0635   80     .02     .00     .02         24.      *        1
1700  205     .00     .00     .00         3.
         1     0640   81     .02     .00     .02         19.      *        1
1705  206     .00     .00     .00         3.
         1     0645   82     .02     .00     .02         17.      *        1
1710  207     .00     .00     .00         3.
         1     0650   83     .02     .00     .02         16.      *        1
1715  208     .00     .00     .00         3.
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         1     0655   84     .02     .00     .02        16.       *        1
1720  209     .00     .00     .00         3.
         1     0700   85     .02     .00     .02        16.       *        1
1725  210     .00     .00     .00         3.
         1     0705   86     .01     .00     .01        14.       *        1
1730  211     .00     .00     .00         3.
         1     0710   87     .01     .00     .01        12.       *        1
1735  212     .00     .00     .00         3.
         1     0715   88     .01     .00     .01        11.       *        1
1740  213     .00     .00     .00         3.
         1     0720   89     .01     .00     .01        11.       *        1
1745  214     .00     .00     .00         3.
         1     0725   90     .01     .00     .01        11.       *        1
1750  215     .00     .00     .00         3.
         1     0730   91     .01     .00     .01        11.       *        1
1755  216     .00     .00     .00         3.
         1     0735   92     .01     .00     .01        11.       *        1
1800  217     .00     .00     .00         3.
         1     0740   93     .01     .00     .01        11.       *        1
1805  218     .00     .00     .00         3.
         1     0745   94     .01     .00     .01        11.       *        1
1810  219     .00     .00     .00         3.
         1     0750   95     .01     .00     .01        11.       *        1
1815  220     .00     .00     .00         3.
         1     0755   96     .01     .00     .01        11.       *        1
1820  221     .00     .00     .00         3.
         1     0800   97     .01     .00     .01        11.       *        1
1825  222     .00     .00     .00         3.
         1     0805   98     .01     .00     .01         9.       *        1
1830  223     .00     .00     .00         3.
         1     0810   99     .01     .00     .01         7.       *        1
1835  224     .00     .00     .00         3.
         1     0815  100     .01     .00     .01         6.       *        1
1840  225     .00     .00     .00         3.
         1     0820  101     .01     .00     .01         6.       *        1
1845  226     .00     .00     .00         3.
         1     0825  102     .01     .00     .01         5.       *        1
1850  227     .00     .00     .00         3.
         1     0830  103     .01     .00     .01         5.       *        1
1855  228     .00     .00     .00         3.
         1     0835  104     .01     .00     .01         5.       *        1
1900  229     .00     .00     .00         3.
         1     0840  105     .01     .00     .01         5.       *        1
1905  230     .00     .00     .00         3.
         1     0845  106     .01     .00     .01         5.       *        1
1910  231     .00     .00     .00         3.
         1     0850  107     .01     .00     .01         5.       *        1
1915  232     .00     .00     .00         3.
         1     0855  108     .01     .00     .01         5.       *        1
1920  233     .00     .00     .00         3.
         1     0900  109     .01     .00     .01         5.       *        1
1925  234     .00     .00     .00         3.
         1     0905  110     .01     .00     .01         5.       *        1
1930  235     .00     .00     .00         3.
         1     0910  111     .01     .00     .01         5.       *        1
1935  236     .00     .00     .00         3.
         1     0915  112     .01     .00     .01         5.       *        1
1940  237     .00     .00     .00         3.
         1     0920  113     .01     .00     .01         5.       *        1
1945  238     .00     .00     .00         3.
         1     0925  114     .01     .00     .01         5.       *        1
1950  239     .00     .00     .00         3.
         1     0930  115     .01     .00     .01         5.       *        1
```

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1955  240     .00     .00     .00        3.
         1     0935  116     .01     .00     .01         5.        *        1
2000  241     .00     .00     .00        3.
         1     0940  117     .01     .00     .01         5.        *        1
2005  242     .00     .00     .00        2.
         1     0945  118     .01     .00     .01         5.        *        1
2010  243     .00     .00     .00        2.
         1     0950  119     .01     .00     .01         5.        *        1
2015  244     .00     .00     .00        2.
         1     0955  120     .01     .00     .01         5.        *        1
2020  245     .00     .00     .00        1.
         1     1000  121     .01     .00     .01         5.        *        1
2025  246     .00     .00     .00        1.
         1     1005  122     .01     .00     .01         5.        *        1
2030  247     .00     .00     .00        1.
         1     1010  123     .01     .00     .01         4.        *        1
2035  248     .00     .00     .00        1.
         1     1015  124     .01     .00     .01         4.        *        1
2040  249     .00     .00     .00        1.
         1     1020  125     .01     .00     .00         4.        *        1
2045  250     .00     .00     .00        1.
                                                                   *

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     TOTAL RAINFALL =    4.40, TOTAL LOSS =    1.58, TOTAL EXCESS =    2.82

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+     274.      6.00                   27.           9.           9.           9.
                        (INCHES)     2.401        2.815        2.815        2.815
                         (AC-FT)       13.          16.          16.          16.

                         CUMULATIVE AREA =     .10 SQ MI



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


             **************
             *            *
  210 KK     *    DB8006  *
             *            *
             **************

  211 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           1  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                                        ROUTE FLOW FROM E8005 THROUGH DB8006 -
MARKETS AT MESA RIDGE FSD

                HYDROGRAPH ROUTING DATA

  213 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
```

```
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC         .00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

  214 SV            STORAGE          .0        .2       1.7       2.3       4.4
 7.4      11.0      13.1

  215 SE          ELEVATION     5699.00   5700.00   5703.00   5704.00   5706.00
5708.00   5710.00   5711.00

  216 SQ          DISCHARGE          0.        1.        1.       50.       56.
 58.       43.       74.

  217 SE          ELEVATION     5700.00   5701.00   5705.70   5706.00   5708.00
5708.50   5709.00   5710.00

  218 SS          SPILLWAY
                         CREL     5710.00  SPILLWAY CREST ELEVATION
                        SPWID      400.00  SPILLWAY WIDTH
                         COQW        3.10  WEIR COEFFICIENT
                         EXPW        1.50  EXPONENT OF HEAD

                                                                 ***

                                              COMPUTED STORAGE-OUTFLOW-ELEVATION
DATA

             STORAGE        .00       .22       .73      1.74      2.34      4.09
  4.40      7.44      8.33      9.22
             OUTFLOW        .00       .00       .70       .70       .70       .70
 49.50     56.40     58.00     42.50
           ELEVATION    5699.00   5700.00   5701.00   5703.00   5704.00   5705.70
5706.00   5708.00   5708.50   5709.00

             STORAGE      11.00     13.12
             OUTFLOW      73.50    104.50
           ELEVATION    5710.00   5711.00


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                                                   HYDROGRAPH AT STATION   DB8006
                                                       PLAN 1,   RATIO =   .47


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***********************************************
                                            *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                            *
   *
   1     0000   1       0.       .0  5699.0 *  1     0700  85       1.      2.9
5704.5 *  1     1400 169       1.      3.6  5705.3
   1     0005   2       0.       .0  5699.0 *  1     0705  86       1.      2.9
5704.6 *  1     1405 170       1.      3.6  5705.3
   1     0010   3       0.       .0  5699.0 *  1     0710  87       1.      2.9
5704.6 *  1     1410 171       1.      3.6  5705.3
   1     0015   4       0.       .0  5699.0 *  1     0715  88       1.      3.0
5704.6 *  1     1415 172       1.      3.7  5705.3
   1     0020   5       0.       .0  5699.0 *  1     0720  89       1.      3.0
```

```
5704.6 *  1     1420 173       1.       3.7  5705.3
  1     0025   6        0.       .0  5699.0 *  1     0725  90       1.       3.0
5704.6 *  1     1425 174       1.       3.7  5705.3
  1     0030   7        0.       .0  5699.0 *  1     0730  91       1.       3.0
5704.7 *  1     1430 175       1.       3.7  5705.3
  1     0035   8        0.       .0  5699.0 *  1     0735  92       1.       3.0
5704.7 *  1     1435 176       1.       3.7  5705.3
  1     0040   9        0.       .0  5699.0 *  1     0740  93       1.       3.1
5704.7 *  1     1440 177       1.       3.7  5705.3
  1     0045  10        0.       .0  5699.0 *  1     0745  94       1.       3.1
5704.7 *  1     1445 178       1.       3.7  5705.3
  1     0050  11        0.       .0  5699.0 *  1     0750  95       1.       3.1
5704.7 *  1     1450 179       1.       3.7  5705.3
  1     0055  12        0.       .0  5699.0 *  1     0755  96       1.       3.1
5704.8 *  1     1455 180       1.       3.7  5705.3
  1     0100  13        0.       .0  5699.0 *  1     0800  97       1.       3.2
5704.8 *  1     1500 181       1.       3.7  5705.3
  1     0105  14        0.       .0  5699.0 *  1     0805  98       1.       3.2
5704.8 *  1     1505 182       1.       3.7  5705.3
  1     0110  15        0.       .0  5699.0 *  1     0810  99       1.       3.2
5704.8 *  1     1510 183       1.       3.7  5705.3
  1     0115  16        0.       .0  5699.0 *  1     0815 100       1.       3.2
5704.8 *  1     1515 184       1.       3.7  5705.3
  1     0120  17        0.       .0  5699.0 *  1     0820 101       1.       3.2
5704.8 *  1     1520 185       1.       3.7  5705.3
  1     0125  18        0.       .0  5699.0 *  1     0825 102       1.       3.2
5704.9 *  1     1525 186       1.       3.7  5705.3
  1     0130  19        0.       .0  5699.0 *  1     0830 103       1.       3.2
5704.9 *  1     1530 187       1.       3.7  5705.3
  1     0135  20        0.       .0  5699.0 *  1     0835 104       1.       3.2
5704.9 *  1     1535 188       1.       3.7  5705.3
  1     0140  21        0.       .0  5699.0 *  1     0840 105       1.       3.2
5704.9 *  1     1540 189       1.       3.7  5705.3
  1     0145  22        0.       .0  5699.0 *  1     0845 106       1.       3.3
5704.9 *  1     1545 190       1.       3.7  5705.3
  1     0150  23        0.       .0  5699.0 *  1     0850 107       1.       3.3
5704.9 *  1     1550 191       1.       3.7  5705.3
  1     0155  24        0.       .0  5699.0 *  1     0855 108       1.       3.3
5704.9 *  1     1555 192       1.       3.7  5705.3
  1     0200  25        0.       .0  5699.0 *  1     0900 109       1.       3.3
5704.9 *  1     1600 193       1.       3.7  5705.3
  1     0205  26        0.       .0  5699.0 *  1     0905 110       1.       3.3
5704.9 *  1     1605 194       1.       3.7  5705.3
  1     0210  27        0.       .0  5699.0 *  1     0910 111       1.       3.3
5704.9 *  1     1610 195       1.       3.7  5705.3
  1     0215  28        0.       .0  5699.0 *  1     0915 112       1.       3.3
5704.9 *  1     1615 196       1.       3.7  5705.3
  1     0220  29        0.       .0  5699.0 *  1     0920 113       1.       3.3
5704.9 *  1     1620 197       1.       3.7  5705.3
  1     0225  30        0.       .0  5699.0 *  1     0925 114       1.       3.3
5705.0 *  1     1625 198       1.       3.7  5705.3
  1     0230  31        0.       .0  5699.0 *  1     0930 115       1.       3.3
5705.0 *  1     1630 199       1.       3.7  5705.3
  1     0235  32        0.       .0  5699.0 *  1     0935 116       1.       3.3
5705.0 *  1     1635 200       1.       3.7  5705.3
  1     0240  33        0.       .0  5699.0 *  1     0940 117       1.       3.3
5705.0 *  1     1640 201       1.       3.7  5705.4
  1     0245  34        0.       .0  5699.0 *  1     0945 118       1.       3.4
5705.0 *  1     1645 202       1.       3.7  5705.4
  1     0250  35        0.       .0  5699.0 *  1     0950 119       1.       3.4
5705.0 *  1     1650 203       1.       3.7  5705.4
  1     0255  36        0.       .0  5699.0 *  1     0955 120       1.       3.4
5705.0 *  1     1655 204       1.       3.7  5705.4
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```
   1      0300  37        0.        .0  5699.0 *  1     1000 121        1.       3.4
5705.0 *  1     1700 205       1.       3.7  5705.4
   1      0305  38        0.        .0  5699.0 *  1     1005 122        1.       3.4
5705.0 *  1     1705 206       1.       3.7  5705.4
   1      0310  39        0.        .0  5699.0 *  1     1010 123        1.       3.4
5705.0 *  1     1710 207       1.       3.7  5705.4
   1      0315  40        0.        .0  5699.0 *  1     1015 124        1.       3.4
5705.0 *  1     1715 208       1.       3.7  5705.4
   1      0320  41        0.        .0  5699.0 *  1     1020 125        1.       3.4
5705.0 *  1     1720 209       1.       3.7  5705.4
   1      0325  42        0.        .0  5699.0 *  1     1025 126        1.       3.4
5705.0 *  1     1725 210       1.       3.8  5705.4
   1      0330  43        0.        .0  5699.0 *  1     1030 127        1.       3.4
5705.0 *  1     1730 211       1.       3.8  5705.4
   1      0335  44        0.        .0  5699.0 *  1     1035 128        1.       3.4
5705.1 *  1     1735 212       1.       3.8  5705.4
   1      0340  45        0.        .0  5699.0 *  1     1040 129        1.       3.4
5705.1 *  1     1740 213       1.       3.8  5705.4
   1      0345  46        0.        .0  5699.0 *  1     1045 130        1.       3.4
5705.1 *  1     1745 214       1.       3.8  5705.4
   1      0350  47        0.        .0  5699.0 *  1     1050 131        1.       3.4
5705.1 *  1     1750 215       1.       3.8  5705.4
   1      0355  48        0.        .0  5699.0 *  1     1055 132        1.       3.4
5705.1 *  1     1755 216       1.       3.8  5705.4
   1      0400  49        0.        .0  5699.0 *  1     1100 133        1.       3.5
5705.1 *  1     1800 217       1.       3.8  5705.4
   1      0405  50        0.        .0  5699.0 *  1     1105 134        1.       3.5
5705.1 *  1     1805 218       1.       3.8  5705.4
   1      0410  51        0.        .0  5699.0 *  1     1110 135        1.       3.5
5705.1 *  1     1810 219       1.       3.8  5705.4
   1      0415  52        0.        .0  5699.0 *  1     1115 136        1.       3.5
5705.1 *  1     1815 220       1.       3.8  5705.4
   1      0420  53        0.        .0  5699.0 *  1     1120 137        1.       3.5
5705.1 *  1     1820 221       1.       3.8  5705.4
   1      0425  54        0.        .0  5699.0 *  1     1125 138        1.       3.5
5705.1 *  1     1825 222       1.       3.8  5705.4
   1      0430  55        0.        .0  5699.0 *  1     1130 139        1.       3.5
5705.1 *  1     1830 223       1.       3.8  5705.4
   1      0435  56        0.        .0  5699.0 *  1     1135 140        1.       3.5
5705.1 *  1     1835 224       1.       3.8  5705.4
   1      0440  57        0.        .0  5699.0 *  1     1140 141        1.       3.5
5705.1 *  1     1840 225       1.       3.8  5705.4
   1      0445  58        0.        .0  5699.0 *  1     1145 142        1.       3.5
5705.1 *  1     1845 226       1.       3.8  5705.4
   1      0450  59        0.        .0  5699.0 *  1     1150 143        1.       3.5
5705.1 *  1     1850 227       1.       3.8  5705.4
   1      0455  60        0.        .0  5699.0 *  1     1155 144        1.       3.5
5705.1 *  1     1855 228       1.       3.8  5705.4
   1      0500  61        0.        .0  5699.0 *  1     1200 145        1.       3.5
5705.1 *  1     1900 229       1.       3.8  5705.4
   1      0505  62        0.        .0  5699.0 *  1     1205 146        1.       3.5
5705.1 *  1     1905 230       1.       3.8  5705.4
   1      0510  63        0.        .0  5699.0 *  1     1210 147        1.       3.5
5705.2 *  1     1910 231       1.       3.8  5705.4
   1      0515  64        0.        .0  5699.0 *  1     1215 148        1.       3.5
5705.2 *  1     1915 232       1.       3.8  5705.4
   1      0520  65        0.        .0  5699.0 *  1     1220 149        1.       3.5
5705.2 *  1     1920 233       1.       3.8  5705.4
   1      0525  66        0.        .0  5699.0 *  1     1225 150        1.       3.5
5705.2 *  1     1925 234       1.       3.8  5705.4
   1      0530  67        0.        .0  5699.0 *  1     1230 151        1.       3.6
5705.2 *  1     1930 235       1.       3.8  5705.4
   1      0535  68        0.        .0  5699.0 *  1     1235 152        1.       3.6
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5705.2 *  1     1935 236       1.      3.8  5705.4
   1     0540  69       0.       .0  5699.1 *  1     1240 153       1.      3.6
5705.2 *  1     1940 237       1.      3.8  5705.4
   1     0545  70       0.       .2  5699.7 *  1     1245 154       1.      3.6
5705.2 *  1     1945 238       1.      3.8  5705.4
   1     0550  71       0.       .4  5700.4 *  1     1250 155       1.      3.6
5705.2 *  1     1950 239       1.      3.8  5705.4
   1     0555  72       1.       .8  5701.2 *  1     1255 156       1.      3.6
5705.2 *  1     1955 240       1.      3.8  5705.4
   1     0600  73       1.      1.3  5702.2 *  1     1300 157       1.      3.6
5705.2 *  1     2000 241       1.      3.8  5705.4
   1     0605  74       1.      1.8  5703.2 *  1     1305 158       1.      3.6
5705.2 *  1     2005 242       1.      3.8  5705.4
   1     0610  75       1.      2.2  5703.8 *  1     1310 159       1.      3.6
5705.2 *  1     2010 243       1.      3.8  5705.4
   1     0615  76       1.      2.4  5704.0 *  1     1315 160       1.      3.6
5705.2 *  1     2015 244       1.      3.8  5705.4
   1     0620  77       1.      2.5  5704.1 *  1     1320 161       1.      3.6
5705.2 *  1     2020 245       1.      3.8  5705.4
   1     0625  78       1.      2.6  5704.2 *  1     1325 162       1.      3.6
5705.2 *  1     2025 246       1.      3.8  5705.4
   1     0630  79       1.      2.6  5704.3 *  1     1330 163       1.      3.6
5705.2 *  1     2030 247       1.      3.8  5705.4
   1     0635  80       1.      2.7  5704.3 *  1     1335 164       1.      3.6
5705.2 *  1     2035 248       1.      3.8  5705.4
   1     0640  81       1.      2.7  5704.4 *  1     1340 165       1.      3.6
5705.2 *  1     2040 249       1.      3.8  5705.4
   1     0645  82       1.      2.8  5704.4 *  1     1345 166       1.      3.6
5705.2 *  1     2045 250       1.      3.8  5705.4
   1     0650  83       1.      2.8  5704.5 *  1     1350 167       1.      3.6
5705.3 *
   1     0655  84       1.      2.8  5704.5 *  1     1355 168       1.      3.6
5705.3 *
                                            *
   *

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  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+       1.      5.92                    1.          1.          1.           1.
                        (INCHES)      .063        .155        .155         .155
