Tennessee Valley Authority

USER'S MANUAL

SIMULATED OPEN CHANNEL HYDRAULICS (SOCH)

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ABBREVIATIONS

A	area
B	width
cfs	cubic feet per second
ft	feet
ft/s	feet per second
d/s	downstream
u/s	upstream
HW	headwater
PMF	probable maximum floods
R	hydraulic radius
sq ft	square feet
V	velocity
W	storage width
x	longitudinal direction

ACRONYMS

SVVR	Software Verification and Validation Report
TVA	Tennessee Valley Authority

1. INTRODUCTION

1.1 Brief History of SOCH

The computer code Simulated Open Channel Hydraulics (SOCH) has been developed and used by the Tennessee Valley Authority (TVA) for flood routing calculations in its system.

The code was developed in FORTRAN in 1967 by Wayne Vinyard and Jack Garrison of TVA, and it evolved since its original development. A Generalized Transient Flow Model was derived from the original SOCH and it was named SOCH88. A general description of the SOCH88 was prepared by Jean-Pierre Granju of the Flood Protection Branch in TVA's Division of Air and Water Resources (Reference 1). SOCH88 was run on a mainframe. Later on SOCH88 was transferred to the PC. This version is referred to as SOCH90PC.

There is very little documentation on code changes that were made between its initial application and the SOCH90PC code. However, most of the code changes related to how input and/or output to the code were aimed at streamlining its use. The basic computation scheme was not modified as a result of these changes. For any code change made there were test runs to ensure duplication of previous results.

1.2 SOCH and its Companion Codes

SOCH requires several pieces of input, which can be prepared using a suite of computer programs developed by TVA. Eight computer codes have been used in the past to generate the required input to SOCH. These eight codes are: UNITGRPH, THIESSEN, FLDHYDRO, TRBROUTE, CHANROUT, DBREACH, CONVEYANCE, and WTDWIDTH. Table 1 gives a brief description of these codes.

Table 1 Summary of TVA's flood analysis codes

Computer Code	Description
UNITGRPH	Computes unit hydrograph for each sub area from historical flood data.
THIESSEN	Determines weighting factors for average basin rainfall.
FLDHYDRO	Determines inflow from unit hydrographs and rainfall
TRBROUTE	Routing of hydrograph from one point to another using different routing procedures
CHANROUT	Determines routing method coefficients
DBREACH	Determines earth embankment failure time based on soil type and period of overtopping during a flood
WTDWIDTH	Determines equivalent weighted width (B) to account for reservoir volume in SOCH geometry
CONVEYANCE	Determines cross sectional area (A) and composite hydraulic radius ($R^{2/3}$) for SOCH geometry
SOCH	One dimensional unsteady flow model that computes elevation, discharge, and average velocity at selected locations.

Figure 1 illustrates the sequence of use of the codes described in Table 1. As part of the update and verification process other programs such as HEC-HMS have been applied to verify the UNITGRPH code.

User's guides for the computer codes used to develop the required input for SOCH are provided in the three documents. Reference 2 is a user's guide for UNITGRAPH, FLDHYDRO, TRBROUT, CHANROUT and THIESSEN; Reference 3 is a user's guide for CONVEYANCE and WTDWIDTH; and Reference 4 is a user's guide for DBREACH.

A Software Verification and Validation Report (SVVR) for SOCH is under preparation (Reference 5). SVVRs for the other codes are also being prepared (References 6, 7, and 8).

1.3 Scope

Section 2 of this document describes the theoretical basis of SOCH, including its mathematical formulation and numerical solution scheme. Section 3 describes in detail the input parameters and gives an example of input data files needed to run SOCH. Section 4 describes the SOCH output and gives an example output file.

Appendix A gives step-by-step instructions for running SOCH. Appendix B provides a listing of the SOCH FORTRAN source code.

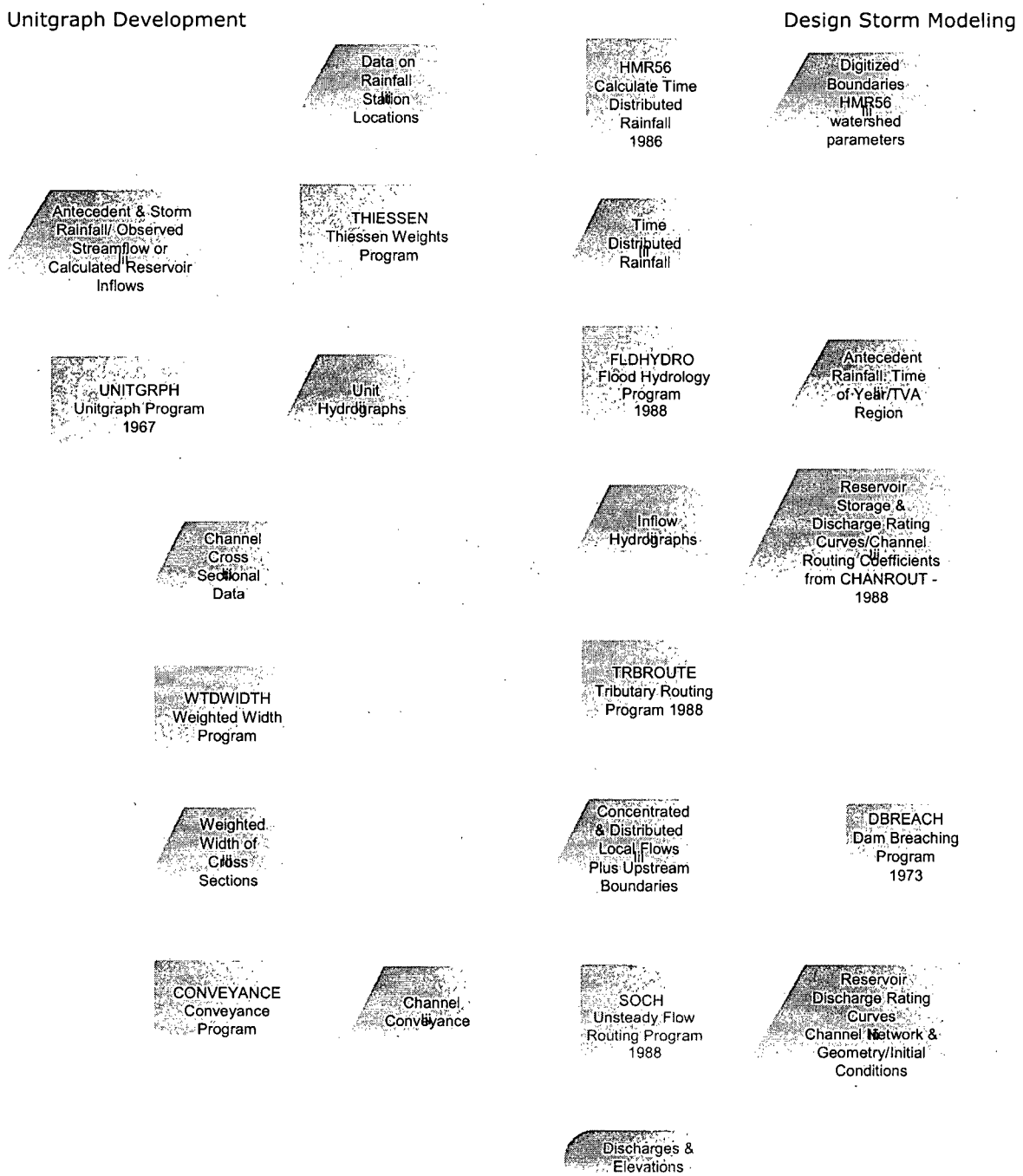

Figure 1. TVA's flood analysis computer codes

2. MODEL FORMULATION

2.1 Basic Equations and Assumptions

SOCH solves the equations for one-dimensional, unsteady flow in open channels. The flow depth and velocity are considered to vary only in the longitudinal (x) direction and with time.

As a consequence of the one-dimensional flow assumption the following simplifications are introduced:

1. The velocity is treated as uniform across each cross section.
2. The transverse water surface is assumed to be horizontal in any cross section.
3. The axis of the river can be considered to be a straight line.

In the development of the mathematical model, the following assumptions are also made:

1. The flow is gradually varied so that the vertical acceleration of the water particles may be neglected, and the pressure distribution in any cross section is hydrostatic.
2. The bottom slope of the channel is small.
3. The resistance coefficient, as determined for uniform turbulent flow at any given channel cross section, is the same for the given water surface elevation and mean velocity regardless of whether the flow is uniform or non-uniform, steady or unsteady.
4. The mass density, ρ, is a constant, i.e., no density stratification exists.

SOCH solves the St. Venant equations of unsteady flow in open channels, the continuity equation and the equation of motion, expressed in the following form:

$$\frac{\partial(AV)}{\partial x} + B\frac{\partial h}{\partial t} - q = 0 \qquad (1)$$

$$g\frac{\partial h}{\partial x} + V\frac{\partial V}{\partial x} + \frac{\partial V}{\partial t} + gS_f + V\frac{q}{A} = 0 \quad (2)$$

where

A = flow area;
V = mean velocity;
x = distance;
B = surface width;
h = water surface elevation;
t = time;
q = lateral local inflow per unit distance and time;
g = the gravitational constant; and
S_f = the energy gradient given by:

$$S_f = \frac{n^2 V|V|}{2.21\ R^{4/3}} \quad (3)$$

where

n = Manning's n value
R = the hydraulic radius.

2.2 Numerical Solution Scheme

SOCH implements an explicit numerical solution of the St. Venant equations using an explicit, leap-frog, finite difference scheme. It computes elevations, discharges, velocities, and other geometric characteristics at specified grid points in space and time. Because SOCH is a one-dimensional model, each grid point represents the entire cross section at the specified location along the stream.

The term ∂A/∂x in the expanded form of Equation (1) can be expressed as a function of ∂h/∂x. Therefore, these equations make up a system of two nonlinear, first order, first degree partial differential equations with two independent variables x and t, and with two unknowns h and V. No analytical solutions to this system of equations exist. They are solved numerically by writing them in finite difference form.

In finite difference methods, the differential equation is replaced by an approximating difference equation, and the continuous region in which the solution is desired is replaced by a set of discrete points called a net as shown on Figure 2. At the time of the development of SOCH, a variety of net schemes for approximating the differential equations of unsteady flow had been studied by various investigators. A characteristic computation net has several apparent advantages over other schemes, particularly in the stability and convergence of the solution and in optimization of net size. However, this computation scheme has the disadvantage that the net points in the x-t plane are determined as the computation proceeds. It is therefore necessary to compute x and t in addition to h and V, and to use an interpolation procedure if it is desired to obtain results at regular or specific distance and time intervals. The main disadvantage of fixed-net schemes is that the net points in the x-t plane can be selected prior to computation, so that only h and V need to be computed. The major disadvantage of most explicit fixed-net computation schemes is the difficulty in finding a net size that will give a stable and convergent solution. Based on basic studies of many different explicit fixed-net schemes, a centered difference scheme proposed by Stoker (Reference 9) was found sufficiently stable and convergent for the unsteady flow computations if the following relation is satisfied:

$$\left(V + \sqrt{g\frac{A}{B}}\right)\frac{\Delta t}{\Delta x} \le 1 - \frac{gn^2|V|}{2.21 R^{4/3}} \quad (4)$$

where

Δt = the time interval and
Δx = the distance interval Equation (4).

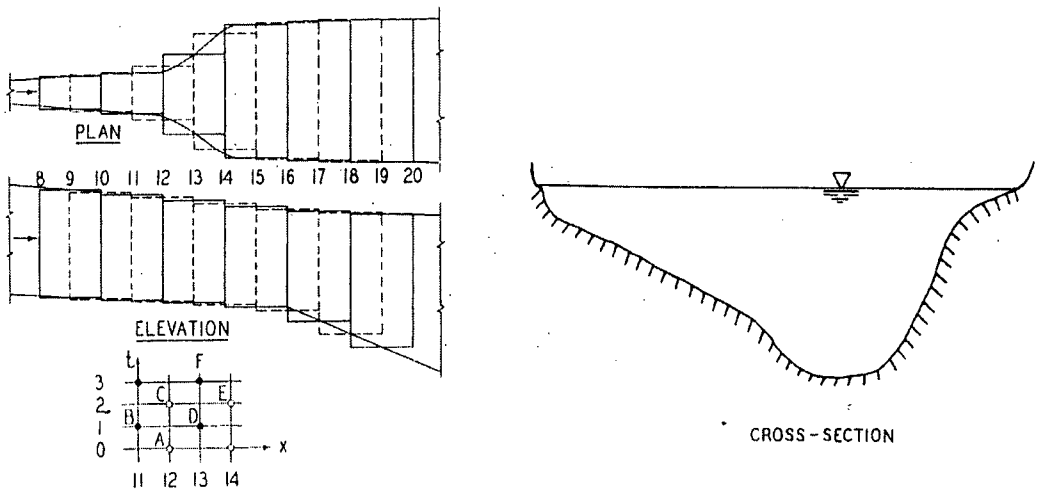

Figure 2. Net Scheme and Channel Geometry

In the solution of the partial differential equations of unsteady flow, it is necessary to specify boundary and initial conditions. Boundary conditions are conditions specified at fixed values of x at various times. Initial conditions are conditions specified at fixed values of time at various spatial locations

The boundary conditions specified for each channel may be elevation, discharge, rating table of elevation and discharge, or may be internally computed for junctions. The normal way of specifying boundaries is by independent hydrographs of elevations or discharge versus time. The boundary conditions may be given as discharge or water surface elevation versus time, or as a stage-discharge relationship.

A steady-flow profile, a flat pool-zero flow profile or a transient flow profile from previous computations may be used as the initial conditions. The initial conditions provide an elevation and discharge for each cross section in the reach. From these input data the SOCH code determines discharge, mean velocities, and water surface elevations at any number of desired locations and times for the channel reach under study. The end computation of one run may be saved in a special file to be used as initial conditions for the next run if needed; then they are read directly from that file.

In addition to boundary and initial conditions, input data on local inflows, channel geometry, and Manning's n must be prescribed.

A typical reservoir or river link geometric representation is shown schematically in Figure 2. As this figure illustrates, the mathematical model approximates the actual channel geometry by a series of adjacent prisms. Channel geometry data are determined by interpolation from a 21-step geometry table for each cross section. Off-channel storage in a reach, i.e., embayments or tributaries, is accounted for in the mathematical model by adjusting the width, B, in the equation of continuity to give the correct volume in the reach. B is

generally different from the cross section top width upon which the cross-sectional area and hydraulic radius are based.

Inflows to the model generated by the FLDHYDRO code can be entered as point source or distributed locals over a reach length Δx depending on how they were developed.

Typically, TVA has used a computational time interval Δt ranging from 10 seconds to 2.5 minutes, with a longitudinal spacing of net points Δx ranging from 0.1 to 2.5 miles. The initial model set-up procedure included testing the cross section spacing and time step to obtain a stable/convergent model result. Once that point was established, further testing with additional cross sections and/or reduced time step did not result in any change in the computed values.

The system simulated by SOCH can be a simple reservoir, a stretch of river, or a complex network with multiple junctions and up to 10 branches, each of which is referred to as a channel. The computations are made at every node and every time step. The output produced by the model can be specified at selected time intervals and specific locations. SOCH allows irregular spacing of the computational grid points. However, very irregular grid spacing can cause computational difficulties. As in every explicit scheme, shorter computation reaches require shorter time steps. For grid spacing, Δx, of 500 ft, a time step, Δt, of 10 seconds may be needed. For a Δx of 5 to 10 miles, a Δt of 2 to 5 minutes may be sufficient. In the early days of its application, when computer power was limited it was recommended to test several time steps to select the largest step that produces the same results as shorter time steps. Today, this is not much of an issue, as computers are powerful enough to produce simulations with small time steps within very reasonable times.

The geometry of the channels is described in a permanent file containing the following information at discrete locations: elevations from the streambed up and corresponding flow areas, hydraulic radii to the 2/3 power, and storage widths (B) of the computation reach. All cross sections must have the same number of entries (the number of elevation entries [NSTP] is usually 21) but there is no restriction on the elevation intervals for entries . The first entry should be the streambed elevation in order to properly compute the depth. An option is available to use or skip any cross section, duplicate a section when necessary, or interpolate between sections. It is a good practice to interpolate between surveyed sections to make full use of those sections as boundary lines. However, in some cases with very low velocity, it may be necessary to use large Δx to avoid instabilities.

The values of Manning's n for each section used are input parameters and usually do not vary, but an option is available to provide three sets of Manning's n for each section corresponding to different water surface elevations or discharges. The value of Manning's n is then interpolated for intermediate elevations or discharges.

The local inflows (non-modeled tributaries or lateral runoff) are separated into two groups:- (1) concentrated locals which arrive at one point specified by its mileage, and (2) distributed local flows which arrive between two locations specified by their mileages and are evenly distributed along the stream. All local inflows are specified by discharge hydrographs on a common time schedule (independent of that at the boundaries). The local inflow hydrographs can be read directly from a file on Unit 8, as described in Section 2.3. In this case they must be given at equal time intervals.

Partial and total failures of dams at specific times, elevations, or discharges can be simulated as long as a minimum working depth of water remains in the stream. Submergence correction can be specified when the tailwater rises.

In many applications, a single type of boundary operation is simulated throughout the run, but there are other options. One available option, defined through the input variable KSPL (as defined in Section 3.1.1), allows for one channel only to hold a fixed downstream (d/s) elevation until a certain discharge is exceeded, then to follow a spillway rating table. A similar option, input variable LSPL (Section 3.1.1), holds one channel discharge until a certain elevation is reached downstream. There is also an option for any channel downstream boundary to be operated according to the fixed rule guidelines of the main river reservoirs, from the beginning to the end of the run. When this option is used, the channels affected must be characterized by a complete set of parameters which are read only for those channels. Two different fixed rule operations are available: the first one for regular flood, the second one for probable maximum floods (PMF).

2.3 Input and Output Files

The general principle used in reading the input data is that there is no blank line, and data are provided only when necessary.

SOCH can use up to 4 input files, which are associated with specific Unit numbers in the standard FORTRAN language terminology:

- Unit 1: An optional file that provide the starting lines that have been saved at the end of another run.
- Unit 3: The geometry file that provides the cross section description in a sequence consistent with the other data.
- Unit 5: The main input file where most of the input parameters are provided
- Unit 8: An optional file for reading directly the local inflow hydrographs (discharge values only, at equal intervals); it is used only if this option is selected.

SOCH can use up to 3 output files associated with the following units:

- Unit 2: A file to save the last computation lines of the present run.
- Unit 6: The standard file for printed output. The printed output starts with a complete listing of the input data. This helps detect any input error and keeps a clear record of the characteristics of the simulation. Some error messages may appear (error in node count, sequence of channel, etc) . The title is repeated with the initial conditions and each selected time of printed results. The time is given by standard date and hours in decimal form (24-hour basis).
- Unit 10: A file to write the values of date, time, elevation, discharge, and velocity at all boundary line nodes for the print interval selected. This file can be used later (by itself or in combination with similar ones for different time periods) to create tabulations, interpolations, and/or plots.

The results at the selected locations are grouped by channels (in proper sequence) and show: mile, elevation (feet) , discharge (cubic feet per second [cfs]) , velocity V (feet per second [ft/s]) , flow area A (square feet [sq ft]) , storage width W (feet) which is the surface area of two adjacent reaches divided by the total of the two adjacent reach lengths, hydraulic radius to the 2/3 power (as interpolated from the geometry tables) , Manning's n assigned to this node, local inflow (cfs) in the two adjacent reaches, depth (feet), and Froude number obtained as $V = \sqrt{gA/W}$.

A tabulation of maximum elevation, discharge, and velocity with the exact time and day of occurrence follows the computation. This tabulation includes all boundary line points even if not requested. It can be used to plot envelope profiles.

3. INPUT DATA

3.1 Definition of Input Variables

3.1.1 Setup of a SOCH Run

First Line

TITLE Start in column 2. Any text is valid. It is suggested to include the name of the geometry file (e.g., G = FLTLWB).

Next 3 Lines

YEAR, MONTH, DAY, TIME (in hours) when computation starts.

- DT Time step (in seconds).
- PRINT Print interval (in minutes). It must be an even multiple of DT. If left blank, every computation is printed.
- PTCHUP If non zero, a check of unstable node points is made at each step, and any found will be "patched."

YEAR, MONTH, DAY, TIME (in hours) when computation ends. The run will stop at this time even if more data are available. The run may stop earlier in case of error interruption.

YEAR, MONTH, DAY, TIME (in hours) when all hydrographs start (including local inflows). This can be the same or earlier than the start time of the run, but it cannot be a later time. The end time of the hydrographs is not specified, but if not enough data are given, the code will produce an error. It is recommended to start all hydrographs at time 0 of the first day. This is mandatory if local flows are read from a file.

- ZLOC Option parameter for using local inflows
  - If ZLOC=-1 no local inflows are used even if some are present at the end of the file.
  - If ZLOC=0 the local inflows are read in this input file.
  - If ZLOC=8 the local inflows are read at constant time intervals from a file on Unit 8.
- ZNBL Option parameter for controlling the printing of the non-boundary lines
  - If ZNBL=-1 the non-boundary lines of computation will not be printed in the output file even if the print control calls for them.
- ZBOUND upstream (u/s) boundary inputs are read from Unit 9.

Next Line (some fields are not used)

General characteristics common to entire network

NCHAN Number of separate channels in network (maximum 10). A channel is defined as the segment between two boundaries.

NJUNCT Number of junctions in network.

NXCROS Number of sections in the geometry file (maximum 245).

NSTM Entry number above which most elevations of this run will be found (used to reduce search time). Not used in SOCH-PC.

NSTEP Number of elevation entries in each section (maximum 21). The intervals between each entry have no restriction.

KSPL Channel number which has special KSPL operation at the downstream (d/s) end, i.e. hold fixed elevation until discharge exceeds specific value, then use rating Table 3. That d/s boundary is defined by HSPL, QSPL, and NDTP3 points of Table 3. Only one channel can use this option.