                         (AC-FT)        0.          1.          1.           1.

 PEAK STORAGE   TIME                             MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     20.75-HR
+  (AC-FT)      (HR)
        4.     20.08                    4.          2.          2.           2.

  PEAK STAGE    TIME                              MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     20.75-HR
+   (FEET)      (HR)
   5705.44     20.17               5705.38     5703.37     5703.37      5703.37

                         CUMULATIVE AREA =      .10 SQ MI


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                                                   HYDROGRAPH AT STATION   DB8006
                                                       PLAN 1,   RATIO =   .56


*************************************************************************************
***********************************************
                                            *
   *
  DA MON HRMN ORD   OUTFLOW   STORAGE    STAGE * DA MON HRMN ORD   OUTFLOW   STORAGE
STAGE * DA MON HRMN ORD   OUTFLOW   STORAGE    STAGE
                                            *
   *
   1     0000   1       0.        .0  5699.0 *  1     0700  85       1.       4.1
5705.7 *  1     1400 169       2.       4.1  5705.7
   1     0005   2       0.        .0  5699.0 *  1     0705  86       2.       4.1
5705.7 *  1     1405 170       2.       4.1  5705.7
   1     0010   3       0.        .0  5699.0 *  1     0710  87       5.       4.1
5705.7 *  1     1410 171       2.       4.1  5705.7
   1     0015   4       0.        .0  5699.0 *  1     0715  88       5.       4.1
5705.7 *  1     1415 172       2.       4.1  5705.7
   1     0020   5       0.        .0  5699.0 *  1     0720  89       5.       4.1
5705.7 *  1     1420 173       2.       4.1  5705.7
   1     0025   6       0.        .0  5699.0 *  1     0725  90       5.       4.1
5705.7 *  1     1425 174       2.       4.1  5705.7
   1     0030   7       0.        .0  5699.0 *  1     0730  91       5.       4.1
5705.7 *  1     1430 175       2.       4.1  5705.7
   1     0035   8       0.        .0  5699.0 *  1     0735  92       5.       4.1
5705.7 *  1     1435 176       2.       4.1  5705.7
   1     0040   9       0.        .0  5699.0 *  1     0740  93       5.       4.1
5705.7 *  1     1440 177       2.       4.1  5705.7
   1     0045  10       0.        .0  5699.0 *  1     0745  94       5.       4.1
5705.7 *  1     1445 178       2.       4.1  5705.7
   1     0050  11       0.        .0  5699.0 *  1     0750  95       5.       4.1
5705.7 *  1     1450 179       2.       4.1  5705.7
   1     0055  12       0.        .0  5699.0 *  1     0755  96       5.       4.1
5705.7 *  1     1455 180       2.       4.1  5705.7
   1     0100  13       0.        .0  5699.0 *  1     0800  97       5.       4.1
5705.7 *  1     1500 181       2.       4.1  5705.7
   1     0105  14       0.        .0  5699.0 *  1     0805  98       5.       4.1
5705.7 *  1     1505 182       2.       4.1  5705.7
   1     0110  15       0.        .0  5699.0 *  1     0810  99       4.       4.1
5705.7 *  1     1510 183       1.       4.1  5705.7
   1     0115  16       0.        .0  5699.0 *  1     0815 100       3.       4.1
5705.7 *  1     1515 184       1.       4.1  5705.7
   1     0120  17       0.        .0  5699.0 *  1     0820 101       3.       4.1
5705.7 *  1     1520 185       1.       4.1  5705.7
   1     0125  18       0.        .0  5699.0 *  1     0825 102       3.       4.1
5705.7 *  1     1525 186       1.       4.1  5705.7
   1     0130  19       0.        .0  5699.0 *  1     0830 103       3.       4.1
5705.7 *  1     1530 187       1.       4.1  5705.7
   1     0135  20       0.        .0  5699.0 *  1     0835 104       3.       4.1
5705.7 *  1     1535 188       1.       4.1  5705.7
   1     0140  21       0.        .0  5699.0 *  1     0840 105       3.       4.1
5705.7 *  1     1540 189       1.       4.1  5705.7
   1     0145  22       0.        .0  5699.0 *  1     0845 106       3.       4.1
5705.7 *  1     1545 190       1.       4.1  5705.7
   1     0150  23       0.        .0  5699.0 *  1     0850 107       3.       4.1
5705.7 *  1     1550 191       1.       4.1  5705.7
   1     0155  24       0.        .0  5699.0 *  1     0855 108       3.       4.1
5705.7 *  1     1555 192       1.       4.1  5705.7
   1     0200  25       0.        .0  5699.0 *  1     0900 109       3.       4.1
5705.7 *  1     1600 193       1.       4.1  5705.7
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   1     0205  26        0.        .0  5699.0 *  1     0905 110        3.      4.1
5705.7 *  1     1605 194       1.       4.1  5705.7
   1     0210  27        0.        .0  5699.0 *  1     0910 111        3.      4.1
5705.7 *  1     1610 195       1.       4.1  5705.7
   1     0215  28        0.        .0  5699.0 *  1     0915 112        3.      4.1
5705.7 *  1     1615 196       1.       4.1  5705.7
   1     0220  29        0.        .0  5699.0 *  1     0920 113        3.      4.1
5705.7 *  1     1620 197       1.       4.1  5705.7
   1     0225  30        0.        .0  5699.0 *  1     0925 114        3.      4.1
5705.7 *  1     1625 198       1.       4.1  5705.7
   1     0230  31        0.        .0  5699.0 *  1     0930 115        3.      4.1
5705.7 *  1     1630 199       1.       4.1  5705.7
   1     0235  32        0.        .0  5699.0 *  1     0935 116        3.      4.1
5705.7 *  1     1635 200       1.       4.1  5705.7
   1     0240  33        0.        .0  5699.0 *  1     0940 117        3.      4.1
5705.7 *  1     1640 201       1.       4.1  5705.7
   1     0245  34        0.        .0  5699.0 *  1     0945 118        3.      4.1
5705.7 *  1     1645 202       1.       4.1  5705.7
   1     0250  35        0.        .0  5699.0 *  1     0950 119        3.      4.1
5705.7 *  1     1650 203       1.       4.1  5705.7
   1     0255  36        0.        .0  5699.0 *  1     0955 120        3.      4.1
5705.7 *  1     1655 204       1.       4.1  5705.7
   1     0300  37        0.        .0  5699.0 *  1     1000 121        3.      4.1
5705.7 *  1     1700 205       1.       4.1  5705.7
   1     0305  38        0.        .0  5699.0 *  1     1005 122        2.      4.1
5705.7 *  1     1705 206       1.       4.1  5705.7
   1     0310  39        0.        .0  5699.0 *  1     1010 123        2.      4.1
5705.7 *  1     1710 207       1.       4.1  5705.7
   1     0315  40        0.        .0  5699.0 *  1     1015 124        2.      4.1
5705.7 *  1     1715 208       1.       4.1  5705.7
   1     0320  41        0.        .0  5699.0 *  1     1020 125        2.      4.1
5705.7 *  1     1720 209       1.       4.1  5705.7
   1     0325  42        0.        .0  5699.0 *  1     1025 126        2.      4.1
5705.7 *  1     1725 210       1.       4.1  5705.7
   1     0330  43        0.        .0  5699.0 *  1     1030 127        2.      4.1
5705.7 *  1     1730 211       1.       4.1  5705.7
   1     0335  44        0.        .0  5699.0 *  1     1035 128        2.      4.1
5705.7 *  1     1735 212       1.       4.1  5705.7
   1     0340  45        0.        .0  5699.0 *  1     1040 129        2.      4.1
5705.7 *  1     1740 213       1.       4.1  5705.7
   1     0345  46        0.        .0  5699.0 *  1     1045 130        2.      4.1
5705.7 *  1     1745 214       1.       4.1  5705.7
   1     0350  47        0.        .0  5699.0 *  1     1050 131        2.      4.1
5705.7 *  1     1750 215       1.       4.1  5705.7
   1     0355  48        0.        .0  5699.0 *  1     1055 132        2.      4.1
5705.7 *  1     1755 216       1.       4.1  5705.7
   1     0400  49        0.        .0  5699.0 *  1     1100 133        2.      4.1
5705.7 *  1     1800 217       1.       4.1  5705.7
   1     0405  50        0.        .0  5699.0 *  1     1105 134        2.      4.1
5705.7 *  1     1805 218       1.       4.1  5705.7
   1     0410  51        0.        .0  5699.0 *  1     1110 135        2.      4.1
5705.7 *  1     1810 219       1.       4.1  5705.7
   1     0415  52        0.        .0  5699.0 *  1     1115 136        2.      4.1
5705.7 *  1     1815 220       1.       4.1  5705.7
   1     0420  53        0.        .0  5699.0 *  1     1120 137        2.      4.1
5705.7 *  1     1820 221       1.       4.1  5705.7
   1     0425  54        0.        .0  5699.0 *  1     1125 138        2.      4.1
5705.7 *  1     1825 222       1.       4.1  5705.7
   1     0430  55        0.        .0  5699.0 *  1     1130 139        2.      4.1
5705.7 *  1     1830 223       1.       4.1  5705.7
   1     0435  56        0.        .0  5699.0 *  1     1135 140        2.      4.1
5705.7 *  1     1835 224       1.       4.1  5705.7
   1     0440  57        0.        .0  5699.0 *  1     1140 141        2.      4.1
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5705.7 *  1     1840 225       1.        4.1  5705.7
  1     0445  58        0.       .0  5699.0 *  1     1145 142       2.      4.1
5705.7 *  1     1845 226       1.        4.1  5705.7
  1     0450  59        0.       .0  5699.0 *  1     1150 143       2.      4.1
5705.7 *  1     1850 227       1.        4.1  5705.7
  1     0455  60        0.       .0  5699.0 *  1     1155 144       2.      4.1
5705.7 *  1     1855 228       1.        4.1  5705.7
  1     0500  61        0.       .0  5699.0 *  1     1200 145       2.      4.1
5705.7 *  1     1900 229       1.        4.1  5705.7
  1     0505  62        0.       .0  5699.0 *  1     1205 146       2.      4.1
5705.7 *  1     1905 230       1.        4.1  5705.7
  1     0510  63        0.       .0  5699.0 *  1     1210 147       2.      4.1
5705.7 *  1     1910 231       1.        4.1  5705.7
  1     0515  64        0.       .0  5699.0 *  1     1215 148       2.      4.1
5705.7 *  1     1915 232       1.        4.1  5705.7
  1     0520  65        0.       .0  5699.0 *  1     1220 149       2.      4.1
5705.7 *  1     1920 233       1.        4.1  5705.7
  1     0525  66        0.       .0  5699.0 *  1     1225 150       2.      4.1
5705.7 *  1     1925 234       1.        4.1  5705.7
  1     0530  67        0.       .0  5699.0 *  1     1230 151       2.      4.1
5705.7 *  1     1930 235       1.        4.1  5705.7
  1     0535  68        0.       .0  5699.0 *  1     1235 152       2.      4.1
5705.7 *  1     1935 236       1.        4.1  5705.7
  1     0540  69        0.       .1  5699.3 *  1     1240 153       2.      4.1
5705.7 *  1     1940 237       1.        4.1  5705.7
  1     0545  70        0.       .3  5700.1 *  1     1245 154       2.      4.1
5705.7 *  1     1945 238       1.        4.1  5705.7
  1     0550  71        1.       .7  5700.9 *  1     1250 155       2.      4.1
5705.7 *  1     1950 239       1.        4.1  5705.7
  1     0555  72        1.      1.3  5702.0 *  1     1255 156       2.      4.1
5705.7 *  1     1955 240       1.        4.1  5705.7
  1     0600  73        1.      2.0  5703.4 *  1     1300 157       2.      4.1
5705.7 *  1     2000 241       1.        4.1  5705.7
  1     0605  74        1.      2.7  5704.3 *  1     1305 158       2.      4.1
5705.7 *  1     2005 242       1.        4.1  5705.7
  1     0610  75        1.      3.2  5704.8 *  1     1310 159       2.      4.1
5705.7 *  1     2010 243       1.        4.1  5705.7
  1     0615  76        1.      3.4  5705.0 *  1     1315 160       2.      4.1
5705.7 *  1     2015 244       1.        4.1  5705.7
  1     0620  77        1.      3.5  5705.2 *  1     1320 161       2.      4.1
5705.7 *  1     2020 245       1.        4.1  5705.7
  1     0625  78        1.      3.6  5705.3 *  1     1325 162       2.      4.1
5705.7 *  1     2025 246       1.        4.1  5705.7
  1     0630  79        1.      3.7  5705.4 *  1     1330 163       2.      4.1
5705.7 *  1     2030 247       1.        4.1  5705.7
  1     0635  80        1.      3.8  5705.4 *  1     1335 164       2.      4.1
5705.7 *  1     2035 248       1.        4.1  5705.7
  1     0640  81        1.      3.9  5705.5 *  1     1340 165       2.      4.1
5705.7 *  1     2040 249       1.        4.1  5705.7
  1     0645  82        1.      3.9  5705.5 *  1     1345 166       2.      4.1
5705.7 *  1     2045 250       1.        4.1  5705.7
  1     0650  83        1.      4.0  5705.6 *  1     1350 167       2.      4.1
5705.7 *
  1     0655  84        1.      4.0  5705.6 *  1     1355 168       2.      4.1
5705.7 *
                                             *
   *

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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     20.75-HR
```

```
+   (CFS)       (HR)
                           (CFS)
+       5.      7.25                  3.          1.          1.            1.
                        (INCHES)    .240        .411        .411          .411
                         (AC-FT)      1.          2.          2.            2.

  PEAK STORAGE   TIME                                 MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR      20.75-HR
+  (AC-FT)      (HR)
        4.      7.25                  4.          3.          3.            3.

   PEAK STAGE    TIME                                  MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR      20.75-HR
+   (FEET)      (HR)
   5705.73      7.25             5705.72     5703.78     5703.78       5703.78

                         CUMULATIVE AREA =     .10 SQ MI


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                                                     HYDROGRAPH AT STATION   DB8006
                                                         PLAN 1,   RATIO =   .70

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                                            *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                            *
   *
   1     0000   1       0.       .0  5699.0 *  1     0700  85      10.      4.2
5705.8 *  1     1400 169      2.      4.1  5705.7
   1     0005   2       0.       .0  5699.0 *  1     0705  86      10.      4.1
5705.8 *  1     1405 170      2.      4.1  5705.7
   1     0010   3       0.       .0  5699.0 *  1     0710  87       9.      4.1
5705.7 *  1     1410 171      2.      4.1  5705.7
   1     0015   4       0.       .0  5699.0 *  1     0715  88       8.      4.1
5705.7 *  1     1415 172      2.      4.1  5705.7
   1     0020   5       0.       .0  5699.0 *  1     0720  89       7.      4.1
5705.7 *  1     1420 173      2.      4.1  5705.7
   1     0025   6       0.       .0  5699.0 *  1     0725  90       7.      4.1
5705.7 *  1     1425 174      2.      4.1  5705.7
   1     0030   7       0.       .0  5699.0 *  1     0730  91       7.      4.1
5705.7 *  1     1430 175      2.      4.1  5705.7
   1     0035   8       0.       .0  5699.0 *  1     0735  92       7.      4.1
5705.7 *  1     1435 176      2.      4.1  5705.7
   1     0040   9       0.       .0  5699.0 *  1     0740  93       7.      4.1
5705.7 *  1     1440 177      2.      4.1  5705.7
   1     0045  10       0.       .0  5699.0 *  1     0745  94       7.      4.1
5705.7 *  1     1445 178      2.      4.1  5705.7
   1     0050  11       0.       .0  5699.0 *  1     0750  95       7.      4.1
5705.7 *  1     1450 179      2.      4.1  5705.7
   1     0055  12       0.       .0  5699.0 *  1     0755  96       7.      4.1
5705.7 *  1     1455 180      2.      4.1  5705.7
   1     0100  13       0.       .0  5699.0 *  1     0800  97       7.      4.1
5705.7 *  1     1500 181      2.      4.1  5705.7
   1     0105  14       0.       .0  5699.0 *  1     0805  98       6.      4.1
5705.7 *  1     1505 182      2.      4.1  5705.7
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  1     0110  15       0.       .0  5699.0 *  1     0810  99        6.      4.1
5705.7 *  1     1510 183       2.       4.1  5705.7
  1     0115  16       0.       .0  5699.0 *  1     0815 100        5.      4.1
5705.7 *  1     1515 184       2.       4.1  5705.7
  1     0120  17       0.       .0  5699.0 *  1     0820 101        4.      4.1
5705.7 *  1     1520 185       2.       4.1  5705.7
  1     0125  18       0.       .0  5699.0 *  1     0825 102        4.      4.1
5705.7 *  1     1525 186       2.       4.1  5705.7
  1     0130  19       0.       .0  5699.0 *  1     0830 103        3.      4.1
5705.7 *  1     1530 187       2.       4.1  5705.7
  1     0135  20       0.       .0  5699.0 *  1     0835 104        3.      4.1
5705.7 *  1     1535 188       2.       4.1  5705.7
  1     0140  21       0.       .0  5699.0 *  1     0840 105        3.      4.1
5705.7 *  1     1540 189       2.       4.1  5705.7
  1     0145  22       0.       .0  5699.0 *  1     0845 106        3.      4.1
5705.7 *  1     1545 190       2.       4.1  5705.7
  1     0150  23       0.       .0  5699.0 *  1     0850 107        3.      4.1
5705.7 *  1     1550 191       2.       4.1  5705.7
  1     0155  24       0.       .0  5699.0 *  1     0855 108        3.      4.1
5705.7 *  1     1555 192       2.       4.1  5705.7
  1     0200  25       0.       .0  5699.0 *  1     0900 109        3.      4.1
5705.7 *  1     1600 193       2.       4.1  5705.7
  1     0205  26       0.       .0  5699.0 *  1     0905 110        3.      4.1
5705.7 *  1     1605 194       2.       4.1  5705.7
  1     0210  27       0.       .0  5699.0 *  1     0910 111        3.      4.1
5705.7 *  1     1610 195       2.       4.1  5705.7
  1     0215  28       0.       .0  5699.0 *  1     0915 112        3.      4.1
5705.7 *  1     1615 196       2.       4.1  5705.7
  1     0220  29       0.       .0  5699.0 *  1     0920 113        3.      4.1
5705.7 *  1     1620 197       2.       4.1  5705.7
  1     0225  30       0.       .0  5699.0 *  1     0925 114        3.      4.1
5705.7 *  1     1625 198       2.       4.1  5705.7
  1     0230  31       0.       .0  5699.0 *  1     0930 115        3.      4.1
5705.7 *  1     1630 199       2.       4.1  5705.7
  1     0235  32       0.       .0  5699.0 *  1     0935 116        3.      4.1
5705.7 *  1     1635 200       2.       4.1  5705.7
  1     0240  33       0.       .0  5699.0 *  1     0940 117        3.      4.1
5705.7 *  1     1640 201       2.       4.1  5705.7
  1     0245  34       0.       .0  5699.0 *  1     0945 118        3.      4.1
5705.7 *  1     1645 202       2.       4.1  5705.7
  1     0250  35       0.       .0  5699.0 *  1     0950 119        3.      4.1
5705.7 *  1     1650 203       2.       4.1  5705.7
  1     0255  36       0.       .0  5699.0 *  1     0955 120        3.      4.1
5705.7 *  1     1655 204       2.       4.1  5705.7
  1     0300  37       0.       .0  5699.0 *  1     1000 121        3.      4.1
5705.7 *  1     1700 205       2.       4.1  5705.7
  1     0305  38       0.       .0  5699.0 *  1     1005 122        3.      4.1
5705.7 *  1     1705 206       2.       4.1  5705.7
  1     0310  39       0.       .0  5699.0 *  1     1010 123        3.      4.1
5705.7 *  1     1710 207       2.       4.1  5705.7
  1     0315  40       0.       .0  5699.0 *  1     1015 124        3.      4.1
5705.7 *  1     1715 208       2.       4.1  5705.7
  1     0320  41       0.       .0  5699.0 *  1     1020 125        3.      4.1
5705.7 *  1     1720 209       2.       4.1  5705.7
  1     0325  42       0.       .0  5699.0 *  1     1025 126        3.      4.1
5705.7 *  1     1725 210       2.       4.1  5705.7
  1     0330  43       0.       .0  5699.0 *  1     1030 127        3.      4.1
5705.7 *  1     1730 211       2.       4.1  5705.7
  1     0335  44       0.       .0  5699.0 *  1     1035 128        3.      4.1
5705.7 *  1     1735 212       2.       4.1  5705.7
  1     0340  45       0.       .0  5699.0 *  1     1040 129        3.      4.1
5705.7 *  1     1740 213       2.       4.1  5705.7
  1     0345  46       0.       .0  5699.0 *  1     1045 130        3.      4.1
```

```
5705.7 *  1     1745 214       2.       4.1  5705.7
  1     0350  47        0.       .0  5699.0 *  1     1050 131        3.       4.1
5705.7 *  1     1750 215       2.       4.1  5705.7
  1     0355  48        0.       .0  5699.0 *  1     1055 132        3.       4.1
5705.7 *  1     1755 216       2.       4.1  5705.7
  1     0400  49        0.       .0  5699.0 *  1     1100 133        3.       4.1