LSPL Channel number which has special LSPL operation at the d/s end, i.e. hold fixed discharge until elevation exceeds specific value, then use rating Table 3 (this is the normal operation for Tellico). That d/s boundary is defined by HLSPL, QLSPL, and NDTP3 points of Table 3. Only one channel can use this option.

<u>One Line for Each Junction</u> (omit no junction).

NUSBR Channel number of the u/s branch.

NDSBR Channel number of the d/s branch.

NSIBR Channel number of the side branch.

JSIDE JSIDE=0 if the side channel has a d/s end at this junction.
JSIDE=1 if the side channel has an u/s end at this junction.

ITRIB ITRIB=1 if the side channel is missing at this junction (NSIBR=0).
ITRIB=2 if the side channel is limited to 1 section.
ITRIB=3 if the side channel has at least 5 sections.

This line is repeated for each additional junction; there is no specific sequence for the junctions.

<u>One Line for Each Channel</u> – Channel characteristics

The channel sequence must follow the geometry sequence.

NODES Number of computation nodes. Usually, this is not the same as NXCROS. It is what results from skipping, duplicating, interpolating. The maximum for any channel is 91.

KUBC Code for u/s boundary operation: 0 elevation given, 1 discharge given, 2 rating table used, 3 junction with free surface.

KDBC Code for d/s boundary operation: 0 elevation given, 1 discharge given, 2 rating table used, 3 junction with free surface.

KTAB Rating table number used d/s at the beginning of run (only if KDBC = 2). If left blank, default is Table 1.

KRULE Enter 1 if regular fixed rule operation used for d/s boundary.
Enter 2 if PMF fixed rule operation used for d/s boundary.

KTOTFL Enter 0 if no or partial failure will take place.
Enter 1 if total failure at d/s will take place.

KODEN — Enter 0 if Manning's n's constant at each node.
Enter 1 if Manning's n's vary with elevation.
Enter 2 if Manning's n vary with discharge.

NUTP — Number of points in u/s rating table (used only if KUBC = 2).

NDTP — Number of points in d/s rating table.

NDTP2 — Number of points in 2nd d/s rating table.

NDTP3 — Number of points 3rd d/s rating table.

NDTP4 — Number of points 4th d/s rating table.

KUFAX — Enter 1 if u/s discharges given as hourly averages.
Enter 0 for hydrographs.

KDFAX — Enter 1 if d/s discharges given as hourly averages.
Enter 0 for hydrographs.

KSTART — Enter 1 if starting line read from file on Unit 1.
Enter 0 otherwise.

KEND — Enter 1 if ending line is to be saved in file on Unit 2.
Enter 0 otherwise. It will provide both boundary and nonboundary line whether requested or not in the printed output.

Repeat for each channel, in the proper sequence.

Maximum number of points is 33. If a number is entered, a corresponding table must be read — <u>even if not used</u>. If a table needed in automatic operation is not documented, the run will stop when the table is required.

<u>One Line for Each Channel</u> – Additional characteristics (Format 8F9.0) in same channel sequence.

TMILE — u/s boundary mile. Mileage increases from d/s to u/s;
use negative miles to count from u/s to d/s

REFDX — Reach length (in feet) if all reaches of channel equal.
For irregular spacing of nodes enter 0

REFTW — Submergence tailwater elevation (in feet);
Enter 0 if no submergence.

SURCH — Surcharge allowed above gate top elevation (in feet). (Not used now.)

FLRH — d/s elevation at which failure will occur (partial or total).

FLRQ — d/s discharge at which failure will occur (partial or total).

FLRDAY, FLRTIM — Day and time (in hours) at which the d/s end of this channel will experience dam failure (partial or total).

DX — (8 values per line) Enter reach lengths (in feet) from u/s to d/s only for channels with irregular spacing (REFDX = 0).

Repeat, starting a new line for each channel, if required, following channel sequence.

<u>Two Lines for Each Channel Where KRULE = 1 OR 2</u>

REFH — (6 values of elevation), PEAKH (if necessary), all in feet.

REFQ (6 values of discharge), PEAKQ (if necessary), all in cfs.

The 6 values of elevation and discharges which define the fixed rule must be consistent; they are given in sequence of increasing magnitude.

REFH1 The absolute minimum elevation.

REFH2 The normal minimum elevation.

REFH3 The elevation at which Table 1 starts being used (regular filling curve).

REFH4 The elevation at which Table 2 starts being used (PMF filling curve).

REFH5 The top of gate elevation (end of Table 1, Table 2, beginning of Table 3).

REFH6 The maximum elevation before failure (end of Table 3, beginning of Table 4).

This feature can also be used to interrupt a run (and save the ending lines) at a given elevation or discharge for a certain channel. In that case give NDTP4 – 4 (No Table 4) and KTOTLF = 0 (Partial failure) for that channel.

REFQ1 The normal emptying rate at the beginning of a flood (turbine discharge).

REFQ1 Not used.

REFQ3 The first constant discharge maintained before using Table 1 (regular).

REFQ4 The emptying rate at the end of a flood and also constant discharge before using Table 2 (PMF).

REFQ5 The maximum spillway discharge at gate top (before Table 3).

REFQ6 The maximum spillway capacity before failure.

PEAKH The maximum elevation allowable while emptying after recession; when exceeded switch to Table 1 automatically.

PEAKQ The emptying rate selected by a previous run as the peak discharge before recession. Those two variables are given and used only in the special case of continuing a run stopped while emptying at peak discharge PEAKQ.

<u>One Line if KSPL and/or LSPL Options Are Used</u>

HSPL The headwater (HW) elevation kept all the time at d/s end of channel KSPL until the discharge reaches QSPL.

QSPL The discharge above which Table 3 is used for the d/s of channel KSPL. For the recess when discharge falls below QAPL the operation switches back to holding HSPL elevation.

HLSPL The HW elevation above which Table 3 is used for the d/s boundary of channel LSPL. For the recess when HW falls below HLSPL, the operation switches back to holding QLSPL.

QLSPL The discharge kept all the time at d/s end of channel LSPL until the HW reaches HLSPL.

<u>Rating Tables,</u> when required.

Each point is defined by 2 values – elevation (feet) and discharge (cfs). A maximum of 4 points are given on each line; each new table starts a new line.

The sequence of channels is followed; u/s boundary first, then up to 4 tables for d/s boundary (as defined in the Section 3.2 table).

UELTAB,	UQTAB	u/s table	NUTP points
DELTAB,	DQTAB	d/s Table 1	NDPT points
DELTB2,	DQTAB2	d/s Table 2	NDTP2 points
DELTB3,	DQTAB3	d/s Table 3	NDTP3 points
DELTB4,	DQTAB4	d/s Table 4	NDTP4 points

Do not use the same elevation for the 1st point given in different tables of a channel.

3.1.2 Geometry control, initial and boundary conditions and Manning's n

This group of parameters contains the data for geometry control, print control, initial conditions, boundary conditions, and Manning's n.

ICROSS Follow the sequence of sections in the geometry file (NXCROS entries, Format 72 I1).

- 0 for each section to be skipped. This is mainly used to skip an entire channel present in the geometry but not used in the run.
- 1 for each section to be used as a node.
- 9 for each section to be duplicated (hence becomes 2 nodes). This is used for creating an internal boundary (junction).
- 2 to 8 for interpolation between the current section and the next one in the geometry file. In that case, 2 to 8 nodes will replace the geometry section considered. The first one will be unchanged and the intermediate ones will be interpolated between the first one and the next one in the geometry. Hence, it is mandatory that the section following interpolation not be 0.

The number entered is also the number of computation reaches between the geometry cross sections. A good practice is to use 2 for each geometry section except the last one. This makes use of each geometry section on the boundary line.

INPRINT Follow the sequence of the computation nodes (format 72 I1). Do not start a new line at each channel. The number of entries is the sum of NODES for all channels.

- 0 for not printing that node. (Use this option only for production runs when results have already been analyzed.)
- 1 for printing results there. (Printing the results of every node provides a good review of possible instabilities.)
- 2 for printing a summary hydrograph. (Output results for this node every PRINT minutes only, if at least one other node has a IPRINT value of 1.)

Note: This code is overridden by ZNBL = -1, in which case only boundary line points are printed.

All other data in this group of parameters are in Format 8F9.0

Starting Lines

The starting lines for the run are given here in sequence of channels and decreasing miles (boundary and non-boundary together) for each channel.

Entries are elevations (feet) and discharges (cfs) for each point with 4 points per line. Start a new line for each new channel.

If KSTART = 1, the starting lines for the corresponding channel are read directly from a file on unit 1 and are omitted in the data file.

Boundaries Prescribed

For each channel where the u/s or d/s boundaries prescribed are either elevation or discharge, these values (from hydrograph or other sources, i.e., hourly) must be given here.

For channels using KSPL, LSPL, or KRULE, no d/s boundary prescription is necessary.

Follow the channel sequence: u/s first, then d/s - some channels may have both u/s and d/s boundaries; others may have none (junction, table, or automatic operation). For each boundary described, the following variables are given:

First Line

MCHAN	Channel number
NUBP or NDBP	Number of points on the hydrograph or number of hourly values (maximum 510).

Next Line

Values of elevation (or discharge), 8 per line for the entire hydrograph.

Then corresponding times in hours, 8 per line for the entire hydrograph (same number of entries). These are omitted if the KFAX option is used.

Note: All hydrographs must start at the time indicated, but this time is not necessarily 0.

The computation always starts with the values given in the starting line. Make sure that the boundary hydrographs agree with those.

Always start a new line when a new type of variable is entered. Never leave blank entries or blank lines.

Manning's n

For each channel where KODEN = 0, one value of n is given a each node, 8 per line going from u/s to d/s; start a new line for each channel.

For each channel where KODEN = 1 (Manning's n varies with elevation), three sets of n's are given. The 1st sequence is for the n's at the bottom, the 2nd for the middle, and the 3rd for the top. Then in the same order, enter the three sets of elevations at which the n's apply. At any elevation between the 1st and 2nd, and the 2nd and 3rd, the n's will be interpolated.

For each channel where KODEN = 2 (n's vary with discharge), three sets of n's are given. The 1st sequence is for the n's at low flows, the 2nd for middle, and the 3rd for high flows. Then in the same order, enter the three sets of discharges at which the n's apply. At any discharge between the 1st and 2nd, and 2nd and 3rd, the n's will be interpolated.

3.1.3 Local Inflows

If all local inflows are zero, then this group of parameters is not needed. Use ZLOC = -1

First Line = (Format 3I3, F9.0)

NCL	Number of concentrated locals (maximum 30)
NDL	Number of distributed locals (maximum 30)
NLBP	Number of points on each local hydrograph (maximum 300, this is common for all locals, concentrated or distributed)
TINTV	Time interval (in hours) between entries of local inflow hydrographs when read on Unit 8. Present only if ZLOC = 8.

Next Lines (Format 8F9.0)

TLOC	Times in hours which define the local inflow hydrographs (there are MLBP entries). Omit if TINTV is given and ZLOC = 8.

Step 1. If NCL not 0

First Line

MCH	Channel in which the first concentrated local arrives.
XMICL	Mile in that channel at which local arrives.
TBPINT	Time interval of local ordinates.

Next Lines

CONL	Values of concentrated inflow corresponding to times TLOC – for local described (there are NLBP entries). Omit if ZLOC = 8.

Repeat Step 1 for each of the NCL concentrated local flow. There may be more than one concentrated local in a given channel and some channels may have none. The sequence is independent of the channel sequence.

Step 2. If NDL not 0

First Line

MCH	Channel in which a distributed local arrives.
XUMID	u/s mile in that channel at which local starts.
XDMID	d/s mile in that channel at which local ends.

Notes:

1. The distance XUMID-XDMID and the identification of the reaches over which the local is distributed are computed by the program, hence it is essential that those miles be given correctly.
2. To make sure that XDMID be recognized as being in channel MCH and not in the next d/s channel, it is suggested to increase XDMID by 0.1 if it is the d/s end of channel MCH.
3. In the case of a distributed local covering several consecutive channels (example, Chickamauga Reservoir with Hiwassee branch, i.e., channels 1, 2, 3) an alternate input entry can be used to avoid having to divide the local in several separate hydrographs.

0	(instead of MCH)
DIST	(Instead of XUMID), the total distance in miles over which the local has to be distributed.
0	(instead of XDMID)
MCHU	(Next 9 columns) first channel where this local is distributed.
MCHD	(Next 9 columns) last sequential channel where this local is distributed.

Next Lines

DISL	Values of distributed inflow corresponding to times TLOC for the local described (there are NLBP entries). Omit if ZLOC = 8.

Repeat Step 2 for each of the NDL distributed locals. The sequence is independent of the channel sequence. However, if locals are read from Unit 8 their sequence in the file must be the same as the sequence on this data set.

3.1.4 The Geometry File

The SOCH program requires a geometry file read on Unit 3.

Only the fist 40 columns of each line are read (Format 4F10.0). The variables are elevation, corresponding flow area, corresponding R (hydraulic radius) to the 2/3 power, corresponding storage width (B). If the line contains more columns the rest can by used for annotations on the sections – mile, name, etc.

Each section must contain the same number of elevation entries (maximum 21). The first elevation given should be the streambed (it is used to compute the depth). The next elevations can be given at any interval but must be in increasing order. They should be given even if the corresponding values of the other 3 variables are left blank.

The values of Area (A), R2/3 and B can be obtained by any appropriate method which reflects the geometry of the stream.

When the cross sections are defined by coordinates, a separate program computes A, $R^{2/3}$, and B at specific elevations. A and $R^{2/3}$ can usually be used as computed from the cross sections, but B should be replaced by a storage width to reflect the correct volume of water stored at any elevation in the reach centered on that section.

The most accurate method to obtain this width (W) is to estimate the surface area (SA) bounded by an elevation contour and the next sections u/s and d/s. Then $W = SA / (\Delta x_{us} + \Delta x_{ds})$.

In the case of reservoirs, when surface area tables and storage tables are available, a global verification of the volumes and areas represented in the model should be made and a global adjustment performed.

When sections with wide floodplains are present, the hydraulic radius may show a maximum value just below the elevation of the floodplain, then decrease markedly; although this is consistent with the definition of R, it may create some instabilities or even produce alternate solutions. If this happens, close examination of the results will help decide which modifications in R are needed.

3.2 Structure and Format of Main Input File

The following table gives the structure and format of the main input file to SOCH.

No	Name	Definition	Format
1	TITLE	Title output (Start in column 2).	A80
2	YEAR, MNTH, DAY, TIME	Date & time (in hours) when computations begin.	3I3, 4F9.0
	DT	Time step (in seconds).	
	PRINT	Print interval (in minutes.) If 0, use DT.	
	PTCHUP	If nonzero, a check of unstable node points is made at each time step, and any found will be "patched".	
3	YEAR, MNTH, DAY, TIME	Date & time (in hours) when computations end.	3I3, F9.0
4	YEAR, MNTH, DAY, TIME	Date & time (in hours) when all hydrographs begin.	3I3, 4F9.0
	ZLOC..... = -1	No local flows will be input.	
	.....= 0	Local flows are input in this file.	
	.....= 8	Local flows are input from Unit 8.	
	ZNBL..... = -1	Do not print non-boundary lines.	
	ZBOUND ....> 0	u/s boundary input from Unit 9.	
5	NCHAN	Number of channels (segments between adjacent boundaries) in network (maximum is 10).	4I3, 3X, I3, 12X, 2I3
	NJUNCT	Number of junctions in network.	
	NXCROS	Number of sections in the geometry file (maximum is 245).	
	NSTM	Not used.	
	NSTEP	Number of elevation entries in each section (maximum is 21).	
	KSPL	Channel number which has special KSPL operation at d/s end.	
	LSPL	Channel number which has special LSPL operation at d/s end.	
Note: Line No 6 needed only if one or more junctions. Repeat for each junction.			
6	NUSBR	Channel number of the u/s branch.	5I3

No	Name	Definition	Format
	NDSBR	Channel number of the d/s branch.	
	NSIBR	Channel number of the side branch.	
	JSIDE .....= 1	Side channel has a u/s end at this junction; otherwise enter 0.	
	ITRIB.....= 1	No side branch at this junction.	
	.....= 2	Side channel has 1 section.	
	.....= 3	Side channel has > 4 sections.	
Note: Repeat line 7 for each channel.			
7	NODES	Number of node points (Max is 91).	16I3
	KUBC	Code for u/s boundary.	
	.....= 0	Elevation given.	
	.....= 1	Discharge given.	
	.....= 2	Rating table used.	
	.....= 3	Junction with free surface.	
	KDBC.....	Code for d/s boundary.	
	.....= 0	Elevation given.	
	.....= 1	Discharge given.	
	.....= 2	Rating table used.	
	.....= 3	Junction with free surface.	
	KTAB	Rating table number used d/s at the start of run (if KDBC=2). If blank, Table 1 is used.	
	KRULE .....= 1	Regular fixed rule operation is used for d/s boundary.	
	.....= 2	PMF fixed rule operations is used for d/s boundary.	
	KTOTFL.....= 0	No or partial failure will occur.	
	.....= 1	Total failure at d/s end will occur.	
	KODEN .....= 0	Manning's n's constant at each node.	
	.....= 1	Manning's n's vary with elevation at each node.	
	.....= 2	Manning's n's vary with discharge at each node.	
	NUTP	Number of points in u/s rating table (used only if KUBC=2).	

No	Name	Definition	Format
	NDTP	Number of points in d/s rating Table 1.	
	NDTP2	Number of points in d/s rating Table 2.	
	NDTP3	Number of points in d/s rating Table 3.	
	NDTP4	Number of points in d/s rating Table 4.	
	KUFAX .....= 0	u/s discharges/elevations given as hydrographs (KUBC<2).	
	.....= 1	u/s discharges/elevations given as hourly averages (KUBC<2).	
	KDFAX .....= 0	d/s discharges/elevations given as hydrographs (KDBC<2).	
	.....= 1	d/s discharges/elevations given as hourly averages (KDBC<2).	
	KSTART .....= 1	Starting line input from Unit 1; otherwise enter 0.	
	KEND.....= 1	Starting line output to Unit 2; otherwise enter 0.	
Note: Repeat line 8 for each channel.			
8	TMILE	u/s boundary mile.	8F9.0
	REFDX	Reach length (in feet) if all reaches of channel are equal.	
	REFTW.....	Submergence tailwater elevation (in feet).	
	SURCH.....	Not used.	
	FLRH	d/s elevation at which failure will occur.	
	FLRQ	d/s discharge at which failure will occur.	
	FLRDAY,FLRTIM	Day & time (in hours) when failure will occur.	
Note: Repeat line 9 for each channel where REFDX = 0 (multiple lines if NODES>9).			
9	DX(I), I=1,NODES-1	Lengths (in feet) of each reach from u/s to d/s	8F9.0
Note: Repeat lines 10 & 11 for each channel where KRULE>0.			
10	REFH(1)	Absolute minimum elevation (in feet).	7F9.0
	REFH(2)	Normal minimum elevation (in feet).	
	REFH(3)	Elevation (in feet) where Table 1 starts.	
	REFH(4)	Elevation (in feet) where Table 2 starts.	

No	Name	Definition	Format
	REFH(5)	Top of gates elevation (in feet) where Table 3 starts.	
	REFH(6)	Maximum elevation (in feet) before failure where Table 4 starts.	
	PEAKH	Maximum elevation (in feet) allowed while emptying after recess; if exceeded, switch to Table 1.	
11	REFQ(1)	Normal emptying rate at start of a flood (turbine discharge in cfs).	7F9.0
	REFQ(2)	Not used.	
	REFQ(3)	First constant discharge (in cfs) maintained before using Table 1.	
	REFQ(4)	Emptying rate at the end of a flood as well as the constant discharge (in cfs) before using Table 2.	
	REFQ(5)	Maximum spillway discharge (in cfs) at gate top.	
	REFQ(6)	Maximum spillway capacity (in cfs) before failure.	
	PEAKQ	The emptying rate selected by a previous run as the peak discharge (in cfs) before recess.	
Note: Include line 12 only if KSPL and/or LSPL are nonzero.			
12	HSPL	Elevation held at d/s end of channel KSPL until discharge reaches QSPL.	4F9.0
	QSPL	Discharge where Table 3 starts for channel KSPL. When recess reaches QSPL, hold elevation at HSPL.	
	HLSPL	Elevation where Table 3 starts for channel LSPL. When recess reaches HLSPL, hold discharge at QLSPL.	
	QLSPL	Discharge held at d/s end of channel LSPL until elevation reaches HLSPL.	
Note: Repeat lines 13 through 17 for each channel. If the number of elevation/discharge pairs is zero for any table, exclude the corresponding line multiple lines if more than 4 pairs.			
13	UELTAB(I), UQTAB(I), I=1,NUTP	u/s rating table defined by NUTP pairs of elevation and discharge.	8F9.0
14	DELTAB(I), DQTAB(I), I=1,NDTP	d/s rating Table 1 defined by NDTP pairs of elevation and discharge.	8F9.0
15	DELTB2(I), DQTAB2(I),	d/s rating Table 2 defined by NDTP2 pairs of elevation and discharge.	8F9.0