5705.7 *  1     1800 217       2.       4.1  5705.7
  1     0405  50        0.       .0  5699.0 *  1     1105 134        3.       4.1
5705.7 *  1     1805 218       2.       4.1  5705.7
  1     0410  51        0.       .0  5699.0 *  1     1110 135        3.       4.1
5705.7 *  1     1810 219       2.       4.1  5705.7
  1     0415  52        0.       .0  5699.0 *  1     1115 136        3.       4.1
5705.7 *  1     1815 220       2.       4.1  5705.7
  1     0420  53        0.       .0  5699.0 *  1     1120 137        3.       4.1
5705.7 *  1     1820 221       2.       4.1  5705.7
  1     0425  54        0.       .0  5699.0 *  1     1125 138        3.       4.1
5705.7 *  1     1825 222       2.       4.1  5705.7
  1     0430  55        0.       .0  5699.0 *  1     1130 139        3.       4.1
5705.7 *  1     1830 223       2.       4.1  5705.7
  1     0435  56        0.       .0  5699.0 *  1     1135 140        3.       4.1
5705.7 *  1     1835 224       2.       4.1  5705.7
  1     0440  57        0.       .0  5699.0 *  1     1140 141        3.       4.1
5705.7 *  1     1840 225       2.       4.1  5705.7
  1     0445  58        0.       .0  5699.0 *  1     1145 142        3.       4.1
5705.7 *  1     1845 226       2.       4.1  5705.7
  1     0450  59        0.       .0  5699.0 *  1     1150 143        3.       4.1
5705.7 *  1     1850 227       2.       4.1  5705.7
  1     0455  60        0.       .0  5699.0 *  1     1155 144        3.       4.1
5705.7 *  1     1855 228       2.       4.1  5705.7
  1     0500  61        0.       .0  5699.0 *  1     1200 145        3.       4.1
5705.7 *  1     1900 229       2.       4.1  5705.7
  1     0505  62        0.       .0  5699.0 *  1     1205 146        3.       4.1
5705.7 *  1     1905 230       2.       4.1  5705.7
  1     0510  63        0.       .0  5699.0 *  1     1210 147        3.       4.1
5705.7 *  1     1910 231       2.       4.1  5705.7
  1     0515  64        0.       .0  5699.0 *  1     1215 148        3.       4.1
5705.7 *  1     1915 232       2.       4.1  5705.7
  1     0520  65        0.       .0  5699.0 *  1     1220 149        3.       4.1
5705.7 *  1     1920 233       2.       4.1  5705.7
  1     0525  66        0.       .0  5699.0 *  1     1225 150        3.       4.1
5705.7 *  1     1925 234       2.       4.1  5705.7
  1     0530  67        0.       .0  5699.0 *  1     1230 151        3.       4.1
5705.7 *  1     1930 235       2.       4.1  5705.7
  1     0535  68        0.       .0  5699.1 *  1     1235 152        3.       4.1
5705.7 *  1     1935 236       2.       4.1  5705.7
  1     0540  69        0.       .2  5699.8 *  1     1240 153        3.       4.1
5705.7 *  1     1940 237       2.       4.1  5705.7
  1     0545  70        0.       .6  5700.7 *  1     1245 154        3.       4.1
5705.7 *  1     1945 238       2.       4.1  5705.7
  1     0550  71        1.      1.2  5702.0 *  1     1250 155        3.       4.1
5705.7 *  1     1950 239       2.       4.1  5705.7
  1     0555  72        1.      2.1  5703.6 *  1     1255 156        3.       4.1
5705.7 *  1     1955 240       2.       4.1  5705.7
  1     0600  73        1.      3.1  5704.8 *  1     1300 157        3.       4.1
5705.7 *  1     2000 241       2.       4.1  5705.7
  1     0605  74        6.      4.1  5705.7 *  1     1305 158        3.       4.1
5705.7 *  1     2005 242       2.       4.1  5705.7
  1     0610  75       50.      4.6  5706.1 *  1     1310 159        2.       4.1
5705.7 *  1     2010 243       1.       4.1  5705.7
  1     0615  76       50.      4.6  5706.1 *  1     1315 160        2.       4.1
5705.7 *  1     2015 244       1.       4.1  5705.7
  1     0620  77       50.      4.5  5706.1 *  1     1320 161        2.       4.1
5705.7 *  1     2020 245       1.       4.1  5705.7
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   1     0625  78      38.       4.3  5705.9 *  1     1325 162       2.      4.1
5705.7 *  1     2025 246       1.       4.1  5705.7
   1     0630  79      24.       4.2  5705.8 *  1     1330 163       2.      4.1
5705.7 *  1     2030 247       1.       4.1  5705.7
   1     0635  80      18.       4.2  5705.8 *  1     1335 164       2.      4.1
5705.7 *  1     2035 248       1.       4.1  5705.7
   1     0640  81      15.       4.2  5705.8 *  1     1340 165       2.      4.1
5705.7 *  1     2040 249       1.       4.1  5705.7
   1     0645  82      12.       4.2  5705.8 *  1     1345 166       2.      4.1
5705.7 *  1     2045 250       1.       4.1  5705.7
   1     0650  83      11.       4.2  5705.8 *  1     1350 167       2.      4.1
5705.7 *
   1     0655  84      10.       4.2  5705.8 *  1     1355 168       2.      4.1
5705.7 *
                                         *
   *

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  PEAK FLOW     TIME                         MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     20.75-HR

+   (CFS)       (HR)
                              (CFS)
+      50.      6.25                    7.           3.          3.           3.
                           (INCHES)   .662         .916        .916         .916
                            (AC-FT)     4.           5.          5.           5.

 PEAK STORAGE   TIME                        MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR       72-HR     20.75-HR

+  (AC-FT)      (HR)
        5.      6.25                    4.           3.          3.           3.

  PEAK STAGE    TIME                         MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR       72-HR     20.75-HR

+   (FEET)      (HR)
   5706.14      6.25               5705.75     5703.83     5703.83      5703.83

                            CUMULATIVE AREA =     .10 SQ MI


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                                               HYDROGRAPH AT STATION   DB8006
                                                   PLAN 1,   RATIO =  1.00


*********************************************************************************
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                                         *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                         *
   *
   1     0000   1       0.        .0  5699.0 *  1     0700  85      53.      6.1
5707.1 *  1     1400 169       3.       4.1  5705.7
   1     0005   2       0.        .0  5699.0 *  1     0705  86      53.      5.8
5706.9 *  1     1405 170       3.       4.1  5705.7
   1     0010   3       0.        .0  5699.0 *  1     0710  87      52.      5.5
5706.7 *  1     1410 171       3.       4.1  5705.7
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   1     0015   4        0.       .0  5699.0 *  1     0715  88      51.      5.2
5706.6 *  1     1415 172       3.      4.1  5705.7
   1     0020   5        0.       .0  5699.0 *  1     0720  89      51.      5.0
5706.4 *  1     1420 173       3.      4.1  5705.7
   1     0025   6        0.       .0  5699.0 *  1     0725  90      50.      4.7
5706.2 *  1     1425 174       3.      4.1  5705.7
   1     0030   7        0.       .0  5699.0 *  1     0730  91      50.      4.4
5706.0 *  1     1430 175       3.      4.1  5705.7
   1     0035   8        0.       .0  5699.0 *  1     0735  92      25.      4.2
5705.8 *  1     1435 176       3.      4.1  5705.7
   1     0040   9        0.       .0  5699.0 *  1     0740  93      15.      4.2
5705.8 *  1     1440 177       3.      4.1  5705.7
   1     0045  10        0.       .0  5699.0 *  1     0745  94      12.      4.2
5705.8 *  1     1445 178       3.      4.1  5705.7
   1     0050  11        0.       .0  5699.0 *  1     0750  95      11.      4.2
5705.8 *  1     1450 179       3.      4.1  5705.7
   1     0055  12        0.       .0  5699.0 *  1     0755  96      11.      4.2
5705.8 *  1     1455 180       3.      4.1  5705.7
   1     0100  13        0.       .0  5699.0 *  1     0800  97      11.      4.2
5705.8 *  1     1500 181       3.      4.1  5705.7
   1     0105  14        0.       .0  5699.0 *  1     0805  98      10.      4.2
5705.8 *  1     1505 182       3.      4.1  5705.7
   1     0110  15        0.       .0  5699.0 *  1     0810  99       9.      4.1
5705.7 *  1     1510 183       3.      4.1  5705.7
   1     0115  16        0.       .0  5699.0 *  1     0815 100       7.      4.1
5705.7 *  1     1515 184       3.      4.1  5705.7
   1     0120  17        0.       .0  5699.0 *  1     0820 101       6.      4.1
5705.7 *  1     1520 185       3.      4.1  5705.7
   1     0125  18        0.       .0  5699.0 *  1     0825 102       6.      4.1
5705.7 *  1     1525 186       3.      4.1  5705.7
   1     0130  19        0.       .0  5699.0 *  1     0830 103       5.      4.1
5705.7 *  1     1530 187       3.      4.1  5705.7
   1     0135  20        0.       .0  5699.0 *  1     0835 104       5.      4.1
5705.7 *  1     1535 188       3.      4.1  5705.7
   1     0140  21        0.       .0  5699.0 *  1     0840 105       5.      4.1
5705.7 *  1     1540 189       3.      4.1  5705.7
   1     0145  22        0.       .0  5699.0 *  1     0845 106       5.      4.1
5705.7 *  1     1545 190       3.      4.1  5705.7
   1     0150  23        0.       .0  5699.0 *  1     0850 107       5.      4.1
5705.7 *  1     1550 191       3.      4.1  5705.7
   1     0155  24        0.       .0  5699.0 *  1     0855 108       5.      4.1
5705.7 *  1     1555 192       3.      4.1  5705.7
   1     0200  25        0.       .0  5699.0 *  1     0900 109       5.      4.1
5705.7 *  1     1600 193       3.      4.1  5705.7
   1     0205  26        0.       .0  5699.0 *  1     0905 110       5.      4.1
5705.7 *  1     1605 194       3.      4.1  5705.7
   1     0210  27        0.       .0  5699.0 *  1     0910 111       5.      4.1
5705.7 *  1     1610 195       3.      4.1  5705.7
   1     0215  28        0.       .0  5699.0 *  1     0915 112       5.      4.1
5705.7 *  1     1615 196       3.      4.1  5705.7
   1     0220  29        0.       .0  5699.0 *  1     0920 113       5.      4.1
5705.7 *  1     1620 197       3.      4.1  5705.7
   1     0225  30        0.       .0  5699.0 *  1     0925 114       5.      4.1
5705.7 *  1     1625 198       3.      4.1  5705.7
   1     0230  31        0.       .0  5699.0 *  1     0930 115       5.      4.1
5705.7 *  1     1630 199       3.      4.1  5705.7
   1     0235  32        0.       .0  5699.0 *  1     0935 116       5.      4.1
5705.7 *  1     1635 200       3.      4.1  5705.7
   1     0240  33        0.       .0  5699.0 *  1     0940 117       5.      4.1
5705.7 *  1     1640 201       3.      4.1  5705.7
   1     0245  34        0.       .0  5699.0 *  1     0945 118       5.      4.1
5705.7 *  1     1645 202       3.      4.1  5705.7
   1     0250  35        0.       .0  5699.0 *  1     0950 119       5.      4.1
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5705.7 *  1     1650 203       3.      4.1  5705.7
  1     0255  36        0.       .0  5699.0 *  1     0955 120        5.       4.1
5705.7 *  1     1655 204       3.      4.1  5705.7
  1     0300  37        0.       .0  5699.0 *  1     1000 121        5.       4.1
5705.7 *  1     1700 205       3.      4.1  5705.7
  1     0305  38        0.       .0  5699.0 *  1     1005 122        5.       4.1
5705.7 *  1     1705 206       3.      4.1  5705.7
  1     0310  39        0.       .0  5699.0 *  1     1010 123        5.       4.1
5705.7 *  1     1710 207       3.      4.1  5705.7
  1     0315  40        0.       .0  5699.0 *  1     1015 124        4.       4.1
5705.7 *  1     1715 208       3.      4.1  5705.7
  1     0320  41        0.       .0  5699.0 *  1     1020 125        4.       4.1
5705.7 *  1     1720 209       3.      4.1  5705.7
  1     0325  42        0.       .0  5699.0 *  1     1025 126        4.       4.1
5705.7 *  1     1725 210       3.      4.1  5705.7
  1     0330  43        0.       .0  5699.0 *  1     1030 127        4.       4.1
5705.7 *  1     1730 211       3.      4.1  5705.7
  1     0335  44        0.       .0  5699.0 *  1     1035 128        4.       4.1
5705.7 *  1     1735 212       3.      4.1  5705.7
  1     0340  45        0.       .0  5699.0 *  1     1040 129        4.       4.1
5705.7 *  1     1740 213       3.      4.1  5705.7
  1     0345  46        0.       .0  5699.0 *  1     1045 130        4.       4.1
5705.7 *  1     1745 214       3.      4.1  5705.7
  1     0350  47        0.       .0  5699.0 *  1     1050 131        4.       4.1
5705.7 *  1     1750 215       3.      4.1  5705.7
  1     0355  48        0.       .0  5699.0 *  1     1055 132        4.       4.1
5705.7 *  1     1755 216       3.      4.1  5705.7
  1     0400  49        0.       .0  5699.0 *  1     1100 133        4.       4.1
5705.7 *  1     1800 217       3.      4.1  5705.7
  1     0405  50        0.       .0  5699.0 *  1     1105 134        4.       4.1
5705.7 *  1     1805 218       3.      4.1  5705.7
  1     0410  51        0.       .0  5699.0 *  1     1110 135        4.       4.1
5705.7 *  1     1810 219       3.      4.1  5705.7
  1     0415  52        0.       .0  5699.0 *  1     1115 136        4.       4.1
5705.7 *  1     1815 220       3.      4.1  5705.7
  1     0420  53        0.       .0  5699.0 *  1     1120 137        4.       4.1
5705.7 *  1     1820 221       3.      4.1  5705.7
  1     0425  54        0.       .0  5699.0 *  1     1125 138        4.       4.1
5705.7 *  1     1825 222       3.      4.1  5705.7
  1     0430  55        0.       .0  5699.0 *  1     1130 139        4.       4.1
5705.7 *  1     1830 223       3.      4.1  5705.7
  1     0435  56        0.       .0  5699.0 *  1     1135 140        4.       4.1
5705.7 *  1     1835 224       3.      4.1  5705.7
  1     0440  57        0.       .0  5699.0 *  1     1140 141        4.       4.1
5705.7 *  1     1840 225       3.      4.1  5705.7
  1     0445  58        0.       .0  5699.0 *  1     1145 142        4.       4.1
5705.7 *  1     1845 226       3.      4.1  5705.7
  1     0450  59        0.       .0  5699.0 *  1     1150 143        4.       4.1
5705.7 *  1     1850 227       3.      4.1  5705.7
  1     0455  60        0.       .0  5699.0 *  1     1155 144        4.       4.1
5705.7 *  1     1855 228       3.      4.1  5705.7
  1     0500  61        0.       .0  5699.0 *  1     1200 145        4.       4.1
5705.7 *  1     1900 229       3.      4.1  5705.7
  1     0505  62        0.       .0  5699.0 *  1     1205 146        4.       4.1
5705.7 *  1     1905 230       3.      4.1  5705.7
  1     0510  63        0.       .0  5699.0 *  1     1210 147        4.       4.1
5705.7 *  1     1910 231       3.      4.1  5705.7
  1     0515  64        0.       .0  5699.0 *  1     1215 148        4.       4.1
5705.7 *  1     1915 232       3.      4.1  5705.7
  1     0520  65        0.       .0  5699.0 *  1     1220 149        4.       4.1
5705.7 *  1     1920 233       3.      4.1  5705.7
  1     0525  66        0.       .0  5699.0 *  1     1225 150        4.       4.1
5705.7 *  1     1925 234       3.      4.1  5705.7
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   1     0530  67       0.        .0  5699.0 *  1     1230 151       4.      4.1
5705.7 *  1     1930 235       3.       4.1  5705.7
   1     0535  68       0.        .1  5699.5 *  1     1235 152       4.      4.1
5705.7 *  1     1935 236       3.       4.1  5705.7
   1     0540  69       0.        .5  5700.6 *  1     1240 153       4.      4.1
5705.7 *  1     1940 237       3.       4.1  5705.7
   1     0545  70       1.       1.4  5702.3 *  1     1245 154       4.      4.1
5705.7 *  1     1945 238       3.       4.1  5705.7
   1     0550  71       1.       2.6  5704.3 *  1     1250 155       4.      4.1
5705.7 *  1     1950 239       3.       4.1  5705.7
   1     0555  72      12.       4.2  5705.8 *  1     1255 156       4.      4.1
5705.7 *  1     1955 240       3.       4.1  5705.7
   1     0600  73      53.       5.7  5706.9 *  1     1300 157       4.      4.1
5705.7 *  1     2000 241       3.       4.1  5705.7
   1     0605  74      56.       7.1  5707.7 *  1     1305 158       4.      4.1
5705.7 *  1     2005 242       3.       4.1  5705.7
   1     0610  75      57.       7.8  5708.2 *  1     1310 159       4.      4.1
5705.7 *  1     2010 243       2.       4.1  5705.7
   1     0615  76      57.       8.0  5708.3 *  1     1315 160       4.      4.1
5705.7 *  1     2015 244       2.       4.1  5705.7
   1     0620  77      57.       7.9  5708.3 *  1     1320 161       4.      4.1
5705.7 *  1     2020 245       2.       4.1  5705.7
   1     0625  78      57.       7.7  5708.2 *  1     1325 162       4.      4.1
5705.7 *  1     2025 246       1.       4.1  5705.7
   1     0630  79      57.       7.6  5708.1 *  1     1330 163       3.      4.1
5705.7 *  1     2030 247       1.       4.1  5705.7
   1     0635  80      56.       7.3  5707.9 *  1     1335 164       3.      4.1
5705.7 *  1     2035 248       1.       4.1  5705.7
   1     0640  81      56.       7.1  5707.8 *  1     1340 165       3.      4.1
5705.7 *  1     2040 249       1.       4.1  5705.7
   1     0645  82      55.       6.8  5707.6 *  1     1345 166       4.      4.1
5705.7 *  1     2045 250       1.       4.1  5705.7
   1     0650  83      54.       6.6  5707.4 *  1     1350 167       4.      4.1
5705.7 *
   1     0655  84      54.       6.3  5707.3 *  1     1355 168       4.      4.1
5705.7 *
                                            *
   *

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  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+      57.      6.25                   19.          7.          7.           7.
                        (INCHES)     1.679       2.077       2.077        2.077
                         (AC-FT)       9.         12.         12.          12.

 PEAK STORAGE   TIME                             MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR       72-HR     20.75-HR
+  (AC-FT)      (HR)
        8.      6.25                    5.          3.          3.           3.

  PEAK STAGE    TIME                              MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR       72-HR     20.75-HR
+   (FEET)      (HR)
   5708.29      6.25                5706.15     5704.00     5704.00      5704.00

                         CUMULATIVE AREA =      .10 SQ MI
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 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
*** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  259 KK    *     R8035  *
            *            *
            **************

  261 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           5  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE


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


            **************
            *            *
  271 KK    *     R8040  *
            *            *
            **************

  272 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           1  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                                   ROUTE DP 8040 TO DP 8075


                HYDROGRAPH ROUTING DATA

  274 RK          KINEMATIC WAVE STREAM ROUTING
                            L        600.  CHANNEL LENGTH
                            S       .0050  SLOPE
                            N        .035  CHANNEL ROUGHNESS COEFFICIENT
                           CA         .00  CONTRIBUTING AREA
                        SHAPE        TRAP  CHANNEL SHAPE
                           WD       50.00  BOTTOM WIDTH OR DIAMETER
                            Z        5.00  SIDE SLOPE
                       NDXMIN           2  MINIMUM NUMBER OF DX INTERVALS

                                                                          ***
                                                COMPUTED KINEMATIC PARAMETERS
                                                      VARIABLE TIME STEP
                                                    (DT SHOWN IS A MINIMUM)

                           ELEMENT    ALPHA       M         DT         DX        PEAK
TIME TO     VOLUME    MAXIMUM

PEAK                 CELERITY
                                                          (MIN)      (FT)      (CFS)
(MIN)        (IN)       (FPS)

                          MAIN           .34      1.51       1.22    200.00     60.74
```