No	Name	Definition	Format
	I=1,NDTP2		
16	DELTB3(I), DQTAB3(I), I=1,NDTP3	d/s rating Table 3 defined by NDTP3 pairs of elevation and discharge.	8F9.0
17	DELTB4(I), DQTAB4(I), I=1,NDTP4	d/s rating Table 4 defined by NDTP4 pairs of elevation and discharge.	8F9.0
18	ICROSS(I), I=1,NXCROS	One column entry per section. Multiple lines if more than 72 sections.	72I1
	.....= 0	Skip this section.	
	.....= 1	Use this section as node point.	
	.....= 2 to .....= 8	Interpolate between this section and the next one to obtain 2 to 8 node points.	
	.....= 9	Duplicate this section to obtain 2 node points.	
19	IPRINT(I), ... I=1,number of nodes	One column entry per node point. Multiple lines if more than 72 node points.	72I1
	.....= 0	No output for this node point.	
	.....= 1	Output results for this node every PRINT minutes.	
	.....= 2	Output a summary hydrograph for this node at the end of the printout. Output results for this node every PRINT minutes only, if at least one other node has a IPRINT value of 1.	
Note:	Repeat line 20 for each node where IPRINT = 2.		
20	OTITLE	Description of node point (stream mile is automatically included in the description).	A80
Note:	Repeat line 21 for each channel with KSTART = 0. If KSTART = 1, input from unit 1 (multiple lines if NODES>4).		
21	H1(I), Q1(I), H2(I), Q2(I), I=1, (nodes+1)/2	Pairs of starting elevation & discharge for each node point. (Odd node points are boundary points; even node points are non-boundary points.) If the elevation of the most u/s node point for a channel (H1(1)) is zero, then that channel's starting discharges will be computed based on boundary and local inflows at time zero. Also, zero elevations at any node point will be replaced using backwater	8F9.0

No	Name	Definition	Format
		computations.	
Note: Repeat lines 22 through 27 for each channel. For each channel: exclude lines 22 through 24 if KUBC>1 or ZBOUND = 1 and/or exclude lines 25 through 27 if KDBC>1 or special operations are used (i.e., KSPL, LSPL, or KRULE>0). If ZBOUND = 1, lines 22 through 24 are input from Unit 9.			
22	MCHAN	Channel number (ignored).	2I9, 3F9.0
	NUBP.....	Number of u/s boundary ordinates.	
	BNDINT	Time interval of hydrographs if constant; otherwise enter 0.	
	BPEAK	Peak ordinate if not included in the constant time interval boundary ordinates.	
	PEAKTM	Time of peak discharge (in hours).	
Note: Use line 23b if KUFAX = 1; otherwise use line 23a (multiple lines if NUBP>8).			
23a	USB(I), ...	u/s boundary ordinates.	8F9.0
Or			
23b	UQFAX(I), ... I=1,NUBP	u/s boundary ordinates given as hourly averages.	8F9.0
Note: Include line 24 if KUFAX = 0 and BNDINT = 0 (multiple lines if NUBP>8).			
24	UST(I), ... I=1,NUBP	Times (hrs) of the corresponding ordinates in line 23a.	8F9.0
25	MCHAN	Channel number (ignored).	2I9
	NDBP.....	Number of d/s boundary ordinates (maximum 510).	
Note: Use line 26b if KDFAX = 1; otherwise use line 26a (multiple lines if NDBP>8).			
26a	DSB(I)	d/s boundary ordinates.	8F9.0
Or			
26b	DQFAX(I), I=1,NDBP	d/s boundary ordinates given as hourly averages.	8F9.0
Note: Include line 27 if KDFAX = 0 (multiple lines if NDBP>8).			
27	DST(I), ... I=1,NDBP	Times (hrs) of the corresponding ordinates in line 26a.	8F9.0
	..... Note:	Repeat lines 28-33 for each channel (multiple lines if	

No	Name	Definition	Format
		NODES>8).	
28	XN1B(I), ... XN2B(I), I=1, (nodes+1)/2 (Same range for lines 29-33)	Manning's n for each node point. For KODEN = 0, the n's apply for all levels of elevation and discharge. For KODEN>0, these n's apply to the lowest of 3 levels (defined on line 31).	8F9.0
Note: Include lines 29-33 if KODEN>0.			
29	XN1M(I),..... XN2M(I)	Manning's n's for the middle of 3 levels (defined on line 32).	8F9.0
30	XN1T(I), ... XN2T(I)	Manning's n's for the top of 3 levels (defined on line 33).	8F9.0
Note: Include lines 31b-33b if KODEN = 2. Otherwise, (KODEN>0) include lines 31a-33a.			
31a	H1B(I),H2B(I)...	Elevations below which the Manning's n's on line 28 apply.	8F9.0
Or			
31b	Q1B(I),Q2B(I) ..	Discharges below which the Manning's n's on line 28 apply.	8F9.0
32a	H1M(I),H2M(I)..	Elevations below which interpolation between line 28 & 29 Manning's n's apply (if above line 31a elevations). And elevations above which interpolation between line 29 & 30 Manning's n's apply (if below line 33a elevations).	8F9.0
Or			
32b	Q1M(I),Q2M(I) .	Discharges below which interpolation between line 28 & 29 Manning's n's apply (if above line 31b discharges). And discharges above which interpolation between line 29 & 30 Manning's n's apply (if below line 33b discharges).	8F9.0
33a	H1T(I),H2T(I)...	Elevations above which the Manning's n's line on 30 apply.	8F9.0
Or			
33b	Q1T(I),Q2T(I)...	Discharges above which the Manning's n's on line 30 apply.	8F9.0
Note: Include lines 34-39 if ZLOC >= 0.			

No	Name	Definition	Format
34	NCL	Number of concentrated locals (maximum 30).	3I3,F9.0
	NDL.....	Number of distributed locals (maximum 30).	
	NLBP	Number of ordinates for all locals (maximum 300). (If ZLOC>0, this number is ignored and a value is computed based on TINTV and the length of a run.)	
	TINTV	If ZLOC>0, this is the default time interval (in hours) for those locals that do not specify a time interval (TBPINT on lines 36 & 38). If 0 is entered, 6 hours is assumed. (Value is ignored for ZLOC = 0.)	
Note: Include lines 35, 37, & 39 if ZLOC = 0. If ZLOC > 0, lines 37 & 39 are input from unit 8, and are preceded by separate lines defining a unique value (format is I9) of NLBP for each local flow (multiple lines if NLBP>8).			
35	TLOC(I),..... I=1,NLBP	Times (in hours) of the corresponding ordinates in lines 37 & 39.	8F9.0
Note: Repeat lines 36 & 37 for each concentrated local flow.			
36	MCH	Channel number of local flow.	I9,2F9.0
	XMICL.....	Stream mile where local enters.	
	TBPINT	If ZLOC>0, this is the time interval (in hours) of the local ordinates in line 37. If not specified, use TINTV. (Ignored if ZLOC = 0.)	
37	CONL(I), ... I=1,NLBP	Concentrated local ordinates.	8F9.0
Note: Repeat lines 38 & 39 for each distributed local flow.			
38	MCH	Channel number of local if only distributed over 1 channel. Otherwise, enter 0.	I9,5F9.0
	XUMID	u/s mile or total distance of distributed local flow.	
	Case 1: MCH>0	u/s mile of local on channel MCH.	
	Case 2: MCH=0 & XDMID=0	Total distance of distributed local over channels MCHU through MCHD. (Should be the sum of the lengths of these channels.)	
	Case 3: MCH=0 & XDMID>0	u/s mile of local on u/s channel MCHU.	

No	Name	Definition	Format
	XDMID	d/s mile of distributed local flow.	
	Case 1:	d/s mile of local on channel MCH.	
	Case 2:	N/A	
	Case 3:	d/s mile of local on d/s channel MCHD.	
	MCHU,MCHD	u/s & d/s channels of distributed local flow.	
	Case 1:	Ignored.	
	Case 2:	Local is distributed over entire channels from MCHU through MCHD (as well as all channel numbers. in between).	
	Case 3:	Local is distributed from stream mile XUMID of channel MCHU down through stream mile XDMID of channel MCHD (as well as through the entire channel numbers. in between).	
	TBPINT	If ZLOC>0, this is the time interval (in hours) of the local ordinates in line 39. If not specified, use TINTV. (Ignored if ZLOC = 0.)	
39	DISL(I), I=1,NLBP	Distributed local ordinates.	8F9.0

3.3 Schematic of SOCH Input Datasets

The following table illustrates the structure the major data sets in the input file to SOCH.

Comment	Last Column in Data Field																							
	3	6	9	12	15	18	21	22	23	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	80
	TITLE																								
	YEAR	MNTH	DAY	TIME (hours)																					
Start of run							DT			PRINT			PTCHUP												
End of run																									
Hydrographs							ZLOC			ZNBL			ZBOUND												
	NCHAN	NJUNCT	NXCROS	NSTM		NSTEP					KSPL	LSPL													
Omit if no junction, else one line per junction	NUSBR	NDSBR	NSIBR	JSIDE	ITRIB																				
	↓	↓	↓	↓	↓																				
One line per channel	NODES	KUBC	KDBC	KTAB	KRULE	KTOTFL	KODEN	NUTP	NDTP	NDTP2	NDTP3	NDTP4	KUFAX	KDFAX	KSTART	KEND									
	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓									
One line per channel	TMILE			REFDX			REFTW			SURCH			FLRH			FLRQ			FLRDAY			FLRTIM		
		↓			↓			↓			↓			↓			↓			↓			↓		
For each channel where REFDX=0	DX (reach 1)																								
		↓																							
For each channel where KRULE>0	REFH(1)			REFH(2)			REFH(3)			REFH(4)			REFH(5)			REFH(6)			PEAKH					
	REFQ(1)			REFQ(2)			REFQ(3)			REFQ(4)			REFQ(5)			REFQ(6)			PEAKQ					
		↓			↓			↓			↓			↓			↓			↓					
	HSPL			QSPL			HLSPL			QLSPL			(Include only if KSPL or LSPL > 0)											

Comment	Last Column in Data Field																								
	3	6	9	12	15	18	21	22	23	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	80
For first channel, if NUTP>0	UELTAB(1)			UQTAB(1)			UQTAB(2)			UQTAB(2)															Repeat this sequence for each channel
For first channel, if NDTP>0	DELTAB(1)			DQTAB(1)			DELTAB(2)			DQTAB(2)															
For first channel, if NDTP2>0	DELTB2(1)			DQTB2(1)			DELTB2(2)			DQTB2(2)															
For first channel, if NDTP3>0	DELTB3(1)			DQTB3(1)			DELTB3(2)			DQTB3(2)															
For first channel, if NDTP4 > 0	DELTB4(1)			DQTB4(1)			DELTB4(2)			DQTB4(2)															
ICROSS: one column entry per cross section	111	111																							
IPRINT: one column entry per node point	111	111																							
One line for each IPRINT=2	OTITLE																								
Repeat for each channel where KSTART=0	H1(1,M)			Q1(1,M)			H2(1,M)			Q2(1,M)			H1(2,M)			Q1(2,M)			H2(2,M)			Q2(2,M)			
	H1(3,M)																								

Comment	Last Column in Data Field																								
	3	6	9	12	15	18	21	22	23	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	80
	MCHAN			NUBP			BNDINT			BPEAK			PEAKTM												
If KUFAX=0	USB(1)																								Repeat this sequence for each channel
	↓																								
	UST(1)							if BNDINT=0																	
	↓																								
If KUFAX=1	UQFAX(1)																								
	↓																								
	MCHAN			NDBP																					
If KDFAX=0	DSB(1)																								
	↓																								
	DST(1)																								
	↓																								
If KDFAX=1	DQFAX(1)																								
	↓																								
	XN1B(1)			XN2B(1)			XN1B(2)			XN2B(2)															Repeat this sequence
	↓																								
if KODEN > 0	XN1M(1)			XN2M(1)			XN1M(2)			XN2M(2)															
	↓																								
	XN1T(1)			XN2T(1)			XN1T(2)			XN2T(2)															
	↓																								
if KODEN > 0	H1B(1)			H2B(1)			H1B(2)			H2B(2)															
	↓																								
	H1M(1)			H2M(1)			H1M(2)			H2M(2)															
	↓																								
	H1T(1)			H2T(1)			H1T(2)			H2T(2)															
	↓																								

Comment	Last Column in Data Field																								
	3	6	9	12	15	18	21	22	23	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	80
if KODEN=2	Q1B(1)			Q2B(1)			Q1B(2)			Q2B(2)															
	↓																								
	Q1M(1)			Q2M(1)			Q1M(2)			Q2M(2)															
	↓																								
	Q1T(1)			Q2T(1)			Q1T(2)			Q2T(2)															
	↓																								
include only if ZLOC=0	NCL	NDL	NLBP	TINTV																					
include only if ZLOC=0	TLOC(1)																								
	↓																								
	MCH			XMICL			TBPINT																A R		Repeat for each conc. local
include only if ZLOC=0	CONL(1)																								
	↓																								
	MCH			XUMID			XDMID			MCHU			MCHD			TBPINT									Repeat for each distrib. local
include only if ZLOC=0	DISL(1)																								
	↓																								

3.4 Example of Input Data File

As an example of a typical SOCH simulation, the case of failure of the Fontana Dam combined with half the probable maximum flood (PMF) is presented.