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371.59       .84      3.02


 CONTINUITY SUMMARY (AC-FT) - INFLOW= .6213E+01  EXCESS= .0000E+00 OUTFLOW=
.6194E+01 BASIN STORAGE= .1585E-01 PERCENT ERROR=    .0


                                            INTERPOLATED TO SPECIFIED COMPUTATION
INTERVAL


                    MAIN           .34      1.51       5.00              59.71
370.00       .84


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                                                    HYDROGRAPH AT STATION    R8040
                                                        PLAN 1,   RATIO =   .47


*************************************************************************************
***********************************************
                                  *                                *
               *
    DA MON HRMN  ORD      FLOW    *  DA MON HRMN   ORD      FLOW   *   DA MON HRMN
ORD      FLOW   *   DA MON HRMN  ORD      FLOW
                                  *                                *
               *
     1    0000    1       0.     *    1     0515  64         0.   *    1     1030
127      2.   *     1   1545   190         1.
     1    0005    2       0.     *    1     0520  65         0.   *    1     1035
128      2.   *     1   1550   191         1.
     1    0010    3       0.     *    1     0525  66         0.   *    1     1040
129      2.   *     1   1555   192         1.
     1    0015    4       0.     *    1     0530  67         0.   *    1     1045
130      2.   *     1   1600   193         1.
     1    0020    5       0.     *    1     0535  68         0.   *    1     1050
131      2.   *     1   1605   194         1.
     1    0025    6       0.     *    1     0540  69         0.   *    1     1055
132      2.   *     1   1610   195         1.
     1    0030    7       0.     *    1     0545  70         0.   *    1     1100
133      2.   *     1   1615   196         1.
     1    0035    8       0.     *    1     0550  71         3.   *    1     1105
134      2.   *     1   1620   197         1.
     1    0040    9       0.     *    1     0555  72        19.   *    1     1110
135      2.   *     1   1625   198         1.
     1    0045   10       0.     *    1     0600  73        36.   *    1     1115
136      2.   *     1   1630   199         1.
     1    0050   11       0.     *    1     0605  74        52.   *    1     1120
137      2.   *     1   1635   200         1.
     1    0055   12       0.     *    1     0610  75        60.   *    1     1125
138      2.   *     1   1640   201         1.
     1    0100   13       0.     *    1     0615  76        58.   *    1     1130
139      2.   *     1   1645   202         1.
     1    0105   14       0.     *    1     0620  77        51.   *    1     1135
140      2.   *     1   1650   203         1.
     1    0110   15       0.     *    1     0625  78        43.   *    1     1140
141      2.   *     1   1655   204         1.
     1    0115   16       0.     *    1     0630  79        37.   *    1     1145
142      2.   *     1   1700   205         1.
     1    0120   17       0.     *    1     0635  80        33.   *    1     1150
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143        2.   *    1     1705  206        1.
     1     0125  18        0.   *    1     0640   81        28.   *    1     1155
144        2.   *    1     1710  207        1.
     1     0130  19        0.   *    1     0645   82        25.   *    1     1200
145        2.   *    1     1715  208        1.
     1     0135  20        0.   *    1     0650   83        21.   *    1     1205
146        2.   *    1     1720  209        1.
     1     0140  21        0.   *    1     0655   84        18.   *    1     1210
147        2.   *    1     1725  210        1.
     1     0145  22        0.   *    1     0700   85        16.   *    1     1215
148        2.   *    1     1730  211        1.
     1     0150  23        0.   *    1     0705   86        14.   *    1     1220
149        2.   *    1     1735  212        1.
     1     0155  24        0.   *    1     0710   87        12.   *    1     1225
150        2.   *    1     1740  213        1.
     1     0200  25        0.   *    1     0715   88        11.   *    1     1230
151        2.   *    1     1745  214        1.
     1     0205  26        0.   *    1     0720   89        10.   *    1     1235
152        2.   *    1     1750  215        1.
     1     0210  27        0.   *    1     0725   90         9.   *    1     1240
153        2.   *    1     1755  216        1.
     1     0215  28        0.   *    1     0730   91         8.   *    1     1245
154        2.   *    1     1800  217        1.
     1     0220  29        0.   *    1     0735   92         8.   *    1     1250
155        2.   *    1     1805  218        1.
     1     0225  30        0.   *    1     0740   93         7.   *    1     1255
156        2.   *    1     1810  219        1.
     1     0230  31        0.   *    1     0745   94         7.   *    1     1300
157        2.   *    1     1815  220        1.
     1     0235  32        0.   *    1     0750   95         6.   *    1     1305
158        2.   *    1     1820  221        1.
     1     0240  33        0.   *    1     0755   96         6.   *    1     1310
159        2.   *    1     1825  222        1.
     1     0245  34        0.   *    1     0800   97         6.   *    1     1315
160        2.   *    1     1830  223        1.
     1     0250  35        0.   *    1     0805   98         6.   *    1     1320
161        2.   *    1     1835  224        1.
     1     0255  36        0.   *    1     0810   99         6.   *    1     1325
162        2.   *    1     1840  225        1.
     1     0300  37        0.   *    1     0815  100         5.   *    1     1330
163        2.   *    1     1845  226        1.
     1     0305  38        0.   *    1     0820  101         5.   *    1     1335
164        2.   *    1     1850  227        1.
     1     0310  39        0.   *    1     0825  102         4.   *    1     1340
165        2.   *    1     1855  228        1.
     1     0315  40        0.   *    1     0830  103         4.   *    1     1345
166        2.   *    1     1900  229        1.
     1     0320  41        0.   *    1     0835  104         4.   *    1     1350
167        2.   *    1     1905  230        1.
     1     0325  42        0.   *    1     0840  105         3.   *    1     1355
168        2.   *    1     1910  231        1.
     1     0330  43        0.   *    1     0845  106         3.   *    1     1400
169        2.   *    1     1915  232        1.
     1     0335  44        0.   *    1     0850  107         3.   *    1     1405
170        2.   *    1     1920  233        1.
     1     0340  45        0.   *    1     0855  108         3.   *    1     1410
171        2.   *    1     1925  234        1.
     1     0345  46        0.   *    1     0900  109         3.   *    1     1415
172        2.   *    1     1930  235        1.
     1     0350  47        0.   *    1     0905  110         3.   *    1     1420
173        2.   *    1     1935  236        1.
     1     0355  48        0.   *    1     0910  111         3.   *    1     1425
174        2.   *    1     1940  237        1.
```

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    1     0400   49        0.   *    1     0915  112        3.   *    1     1430
175         2.   *    1     1945  238        1.
    1     0405   50        0.   *    1     0920  113        3.   *    1     1435
176         2.   *    1     1950  239        1.
    1     0410   51        0.   *    1     0925  114        3.   *    1     1440
177         2.   *    1     1955  240        1.
    1     0415   52        0.   *    1     0930  115        3.   *    1     1445
178         2.   *    1     2000  241        1.
    1     0420   53        0.   *    1     0935  116        3.   *    1     1450
179         2.   *    1     2005  242        1.
    1     0425   54        0.   *    1     0940  117        3.   *    1     1455
180         2.   *    1     2010  243        1.
    1     0430   55        0.   *    1     0945  118        3.   *    1     1500
181         2.   *    1     2015  244        1.
    1     0435   56        0.   *    1     0950  119        3.   *    1     1505
182         2.   *    1     2020  245        1.
    1     0440   57        0.   *    1     0955  120        3.   *    1     1510
183         2.   *    1     2025  246        1.
    1     0445   58        0.   *    1     1000  121        3.   *    1     1515
184         2.   *    1     2030  247        1.
    1     0450   59        0.   *    1     1005  122        3.   *    1     1520
185         2.   *    1     2035  248        1.
    1     0455   60        0.   *    1     1010  123        3.   *    1     1525
186         2.   *    1     2040  249        1.
    1     0500   61        0.   *    1     1015  124        3.   *    1     1530
187         2.   *    1     2045  250        1.
    1     0505   62        0.   *    1     1020  125        3.   *    1     1535
188         1.   *
    1     0510   63        0.   *    1     1025  126        2.   *    1     1540
189         1.   *
                                *                                *
              *

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  PEAK FLOW     TIME                           MAXIMUM AVERAGE FLOW
                                       6-HR        24-HR        72-HR     20.75-HR
+   (CFS)       (HR)
                                (CFS)
+      60.      6.17                    10.           4.           4.           4.
                             (INCHES)  .684         .841         .841         .841
                              (AC-FT)    5.           6.           6.           6.

                              CUMULATIVE AREA =     .14 SQ MI

                                              COMPUTED KINEMATIC PARAMETERS
                                                    VARIABLE TIME STEP
                                                  (DT SHOWN IS A MINIMUM)

                       ELEMENT    ALPHA        M          DT          DX        PEAK
TIME TO      VOLUME     MAXIMUM

PEAK                   CELERITY
                                                        (MIN)       (FT)      (CFS)
(MIN)        (IN)       (FPS)

                        MAIN            .34      1.51       1.14    200.00     84.34
371.56       1.15       3.37


 CONTINUITY SUMMARY (AC-FT) - INFLOW= .8451E+01  EXCESS= .0000E+00 OUTFLOW=
.8433E+01 BASIN STORAGE= .1826E-01 PERCENT ERROR=    .0
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                                            INTERPOLATED TO SPECIFIED COMPUTATION
INTERVAL


                    MAIN           .34      1.51       5.00               83.50
370.00       1.15

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                                                            HYDROGRAPH AT STATION    R8040
                                                                PLAN 1,   RATIO =   .56

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************************************************
                                 *                                 *
              *
    DA MON HRMN   ORD       FLOW    *   DA MON HRMN   ORD       FLOW    *   DA MON HRMN
ORD      FLOW    *   DA MON HRMN   ORD      FLOW
                                 *                                 *
              *
     1     0000    1         0.    *    1     0515   64         0.    *    1     1030
127       3.    *    1     1545   190         2.
     1     0005    2         0.    *    1     0520   65         0.    *    1     1035
128       3.    *    1     1550   191         2.
     1     0010    3         0.    *    1     0525   66         0.    *    1     1040
129       3.    *    1     1555   192         2.
     1     0015    4         0.    *    1     0530   67         0.    *    1     1045
130       3.    *    1     1600   193         2.
     1     0020    5         0.    *    1     0535   68         0.    *    1     1050
131       3.    *    1     1605   194         2.
     1     0025    6         0.    *    1     0540   69         0.    *    1     1055
132       3.    *    1     1610   195         2.
     1     0030    7         0.    *    1     0545   70         0.    *    1     1100
133       3.    *    1     1615   196         2.
     1     0035    8         0.    *    1     0550   71        12.    *    1     1105
134       3.    *    1     1620   197         2.
     1     0040    9         0.    *    1     0555   72        33.    *    1     1110
135       3.    *    1     1625   198         2.
     1     0045   10         0.    *    1     0600   73        56.    *    1     1115
136       3.    *    1     1630   199         2.
     1     0050   11         0.    *    1     0605   74        75.    *    1     1120
137       3.    *    1     1635   200         2.
     1     0055   12         0.    *    1     0610   75        83.    *    1     1125
138       3.    *    1     1640   201         2.
     1     0100   13         0.    *    1     0615   76        80.    *    1     1130
139       3.    *    1     1645   202         2.
     1     0105   14         0.    *    1     0620   77        70.    *    1     1135
140       3.    *    1     1650   203         2.
     1     0110   15         0.    *    1     0625   78        59.    *    1     1140
141       3.    *    1     1655   204         2.
     1     0115   16         0.    *    1     0630   79        51.    *    1     1145
142       3.    *    1     1700   205         2.
     1     0120   17         0.    *    1     0635   80        44.    *    1     1150
143       3.    *    1     1705   206         2.
     1     0125   18         0.    *    1     0640   81        39.    *    1     1155
144       3.    *    1     1710   207         2.
     1     0130   19         0.    *    1     0645   82        33.    *    1     1200
145       3.    *    1     1715   208         2.
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     1     0135   20        0.   *    1     0650   83        28.   *    1     1205
146        3.   *    1     1720  209        2.
     1     0140   21        0.   *    1     0655   84        24.   *    1     1210
147        3.   *    1     1725  210        2.
     1     0145   22        0.   *    1     0700   85        21.   *    1     1215
148        3.   *    1     1730  211        2.
     1     0150   23        0.   *    1     0705   86        18.   *    1     1220
149        3.   *    1     1735  212        2.
     1     0155   24        0.   *    1     0710   87        16.   *    1     1225
150        3.   *    1     1740  213        2.
     1     0200   25        0.   *    1     0715   88        15.   *    1     1230
151        3.   *    1     1745  214        2.
     1     0205   26        0.   *    1     0720   89        13.   *    1     1235
152        3.   *    1     1750  215        2.
     1     0210   27        0.   *    1     0725   90        12.   *    1     1240
153        3.   *    1     1755  216        2.
     1     0215   28        0.   *    1     0730   91        11.   *    1     1245
154        3.   *    1     1800  217        2.
     1     0220   29        0.   *    1     0735   92        10.   *    1     1250
155        3.   *    1     1805  218        2.
     1     0225   30        0.   *    1     0740   93         9.   *    1     1255
156        3.   *    1     1810  219        2.
     1     0230   31        0.   *    1     0745   94         9.   *    1     1300
157        3.   *    1     1815  220        2.
     1     0235   32        0.   *    1     0750   95         8.   *    1     1305
158        3.   *    1     1820  221        2.
     1     0240   33        0.   *    1     0755   96         8.   *    1     1310
159        3.   *    1     1825  222        2.
     1     0245   34        0.   *    1     0800   97         8.   *    1     1315
160        3.   *    1     1830  223        2.
     1     0250   35        0.   *    1     0805   98         7.   *    1     1320
161        3.   *    1     1835  224        2.
     1     0255   36        0.   *    1     0810   99         7.   *    1     1325
162        2.   *    1     1840  225        2.
     1     0300   37        0.   *    1     0815  100         7.   *    1     1330
163        2.   *    1     1845  226        2.
     1     0305   38        0.   *    1     0820  101         6.   *    1     1335
164        2.   *    1     1850  227        2.
     1     0310   39        0.   *    1     0825  102         6.   *    1     1340
165        2.   *    1     1855  228        2.
     1     0315   40        0.   *    1     0830  103         5.   *    1     1345
166        2.   *    1     1900  229        2.
     1     0320   41        0.   *    1     0835  104         5.   *    1     1350
167        2.   *    1     1905  230        2.
     1     0325   42        0.   *    1     0840  105         4.   *    1     1355
168        2.   *    1     1910  231        2.
     1     0330   43        0.   *    1     0845  106         4.   *    1     1400
169        2.   *    1     1915  232        2.
     1     0335   44        0.   *    1     0850  107         4.   *    1     1405
170        2.   *    1     1920  233        2.
     1     0340   45        0.   *    1     0855  108         4.   *    1     1410
171        2.   *    1     1925  234        2.
     1     0345   46        0.   *    1     0900  109         4.   *    1     1415
172        2.   *    1     1930  235        2.
     1     0350   47        0.   *    1     0905  110         4.   *    1     1420
173        2.   *    1     1935  236        2.
     1     0355   48        0.   *    1     0910  111         4.   *    1     1425
174        2.   *    1     1940  237        2.
     1     0400   49        0.   *    1     0915  112         4.   *    1     1430
175        2.   *    1     1945  238        2.
     1     0405   50        0.   *    1     0920  113         3.   *    1     1435
176        2.   *    1     1950  239        2.
     1     0410   51        0.   *    1     0925  114         3.   *    1     1440
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177          2.   *    1     1955  240          2.
     1     0415   52          0.    *    1     0930  115         3.    *    1     1445
178          2.   *    1     2000  241          2.
     1     0420   53          0.    *    1     0935  116         3.    *    1     1450
179          2.   *    1     2005  242          2.
     1     0425   54          0.    *    1     0940  117         3.    *    1     1455
180          2.   *    1     2010  243          2.
     1     0430   55          0.    *    1     0945  118         3.    *    1     1500
181          2.   *    1     2015  244          2.
     1     0435   56          0.    *    1     0950  119         3.    *    1     1505
182          2.   *    1     2020  245          2.
     1     0440   57          0.    *    1     0955  120         3.    *    1     1510
183          2.   *    1     2025  246          2.
     1     0445   58          0.    *    1     1000  121         3.    *    1     1515
184          2.   *    1     2030  247          1.
     1     0450   59          0.    *    1     1005  122         3.    *    1     1520
185          2.   *    1     2035  248          1.
     1     0455   60          0.    *    1     1010  123         3.    *    1     1525
186          2.   *    1     2040  249          1.
     1     0500   61          0.    *    1     1015  124         3.    *    1     1530
187          2.   *    1     2045  250          1.
     1     0505   62          0.    *    1     1020  125         3.    *    1     1535
188          2.   *
     1     0510   63          0.    *    1     1025  126         3.    *    1     1540
189          2.   *
                                  *                                  *
              *

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  PEAK FLOW     TIME                             MAXIMUM AVERAGE FLOW
                                         6-HR       24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                                (CFS)
+      83.      6.17                      14.          5.          5.           5.
                             (INCHES)    .944       1.145       1.145        1.145
                              (AC-FT)      7.          8.          8.           8.

                              CUMULATIVE AREA =     .14 SQ MI

                                                   COMPUTED KINEMATIC PARAMETERS
                                                         VARIABLE TIME STEP
                                                       (DT SHOWN IS A MINIMUM)

                         ELEMENT    ALPHA        M          DT          DX        PEAK
TIME TO     VOLUME     MAXIMUM

PEAK                  CELERITY
                                                         (MIN)       (FT)      (CFS)
(MIN)        (IN)       (FPS)

                        MAIN            .34      1.51         .93    200.00    123.89
371.44      1.65      3.84


 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1216E+02  EXCESS= .0000E+00 OUTFLOW=
.1214E+02 BASIN STORAGE= .2193E-01 PERCENT ERROR=    .0


                                                    INTERPOLATED TO SPECIFIED COMPUTATION
INTERVAL
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                    MAIN           .34      1.51       5.00                123.24
370.00      1.65

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                                                    HYDROGRAPH AT STATION    R8040
                                                        PLAN 1,   RATIO =   .70

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                                  *                                *
               *
    DA MON HRMN  ORD      FLOW    *   DA MON HRMN  ORD       FLOW  *   DA MON HRMN
ORD      FLOW   *   DA MON HRMN  ORD      FLOW
                                  *                                *
               *
     1     0000    1        0.    *    1    0515   64         0.   *    1     1030
127        4.   *    1     1545  190        2.
     1     0005    2        0.    *    1    0520   65         0.   *    1     1035
128        4.   *    1     1550  191        2.
     1     0010    3        0.    *    1    0525   66         0.   *    1     1040
129        4.   *    1     1555  192        2.
     1     0015    4        0.    *    1    0530   67         0.   *    1     1045
130        4.   *    1     1600  193        2.
     1     0020    5        0.    *    1    0535   68         0.   *    1     1050
131        4.   *    1     1605  194        2.
     1     0025    6        0.    *    1    0540   69         0.   *    1     1055
132        4.   *    1     1610  195        2.
     1     0030    7        0.    *    1    0545   70         4.   *    1     1100
133        4.   *    1     1615  196        2.
     1     0035    8        0.    *    1    0550   71        29.   *    1     1105
134        4.   *    1     1620  197        2.
     1     0040    9        0.    *    1    0555   72        59.   *    1     1110
135        4.   *    1     1625  198        2.
     1     0045   10        0.    *    1    0600   73        89.   *    1     1115
136        3.   *    1     1630  199        2.
     1     0050   11        0.    *    1    0605   74       114.   *    1     1120
137        3.   *    1     1635  200        2.
     1     0055   12        0.    *    1    0610   75       123.   *    1     1125
138        3.   *    1     1640  201        2.
     1     0100   13        0.    *    1    0615   76       116.   *    1     1130
139        3.   *    1     1645  202        2.
     1     0105   14        0.    *    1    0620   77       101.   *    1     1135
140        3.   *    1     1650  203        2.
     1     0110   15        0.    *    1    0625   78        86.   *    1     1140
141        3.   *    1     1655  204        2.
     1     0115   16        0.    *    1    0630   79        73.   *    1     1145
142        3.   *    1     1700  205        2.
     1     0120   17        0.    *    1    0635   80        64.   *    1     1150
143        3.   *    1     1705  206        2.
     1     0125   18        0.    *    1    0640   81        55.   *    1     1155
144        3.   *    1     1710  207        2.
     1     0130   19        0.    *    1    0645   82        47.   *    1     1200
145        3.   *    1     1715  208        2.
     1     0135   20        0.    *    1    0650   83        40.   *    1     1205
146        3.   *    1     1720  209        2.
     1     0140   21        0.    *    1    0655   84        34.   *    1     1210
147        3.   *    1     1725  210        2.
     1     0145   22        0.    *    1    0700   85        29.   *    1     1215
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148        3.   *    1     1730  211        2.
     1     0150  23     0.   *    1     0705   86        26.    *    1     1220
149        3.   *    1     1735  212        2.
     1     0155  24     0.   *    1     0710   87        23.    *    1     1225
150        3.   *    1     1740  213        2.
     1     0200  25     0.   *    1     0715   88        21.    *    1     1230
151        3.   *    1     1745  214        2.
     1     0205  26     0.   *    1     0720   89        18.    *    1     1235
152        3.   *    1     1750  215        2.
     1     0210  27     0.   *    1     0725   90        16.    *    1     1240
153        3.   *    1     1755  216        2.
     1     0215  28     0.   *    1     0730   91        15.    *    1     1245
154        3.   *    1     1800  217        2.
     1     0220  29     0.   *    1     0735   92        14.    *    1     1250
155        3.   *    1     1805  218        2.
     1     0225  30     0.   *    1     0740   93        13.    *    1     1255
156        3.   *    1     1810  219        2.
     1     0230  31     0.   *    1     0745   94        12.    *    1     1300
157        3.   *    1     1815  220        2.
     1     0235  32     0.   *    1     0750   95        11.    *    1     1305
158        3.   *    1     1820  221        2.
     1     0240  33     0.   *    1     0755   96        11.    *    1     1310
159        3.   *    1     1825  222        2.
     1     0245  34     0.   *    1     0800   97        10.    *    1     1315
160        3.   *    1     1830  223        2.
     1     0250  35     0.   *    1     0805   98        10.    *    1     1320
161        3.   *    1     1835  224        2.
     1     0255  36     0.   *    1     0810   99        10.    *    1     1325
162        3.   *    1     1840  225        2.
     1     0300  37     0.   *    1     0815  100         9.    *    1     1330
163        3.   *    1     1845  226        2.
     1     0305  38     0.   *    1     0820  101         8.    *    1     1335
164        3.   *    1     1850  227        2.
     1     0310  39     0.   *    1     0825  102         8.    *    1     1340
165        3.   *    1     1855  228        2.
     1     0315  40     0.   *    1     0830  103         7.    *    1     1345
166        3.   *    1     1900  229        2.
     1     0320  41     0.   *    1     0835  104         6.    *    1     1350
167        3.   *    1     1905  230        2.
     1     0325  42     0.   *    1     0840  105         6.    *    1     1355
168        3.   *    1     1910  231        2.
     1     0330  43     0.   *    1     0845  106         6.    *    1     1400
169        3.   *    1     1915  232        2.
     1     0335  44     0.   *    1     0850  107         5.    *    1     1405
170        3.   *    1     1920  233        2.
     1     0340  45     0.   *    1     0855  108         5.    *    1     1410
171        3.   *    1     1925  234        2.
     1     0345  46     0.   *    1     0900  109         5.    *    1     1415
172        3.   *    1     1930  235        2.
     1     0350  47     0.   *    1     0905  110         5.    *    1     1420
173        3.   *    1     1935  236        2.
     1     0355  48     0.   *    1     0910  111         5.    *    1     1425
174        3.   *    1     1940  237        2.
     1     0400  49     0.   *    1     0915  112         5.    *    1     1430
175        3.   *    1     1945  238        2.
     1     0405  50     0.   *    1     0920  113         5.    *    1     1435
176        3.   *    1     1950  239        2.
     1     0410  51     0.   *    1     0925  114         5.    *    1     1440
177        3.   *    1     1955  240        2.
     1     0415  52     0.   *    1     0930  115         5.    *    1     1445
178        3.   *    1     2000  241        2.
     1     0420  53     0.   *    1     0935  116         5.    *    1     1450
179        3.   *    1     2005  242        2.
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     1     0425   54        0.   *    1     0940  117        5.   *    1     1455
180        3.   *    1     2010  243        2.
     1     0430   55        0.   *    1     0945  118        5.   *    1     1500
181        3.   *    1     2015  244        2.
     1     0435   56        0.   *    1     0950  119        5.   *    1     1505
182        3.   *    1     2020  245        2.
     1     0440   57        0.   *    1     0955  120        5.   *    1     1510
183        3.   *    1     2025  246        2.
     1     0445   58        0.   *    1     1000  121        5.   *    1     1515
184        3.   *    1     2030  247        2.
     1     0450   59        0.   *    1     1005  122        5.   *    1     1520
185        3.   *    1     2035  248        2.
     1     0455   60        0.   *    1     1010  123        5.   *    1     1525
186        3.   *    1     2040  249        2.
     1     0500   61        0.   *    1     1015  124        4.   *    1     1530
187        3.   *    1     2045  250        2.
     1     0505   62        0.   *    1     1020  125        4.   *    1     1535
188        3.   *
     1     0510   63        0.   *    1     1025  126        4.   *    1     1540
189        2.   *
                                 *                                *
              *

************************************************************************************
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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+     123.      6.17                   20.          7.          7.           7.
                        (INCHES)     1.377       1.649       1.649        1.649
                         (AC-FT)       10.         12.         12.          12.

                         CUMULATIVE AREA =     .14 SQ MI

                                        COMPUTED KINEMATIC PARAMETERS
                                              VARIABLE TIME STEP
                                            (DT SHOWN IS A MINIMUM)

                     ELEMENT    ALPHA        M          DT         DX        PEAK
TIME TO     VOLUME    MAXIMUM

PEAK                CELERITY
                                                    (MIN)      (FT)     (CFS)
(MIN)       (IN)      (FPS)

                    MAIN           .34      1.51        .82    200.00    214.72
370.65      2.81      4.62


 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2070E+02  EXCESS= .0000E+00 OUTFLOW=
.2067E+02 BASIN STORAGE= .2918E-01 PERCENT ERROR=    .0


                                           INTERPOLATED TO SPECIFIED COMPUTATION
INTERVAL


                    MAIN           .34      1.51       5.00              214.68
370.00      2.81
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                                                                  HYDROGRAPH AT STATION    R8040
                                                                      PLAN 1,   RATIO =  1.00


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                                            *                                  *
              *
    DA MON HRMN  ORD       FLOW    *   DA MON HRMN  ORD       FLOW    *   DA MON HRMN
ORD      FLOW   *   DA MON HRMN  ORD       FLOW
                                            *                                  *
              *
     1     0000    1         0.    *   1      0515   64         0.    *   1      1030
127        6.   *    1      1545  190         4.
     1     0005    2         0.    *   1      0520   65         0.    *   1      1035
128        6.   *    1      1550  191         4.
     1     0010    3         0.    *   1      0525   66         0.    *   1      1040
129        6.   *    1      1555  192         4.
     1     0015    4         0.    *   1      0530   67         0.    *   1      1045
130        6.   *    1      1600  193         4.
     1     0020    5         0.    *   1      0535   68         0.    *   1      1050
131        6.   *    1      1605  194         4.
     1     0025    6         0.    *   1      0540   69         1.    *   1      1055
132        6.   *    1      1610  195         4.
     1     0030    7         0.    *   1      0545   70        28.    *   1      1100
133        6.   *    1      1615  196         4.
     1     0035    8         0.    *   1      0550   71        75.    *   1      1105
134        5.   *    1      1620  197         4.
     1     0040    9         0.    *   1      0555   72       124.    *   1      1110
135        5.   *    1      1625  198         4.
     1     0045   10         0.    *   1      0600   73       171.    *   1      1115
136        5.   *    1      1630  199         4.
     1     0050   11         0.    *   1      0605   74       205.    *   1      1120
137        5.   *    1      1635  200         4.
     1     0055   12         0.    *   1      0610   75       215.    *   1      1125
138        5.   *    1      1640  201         4.
     1     0100   13         0.    *   1      0615   76       199.    *   1      1130
139        5.   *    1      1645  202         4.
     1     0105   14         0.    *   1      0620   77       171.    *   1      1135
140        5.   *    1      1650  203         4.
     1     0110   15         0.    *   1      0625   78       145.    *   1      1140
141        5.   *    1      1655  204         4.
     1     0115   16         0.    *   1      0630   79       125.    *   1      1145
142        5.   *    1      1700  205         4.
     1     0120   17         0.    *   1      0635   80       108.    *   1      1150
143        5.   *    1      1705  206         4.
     1     0125   18         0.    *   1      0640   81        93.    *   1      1155
144        5.   *    1      1710  207         4.
     1     0130   19         0.    *   1      0645   82        79.    *   1      1200
145        5.   *    1      1715  208         4.
     1     0135   20         0.    *   1      0650   83        66.    *   1      1205
146        5.   *    1      1720  209         4.
     1     0140   21         0.    *   1      0655   84        56.    *   1      1210
147        5.   *    1      1725  210         4.
     1     0145   22         0.    *   1      0700   85        48.    *   1      1215
148        5.   *    1      1730  211         4.
     1     0150   23         0.    *   1      0705   86        42.    *   1      1220
149        5.   *    1      1735  212         4.
     1     0155   24         0.    *   1      0710   87        38.    *   1      1225
150        5.   *    1      1740  213         4.
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     1     0200   25        0.   *    1     0715   88       33.   *    1     1230
151        5.   *    1     1745  214        4.
     1     0205   26        0.   *    1     0720   89       30.   *    1     1235
152        5.   *    1     1750  215        4.
     1     0210   27        0.   *    1     0725   90       26.   *    1     1240
153        5.   *    1     1755  216        4.
     1     0215   28        0.   *    1     0730   91       24.   *    1     1245
154        5.   *    1     1800  217        4.
     1     0220   29        0.   *    1     0735   92       22.   *    1     1250
155        5.   *    1     1805  218        4.
     1     0225   30        0.   *    1     0740   93       20.   *    1     1255
156        5.   *    1     1810  219        4.
     1     0230   31        0.   *    1     0745   94       19.   *    1     1300
157        5.   *    1     1815  220        4.
     1     0235   32        0.   *    1     0750   95       18.   *    1     1305
158        5.   *    1     1820  221        4.
     1     0240   33        0.   *    1     0755   96       17.   *    1     1310
159        5.   *    1     1825  222        4.
     1     0245   34        0.   *    1     0800   97       16.   *    1     1315
160        5.   *    1     1830  223        4.
     1     0250   35        0.   *    1     0805   98       16.   *    1     1320
161        5.   *    1     1835  224        4.
     1     0255   36        0.   *    1     0810   99       15.   *    1     1325
162        5.   *    1     1840  225        4.
     1     0300   37        0.   *    1     0815  100       14.   *    1     1330
163        5.   *    1     1845  226        4.
     1     0305   38        0.   *    1     0820  101       13.   *    1     1335
164        5.   *    1     1850  227        4.
     1     0310   39        0.   *    1     0825  102       12.   *    1     1340
165        5.   *    1     1855  228        4.
     1     0315   40        0.   *    1     0830  103       11.   *    1     1345
166        5.   *    1     1900  229        4.
     1     0320   41        0.   *    1     0835  104       10.   *    1     1350
167        5.   *    1     1905  230        4.
     1     0325   42        0.   *    1     0840  105        9.   *    1     1355
168        5.   *    1     1910  231        4.
     1     0330   43        0.   *    1     0845  106        9.   *    1     1400
169        5.   *    1     1915  232        4.
     1     0335   44        0.   *    1     0850  107        8.   *    1     1405
170        5.   *    1     1920  233        4.
     1     0340   45        0.   *    1     0855  108        8.   *    1     1410
171        5.   *    1     1925  234        4.
     1     0345   46        0.   *    1     0900  109        8.   *    1     1415
172        5.   *    1     1930  235        4.
     1     0350   47        0.   *    1     0905  110        8.   *    1     1420
173        5.   *    1     1935  236        4.
     1     0355   48        0.   *    1     0910  111        8.   *    1     1425
174        5.   *    1     1940  237        4.
     1     0400   49        0.   *    1     0915  112        7.   *    1     1430
175        4.   *    1     1945  238        4.
     1     0405   50        0.   *    1     0920  113        7.   *    1     1435
176        4.   *    1     1950  239        4.
     1     0410   51        0.   *    1     0925  114        7.   *    1     1440
177        4.   *    1     1955  240        4.
     1     0415   52        0.   *    1     0930  115        7.   *    1     1445
178        4.   *    1     2000  241        4.
     1     0420   53        0.   *    1     0935  116        7.   *    1     1450
179        4.   *    1     2005  242        4.
     1     0425   54        0.   *    1     0940  117        7.   *    1     1455
180        4.   *    1     2010  243        4.
     1     0430   55        0.   *    1     0945  118        7.   *    1     1500
181        4.   *    1     2015  244        4.
     1     0435   56        0.   *    1     0950  119        7.   *    1     1505
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182         4.   *    1     2020  245         3.
     1     0440   57        0.   *    1     0955  120        7.   *    1     1510
183         4.   *    1     2025  246         3.
     1     0445   58        0.   *    1     1000  121        7.   *    1     1515
184         4.   *    1     2030  247         3.
     1     0450   59        0.   *    1     1005  122        7.   *    1     1520
185         4.   *    1     2035  248         3.
     1     0455   60        0.   *    1     1010  123        7.   *    1     1525
186         4.   *    1     2040  249         2.
     1     0500   61        0.   *    1     1015  124        7.   *    1     1530
187         4.   *    1     2045  250         2.
     1     0505   62        0.   *    1     1020  125        7.   *    1     1535
188         4.   *
     1     0510   63        0.   *    1     1025  126        6.   *    1     1540
189         4.   *
                                 *                                *
              *

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  PEAK FLOW     TIME                             MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                                 (CFS)
+     215.      6.17                     35.          12.         12.          12.
                              (INCHES)  2.386        2.807       2.807        2.807
                               (AC-FT)    18.          21.         21.          21.

                               CUMULATIVE AREA =     .14 SQ MI



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


             **************
             *            *
  278 KK     *    DB8075  *
             *            *
             **************


  279 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           1  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                                    ROUTE DP8075 THROUGH NEW HALE RESERVOIR  (PER
APPLEGATE DESIGN)

                HYDROGRAPH ROUTING DATA

  281 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        ELEV  TYPE OF INITIAL CONDITION
                       RSVRIC     5622.00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

  283 SV            STORAGE           .0       11.8       24.5       37.7       51.5
65.8       80.4       95.3     110.5
```

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  284 SE          ELEVATION     5622.00   5623.00   5624.00   5625.00   5626.00
5627.00   5628.00   5629.00   5630.00

  282 SQ          DISCHARGE          0.        0.        0.        0.        0.
  0.      149.      420.      772.

                                                                  ***


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                                                        HYDROGRAPH AT STATION   DB8075
                                                            PLAN 1,   RATIO =   .47


*************************************************************************************
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                                                *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                                *
   *
   1     0000   1       0.       .0  5622.0 *  1     0700  85       0.     18.6
5623.5 *  1     1400 169       0.     31.9  5624.6
   1     0005   2       0.       .0  5622.0 *  1     0705  86       0.     19.1
5623.6 *  1     1405 170       0.     32.0  5624.6
   1     0010   3       0.       .0  5622.0 *  1     0710  87       0.     19.5
5623.6 *  1     1410 171       0.     32.1  5624.6
   1     0015   4       0.       .0  5622.0 *  1     0715  88       0.     19.8
5623.6 *  1     1415 172       0.     32.2  5624.6
   1     0020   5       0.       .0  5622.0 *  1     0720  89       0.     20.2
5623.7 *  1     1420 173       0.     32.3  5624.6
   1     0025   6       0.       .0  5622.0 *  1     0725  90       0.     20.5
5623.7 *  1     1425 174       0.     32.4  5624.6
   1     0030   7       0.       .0  5622.0 *  1     0730  91       0.     20.8
5623.7 *  1     1430 175       0.     32.5  5624.6
   1     0035   8       0.       .0  5622.0 *  1     0735  92       0.     21.1
5623.7 *  1     1435 176       0.     32.6  5624.6
   1     0040   9       0.       .0  5622.0 *  1     0740  93       0.     21.3
5623.7 *  1     1440 177       0.     32.7  5624.6
   1     0045  10       0.       .0  5622.0 *  1     0745  94       0.     21.6
5623.8 *  1     1445 178       0.     32.8  5624.6
   1     0050  11       0.       .0  5622.0 *  1     0750  95       0.     21.8
5623.8 *  1     1450 179       0.     32.9  5624.6
   1     0055  12       0.       .0  5622.0 *  1     0755  96       0.     22.1
5623.8 *  1     1455 180       0.     33.0  5624.6
   1     0100  13       0.       .0  5622.0 *  1     0800  97       0.     22.3
5623.8 *  1     1500 181       0.     33.1  5624.6
   1     0105  14       0.       .0  5622.0 *  1     0805  98       0.     22.6
5623.8 *  1     1505 182       0.     33.2  5624.7
   1     0110  15       0.       .0  5622.0 *  1     0810  99       0.     22.8
5623.9 *  1     1510 183       0.     33.3  5624.7
   1     0115  16       0.       .0  5622.0 *  1     0815 100       0.     23.1
5623.9 *  1     1515 184       0.     33.3  5624.7
   1     0120  17       0.       .0  5622.0 *  1     0820 101       0.     23.3
5623.9 *  1     1520 185       0.     33.4  5624.7
   1     0125  18       0.       .0  5622.0 *  1     0825 102       0.     23.5
5623.9 *  1     1525 186       0.     33.5  5624.7
   1     0130  19       0.       .0  5622.0 *  1     0830 103       0.     23.7
5623.9 *  1     1530 187       0.     33.6  5624.7
   1     0135  20       0.       .0  5622.0 *  1     0835 104       0.     23.9
```

```
5624.0 *  1     1535 188       0.     33.7  5624.7
  1     0140  21       0.       .0  5622.0 *  1     0840 105       0.     24.1
5624.0 *  1     1540 189       0.     33.8  5624.7
  1     0145  22       0.       .0  5622.0 *  1     0845 106       0.     24.3
5624.0 *  1     1545 190       0.     33.9  5624.7
  1     0150  23       0.       .0  5622.0 *  1     0850 107       0.     24.4
5624.0 *  1     1550 191       0.     34.0  5624.7
  1     0155  24       0.       .0  5622.0 *  1     0855 108       0.     24.6
5624.0 *  1     1555 192       0.     34.1  5624.7
  1     0200  25       0.       .0  5622.0 *  1     0900 109       0.     24.7
5624.0 *  1     1600 193       0.     34.1  5624.7
  1     0205  26       0.       .0  5622.0 *  1     0905 110       0.     24.9
5624.0 *  1     1605 194       0.     34.2  5624.7
  1     0210  27       0.       .0  5622.0 *  1     0910 111       0.     25.0
5624.0 *  1     1610 195       0.     34.3  5624.7
  1     0215  28       0.       .0  5622.0 *  1     0915 112       0.     25.2
5624.0 *  1     1615 196       0.     34.4  5624.7
  1     0220  29       0.       .0  5622.0 *  1     0920 113       0.     25.3
5624.1 *  1     1620 197       0.     34.5  5624.8
  1     0225  30       0.       .0  5622.0 *  1     0925 114       0.     25.4
5624.1 *  1     1625 198       0.     34.6  5624.8
  1     0230  31       0.       .0  5622.0 *  1     0930 115       0.     25.6
5624.1 *  1     1630 199       0.     34.6  5624.8
  1     0235  32       0.       .0  5622.0 *  1     0935 116       0.     25.7
5624.1 *  1     1635 200       0.     34.7  5624.8
  1     0240  33       0.       .0  5622.0 *  1     0940 117       0.     25.8
5624.1 *  1     1640 201       0.     34.8  5624.8
  1     0245  34       0.       .0  5622.0 *  1     0945 118       0.     26.0
5624.1 *  1     1645 202       0.     34.9  5624.8
  1     0250  35       0.       .0  5622.0 *  1     0950 119       0.     26.1
5624.1 *  1     1650 203       0.     35.0  5624.8
  1     0255  36       0.       .0  5622.0 *  1     0955 120       0.     26.3
5624.1 *  1     1655 204       0.     35.0  5624.8
  1     0300  37       0.       .0  5622.0 *  1     1000 121       0.     26.4
5624.1 *  1     1700 205       0.     35.1  5624.8
  1     0305  38       0.       .0  5622.0 *  1     1005 122       0.     26.5
5624.2 *  1     1705 206       0.     35.2  5624.8
  1     0310  39       0.       .0  5622.0 *  1     1010 123       0.     26.7
5624.2 *  1     1710 207       0.     35.3  5624.8
  1     0315  40       0.       .0  5622.0 *  1     1015 124       0.     26.8
5624.2 *  1     1715 208       0.     35.4  5624.8
  1     0320  41       0.       .0  5622.0 *  1     1020 125       0.     26.9
5624.2 *  1     1720 209       0.     35.5  5624.8
  1     0325  42       0.       .0  5622.0 *  1     1025 126       0.     27.0
5624.2 *  1     1725 210       0.     35.5  5624.8
  1     0330  43       0.       .0  5622.0 *  1     1030 127       0.     27.2
5624.2 *  1     1730 211       0.     35.6  5624.8
  1     0335  44       0.       .0  5622.0 *  1     1035 128       0.     27.3
5624.2 *  1     1735 212       0.     35.7  5624.8
  1     0340  45       0.       .0  5622.0 *  1     1040 129       0.     27.4
5624.2 *  1     1740 213       0.     35.8  5624.9
  1     0345  46       0.       .0  5622.0 *  1     1045 130       0.     27.5
5624.2 *  1     1745 214       0.     35.9  5624.9
  1     0350  47       0.       .0  5622.0 *  1     1050 131       0.     27.6
5624.2 *  1     1750 215       0.     35.9  5624.9
  1     0355  48       0.       .0  5622.0 *  1     1055 132       0.     27.7
5624.2 *  1     1755 216       0.     36.0  5624.9
  1     0400  49       0.       .0  5622.0 *  1     1100 133       0.     27.9
5624.3 *  1     1800 217       0.     36.1  5624.9
  1     0405  50       0.       .0  5622.0 *  1     1105 134       0.     28.0
5624.3 *  1     1805 218       0.     36.2  5624.9
  1     0410  51       0.       .0  5622.0 *  1     1110 135       0.     28.1
5624.3 *  1     1810 219       0.     36.3  5624.9
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   1     0415  52        0.        .0  5622.0 *  1     1115 136        0.      28.2
5624.3 *  1     1815 220       0.      36.4  5624.9
   1     0420  53        0.        .0  5622.0 *  1     1120 137        0.      28.3
5624.3 *  1     1820 221       0.      36.4  5624.9
   1     0425  54        0.        .0  5622.0 *  1     1125 138        0.      28.4
5624.3 *  1     1825 222       0.      36.5  5624.9
   1     0430  55        0.        .0  5622.0 *  1     1130 139        0.      28.5
5624.3 *  1     1830 223       0.      36.6  5624.9
   1     0435  56        0.        .0  5622.0 *  1     1135 140        0.      28.6
5624.3 *  1     1835 224       0.      36.7  5624.9
   1     0440  57        0.        .0  5622.0 *  1     1140 141        0.      28.8
5624.3 *  1     1840 225       0.      36.8  5624.9
   1     0445  58        0.        .0  5622.0 *  1     1145 142        0.      28.9
5624.3 *  1     1845 226       0.      36.9  5624.9
   1     0450  59        0.        .0  5622.0 *  1     1150 143        0.      29.0
5624.3 *  1     1850 227       0.      36.9  5624.9
   1     0455  60        0.        .0  5622.0 *  1     1155 144        0.      29.1
5624.3 *  1     1855 228       0.      37.0  5624.9
   1     0500  61        0.        .0  5622.0 *  1     1200 145        0.      29.2
5624.4 *  1     1900 229       0.      37.1  5625.0
   1     0505  62        0.        .0  5622.0 *  1     1205 146        0.      29.3
5624.4 *  1     1905 230       0.      37.2  5625.0
   1     0510  63        0.        .0  5622.0 *  1     1210 147        0.      29.4
5624.4 *  1     1910 231       0.      37.3  5625.0
   1     0515  64        0.        .0  5622.0 *  1     1215 148        0.      29.5
5624.4 *  1     1915 232       0.      37.4  5625.0
   1     0520  65        0.        .0  5622.0 *  1     1220 149        0.      29.7
5624.4 *  1     1920 233       0.      37.4  5625.0
   1     0525  66        0.        .0  5622.0 *  1     1225 150        0.      29.8
5624.4 *  1     1925 234       0.      37.5  5625.0
   1     0530  67        0.        .0  5622.0 *  1     1230 151        0.      29.9
5624.4 *  1     1930 235       0.      37.6  5625.0
   1     0535  68        0.        .0  5622.0 *  1     1235 152        0.      30.0
5624.4 *  1     1935 236       0.      37.7  5625.0
   1     0540  69        0.        .0  5622.0 *  1     1240 153        0.      30.1
5624.4 *  1     1940 237       0.      37.8  5625.0
   1     0545  70        0.        .0  5622.0 *  1     1245 154        0.      30.2
5624.4 *  1     1945 238       0.      37.8  5625.0
   1     0550  71        0.        .0  5622.0 *  1     1250 155        0.      30.3
5624.4 *  1     1950 239       0.      37.9  5625.0
   1     0555  72        0.        .5  5622.0 *  1     1255 156        0.      30.4
5624.5 *  1     1955 240       0.      38.0  5625.0
   1     0600  73        0.       1.9  5622.2 *  1     1300 157        0.      30.6
5624.5 *  1     2000 241       0.      38.1  5625.0
   1     0605  74        0.       4.0  5622.3 *  1     1305 158        0.      30.7
5624.5 *  1     2005 242       0.      38.2  5625.0
   1     0610  75        0.       6.7  5622.6 *  1     1310 159        0.      30.8
5624.5 *  1     2010 243       0.      38.3  5625.0
   1     0615  76        0.       9.2  5622.8 *  1     1315 160        0.      30.9
5624.5 *  1     2015 244       0.      38.3  5625.0
   1     0620  77        0.      11.3  5623.0 *  1     1320 161        0.      31.0
5624.5 *  1     2020 245       0.      38.4  5625.1
   1     0625  78        0.      12.9  5623.1 *  1     1325 162        0.      31.1
5624.5 *  1     2025 246       0.      38.5  5625.1
   1     0630  79        0.      14.2  5623.2 *  1     1330 163        0.      31.2
5624.5 *  1     2030 247       0.      38.6  5625.1
   1     0635  80        0.      15.3  5623.3 *  1     1335 164        0.      31.3
5624.5 *  1     2035 248       0.      38.6  5625.1
   1     0640  81        0.      16.1  5623.3 *  1     1340 165        0.      31.5
5624.5 *  1     2040 249       0.      38.7  5625.1
   1     0645  82        0.      16.9  5623.4 *  1     1345 166        0.      31.6
5624.5 *  1     2045 250       0.      38.8  5625.1
   1     0650  83        0.      17.6  5623.5 *  1     1350 167        0.      31.7
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5624.5 *
   1     0655  84       0.     18.1  5623.5 *  1     1355 168       0.     31.8
5624.6 *
                                            *
   *

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  PEAK FLOW     TIME                                 MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     20.75-HR
+   (CFS)       (HR)
                           (CFS)
+       0.       .00                    0.          0.          0.            0.
                        (INCHES)      .000        .000        .000          .000
                         (AC-FT)        0.          0.          0.            0.

 PEAK STORAGE   TIME                                MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR       72-HR     20.75-HR
+  (AC-FT)      (HR)
       39.     20.75                   36.         21.         21.           21.