3.4.1 Input and Output Files

File FLTWBF6.run

```
C:\Temp\FLTWBF6.dat
C:\Temp\FLTWBF6.out
C:\Temp\FLTWBLC9.geo
C:\Temp\FLTWBF6.sto
C:\Temp\FLTWBF6.sln
NA
NA
NA
NA
NA
```

3.4.2 Main Input Data File

File FLTWBF6.dat

```
1/2 PMF WITH FONTANA FAILURE - 1997      (G=FLTWBLC9)
 97  3 27     15.0       15       60
 97  3 31     24.0
 97  3 26      0.0        0       -1
  3  1146  5    21
  1  2  3  0  3
 17  1  3                                   1
 19  3  2                15                 1
 23  1  3                                   1
   602.30    11243
   568.23    11243
    23.10     5544
    720.0    45000    725.0   110000    730.0   200000    735.0   304000
    740.0   420000    744.0   540000    745.0   560000    747.0   620000
    747.9   640000    752.0   679000    755.0   755000    760.0   934000
    763.5  1093000    765.0  1188000    767.0  1309000
0000000000000000000000000000000000000000000000000000000000000000000000
000000111111111111111111111111111111111111111111111111111111111110000000
00
1111111111111111111111111111111111111111111111111111111111111
        1       13
        0   504944   440000   390000   350000   320000   290000   270000
   230000   190000   160000   130000   100000
        0       39       42       48       54       60       66       72
       84       96      108      126      144
        3       10
    38500    35500    34000    33500    32500    17500    12500    11000
```

```
    9500     9500
       0       12       24       35       36       48       54       60
      66      144
    .028     .028     .021     .024     .031     .034    .0395    .0365
    .040     .042     .040     .034     .043     .042    .0380    .0360
    .030
    .030     .031     .026     .027    .0295    .0295    .0285    .0270
    .030     .031     .032     .031    .0320    .0310    .0265    .0270
    .032    .0315    .0315
   .0305    .0305     .030     .029    .0290    .0240    .0220    .0220
   .0220    .0220     .022     .022    .0260    .0260    .0225    .0225
   .0250    .0250    .0245     .025    .0265    .0260    .0230
2  3  7
       0        6       18       30       42       72      144
       3     12.0
    4300     3375     1825      900      475      350      350
       3      4.4
    5600     4800     3200     2400     2400     2400     2400
       1    602.3   568.30
    9500     7850     4700     2350     1125      750      750
       2   568.23   530.00
   12800    10600     6300     3175     1575     1000     1000
       3    23.10      0.1
   49500    48700    49200    48000    39500    13000     6500
```

3.4.3 Geometry File

File FLTWBLC9.geo

```
  803.00        0.      0.0       507.  CHILHOWE
  823.00    21865.      4.44     1397.  UPSTREAM
  843.00    71309.      5.54     2288.  33 X SEC
  863.00   127175.      6.85     3179.
  883.00   186615.      8.07     4070.
  903.00   248203.      9.23     4956.
  923.00   311847.     10.26     5819.
  943.00   377295.     11.26     6681.
  963.00   444234.     12.19     7543.
  983.00   512662.     13.07     8406.
 1003.00   582581.     13.90     9248.
 1023.00   654009.     14.67     9976.
 1043.00   727255.     15.33    10703.
 1063.00   803342.     15.91    11431.
 1083.00   882350.     16.46    12487.
 1123.00  1054473.     17.32    15979.
 1163.00  1232047.     18.62    17750.
 1203.00  1411235.     19.85    19552.
 1243.00  1591115.     21.05    21743.
 1283.00        0.      0.0     23880.
 1323.00        0.      0.0     25340.
  797.50        0.      0.0       627.
  817.50    20736.      4.31     1594.
  837.50    83254.      5.32     2753.
  857.50   150969.      6.77     3912.
```

877.50	221106.	8.10	5071.
897.50	292865.	9.33	6228.
917.50	366283.	10.45	7701.
937.50	441580.	11.49	9393.
957.50	518636.	12.47	11086.
977.50	597447.	13.39	12778.
997.50	677658.	14.27	14460.
1017.50	758672.	15.11	15857.
1037.50	363628.	7.66	17101.
1057.50	401671.	7.95	18345.
1077.50	441175.	8.23	19753.
1117.50	527237.	8.66	22379.
1157.50	616024.	9.31	24145.
1197.50	705618.	9.92	25927.
1237.50	795558.	10.52	27903.
1277.50	0.	0.0	29852.
1317.50	0.	0.0	31462.
792.00	0.	0.0	747.
812.00	19607.	4.19	1790.
832.00	95198.	5.11	3218.
852.00	174763.	6.69	4645.
872.00	255596.	8.13	6072.
892.00	337526.	9.44	7499.
912.00	420719.	10.64	9583.
932.00	505865.	11.73	12105.
952.00	593037.	12.75	14628.
972.00	682232.	13.71	17150.
992.00	772734.	14.65	19672.
1012.00	863334.	15.56	21737.
1032.00	0.	0.0	23498.
1052.00	0.	0.0	25258.
1072.00	0.	0.0	27019.
1112.00	0.	0.0	28779.
1152.00	0.	0.0	30540.
1192.00	0.	0.0	32301.
1232.00	0.	0.0	34062.
1272.00	0.	0.0	35823.
1312.00	0.	0.0	37584.
788.00	0.	0.0	679.
808.00	18634.	4.67	1507.
828.00	78379.	6.33	2741.
848.00	147252.	8.14	3975.
868.00	217753.	9.82	5208.
888.00	289796.	11.34	6442.
908.00	363473.	12.72	8116.
928.00	439423.	13.96	10457.
948.00	517321.	15.14	12799.
968.00	596278.	16.28	15140.
988.00	386367.	7.32	17481.
1008.00	431667.	7.78	19532.
1028.00	0.	0.0	21185.
1048.00	0.	0.0	22837.
1068.00	0.	0.0	24489.
1108.00	0.	0.0	26141.
1148.00	0.	0.0	27794.

1188.00	0.	0.0	29446.
1228.00	0.	0.0	31099.
1268.00	0.	0.0	32751.
1308.00	0.	0.0	34404.
784.00	0.	0.0	610.
804.00	17660.	5.16	1224.
824.00	61560.	7.55	2264.
844.00	119740.	9.60	3304.
864.00	179909.	11.52	4344.
884.00	242065.	13.24	5384.
904.00	306227.	14.80	6648.
924.00	372981.	16.20	8808.
944.00	441604.	17.54	10969.
964.00	510324.	18.86	13129.
984.00	0.	0.0	15290.
1004.00	0.	0.0	17327.
1024.00	0.	0.0	18871.
1044.00	0.	0.0	20415.
1064.00	0.	0.0	21959.
1104.00	0.	0.0	23503.
1144.00	0.	0.0	25047.
1184.00	0.	0.0	26591.
1224.00	0.	0.0	28135.
1264.00	0.	0.0	29679.
1304.00	0.	0.0	31223.
780.55	0.	0.0	547.
800.55	18379.	5.65	1138.
820.55	56415.	8.24	1894.
840.55	111254.	10.47	2642.
860.55	172791.	12.32	3390.
880.55	237596.	13.97	4138.
900.55	306415.	15.42	4998.
920.55	379433.	16.71	6684.
940.55	454417.	17.99	8438.
960.55	529867.	19.25	10191.
980.55	315805.	10.42	11944.
1000.55	0.	0.0	13636.
1020.55	0.	0.0	15082.
1040.55	0.	0.0	16527.
1060.55	0.	0.0	17973.
1100.55	0.	0.0	19418.
1140.55	0.	0.0	20864.
1180.55	0.	0.0	22309.
1220.55	0.	0.0	23755.
1260.55	0.	0.0	25200.
1300.50	0.	0.0	26646.
777.10	0.	0.0	483.
797.10	19097.	6.15	1051.
817.10	51270.	8.94	1524.
837.10	102768.	11.35	1980.
857.10	165673.	13.12	2436.
877.10	233127.	14.71	2891.
897.10	306602.	16.04	3347.
917.10	385884.	17.23	4560.
937.10	467229.	18.45	5906.

957.10	549410.	19.65	7252.
977.10	631610.	20.85	8598.
997.10	0.	0.0	9945.
1017.10	0.	0.0	11292.
1037.10	0.	0.0	12639.
1057.10	0.	0.0	13986.
1097.10	0.	0.0	15333.
1137.10	0.	0.0	16680.
1177.10	0.	0.0	18027.
1217.10	0.	0.0	19374.
1257.10	0.	0.0	20721.
1297.00	0.	0.0	22068.
775.55	0.	0.0	769.
795.55	16637.	6.13	1807.
815.55	42843.	9.64	3011.
835.55	79512.	12.56	4298.
855.55	123451.	14.67	5585.
875.55	177629.	15.52	6872.
895.55	240502.	16.14	8159.
915.55	308512.	16.89	10109.
935.55	378377.	17.78	12248.
955.55	449675.	18.71	14386.
975.55	521604.	19.67	16525.
995.55	236669.	9.63	18664.
1015.55	0.	0.0	20803.
1035.55	0.	0.0	22942.
1055.55	0.	0.0	25081.
1095.55	0.	0.0	27220.
1135.55	0.	0.0	29359.
1175.55	0.	0.0	31498.
1215.55	0.	0.0	33637.
1255.55	0.	0.0	35776.
1295.50	0.	0.0	37915.
774.00	0.	0.0	1055.
794.00	14177.	6.12	2562.
814.00	34416.	10.35	4497.
834.00	56256.	13.77	6615.
854.00	81229.	16.23	8734.
874.00	122130.	16.33	10852.
894.00	174402.	16.25	12970.
914.00	231140.	16.55	15658.
934.00	289524.	17.12	18589.
954.00	349940.	17.77	21520.
974.00	411597.	18.49	24452.
994.00	473337.	19.26	27383.
1014.00	0.	0.0	30314.
1034.00	0.	0.0	33245.
1054.00	0.	0.0	36176.
1094.00	0.	0.0	39107.
1134.00	0.	0.0	42038.
1174.00	0.	0.0	44969.
1214.00	0.	0.0	47900.
1254.00	0.	0.0	50831.
1294.00	0.	0.0	53762.
770.50	0.	0.0	1265.