  PEAK STAGE    TIME                                 MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR       72-HR     20.75-HR
+   (FEET)      (HR)
   5625.08     20.75               5624.86     5623.70     5623.70      5623.70

                         CUMULATIVE AREA =    1.42 SQ MI


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                                                   HYDROGRAPH AT STATION   DB8075
                                                       PLAN 1,   RATIO =   .56


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   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                            *
   *
   1     0000   1       0.       .0  5622.0 *  1     0700  85       0.     27.3
5624.2 *  1     1400 169       0.     49.0  5625.8
   1     0005   2       0.       .0  5622.0 *  1     0705  86       0.     28.2
5624.3 *  1     1405 170       0.     49.2  5625.8
   1     0010   3       0.       .0  5622.0 *  1     0710  87       0.     28.9
5624.3 *  1     1410 171       0.     49.3  5625.8
   1     0015   4       0.       .0  5622.0 *  1     0715  88       0.     29.7
5624.4 *  1     1415 172       0.     49.4  5625.9
   1     0020   5       0.       .0  5622.0 *  1     0720  89       0.     30.3
5624.4 *  1     1420 173       0.     49.6  5625.9
   1     0025   6       0.       .0  5622.0 *  1     0725  90       0.     31.0
5624.5 *  1     1425 174       0.     49.7  5625.9
   1     0030   7       0.       .0  5622.0 *  1     0730  91       0.     31.6
5624.5 *  1     1430 175       0.     49.9  5625.9
   1     0035   8       0.       .0  5622.0 *  1     0735  92       0.     32.2
5624.6 *  1     1435 176       0.     50.0  5625.9
   1     0040   9       0.       .0  5622.0 *  1     0740  93       0.     32.7
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5624.6 *  1     1440 177       0.      50.1  5625.9
   1     0045  10       0.       .0  5622.0 *  1     0745  94        0.      33.2
5624.7 *  1     1445 178       0.      50.3  5625.9
   1     0050  11       0.       .0  5622.0 *  1     0750  95        0.      33.7
5624.7 *  1     1450 179       0.      50.4  5625.9
   1     0055  12       0.       .0  5622.0 *  1     0755  96        0.      34.2
5624.7 *  1     1455 180       0.      50.5  5625.9
   1     0100  13       0.       .0  5622.0 *  1     0800  97        0.      34.7
5624.8 *  1     1500 181       0.      50.6  5625.9
   1     0105  14       0.       .0  5622.0 *  1     0805  98        0.      35.1
5624.8 *  1     1505 182       0.      50.8  5625.9
   1     0110  15       0.       .0  5622.0 *  1     0810  99        0.      35.6
5624.8 *  1     1510 183       0.      50.9  5626.0
   1     0115  16       0.       .0  5622.0 *  1     0815 100        0.      36.0
5624.9 *  1     1515 184       0.      51.0  5626.0
   1     0120  17       0.       .0  5622.0 *  1     0820 101        0.      36.4
5624.9 *  1     1520 185       0.      51.2  5626.0
   1     0125  18       0.       .0  5622.0 *  1     0825 102        0.      36.7
5624.9 *  1     1525 186       0.      51.3  5626.0
   1     0130  19       0.       .0  5622.0 *  1     0830 103        0.      37.1
5625.0 *  1     1530 187       0.      51.4  5626.0
   1     0135  20       0.       .0  5622.0 *  1     0835 104        0.      37.4
5625.0 *  1     1535 188       0.      51.5  5626.0
   1     0140  21       0.       .0  5622.0 *  1     0840 105        0.      37.7
5625.0 *  1     1540 189       0.      51.6  5626.0
   1     0145  22       0.       .0  5622.0 *  1     0845 106        0.      37.9
5625.0 *  1     1545 190       0.      51.8  5626.0
   1     0150  23       0.       .0  5622.0 *  1     0850 107        0.      38.2
5625.0 *  1     1550 191       0.      51.9  5626.0
   1     0155  24       0.       .0  5622.0 *  1     0855 108        0.      38.4
5625.1 *  1     1555 192       0.      52.0  5626.0
   1     0200  25       0.       .0  5622.0 *  1     0900 109        0.      38.7
5625.1 *  1     1600 193       0.      52.1  5626.0
   1     0205  26       0.       .0  5622.0 *  1     0905 110        0.      38.9
5625.1 *  1     1605 194       0.      52.2  5626.0
   1     0210  27       0.       .0  5622.0 *  1     0910 111        0.      39.1
5625.1 *  1     1610 195       0.      52.3  5626.1
   1     0215  28       0.       .0  5622.0 *  1     0915 112        0.      39.4
5625.1 *  1     1615 196       0.      52.4  5626.1
   1     0220  29       0.       .0  5622.0 *  1     0920 113        0.      39.6
5625.1 *  1     1620 197       0.      52.5  5626.1
   1     0225  30       0.       .0  5622.0 *  1     0925 114        0.      39.8
5625.2 *  1     1625 198       0.      52.6  5626.1
   1     0230  31       0.       .0  5622.0 *  1     0930 115        0.      40.0
5625.2 *  1     1630 199       0.      52.8  5626.1
   1     0235  32       0.       .0  5622.0 *  1     0935 116        0.      40.2
5625.2 *  1     1635 200       0.      52.9  5626.1
   1     0240  33       0.       .0  5622.0 *  1     0940 117        0.      40.4
5625.2 *  1     1640 201       0.      53.0  5626.1
   1     0245  34       0.       .0  5622.0 *  1     0945 118        0.      40.6
5625.2 *  1     1645 202       0.      53.1  5626.1
   1     0250  35       0.       .0  5622.0 *  1     0950 119        0.      40.8
5625.2 *  1     1650 203       0.      53.2  5626.1
   1     0255  36       0.       .0  5622.0 *  1     0955 120        0.      41.0
5625.2 *  1     1655 204       0.      53.3  5626.1
   1     0300  37       0.       .0  5622.0 *  1     1000 121        0.      41.2
5625.3 *  1     1700 205       0.      53.4  5626.1
   1     0305  38       0.       .0  5622.0 *  1     1005 122        0.      41.4
5625.3 *  1     1705 206       0.      53.5  5626.1
   1     0310  39       0.       .0  5622.0 *  1     1010 123        0.      41.6
5625.3 *  1     1710 207       0.      53.6  5626.1
   1     0315  40       0.       .0  5622.0 *  1     1015 124        0.      41.8
5625.3 *  1     1715 208       0.      53.7  5626.2
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   1     0320  41       0.       .0  5622.0 *  1     1020 125       0.     42.0
5625.3 *  1     1720 209       0.     53.8  5626.2
   1     0325  42       0.       .0  5622.0 *  1     1025 126       0.     42.2
5625.3 *  1     1725 210       0.     53.9  5626.2
   1     0330  43       0.       .0  5622.0 *  1     1030 127       0.     42.4
5625.3 *  1     1730 211       0.     54.0  5626.2
   1     0335  44       0.       .0  5622.0 *  1     1035 128       0.     42.6
5625.4 *  1     1735 212       0.     54.2  5626.2
   1     0340  45       0.       .0  5622.0 *  1     1040 129       0.     42.8
5625.4 *  1     1740 213       0.     54.3  5626.2
   1     0345  46       0.       .0  5622.0 *  1     1045 130       0.     43.0
5625.4 *  1     1745 214       0.     54.4  5626.2
   1     0350  47       0.       .0  5622.0 *  1     1050 131       0.     43.1
5625.4 *  1     1750 215       0.     54.5  5626.2
   1     0355  48       0.       .0  5622.0 *  1     1055 132       0.     43.3
5625.4 *  1     1755 216       0.     54.6  5626.2
   1     0400  49       0.       .0  5622.0 *  1     1100 133       0.     43.5
5625.4 *  1     1800 217       0.     54.7  5626.2
   1     0405  50       0.       .0  5622.0 *  1     1105 134       0.     43.6
5625.4 *  1     1805 218       0.     54.8  5626.2
   1     0410  51       0.       .0  5622.0 *  1     1110 135       0.     43.8
5625.4 *  1     1810 219       0.     54.9  5626.2
   1     0415  52       0.       .0  5622.0 *  1     1115 136       0.     43.9
5625.5 *  1     1815 220       0.     55.0  5626.2
   1     0420  53       0.       .0  5622.0 *  1     1120 137       0.     44.1
5625.5 *  1     1820 221       0.     55.1  5626.3
   1     0425  54       0.       .0  5622.0 *  1     1125 138       0.     44.3
5625.5 *  1     1825 222       0.     55.2  5626.3
   1     0430  55       0.       .0  5622.0 *  1     1130 139       0.     44.4
5625.5 *  1     1830 223       0.     55.3  5626.3
   1     0435  56       0.       .0  5622.0 *  1     1135 140       0.     44.6
5625.5 *  1     1835 224       0.     55.5  5626.3
   1     0440  57       0.       .0  5622.0 *  1     1140 141       0.     44.7
5625.5 *  1     1840 225       0.     55.6  5626.3
   1     0445  58       0.       .0  5622.0 *  1     1145 142       0.     44.9
5625.5 *  1     1845 226       0.     55.7  5626.3
   1     0450  59       0.       .0  5622.0 *  1     1150 143       0.     45.0
5625.5 *  1     1850 227       0.     55.8  5626.3
   1     0455  60       0.       .0  5622.0 *  1     1155 144       0.     45.2
5625.5 *  1     1855 228       0.     55.9  5626.3
   1     0500  61       0.       .0  5622.0 *  1     1200 145       0.     45.3
5625.6 *  1     1900 229       0.     56.0  5626.3
   1     0505  62       0.       .0  5622.0 *  1     1205 146       0.     45.5
5625.6 *  1     1905 230       0.     56.1  5626.3
   1     0510  63       0.       .0  5622.0 *  1     1210 147       0.     45.7
5625.6 *  1     1910 231       0.     56.2  5626.3
   1     0515  64       0.       .0  5622.0 *  1     1215 148       0.     45.8
5625.6 *  1     1915 232       0.     56.3  5626.3
   1     0520  65       0.       .0  5622.0 *  1     1220 149       0.     46.0
5625.6 *  1     1920 233       0.     56.4  5626.3
   1     0525  66       0.       .0  5622.0 *  1     1225 150       0.     46.1
5625.6 *  1     1925 234       0.     56.5  5626.4
   1     0530  67       0.       .0  5622.0 *  1     1230 151       0.     46.3
5625.6 *  1     1930 235       0.     56.6  5626.4
   1     0535  68       0.       .0  5622.0 *  1     1235 152       0.     46.4
5625.6 *  1     1935 236       0.     56.8  5626.4
   1     0540  69       0.       .0  5622.0 *  1     1240 153       0.     46.6
5625.6 *  1     1940 237       0.     56.9  5626.4
   1     0545  70       0.       .0  5622.0 *  1     1245 154       0.     46.8
5625.7 *  1     1945 238       0.     57.0  5626.4
   1     0550  71       0.       .2  5622.0 *  1     1250 155       0.     46.9
5625.7 *  1     1950 239       0.     57.1  5626.4
   1     0555  72       0.      1.3  5622.1 *  1     1255 156       0.     47.1
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5625.7 *  1     1955 240       0.     57.2  5626.4
   1     0600  73       0.       3.6  5622.3 *  1     1300 157       0.      47.2
5625.7 *  1     2000 241       0.     57.3  5626.4
   1     0605  74       0.       6.8  5622.6 *  1     1305 158       0.      47.4
5625.7 *  1     2005 242       0.     57.4  5626.4
   1     0610  75       0.      10.5  5622.9 *  1     1310 159       0.      47.5
5625.7 *  1     2010 243       0.     57.5  5626.4
   1     0615  76       0.      14.0  5623.2 *  1     1315 160       0.      47.7
5625.7 *  1     2015 244       0.     57.6  5626.4
   1     0620  77       0.      16.8  5623.4 *  1     1320 161       0.      47.9
5625.7 *  1     2020 245       0.     57.7  5626.4
   1     0625  78       0.      18.9  5623.6 *  1     1325 162       0.      48.0
5625.7 *  1     2025 246       0.     57.8  5626.4
   1     0630  79       0.      20.7  5623.7 *  1     1330 163       0.      48.2
5625.8 *  1     2030 247       0.     57.9  5626.4
   1     0635  80       0.      22.1  5623.8 *  1     1335 164       0.      48.3
5625.8 *  1     2035 248       0.     58.0  5626.5
   1     0640  81       0.      23.3  5623.9 *  1     1340 165       0.      48.5
5625.8 *  1     2040 249       0.     58.1  5626.5
   1     0645  82       0.      24.4  5624.0 *  1     1345 166       0.      48.6
5625.8 *  1     2045 250       0.     58.2  5626.5
   1     0650  83       0.      25.5  5624.1 *  1     1350 167       0.      48.7
5625.8 *
   1     0655  84       0.      26.4  5624.1 *  1     1355 168       0.      48.9
5625.8 *
                                            *
   *

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  PEAK FLOW      TIME                             MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       24-HR     20.75-HR
+   (CFS)        (HR)
                           (CFS)
+       0.        .00                   0.          0.          0.           0.
                        (INCHES)      .000        .000        .000         .000
                         (AC-FT)        0.          0.          0.           0.

 PEAK STORAGE    TIME                            MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     20.75-HR
+  (AC-FT)       (HR)
       58.     20.75                   54.         32.         32.          32.

  PEAK STAGE     TIME                             MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     20.75-HR
+   (FEET)       (HR)
   5626.47     20.75                5626.20     5624.53     5624.53      5624.53

                         CUMULATIVE AREA =    1.42 SQ MI


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                                                   HYDROGRAPH AT STATION   DB8075
                                                       PLAN 1,   RATIO =   .70


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   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                            *

   *
   1     0000   1       0.        .0  5622.0 *  1     0700  85       0.     47.7
5625.7 *  1     1400 169      30.     68.8  5627.2
   1     0005   2       0.        .0  5622.0 *  1     0705  86       0.     49.2
5625.8 *  1     1405 170      30.     68.8  5627.2
   1     0010   3       0.        .0  5622.0 *  1     0710  87       0.     50.6
5625.9 *  1     1410 171      30.     68.8  5627.2
   1     0015   4       0.        .0  5622.0 *  1     0715  88       0.     51.8
5626.0 *  1     1415 172      30.     68.7  5627.2
   1     0020   5       0.        .0  5622.0 *  1     0720  89       0.     52.9
5626.1 *  1     1420 173      30.     68.7  5627.2
   1     0025   6       0.        .0  5622.0 *  1     0725  90       0.     53.9
5626.2 *  1     1425 174      30.     68.7  5627.2
   1     0030   7       0.        .0  5622.0 *  1     0730  91       0.     54.8
5626.2 *  1     1430 175      29.     68.7  5627.2
   1     0035   8       0.        .0  5622.0 *  1     0735  92       0.     55.6
5626.3 *  1     1435 176      29.     68.7  5627.2
   1     0040   9       0.        .0  5622.0 *  1     0740  93       0.     56.4
5626.3 *  1     1440 177      29.     68.7  5627.2
   1     0045  10       0.        .0  5622.0 *  1     0745  94       0.     57.1
5626.4 *  1     1445 178      29.     68.6  5627.2
   1     0050  11       0.        .0  5622.0 *  1     0750  95       0.     57.8
5626.4 *  1     1450 179      29.     68.6  5627.2
   1     0055  12       0.        .0  5622.0 *  1     0755  96       0.     58.5
5626.5 *  1     1455 180      29.     68.6  5627.2
   1     0100  13       0.        .0  5622.0 *  1     0800  97       0.     59.1
5626.5 *  1     1500 181      28.     68.6  5627.2
   1     0105  14       0.        .0  5622.0 *  1     0805  98       0.     59.8
5626.6 *  1     1505 182      28.     68.6  5627.2
   1     0110  15       0.        .0  5622.0 *  1     0810  99       0.     60.4
5626.6 *  1     1510 183      28.     68.5  5627.2
   1     0115  16       0.        .0  5622.0 *  1     0815 100       0.     61.0
5626.7 *  1     1515 184      28.     68.5  5627.2
   1     0120  17       0.        .0  5622.0 *  1     0820 101       0.     61.6
5626.7 *  1     1520 185      28.     68.5  5627.2
   1     0125  18       0.        .0  5622.0 *  1     0825 102       0.     62.1
5626.7 *  1     1525 186      28.     68.5  5627.2
   1     0130  19       0.        .0  5622.0 *  1     0830 103       0.     62.6
5626.8 *  1     1530 187      27.     68.5  5627.2
   1     0135  20       0.        .0  5622.0 *  1     0835 104       0.     63.1
5626.8 *  1     1535 188      27.     68.5  5627.2
   1     0140  21       0.        .0  5622.0 *  1     0840 105       0.     63.5
5626.8 *  1     1540 189      27.     68.4  5627.2
   1     0145  22       0.        .0  5622.0 *  1     0845 106       0.     63.9
5626.9 *  1     1545 190      27.     68.4  5627.2
   1     0150  23       0.        .0  5622.0 *  1     0850 107       0.     64.3
5626.9 *  1     1550 191      26.     68.4  5627.2
   1     0155  24       0.        .0  5622.0 *  1     0855 108       0.     64.7
5626.9 *  1     1555 192      26.     68.4  5627.2
   1     0200  25       0.        .0  5622.0 *  1     0900 109       0.     65.1
5626.9 *  1     1600 193      26.     68.3  5627.2
   1     0205  26       0.        .0  5622.0 *  1     0905 110       0.     65.4
5627.0 *  1     1605 194      26.     68.3  5627.2
   1     0210  27       0.        .0  5622.0 *  1     0910 111       0.     65.7
5627.0 *  1     1610 195      25.     68.3  5627.2
   1     0215  28       0.        .0  5622.0 *  1     0915 112       2.     66.0
5627.0 *  1     1615 196      25.     68.3  5627.2
   1     0220  29       0.        .0  5622.0 *  1     0920 113       5.     66.3
5627.0 *  1     1620 197      25.     68.2  5627.2
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   1     0225  30       0.       .0  5622.0 *  1     0925 114       8.      66.6
5627.1 *  1     1625 198      25.       68.2  5627.2
   1     0230  31       0.       .0  5622.0 *  1     0930 115      10.      66.8
5627.1 *  1     1630 199      24.       68.2  5627.2
   1     0235  32       0.       .0  5622.0 *  1     0935 116      12.      67.0
5627.1 *  1     1635 200      24.       68.2  5627.2
   1     0240  33       0.       .0  5622.0 *  1     0940 117      14.      67.2
5627.1 *  1     1640 201      24.       68.2  5627.2
   1     0245  34       0.       .0  5622.0 *  1     0945 118      16.      67.4
5627.1 *  1     1645 202      24.       68.1  5627.2
   1     0250  35       0.       .0  5622.0 *  1     0950 119      18.      67.6
5627.1 *  1     1650 203      24.       68.1  5627.2
   1     0255  36       0.       .0  5622.0 *  1     0955 120      20.      67.7
5627.1 *  1     1655 204      24.       68.1  5627.2
   1     0300  37       0.       .0  5622.0 *  1     1000 121      21.      67.9
5627.1 *  1     1700 205      23.       68.1  5627.2
   1     0305  38       0.       .0  5622.0 *  1     1005 122      23.      68.0
5627.2 *  1     1705 206      23.       68.1  5627.2
   1     0310  39       0.       .0  5622.0 *  1     1010 123      24.      68.1
5627.2 *  1     1710 207      23.       68.1  5627.2
   1     0315  40       0.       .0  5622.0 *  1     1015 124      25.      68.3
5627.2 *  1     1715 208      23.       68.1  5627.2
   1     0320  41       0.       .0  5622.0 *  1     1020 125      26.      68.4
5627.2 *  1     1720 209      23.       68.1  5627.2
   1     0325  42       0.       .0  5622.0 *  1     1025 126      27.      68.4
5627.2 *  1     1725 210      23.       68.0  5627.2
   1     0330  43       0.       .0  5622.0 *  1     1030 127      28.      68.5
5627.2 *  1     1730 211      23.       68.0  5627.2
   1     0335  44       0.       .0  5622.0 *  1     1035 128      28.      68.6
5627.2 *  1     1735 212      23.       68.0  5627.2
   1     0340  45       0.       .0  5622.0 *  1     1040 129      29.      68.6
5627.2 *  1     1740 213      23.       68.0  5627.2
   1     0345  46       0.       .0  5622.0 *  1     1045 130      29.      68.7
5627.2 *  1     1745 214      23.       68.0  5627.2
   1     0350  47       0.       .0  5622.0 *  1     1050 131      29.      68.7
5627.2 *  1     1750 215      23.       68.0  5627.2
   1     0355  48       0.       .0  5622.0 *  1     1055 132      30.      68.7
5627.2 *  1     1755 216      22.       68.0  5627.2
   1     0400  49       0.       .0  5622.0 *  1     1100 133      30.      68.7
5627.2 *  1     1800 217      22.       68.0  5627.2
   1     0405  50       0.       .0  5622.0 *  1     1105 134      30.      68.8
5627.2 *  1     1805 218      22.       68.0  5627.1
   1     0410  51       0.       .0  5622.0 *  1     1110 135      30.      68.8
5627.2 *  1     1810 219      22.       68.0  5627.1
   1     0415  52       0.       .0  5622.0 *  1     1115 136      30.      68.8
5627.2 *  1     1815 220      22.       68.0  5627.1
   1     0420  53       0.       .0  5622.0 *  1     1120 137      31.      68.8
5627.2 *  1     1820 221      22.       68.0  5627.1
   1     0425  54       0.       .0  5622.0 *  1     1125 138      31.      68.8
5627.2 *  1     1825 222      22.       68.0  5627.1
   1     0430  55       0.       .0  5622.0 *  1     1130 139      31.      68.8
5627.2 *  1     1830 223      22.       68.0  5627.1
   1     0435  56       0.       .0  5622.0 *  1     1135 140      31.      68.8
5627.2 *  1     1835 224      22.       68.0  5627.1
   1     0440  57       0.       .0  5622.0 *  1     1140 141      31.      68.8
5627.2 *  1     1840 225      22.       68.0  5627.1
   1     0445  58       0.       .0  5622.0 *  1     1145 142      31.      68.8
5627.2 *  1     1845 226      22.       68.0  5627.1
   1     0450  59       0.       .0  5622.0 *  1     1150 143      31.      68.8
5627.2 *  1     1850 227      22.       68.0  5627.1
   1     0455  60       0.       .0  5622.0 *  1     1155 144      31.      68.8
5627.2 *  1     1855 228      22.       68.0  5627.1
   1     0500  61       0.       .0  5622.0 *  1     1200 145      31.      68.8
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5627.2 *  1     1900 229      22.     68.0  5627.1
   1     0505  62       0.        .0  5622.0 *  1     1205 146      31.     68.8
5627.2 *  1     1905 230      22.     68.0  5627.1
   1     0510  63       0.        .0  5622.0 *  1     1210 147      31.     68.8
5627.2 *  1     1910 231      22.     67.9  5627.1
   1     0515  64       0.        .0  5622.0 *  1     1215 148      31.     68.8
5627.2 *  1     1915 232      22.     67.9  5627.1
   1     0520  65       0.        .0  5622.0 *  1     1220 149      31.     68.8
5627.2 *  1     1920 233      22.     67.9  5627.1
   1     0525  66       0.        .0  5622.0 *  1     1225 150      31.     68.9
5627.2 *  1     1925 234      22.     67.9  5627.1
   1     0530  67       0.        .0  5622.0 *  1     1230 151      31.     68.9
5627.2 *  1     1930 235      22.     67.9  5627.1
   1     0535  68       0.        .0  5622.0 *  1     1235 152      31.     68.9
5627.2 *  1     1935 236      22.     67.9  5627.1
   1     0540  69       0.        .0  5622.0 *  1     1240 153      31.     68.9
5627.2 *  1     1940 237      22.     67.9  5627.1
   1     0545  70       0.        .1  5622.0 *  1     1245 154      31.     68.9
5627.2 *  1     1945 238      22.     67.9  5627.1
   1     0550  71       0.        .9  5622.1 *  1     1250 155      31.     68.9
5627.2 *  1     1950 239      22.     67.9  5627.1
   1     0555  72       0.       3.2  5622.3 *  1     1255 156      31.     68.9
5627.2 *  1     1955 240      22.     67.9  5627.1
   1     0600  73       0.       7.2  5622.6 *  1     1300 157      31.     68.9
5627.2 *  1     2000 241      22.     67.9  5627.1
   1     0605  74       0.      12.3  5623.0 *  1     1305 158      31.     68.9
5627.2 *  1     2005 242      22.     67.9  5627.1
   1     0610  75       0.      17.8  5623.5 *  1     1310 159      31.     68.9
5627.2 *  1     2010 243      22.     67.9  5627.1
   1     0615  76       0.      22.9  5623.9 *  1     1315 160      31.     68.9
5627.2 *  1     2015 244      22.     67.9  5627.1
   1     0620  77       0.      27.1  5624.2 *  1     1320 161      31.     68.9
5627.2 *  1     2020 245      22.     67.9  5627.1
   1     0625  78       0.      30.8  5624.5 *  1     1325 162      31.     68.9
5627.2 *  1     2025 246      22.     67.9  5627.1
   1     0630  79       0.      34.0  5624.7 *  1     1330 163      31.     68.9
5627.2 *  1     2030 247      21.     67.9  5627.1
   1     0635  80       0.      36.9  5624.9 *  1     1335 164      31.     68.8
5627.2 *  1     2035 248      21.     67.9  5627.1
   1     0640  81       0.      39.6  5625.1 *  1     1340 165      31.     68.8
5627.2 *  1     2040 249      21.     67.8  5627.1
   1     0645  82       0.      42.0  5625.3 *  1     1345 166      31.     68.8
5627.2 *  1     2045 250      20.     67.8  5627.1
   1     0650  83       0.      44.2  5625.5 *  1     1350 167      31.     68.8
5627.2 *
   1     0655  84       0.      46.0  5625.6 *  1     1355 168      31.     68.8
5627.2 *
                                             *
   *

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  PEAK FLOW     TIME                             MAXIMUM AVERAGE FLOW
                                         6-HR        24-HR       72-HR     20.75-HR

+   (CFS)       (HR)
                                 (CFS)
+      31.     13.25                      29.          14.         14.          14.
                              (INCHES)   .193         .320        .320         .320
                               (AC-FT)    15.          24.         24.          24.