790.50	22087.	4.84	4126.
810.50	88735.	9.07	7804.
830.50	168210.	12.47	12693.
850.50	251405.	15.16	17583.
870.50	343373.	16.55	22472.
890.50	441771.	17.76	27362.
910.50	543090.	19.06	32536.
930.50	646111.	20.42	37832.
950.50	750148.	21.78	43128.
970.50	205799.	9.24	48425.
990.50	236669.	9.63	53721.
1010.50	0.	0.0	59017.
1030.50	0.	0.0	64313.
1050.50	0.	0.0	69609.
1090.50	0.	0.0	74905.
1130.50	0.	0.0	80201.
1170.50	0.	0.0	85497.
1210.50	0.	0.0	90793.
1250.50	0.	0.0	96089.
1290.50	0.	0.0	101385.
767.00	0.	0.0	1475.
787.00	29996.	3.56	5689.
807.00	143054.	7.79	11110.
827.00	280164.	11.16	18771.
847.00	421581.	14.10	26431.
867.00	564615.	16.78	34092.
887.00	709139.	19.27	41753.
907.00	855040.	21.58	49414.
927.00	1002697.	23.73	57075.
947.00	1150356.	25.80	64736.
967.00	0.	0.0	72397.
987.00	0.	0.0	80058.
1007.00	0.	0.0	87719.
1027.00	0.	0.0	95380.
1047.00	0.	0.0	103041.
1087.00	0.	0.0	110702.
1127.00	0.	0.0	118363.
1167.00	0.	0.0	126024.
1207.00	0.	0.0	133685.
1247.00	0.	0.0	141346.
1287.00	0.	0.0	149007.
763.50	0.	0.0	814.
783.50	20736.	4.99	4777.
803.50	84965.	8.88	9344.
823.50	162510.	12.13	16905.
843.50	251524.	13.58	24465.
863.50	353103.	14.55	32026.
883.50	457045.	15.97	39587.
903.50	563500.	17.44	47147.
923.50	671768.	18.91	54708.
943.50	780037.	20.38	62269.
963.50	0.	0.0	69830.
983.50	0.	0.0	77391.
1003.50	0.	0.0	84952.
1023.50	0.	0.0	92513.

1043.50	0.	0.0	100074.
1083.50	0.	0.0	107635.
1123.50	0.	0.0	115196.
1163.50	0.	0.0	122757.
1203.50	0.	0.0	130318.
1243.50	0.	0.0	137879.
1283.50	0.	0.0	145440.
760.00	0.	0.0	153.
780.00	11475.	6.43	3865.
800.00	26875.	9.98	7577.
820.00	44855.	13.10	15038.
840.00	81466.	13.07	22498.
860.00	141591.	12.32	29959.
880.00	204951.	12.68	37420.
900.00	271959.	13.31	44880.
920.00	340838.	14.10	52341.
940.00	409718.	14.97	59802.
960.00	0.	0.0	67263.
980.00	0.	0.0	74724.
1000.00	0.	0.0	82185.
1020.00	0.	0.0	89646.
1040.00	0.	0.0	97107.
1080.00	0.	0.0	104568.
1120.00	0.	0.0	112029.
1160.00	0.	0.0	119490.
1200.00	0.	0.0	126951.
1240.00	0.	0.0	134412.
1280.00	0.	0.0	141873.
758.50	0.	0.0	240.
778.50	9765.	6.06	2749.
798.50	26980.	9.16	5357.
818.50	49835.	12.16	11737.
838.50	88091.	12.78	18452.
858.50	147921.	12.45	25167.
878.50	222522.	12.40	31882.
898.50	309953.	12.69	38596.
918.50	400602.	13.33	45311.
938.50	491252.	14.11	52026.
958.50	0.	0.0	58741.
978.50	0.	0.0	65456.
998.50	0.	0.0	72171.
1018.50	0.	0.0	78886.
1038.50	0.	0.0	85601.
1078.50	0.	0.0	92316.
1118.50	0.	0.0	99031.
1158.50	0.	0.0	105746.
1198.50	0.	0.0	112461.
1238.50	0.	0.0	119176.
1278.50	0.	0.0	125891.
757.00	0.	0.0	327.
777.00	8054.	5.69	1633.
797.00	27084.	8.34	3136.
817.00	54814.	11.22	8436.
837.00	94715.	12.50	14405.
857.00	154250.	12.58	20374.

877.00	240093.	12.13	26343.
897.00	347946.	12.07	32312.
917.00	460366.	12.56	38281.
937.00	572786.	13.26	44250.
957.00	0.	0.0	50219.
977.00	0.	0.0	56188.
997.00	0.	0.0	62157.
1017.00	0.	0.0	68126.
1037.00	0.	0.0	74095.
1077.00	0.	0.0	80064.
1117.00	0.	0.0	86033.
1157.00	0.	0.0	92002.
1197.00	0.	0.0	97971.
1237.00	0.	0.0	103940.
1277.00	0.	0.0	109909.
755.00	0.	0.0	342.
775.00	9389.	5.99	1385.
795.00	27419.	8.67	2674.
815.00	53499.	11.03	7396.
835.00	94801.	12.44	13279.
855.00	158208.	12.78	19162.
875.00	240162.	12.90	25045.
895.00	338472.	13.22	30928.
915.00	441151.	13.90	36811.
935.00	544051.	14.74	42694.
955.00	0.	0.0	48577.
975.00	0.	0.0	54460.
995.00	0.	0.0	60343.
1015.00	0.	0.0	66226.
1035.00	0.	0.0	72109.
1075.00	0.	0.0	77992.
1115.00	0.	0.0	83875.
1155.00	0.	0.0	89758.
1195.00	0.	0.0	95641.
1235.00	0.	0.0	101524.
1275.00	0.	0.0	107407.
753.00	0.	0.0	356.
773.00	10724.	6.29	1136.
793.00	27753.	9.00	2211.
813.00	52183.	10.84	6355.
833.00	94886.	12.39	12152.
853.00	162166.	12.99	17949.
873.00	240230.	13.67	23746.
893.00	328998.	14.37	29543.
913.00	421936.	15.24	35340.
933.00	515316.	16.23	41137.
953.00	0.	0.0	46934.
973.00	0.	0.0	52731.
993.00	0.	0.0	58528.
1013.00	0.	0.0	64325.
1033.00	0.	0.0	70122.
1073.00	0.	0.0	75919.
1113.00	0.	0.0	81716.
1153.00	0.	0.0	87513.
1193.00	0.	0.0	93310.

1233.00	0.	0.0	99107.
1273.00	0.	0.0	104904.
752.50	0.	0.0	393.
772.50	11926.	6.08	1027.
792.50	31702.	9.06	1876.
812.50	58059.	11.53	4729.
832.50	95555.	13.80	8721.
852.50	147671.	15.32	12713.
872.50	208425.	16.51	16706.
892.50	279365.	17.30	20698.
912.50	360972.	17.83	24691.
932.50	443502.	18.64	28683.
952.50	0.	0.0	32676.
972.50	0.	0.0	36668.
992.50	0.	0.0	40661.
1012.50	0.	0.0	44653.
1032.50	0.	0.0	48646.
1072.50	0.	0.0	52638.
1112.50	0.	0.0	56631.
1152.50	0.	0.0	60623.
1192.50	0.	0.0	64616.
1232.50	0.	0.0	68608.
1272.50	0.	0.0	72601.
752.00	0.	0.0	430.
772.00	13127.	5.88	918.
792.00	35650.	9.13	1540.
812.00	63934.	12.23	3102.
832.00	96224.	15.22	5290.
852.00	133175.	17.66	7477.
872.00	176620.	19.35	9665.
892.00	229732.	20.23	11853.
912.00	300007.	20.43	14041.
932.00	371687.	21.05	16229.
952.00	0.	0.0	18417.
972.00	0.	0.0	20605.
992.00	0.	0.0	22793.
1012.00	0.	0.0	24981.
1032.00	0.	0.0	27169.
1072.00	0.	0.0	29357.
1112.00	0.	0.0	31545.
1152.00	0.	0.0	33733.
1192.00	0.	0.0	35921.
1232.00	0.	0.0	38109.
1272.00	0.	0.0	40297.
750.00	0.	0.0	429.
770.00	13333.	5.47	1044.
790.00	42629.	8.28	2036.
810.00	83674.	11.44	3653.
830.00	132703.	14.41	5817.
850.00	188500.	16.97	7981.
870.00	252300.	18.83	10145.
890.00	330287.	19.91	12309.
910.00	419083.	20.67	14473.
930.00	508933.	21.68	16637.
950.00	377100.	11.86	18801.

970.00	0.	0.0	20965.
990.00	0.	0.0	23129.
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768.00	13538.	5.07	1170.
788.00	49608.	7.43	2532.
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884.00	273014.	21.16	13922.
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725.00	0.	0.0	74.
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1245.00	0.	0.0	7862.
722.00	0.	0.0	0.
742.00	12003.	6.04	600.
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782.00	64718.	10.88	1842.
802.00	102587.	13.70	2446.
822.00	150992.	16.11	2751.
842.00	227880.	16.39	3057.
862.00	315610.	16.87	3363.
882.00	410823.	17.50	3669.
902.00	508253.	18.33	3975.
922.00	607438.	19.22	4281.
942.00	707338.	20.18	4587.
962.00	807238.	21.15	4893.