 PEAK STORAGE   TIME                            MAXIMUM AVERAGE STORAGE
                                         6-HR        24-HR       72-HR     20.75-HR
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```
+  (AC-FT)      (HR)
       69.     13.17                     69.         46.         46.          46.

  PEAK STAGE    TIME                             MAXIMUM AVERAGE STAGE
                                        6-HR        24-HR        72-HR     20.75-HR
+   (FEET)      (HR)
   5627.21     13.08                 5627.20     5625.47     5625.47      5625.47

                         CUMULATIVE AREA =    1.42 SQ MI


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                                                           HYDROGRAPH AT STATION   DB8075
                                                               PLAN 1,   RATIO =  1.00


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                                             *
   *
  DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE
STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                             *
   *
   1    0000  1       0.       .0  5622.0 *  1    0700  85     288.     88.1
5628.5 *  1     1400 169      51.     70.8  5627.3
   1    0005  2       0.       .0  5622.0 *  1    0705  86     304.     88.9
5628.6 *  1     1405 170      51.     70.8  5627.3
   1    0010  3       0.       .0  5622.0 *  1    0710  87     315.     89.5
5628.6 *  1     1410 171      50.     70.7  5627.3
   1    0015  4       0.       .0  5622.0 *  1    0715  88     321.     89.8
5628.6 *  1     1415 172      50.     70.7  5627.3
   1    0020  5       0.       .0  5622.0 *  1    0720  89     323.     90.0
5628.6 *  1     1420 173      50.     70.7  5627.3
   1    0025  6       0.       .0  5622.0 *  1    0725  90     322.     89.9
5628.6 *  1     1425 174      49.     70.6  5627.3
   1    0030  7       0.       .0  5622.0 *  1    0730  91     319.     89.8
5628.6 *  1     1430 175      49.     70.6  5627.3
   1    0035  8       0.       .0  5622.0 *  1    0735  92     314.     89.5
5628.6 *  1     1435 176      48.     70.5  5627.3
   1    0040  9       0.       .0  5622.0 *  1    0740  93     308.     89.2
5628.6 *  1     1440 177      48.     70.5  5627.3
   1    0045  10      0.       .0  5622.0 *  1    0745  94     301.     88.7
5628.6 *  1     1445 178      48.     70.5  5627.3
   1    0050  11      0.       .0  5622.0 *  1    0750  95     291.     88.2
5628.5 *  1     1450 179      47.     70.4  5627.3
   1    0055  12      0.       .0  5622.0 *  1    0755  96     280.     87.6
5628.5 *  1     1455 180      47.     70.4  5627.3
   1    0100  13      0.       .0  5622.0 *  1    0800  97     268.     87.0
5628.4 *  1     1500 181      47.     70.4  5627.3
   1    0105  14      0.       .0  5622.0 *  1    0805  98     256.     86.3
5628.4 *  1     1505 182      46.     70.3  5627.3
   1    0110  15      0.       .0  5622.0 *  1    0810  99     245.     85.7
5628.4 *  1     1510 183      46.     70.3  5627.3
   1    0115  16      0.       .0  5622.0 *  1    0815 100     233.     85.0
5628.3 *  1     1515 184      46.     70.3  5627.3
   1    0120  17      0.       .0  5622.0 *  1    0820 101     220.     84.3
5628.3 *  1     1520 185      45.     70.2  5627.3
   1    0125  18      0.       .0  5622.0 *  1    0825 102     208.     83.7
5628.2 *  1     1525 186      45.     70.2  5627.3
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   1     0130  19       0.       .0  5622.0 *  1     0830 103     196.      83.0
5628.2 *  1     1530 187      44.     70.1  5627.3
   1     0135  20       0.       .0  5622.0 *  1     0835 104     185.      82.4
5628.1 *  1     1535 188      44.     70.1  5627.3
   1     0140  21       0.       .0  5622.0 *  1     0840 105     174.      81.8
5628.1 *  1     1540 189      43.     70.1  5627.3
   1     0145  22       0.       .0  5622.0 *  1     0845 106     164.      81.2
5628.1 *  1     1545 190      43.     70.0  5627.3
   1     0150  23       0.       .0  5622.0 *  1     0850 107     155.      80.7
5628.0 *  1     1550 191      43.     70.0  5627.3
   1     0155  24       0.       .0  5622.0 *  1     0855 108     147.      80.2
5628.0 *  1     1555 192      42.     69.9  5627.3
   1     0200  25       0.       .0  5622.0 *  1     0900 109     143.      79.8
5628.0 *  1     1600 193      42.     69.9  5627.3
   1     0205  26       0.       .0  5622.0 *  1     0905 110     138.      79.4
5627.9 *  1     1605 194      41.     69.8  5627.3
   1     0210  27       0.       .0  5622.0 *  1     0910 111     134.      79.0
5627.9 *  1     1610 195      41.     69.8  5627.3
   1     0215  28       0.       .0  5622.0 *  1     0915 112     131.      78.6
5627.9 *  1     1615 196      40.     69.8  5627.3
   1     0220  29       0.       .0  5622.0 *  1     0920 113     127.      78.2
5627.9 *  1     1620 197      40.     69.7  5627.3
   1     0225  30       0.       .0  5622.0 *  1     0925 114     124.      77.9
5627.8 *  1     1625 198      40.     69.7  5627.3
   1     0230  31       0.       .0  5622.0 *  1     0930 115     120.      77.6
5627.8 *  1     1630 199      39.     69.7  5627.3
   1     0235  32       0.       .0  5622.0 *  1     0935 116     117.      77.3
5627.8 *  1     1635 200      39.     69.6  5627.3
   1     0240  33       0.       .0  5622.0 *  1     0940 117     114.      77.0
5627.8 *  1     1640 201      39.     69.6  5627.3
   1     0245  34       0.       .0  5622.0 *  1     0945 118     111.      76.7
5627.7 *  1     1645 202      38.     69.6  5627.3
   1     0250  35       0.       .0  5622.0 *  1     0950 119     109.      76.5
5627.7 *  1     1650 203      38.     69.5  5627.3
   1     0255  36       0.       .0  5622.0 *  1     0955 120     106.      76.2
5627.7 *  1     1655 204      38.     69.5  5627.3
   1     0300  37       0.       .0  5622.0 *  1     1000 121     104.      76.0
5627.7 *  1     1700 205      38.     69.5  5627.3
   1     0305  38       0.       .0  5622.0 *  1     1005 122     101.      75.7
5627.7 *  1     1705 206      37.     69.5  5627.3
   1     0310  39       0.       .0  5622.0 *  1     1010 123      99.      75.5
5627.7 *  1     1710 207      37.     69.4  5627.3
   1     0315  40       0.       .0  5622.0 *  1     1015 124      97.      75.3
5627.7 *  1     1715 208      37.     69.4  5627.2
   1     0320  41       0.       .0  5622.0 *  1     1020 125      95.      75.1
5627.6 *  1     1720 209      37.     69.4  5627.2
   1     0325  42       0.       .0  5622.0 *  1     1025 126      93.      74.9
5627.6 *  1     1725 210      37.     69.4  5627.2
   1     0330  43       0.       .0  5622.0 *  1     1030 127      90.      74.7
5627.6 *  1     1730 211      37.     69.4  5627.2
   1     0335  44       0.       .0  5622.0 *  1     1035 128      88.      74.4
5627.6 *  1     1735 212      36.     69.4  5627.2
   1     0340  45       0.       .0  5622.0 *  1     1040 129      86.      74.2
5627.6 *  1     1740 213      36.     69.4  5627.2
   1     0345  46       0.       .0  5622.0 *  1     1045 130      84.      74.0
5627.6 *  1     1745 214      36.     69.3  5627.2
   1     0350  47       0.       .0  5622.0 *  1     1050 131      82.      73.8
5627.6 *  1     1750 215      36.     69.3  5627.2
   1     0355  48       0.       .0  5622.0 *  1     1055 132      80.      73.7
5627.5 *  1     1755 216      36.     69.3  5627.2
   1     0400  49       0.       .0  5622.0 *  1     1100 133      78.      73.5
5627.5 *  1     1800 217      36.     69.3  5627.2
   1     0405  50       0.       .0  5622.0 *  1     1105 134      77.      73.3
```

```
5627.5 *  1     1805 218      36.      69.3  5627.2
   1     0410  51       0.       .0  5622.0 *  1     1110 135       75.      73.1
5627.5 *  1     1810 219      36.      69.3  5627.2
   1     0415  52       0.       .0  5622.0 *  1     1115 136       73.      73.0
5627.5 *  1     1815 220      36.      69.3  5627.2
   1     0420  53       0.       .0  5622.0 *  1     1120 137       72.      72.8
5627.5 *  1     1820 221      35.      69.3  5627.2
   1     0425  54       0.       .0  5622.0 *  1     1125 138       71.      72.7
5627.5 *  1     1825 222      35.      69.3  5627.2
   1     0430  55       0.       .0  5622.0 *  1     1130 139       69.      72.6
5627.5 *  1     1830 223      35.      69.3  5627.2
   1     0435  56       0.       .0  5622.0 *  1     1135 140       68.      72.5
5627.5 *  1     1835 224      35.      69.3  5627.2
   1     0440  57       0.       .0  5622.0 *  1     1140 141       67.      72.3
5627.4 *  1     1840 225      35.      69.3  5627.2
   1     0445  58       0.       .0  5622.0 *  1     1145 142       66.      72.2
5627.4 *  1     1845 226      35.      69.2  5627.2
   1     0450  59       0.       .0  5622.0 *  1     1150 143       65.      72.1
5627.4 *  1     1850 227      35.      69.2  5627.2
   1     0455  60       0.       .0  5622.0 *  1     1155 144       64.      72.1
5627.4 *  1     1855 228      35.      69.2  5627.2
   1     0500  61       0.       .0  5622.0 *  1     1200 145       63.      72.0
5627.4 *  1     1900 229      35.      69.2  5627.2
   1     0505  62       0.       .0  5622.0 *  1     1205 146       62.      71.9
5627.4 *  1     1905 230      35.      69.2  5627.2
   1     0510  63       0.       .0  5622.0 *  1     1210 147       61.      71.8
5627.4 *  1     1910 231      35.      69.2  5627.2
   1     0515  64       0.       .0  5622.0 *  1     1215 148       61.      71.7
5627.4 *  1     1915 232      35.      69.2  5627.2
   1     0520  65       0.       .0  5622.0 *  1     1220 149       60.      71.7
5627.4 *  1     1920 233      35.      69.2  5627.2
   1     0525  66       0.       .0  5622.0 *  1     1225 150       59.      71.6
5627.4 *  1     1925 234      35.      69.2  5627.2
   1     0530  67       0.       .0  5622.0 *  1     1230 151       59.      71.6
5627.4 *  1     1930 235      35.      69.2  5627.2
   1     0535  68       0.       .0  5622.0 *  1     1235 152       58.      71.5
5627.4 *  1     1935 236      35.      69.2  5627.2
   1     0540  69       0.       .1  5622.0 *  1     1240 153       58.      71.5
5627.4 *  1     1940 237      35.      69.2  5627.2
   1     0545  70       0.       .9  5622.1 *  1     1245 154       57.      71.4
5627.4 *  1     1945 238      35.      69.2  5627.2
   1     0550  71       0.      3.9  5622.3 *  1     1250 155       57.      71.4
5627.4 *  1     1950 239      35.      69.2  5627.2
   1     0555  72       0.      9.5  5622.8 *  1     1255 156       56.      71.3
5627.4 *  1     1955 240      35.      69.2  5627.2
   1     0600  73       0.     17.5  5623.5 *  1     1300 157       56.      71.3
5627.4 *  1     2000 241      35.      69.2  5627.2
   1     0605  74       0.     27.4  5624.2 *  1     1305 158       56.      71.3
5627.4 *  1     2005 242      35.      69.2  5627.2
   1     0610  75       0.     37.9  5625.0 *  1     1310 159       55.      71.2
5627.4 *  1     2010 243      35.      69.2  5627.2
   1     0615  76       0.     47.7  5625.7 *  1     1315 160       55.      71.2
5627.4 *  1     2015 244      35.      69.2  5627.2
   1     0620  77       0.     56.1  5626.3 *  1     1320 161       55.      71.2
5627.4 *  1     2020 245      35.      69.2  5627.2
   1     0625  78       0.     63.2  5626.8 *  1     1325 162       54.      71.1
5627.4 *  1     2025 246      34.      69.2  5627.2
   1     0630  79      36.     69.4  5627.2 *  1     1330 163       54.      71.1
5627.4 *  1     2030 247      34.      69.1  5627.2
   1     0635  80      89.     74.6  5627.6 *  1     1335 164       53.      71.0
5627.4 *  1     2035 248      33.      69.1  5627.2
   1     0640  81     134.     78.9  5627.9 *  1     1340 165       53.      71.0
5627.4 *  1     2040 249      33.      69.0  5627.2
```

```
   1     0645  82     184.     82.3  5628.1 *  1     1345 166      53.     70.9
5627.4 *  1     2045 250      32.     69.0  5627.2
   1     0650  83     231.     84.9  5628.3 *  1     1350 167      52.     70.9
5627.3 *
   1     0655  84     265.     86.8  5628.4 *  1     1355 168      52.     70.9
5627.3 *
                                            *
   *

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

  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR     20.75-HR

+   (CFS)        (HR)
                                (CFS)
+     323.       7.33                     151.          60.          60.          60.
                             (INCHES)     .987        1.368        1.368        1.368
                              (AC-FT)      75.         104.         104.         104.

 PEAK STORAGE   TIME                             MAXIMUM AVERAGE STORAGE
                                          6-HR        24-HR        72-HR     20.75-HR

+  (AC-FT)       (HR)
       90.       7.33                      79.          52.          52.          52.

  PEAK STAGE    TIME                              MAXIMUM AVERAGE STAGE
                                          6-HR        24-HR        72-HR     20.75-HR

+   (FEET)       (HR)
   5628.64       7.33                  5627.90      5625.90      5625.90      5625.90

                         CUMULATIVE AREA =    1.42 SQ MI

1NO RUNOFF FROM CATCHMENTS - ERROR EXIT FROM **FLOGRD**
```

Appendix D

Wave Runup Analysis

Applegate Group, Inc.
1490 W. 121st Ave. Suite 100
Denver, Co. 80234
Phone: (303) 452-6611
Fax: (303) 452-2759

Job Name: Hale Reservoir
Job No. : 12-130
By: CRH
Date: 5/3/2013
Project: Wave Runup
Client:

Input Variables:

Upstream Slope:	**18.4**	(Angle of Slope)
Effective Fetch:	**0.25**	(Reservoir Fetch in Miles)
Specific Weight:	**152.3**	(Specific Weight of Rock (lb/ft^3))
Specific Gravity:	**2.65**	(Specific Gravity of Rock)

Input Variables in the Blue Boxes

Wind Velocity Mi/Hr	**Wave Runup Ft**	**Design Wave Height H_s (Ft)**	**Weight of Riprap W_{50} (lbs)**	**Maximum Riprap Size W_{max} (lbs)**	**Minimum Riprap Size W_{min} (lbs)**	**Riprap Thickness (in)**	**Riprap Diameter (in)**
10	0.16	0.15	0.01	0.03	0.00	0.77	0.42
20	0.35	0.35	0.11	0.44	0.01	1.80	0.98
30	0.54	0.58	0.49	1.98	0.06	2.97	1.61
40	0.73	0.82	1.43	5.72	0.18	4.23	2.30
50	0.93	1.08	3.26	13.03	0.41	5.56	3.03
60	1.13	1.35	6.38	25.53	0.80	6.95	3.79
70	1.34	1.63	11.27	45.08	1.41	8.40	4.58
80	1.54	1.92	18.45	73.79	2.31	9.90	5.39
90	1.75	2.23	28.49	113.96	3.56	11.44	6.24
100	1.96	2.53	42.03	168.11	5.25	13.03	7.10
110	2.17	2.85	59.74	238.96	7.47	14.64	7.98
120	2.38	3.17	82.36	329.43	10.29	16.30	8.88
130	2.60	3.50	110.66	442.63	13.83	17.98	9.80
140	2.81	3.83	145.46	581.84	18.18	19.70	10.74
150	3.03	4.17	187.63	750.53	23.45	21.44	11.69

***Peak wind gusts and prevailing wind direction based on NOAA Climatic Wind Data for the United States, Colorado Springs station, period of record 1930-1996**

*Wave Runup sourced from USBR ACER TM NO.2

*Riprap sourced from Design Standards NO. 13: Embankment Dams Chapter 7 Riprap Slope Protection

*Weight of Riprap (W_{50}) where 50% is smaller for Tollerable Damage

*W_{max} = 100% of the rock in the riprap is smaller

*W_{min} = Approx. 5% of the rock in the riprap is smaller

Appendix E

Hydraulic Calculations

Stage-Discharge Calculations for Primary Standpipe Spillway

Full Pipe Flow								Orifice Flow		Conservative
Stage (ft)	V (diff)	V (ft/sec)	Q_{pipe} (cfs)	hl (ft)	h (ft)	hf (ft)		$Q_{orifice}$ (cfs)	H (ft)	**Discharge (cfs)**
5630.0	0.0	14.08	44.23	14.40	17.48	7.01		41.4	7.0	41.36
5629.0	0.0	13.66	42.91	13.58	16.48	6.63		38.3	6.0	38.29
5628.0	0.0	13.23	41.55	12.76	15.48	6.24		35.0	5.0	34.95
5627.0	0.0	12.78	40.14	11.94	14.48	5.86		31.3	4.0	31.26
5626.0	0.0	12.31	38.69	11.13	13.48	5.47		27.1	3.0	27.07
5625.0	0.0	11.83	37.18	10.31	12.48	5.08		22.1	2.0	22.11
5624.0		Discharge was calculated using Figure 9-68 from 'Design of Small Dams'								11.82
5623.0		Discharge was calculated using Figure 9-68 from 'Design of Small Dams'								3.76
5622.0		Discharge was calculated using Figure 9-68 from 'Design of Small Dams'								0.00

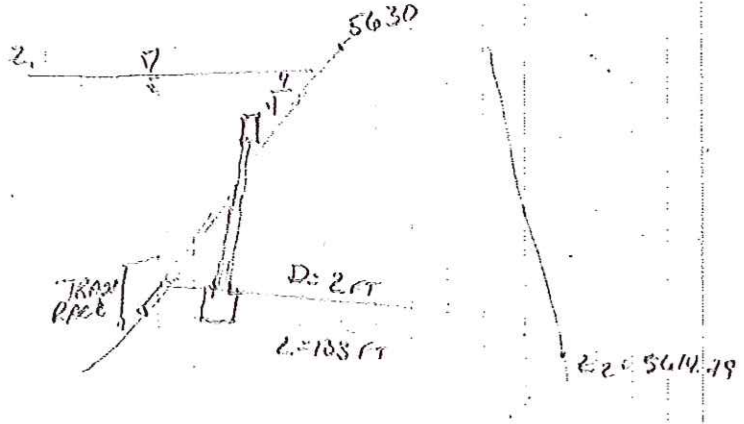
(1) Determination whether weir flow would govern was based on Design of Small Dams, Section 9.26, page 409. Free flow prevails for H/R up to approximately 0.45, and weir control governs. When the H/R ratio approaches 1.0, the water surface above the weir is completely submerged and the flow phenomenon is orifice flow.

Applegate Group, Inc.
Water Resource Advisors for the West

Client:
Job No: 12-130
Project: HALL RESERVOIR
By: CH Date: 8/7/13 REV 9/24/13
Description: OUTLET CALCULATIONS
REV FOR 2-FT Ø PIPE
Chk: Date:
Page: 1 of: ~~3~~ 4

BERNOULLI:

$$\frac{p_1}{\rho}+\frac{V_1^2}{2g}+z_1+E_A=\frac{p_2}{\rho}+\frac{V_2^2}{2g}+z_2+h_{TL}$$



$p_1 = p_2$

$E_A = 0$

$V_1 = 0$

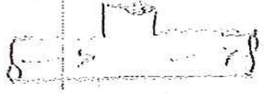
$z_1 - z_2 = \Delta z = 5630 - 5614.79 = 15.21$

$$\Delta z - h_{TL} = \frac{V_2^2}{2g}$$

$$V_2 = \sqrt{(\Delta z - h_{TL})2g}$$

$$h_{TL} = h_f + h_L + h_{TR}$$

METHOD OF LOSS COEFFICIENTS FOR MINOR LOSSES:

TEE  K=0.6 FOR THRU FLOW. (K=1.8 FOR BRANCH FLOW)

INLET K=0.5 SQUARE EDGE/FLUSH

OUTLET K=1.0

OUTLET TRASHRACK K=0.255

$\Sigma K =$ ~~2.1~~ 2.4

ITEMS IN RED ARE 9/24/13 REVISION TO ADD D/S TRASH RACK

$$h_L = \Sigma K\frac{V^2}{2g} = \cancel{2.1}\ 2.4\left(\frac{V^2}{64.4}\right) = \cancel{0.0326}\ 0.0373\ V^2$$

TRASH RACK LOSSES

DESIGN OF SMALL DAMS CHAPTER 10 EQN(11) 60% OPEN

$$K_{TR} = 1.45 - 0.45(\%\ \text{OPEN}) - (\%\ \text{OPEN})^2$$
$$= 1.45 - 0.45(0.6) - 0.6^2 = 1.54$$

$$h_{TR} = 1.54\frac{V_{TR}^2}{2g}$$

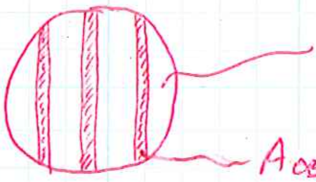
$V_{TR\,MAX} = 1$ ft/s

$$h_{TR\,MAX} = 1.54\left(\frac{1^2}{64.4}\right) = 0.024\ \text{FT}$$

Applegate Group, Inc.
Water Resource Advisors for the West

Client:
Job No: 12-130
Project: HALE RESERVOIR
By: CH Date: 9/24
Description: OUTLET CALCULATIONS
REV FOR 2FT Ø PIPE (ADD OUTLET TRASH RACK)
Chk: Date:
Page: 2 of: 4

TRASH RACK LOSSES @ OUTLET



$A_{PIPE} = 3.14\ ft^2$

$A_{OBST} = 0.342\ ft^2$ (AUTOCAD SKETCH)

$A_{OPEN} = 2.7993\ ft^2$ (AUTO CAD SKETCH)

$\%\ OPEN = \frac{A_{OPEN}}{A_{PIPE}} = \frac{2.7993}{3.14} = 89.1\%$

$K_{TR} = 1.45 - 0.45(\%\ OPEN) - (\%\ OPEN)^2$
$= 1.45 - 0.45(0.891) - (0.891)^2$
$= 0.255$

HAZEN WILLIAMS (FOR PIPE FRICTION LOSSES):

$h_f = 3.022 \frac{V^{1.85} L}{C^{1.85} D^{1.17}}$ PVC: C = 150-140 CIVIL ENGR REF MANUAL A-25 APPX: 17.A

$= 3.022 V^{1.85} \frac{(133)}{(140^{1.85})(2^{1.17})}$

$h_f = 0.019 V^{1.85}$

$h_{TL} = \overset{\text{FRICTION}}{h_f} + \overset{\text{MINOR}}{h_L} + \overset{\text{TRASH RACK}}{h_{TR}}$

$h_{TL} = 0.019 V^{1.85} + 0.0326 V^2 + 0.024$

$V_2 = \sqrt{(\Delta z - h_{TL}) 2g}$

$V_2 = \sqrt{[15.21 - (0.024 + 0.019 V^{1.85} + \overset{}{\underset{0.0373}{\cancel{0.0326}}} V^2)] 2(32.2)}$

ITERATE:

FIRST ITERATION:

TRY $V_2 = 15.5$

$V_{CALC} = \cancel{16.69}\ 14.35$

2ND ITERATION:

TRY V_2: $\cancel{15.8}\ 15$

$V_{CALC} = \cancel{15.87}\ 15.94$

THIRD ITERATION

TRY $V_2 = \cancel{15.82}\ 15.23$

$V_{CALC} = \boxed{\cancel{15.82}\ \text{ft/s}}$
$\boxed{15.23\ \text{ft/s}}$

$Q = V_2 A$

$A = \frac{2}{4}\pi = 3.14\ \text{ft}^2$

$\boxed{Q = \cancel{49.7}\ \text{cfs}}$
$\boxed{= 47.9\ \text{CFS}}$

Client: ______ Job No: ______

Project: ______ By: ______ Date: ______

Description: ______ Chk: ______ Date: ______

Page: ~~3~~ 4 of: ~~3~~ 4

CHECK ORIFICE FLOW TO SEE IF IT CONTROLS

$Q_{ORIFICE} = C_o A \sqrt{2gh}$

$C_o = 0.62$

$A = 3.14\ ft^2$

$h = 5630 - (5618.74 + 1) = 10.26\ ft$

$Q_{OR} = (0.62)(3.14)\sqrt{(2)(32.2)(10.26)}$

$Q_{OR} = 50.04\ cfs$

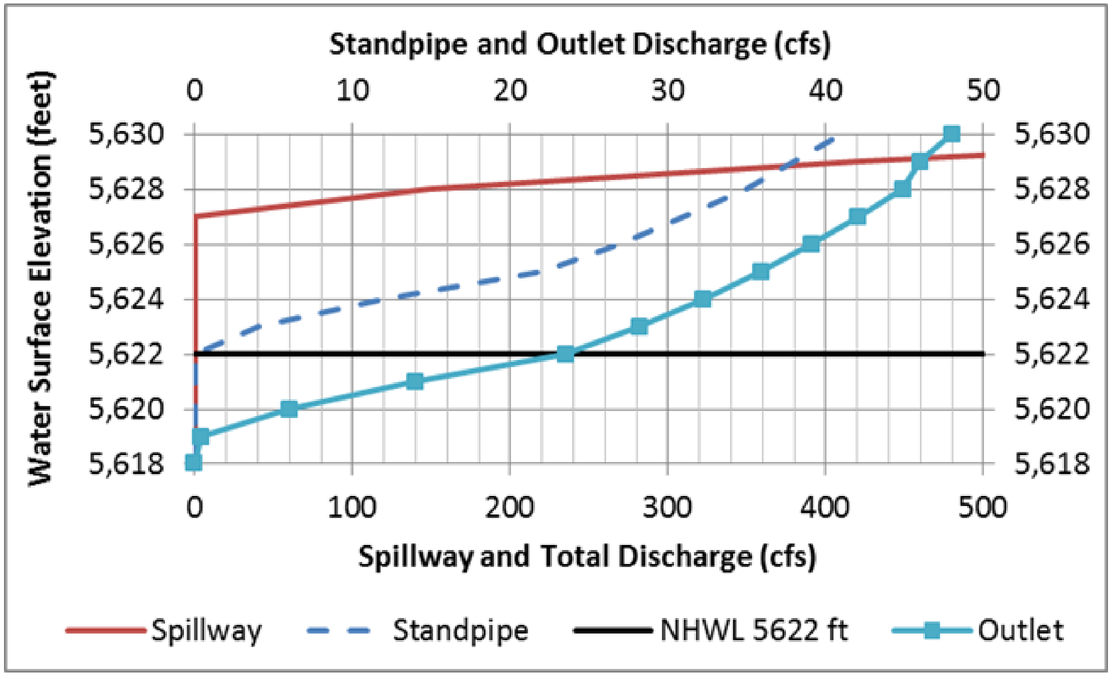
$Q_{OR} > Q_{PIPE} \Rightarrow Q_{PIPE}$ CONTROLS

$Q_{MAX} =$ ~~49.7~~ 47.9 cfs
$V_{MAX} =$ ~~15.82~~ 15.23 ft/s

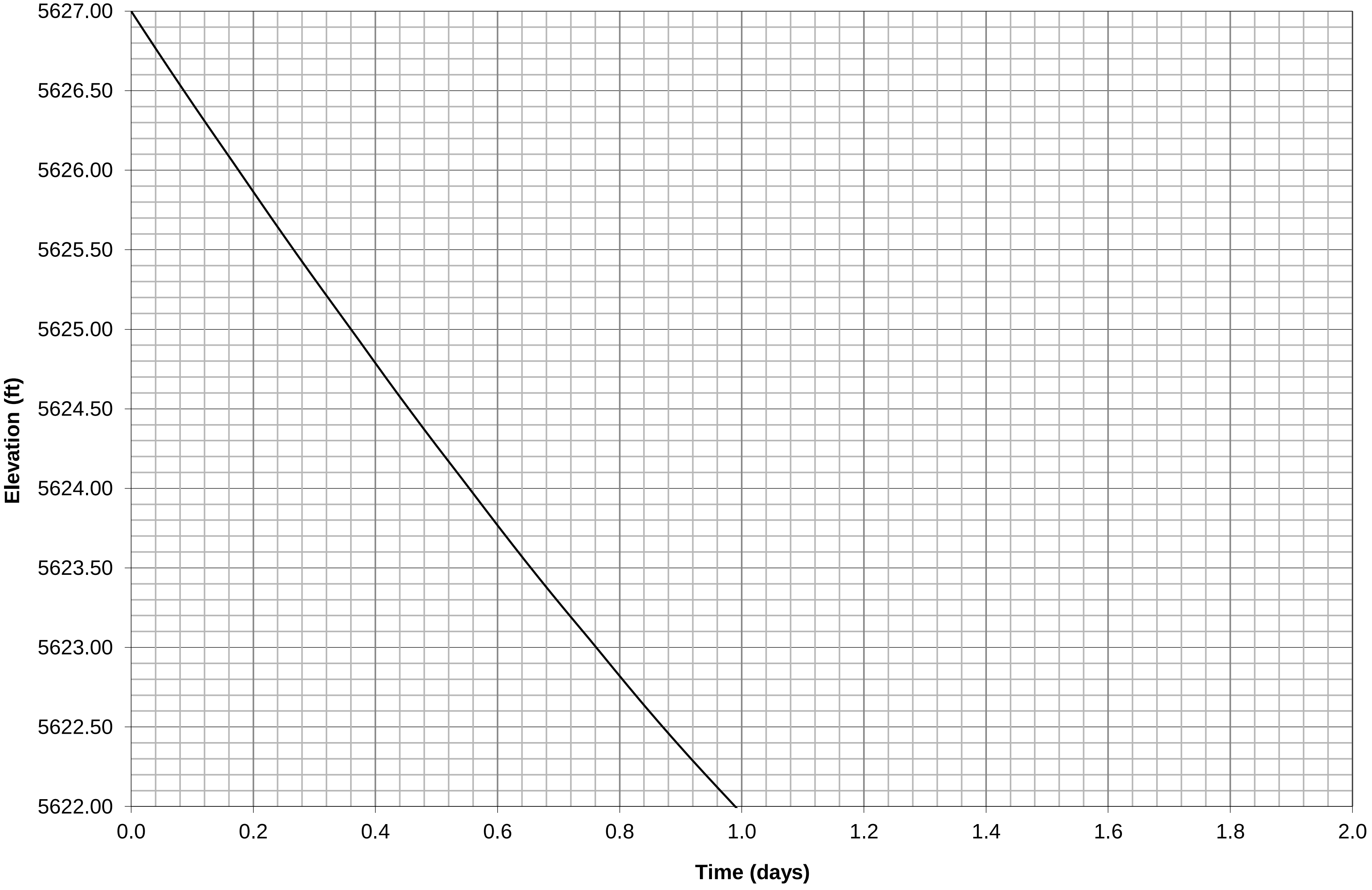
CALCULATIONS FOR MORE RES WSE WERE COMPLETED BY SPREADSHEET.

Stage-Discharge Calculations for 24" Outlet Pipe

Full Pipe Flow								Orifice Flow		Conservative Discharge (cfs)
Stage (ft)	V (diff)	V (ft/sec)	Q_{pipe} (cfs)	hl (ft)	h (ft)	hf (ft)		$Q_{orifice}$ (cfs)	H (ft)	
5630.0	0.0	14.19	44.59	14.35	17.48	6.82		50.1	10.3	44.59
5629.0	0.0	13.77	43.26	13.54	16.48	6.45		47.6	9.3	43.26
5628.0	0.0	13.33	41.88	12.72	15.48	6.07		44.9	8.3	41.88
5627.0	0.0	12.88	40.46	11.90	14.48	5.70		42.1	7.3	40.46
5626.0	0.0	12.41	38.99	11.09	13.48	5.32		39.1	6.3	38.99
5625.0	0.0	11.93	37.47	10.27	12.48	4.94		35.8	5.3	35.85
5624.0	0.0	11.42	35.89	9.45	11.48	4.56		32.3	4.3	32.26
5623.0	0.0	10.90	34.24	8.64	10.48	4.18		28.2	3.3	28.22
5622.0	0.0	10.35	32.51	7.82	9.48	3.80		23.5	2.3	23.50
5621.0		Discharge was calculated using Figure 9-68 from 'Design of Small Dams'								14.47
5620.0		Discharge was calculated using Figure 9-68 from 'Design of Small Dams'								5.51
5619.0		Discharge was calculated using Figure 9-68 from 'Design of Small Dams'								0.41


Standpipe and Outlet Discharge (cfs)
0
10
20
30
40
50
Water Surface Elevation (feet)
5,630
5,628
5,626
5,624
5,622
5,620
5,618
0
100
200
300
400
500
Spillway and Total Discharge (cfs)
Spillway
Standpipe
NHWL 5622 ft
Outlet

Hale Reservoir Drawdown Curve - Primary Spillway Clogged



Spillway Hydraulics HEC-RAS Output

HEC-RAS Plan: Plan 02 Locations: User Defined

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Hale	Spillway	832.6	50-yr	178.00	5625.63	5628.20	5626.40	5628.22	0.000393	1.32	135.30	60.42	0.15
Hale	Spillway	832.6	100-yr	322.00	5625.63	5628.71	5626.77	5628.77	0.000680	1.92	167.31	63.52	0.21
Hale	Spillway	796	50-yr	178.00	5626.00	5628.17		5628.21	0.000705	1.59	111.67	58.02	0.20
Hale	Spillway	796	100-yr	322.00	5626.00	5628.66		5628.74	0.001137	2.28	140.99	60.98	0.26
Hale	Spillway	795	50-yr	178.00	5627.00	5627.95		5628.19	0.011910	3.94	45.20	50.67	0.73
Hale	Spillway	795	100-yr	322.00	5627.00	5628.33	5628.14	5628.71	0.012235	4.94	65.19	52.99	0.78
Hale	Spillway	790	50-yr	178.00	5626.95	5627.72	5627.72	5628.09	0.024038	4.91	36.29	49.61	1.01
Hale	Spillway	790	100-yr	322.00	5626.95	5628.08	5628.08	5628.62	0.021201	5.88	54.75	51.80	1.01
Hale	Spillway	728	50-yr	178.00	5624.67	5625.35	5625.44	5625.83	0.035849	5.55	32.05	49.09	1.21
Hale	Spillway	728	100-yr	322.00	5624.67	5625.63	5625.80	5626.40	0.037580	7.04	45.72	50.74	1.31
Hale	Spillway	668	50-yr	178.00	5622.67	5623.36	5623.44	5623.83	0.033851	5.46	32.62	49.16	1.18
Hale	Spillway	668	100-yr	322.00	5622.67	5623.66	5623.81	5624.37	0.033042	6.76	47.60	50.96	1.23
Hale	Spillway	608	50-yr	178.00	5620.67	5621.37	5621.44	5621.82	0.032983	5.41	32.88	49.19	1.17
Hale	Spillway	608	100-yr	322.00	5620.67	5621.65	5621.80	5622.38	0.033993	6.82	47.18	50.91	1.25
Hale	Spillway	548	50-yr	178.00	5618.67	5619.37	5619.44	5619.82	0.032829	5.40	32.93	49.20	1.16
Hale	Spillway	548	100-yr	322.00	5618.67	5619.65	5619.81	5620.38	0.033993	6.82	47.18	50.91	1.25
Hale	Spillway	488	50-yr	178.00	5616.67	5617.36	5617.44	5617.83	0.033851	5.46	32.62	49.16	1.18
Hale	Spillway	488	100-yr	322.00	5616.67	5617.65	5617.80	5618.38	0.033993	6.82	47.18	50.91	1.25
Hale	Spillway	438	50-yr	178.00	5614.67	5615.33	5615.44	5615.84	0.040630	5.77	30.82	48.94	1.28
Hale	Spillway	438	100-yr	322.00	5614.67	5615.60	5615.81	5616.41	0.040650	7.22	44.60	50.60	1.36
Hale	Spillway	378	50-yr	178.00	5612.67	5613.37	5613.44	5613.82	0.033374	5.43	32.76	49.18	1.17
Hale	Spillway	378	100-yr	322.00	5612.67	5613.66	5613.80	5614.37	0.033262	6.78	47.51	50.95	1.24
Hale	Spillway	318	50-yr	178.00	5610.67	5611.37	5611.44	5611.82	0.032829	5.40	32.93	49.20	1.16
Hale	Spillway	318	100-yr	322.00	5610.67	5611.66	5611.81	5612.37	0.033262	6.78	47.51	50.95	1.24
Hale	Spillway	288	50-yr	178.00	5609.53	5610.20	5610.30	5610.70	0.038472	5.68	31.35	49.01	1.25
Hale	Spillway	288	100-yr	322.00	5609.53	5610.49	5610.67	5611.25	0.037066	7.01	45.92	50.76	1.30
Hale	Spillway	248	50-yr	178.00	5608.01	5608.68	5608.78	5609.18	0.037540	5.63	31.59	49.04	1.24
Hale	Spillway	248	100-yr	322.00	5608.01	5608.96	5609.15	5609.74	0.037906	7.06	45.59	50.72	1.31
Hale	Spillway	208	50-yr	178.00	5606.49	5607.16	5607.26	5607.65	0.037266	5.62	31.66	49.04	1.23
Hale	Spillway	208	100-yr	322.00	5606.49	5607.45	5607.63	5608.21	0.037065	7.01	45.92	50.76	1.30
Hale	Spillway	168	50-yr	178.00	5604.97	5605.64	5605.74	5606.14	0.037817	5.65	31.52	49.03	1.24
Hale	Spillway	168	100-yr	322.00	5604.97	5605.93	5606.11	5606.69	0.037065	7.01	45.92	50.76	1.30
Hale	Spillway	128	50-yr	178.00	5603.45	5604.27	5604.35	5604.79	0.031570	5.80	30.67	39.92	1.17
Hale	Spillway	128	100-yr	322.00	5603.45	5604.63	5604.78	5605.41	0.029569	7.05	45.65	42.11	1.19
Hale	Spillway	100	50-yr	178.00	5602.40	5603.45	5603.51	5604.01	0.025608	5.99	29.70	31.35	1.09
Hale	Spillway	100	100-yr	322.00	5602.40	5603.95	5604.01	5604.71	0.022106	7.00	46.01	34.34	1.07

Spillway Hydraulics Calculations for Spillway Height

USDOT FHWA Highway Drainage
Intro to Highway Hydraulics
Open Channel Flow
http://www.fhwa.dot.gov/engineering/hydraulics/pubs/08090/04.cfm

Superelevation calc for spillway

Spillway width	45	ft

Hydraulic results assume uniform steady flow, and calculated using **HEC-RAS** model with n=0.038

Upstream end of Spillway

v	7.04	fps	**at Qmax 322 cfs**
Froude	1.31		
Normal depth	0.96	ft	
	32.2	g	
ri	42.5	ft	
rc	65	ft	
ro	87.5	ft	
delta z	0.79	ft	
Freeboard	1	ft	
Total spillway height	**2.35**		

Downstream end of Spillway

v	7.01	fps	at Qmax 322 cfs
Froude	1.3		
Normal depth	0.96		
	32.2	g	
ri	227.5	ft	
rc	250	ft	
ro	272.5	ft	
delta z	0.252	ft	
Freeboard	1	ft	
Total spillway height	**2.09**		

Hale Reservoir - Outlet Baffle Structure Hydraulics and Sizing

Impact Basin Calculations from USBR Research Report 24, Hydraulic Design of Stilling Basin for Pipe or Channel Outlets 1978

Q	49	ft^3/s
Diam	2	ft
A	3.14	ft^2
V	15.6	ft/s
D	1.77	ft
g	32.2	ft/s^2
FR	2.06	
W/D	4.25	fig 8
W	7.53	ft
t	0.63	ft
H	5.65	ft
L	10.04	ft
a	3.77	ft
b	2.82	ft
c	3.77	ft
d	1.26	ft
e	0.63	ft
D_{50}	0.38	ft
	5	in

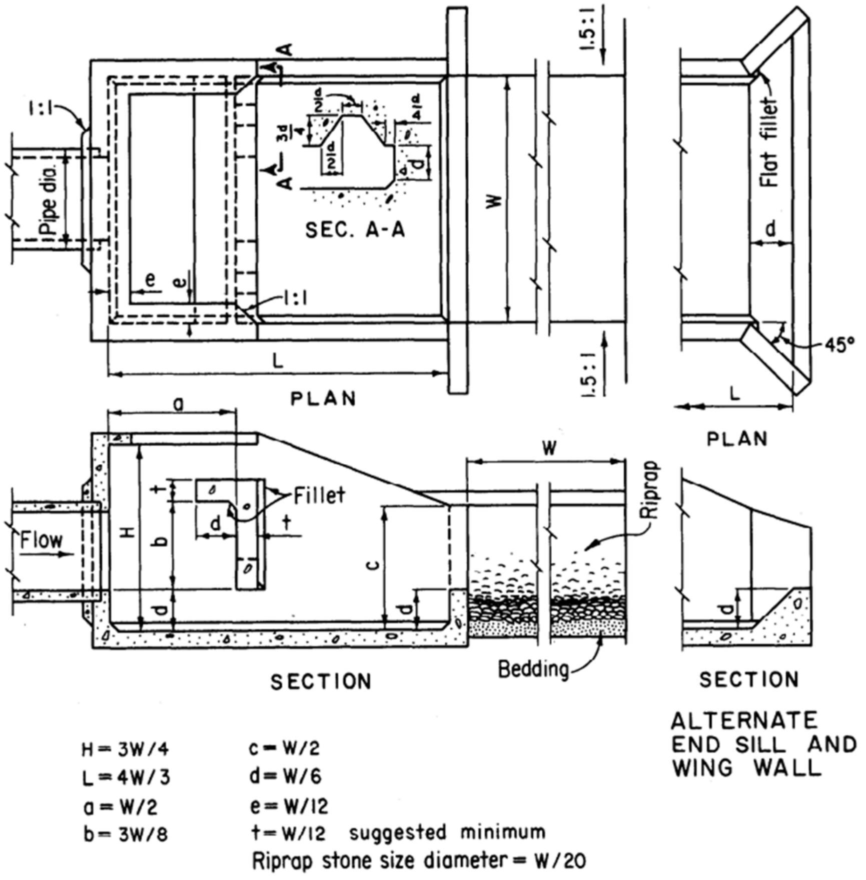


Figure 1.–General design of the type VI impact stilling basin.