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1002.00        0.      0.0      5505.
1042.00        0.      0.0      5811.
1082.00        0.      0.0      6117.
1122.00        0.      0.0      6423.
1162.00        0.      0.0      6729.
1202.00        0.      0.0      7035.
1242.00        0.      0.0      7341.
 722.00        0.      0.0         0. TELLICO
 742.00    12003.      6.04       600. DS
 762.00    32334.      7.79      1204. 5 X SECT
 782.00    64718.     10.88      1842.
 802.00   102587.     13.70      2446.
 822.00   150992.     16.11      2751.
 842.00   227880.     16.39      3057.
 862.00   315610.     16.87      3363.
 882.00   410823.     17.50      3669.
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 922.00   607438.     19.22      4281.
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1082.00        0.      0.0      6117.
1122.00        0.      0.0      6423.
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1202.00        0.      0.0      7035.
1242.00        0.      0.0      7341.
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 802.00   102587.     13.70      2446.
 822.00   150992.     16.11      2751.
 842.00   227880.     16.39      3057.
 862.00   315610.     16.87      3363.
 882.00   410823.     17.50      3669.
 902.00   508253.     18.33      3975.
 922.00   607438.     19.22      4281.
 942.00   707338.     20.18      4587.
 962.00   807238.     21.15      4893.
 982.00        0.      0.0      5199.
1002.00        0.      0.0      5505.
1042.00        0.      0.0      5811.
1082.00        0.      0.0      6117.
1122.00        0.      0.0      6423.
1162.00        0.      0.0      6729.
1202.00        0.      0.0      7035.
1242.00        0.      0.0      7341.
 722.00        0.      0.0         0.    2
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 802.00   102587.     13.70      2446.
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822.00	150992.	16.11	2751.	
842.00	227880.	16.39	3057.	
862.00	315610.	16.87	3363.	
882.00	410823.	17.50	3669.	
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1202.00	0.	0.0	7035.	
1242.00	0.	0.0	7341.	
722.00	0.	0.0	0.	DS TEL
742.00	12003.	6.04	600.	DAM
762.00	32334.	7.79	1204.	
782.00	64718.	10.88	1842.	
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902.00	508253.	18.33	3975.	
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982.00	0.	0.0	5199.	
1002.00	0.	0.0	5505.	
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762.00	32334.	7.79	1204.	
782.00	64718.	10.88	1842.	
802.00	102587.	13.70	2446.	
822.00	150992.	16.11	2751.	
842.00	227880.	16.39	3057.	
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 1122.00        0.      0.0      6423.
 1162.00        0.      0.0      6729.
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 1242.00        0.      0.0      7341.
  722.00        0.      0.0         0.  4
  742.00    12003.      6.04      600.
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  782.00    64718.     10.88     1842.
  802.00   102587.     13.70     2446.
  822.00   150992.     16.11     2751.
  842.00   227880.     16.39     3057.
  862.00   315610.     16.87     3363.
  882.00   410823.     17.50     3669.
  902.00   508253.     18.33     3975.
  922.00   607438.     19.22     4281.
  942.00   707338.     20.18     4587.
  962.00   807238.     21.15     4893.
  982.00        0.      0.0      5199.
 1002.00        0.      0.0      5505.
 1042.00        0.      0.0      5811.
 1082.00        0.      0.0      6117.
 1122.00        0.      0.0      6423.
 1162.00        0.      0.0      6729.
 1202.00        0.      0.0      7035.
 1242.00        0.      0.0      7341.
  722.00        0.      0.0         0.  5
  742.00    12003.      6.04      600.
  762.00    32334.      7.79     1204.
  782.00    64718.     10.88     1842.
  802.00   102587.     13.70     2446.
  822.00   150992.     16.11     2751.
  842.00   227880.     16.39     3057.
  862.00   315610.     16.87     3363.
  882.00   410823.     17.50     3669.
  902.00   508253.     18.33     3975.
  922.00   607438.     19.22     4281.
  942.00   707338.     20.18     4587.
  962.00   807238.     21.15     4893.
  982.00        0.      0.0      5199.
 1002.00        0.      0.0      5505.
 1042.00        0.      0.0      5811.
 1082.00        0.      0.0      6117.
 1122.00        0.      0.0      6423.
 1162.00        0.      0.0      6729.
 1202.00        0.      0.0      7035.
 1242.00        0.      0.0      7341.
  795.00        0       0.0     00000. FORT LOUD
  800.00     1252       2.40      400. UP
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805.00	3154	3.82	400.	25 X SECT
810.00	5387	5.04	700.	
815.00	7887	6.16	1180.	
820.00	10712	7.27	1450.	
825.00	13906	8.13	1720.	
830.00	17487	8.83	1960.	
835.00	21893	9.20	2160.	
840.00	27562	9.32	2380.	
845.00	34703	9.21	2560.	
850.00	43525	9.07	2770.	
855.00	54028	8.93	2970.	
860.00	66212	8.82	3170.	
865.00	79384	8.90	3480.	
875.00	106609	9.30	4070.	
885.00	135306	9.71	4670.	
895.00	167256	10.02	5250.	
905.00	202656	10.36	5830.	
915.00	240906	10.74	6410.	
925.00	281562	11.23	6990.	
790.00	0	0.0	00000.	
795.00	557	1.24	170.	
800.00	3188	3.04	330.	
805.00	6733	4.43	400.	
810.00	10592	5.65	550.	
815.00	14708	6.74	800.	
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825.00	24356	8.57	1080.	
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835.00	40469	8.97	1750.	
840.00	50472	9.19	2180.	
845.00	60575	9.53	2470.	
850.00	70735	9.94	2770.	
855.00	80950	10.38	3060.	
860.00	91222	10.83	3370.	
870.00	112610	11.65	3880.	
880.00	135572	12.38	4370.	
890.00	159635	13.07	5070.	
900.00	184322	13.74	5750.	
910.00	209697	14.38	6430.	
920.00	235822	14.99	7110.	
790.00	0	0.0	00000.	
795.00	1441	2.02	500.	
800.00	4095	3.81	600.	
805.00	6905	5.21	600.	
810.00	9863	6.38	660.	
815.00	12969	7.45	760.	
820.00	16217	8.48	770.	
825.00	19812	9.40	980.	
830.00	23948	10.06	1180.	
835.00	28625	10.55	1490.	
840.00	33842	10.91	1780.	
845.00	39440	11.23	2130.	
850.00	45261	11.54	2480.	
855.00	51303	11.85	2820.	
860.00	57567	12.14	3170.	

870.00	77411	11.60	3890.
880.00	97842	11.61	4580.
890.00	118986	11.77	5950.
900.00	140967	11.98	7350.
910.00	163742	12.25	8750.
920.00	187267	12.53	10150.
785.00	0	0.0	00000.
790.00	1035	2.02	410.
795.00	2960	3.73	570.
800.00	5277	4.94	600.
805.00	7730	6.13	700.
810.00	10318	7.16	790.
815.00	13040	8.16	800.
820.00	15882	9.22	990.
825.00	19172	10.00	1300.
830.00	23242	10.44	1580.
835.00	28092	10.67	1590.
840.00	33722	10.77	1595.
845.00	40370	10.72	1920.
850.00	48272	10.57	2280.
855.00	57430	10.38	2600.
865.00	79047	10.10	3450.
875.00	102447	10.15	4450.
885.00	127167	10.34	5750.
895.00	153207	10.59	7350.
905.00	180598	10.85	8950.
915.00	209528	11.10	10550.
785.00	0	0.0	00000.
790.00	862	1.54	380.
795.00	3336	3.40	550.
800.00	6095	4.82	600.
805.00	9085	5.94	710.
810.00	12330	6.90	780.
815.00	15832	7.86	790.
820.00	19628	8.90	1160.
825.00	23803	9.74	1270.
830.00	28428	10.42	1380.
835.00	33503	10.97	1480.
840.00	39028	11.44	1590.
845.00	45084	11.81	1900.
850.00	51753	12.10	2200.
855.00	59034	12.33	2500.
865.00	75397	12.67	3120.
875.00	93947	12.94	3810.
885.00	114472	13.22	4500.
895.00	135922	13.58	5190.
905.00	158184	13.95	5880.
915.00	181634	14.28	6570.
785.00	0	0.0	00000.
790.00	803	1.36	590.
795.00	4018	3.02	600.
800.00	8087	4.50	750.
805.00	12388	5.84	910.
810.00	17046	6.75	1050.
815.00	21981	7.86	1170.

820.00	27152	8.93	1370.
825.00	32683	9.85	1380.
830.00	38677	10.61	1390.
835.00	45133	11.26	1580.
840.00	52052	11.82	1760.
845.00	59433	12.31	1910.
850.00	67277	12.74	2080.
855.00	75583	13.12	2240.
865.00	93446	13.80	2620.
875.00	112196	14.47	3140.
885.00	131821	15.11	3660.
895.00	153071	15.63	4180.
905.00	175946	16.09	4700.
915.00	199696	16.54	5220.
785.00	0	0.0	00000.
790.00	1336	1.61	780.
795.00	5434	3.27	1100.
800.00	10325	4.53	1420.
805.00	15840	5.79	1650.
810.00	21562	6.97	1820.
815.00	27450	8.09	1980.
820.00	33543	9.16	2180.
825.00	39795	10.14	2280.
830.00	46150	11.06	2380.
835.00	52607	11.91	2590.
840.00	59168	12.73	2780.
845.00	65832	13.49	3120.
850.00	72600	14.23	3470.
855.00	79470	14.92	3810.
865.00	93604	16.21	4500.
875.00	108742	17.31	5170.
885.00	125023	18.24	5840.
895.00	142785	19.00	6510.
905.00	162031	19.62	7180.
915.00	182431	20.18	7850.
780.00	0	0.0	00000.
785.00	788	0.92	500.
790.00	5743	3.09	960.
795.00	11301	4.54	1300.
800.00	17420	5.70	1750.
805.00	24118	6.95	1980.
810.00	31412	8.02	2450.
815.00	39301	8.99	3150.
820.00	47765	9.87	3570.
825.00	57234	10.58	3850.
830.00	68140	11.09	4170.
835.00	80484	11.45	4700.
840.00	94265	11.71	5180.
845.00	109109	11.95	5900.
850.00	124640	12.20	6600.
860.00	157765	12.68	7950.
870.00	192840	13.20	9525.
880.00	229065	13.75	11100.
890.00	267415	14.17	12675.
900.00	308865	14.53	14250.

910.00	352865	14.92	15825.
775.00	0	0.0	00000.
780.00	529	1.15	380.
785.00	3693	2.86	700.
790.00	8231	4.28	1000.
795.00	13914	5.34	1180.
800.00	20742	6.22	1200.
805.00	29593	6.93	1800.
810.00	41349	7.45	2800.
815.00	56005	8.04	3550.
820.00	73527	8.68	4550.
825.00	92633	9.28	5800.
830.00	112052	9.92	7150.
835.00	131783	10.57	8900.
840.00	151827	11.20	10700.
845.00	172223	11.81	12550.
855.00	214198	12.97	16700.
865.00	257773	14.03	20275.
875.00	303098	15.01	23425.
885.00	350208	15.91	26575.
895.00	399158	16.74	29725.
905.00	449958	17.51	32875.
770.00	0	0.0	00000.
775.00	1547	1.97	200.
780.00	4608	3.70	380.
785.00	8130	5.15	450.
790.00	12158	6.31	520.
795.00	16692	7.30	550.
800.00	21731	8.17	820.
805.00	27140	9.07	1400.
810.00	32783	9.92	2000.
815.00	38655	10.78	2350.
820.00	44716	11.65	3350.
825.00	51217	12.41	4350.
830.00	58421	13.02	5350.
835.00	66327	13.50	6900.
840.00	74936	13.89	8500.
850.00	94561	14.41	11700.
860.00	117596	14.68	14900.
870.00	143516	14.88	17150.
880.00	171796	15.06	19400.
890.00	202136	15.25	21650.
900.00	234236	15.46	23900.
770.00	0	0.0	00000.
775.00	1118	1.76	280.
780.00	4106	3.25	600.
785.00	7811	4.59	600.
790.00	12034	5.54	600.
795.00	17331	6.28	900.
800.00	23492	7.19	990.
805.00	31771	7.78	1230.
810.00	45232	7.86	1540.
815.00	62828	8.34	1780.
820.00	80768	9.08	1990.
825.00	99399	9.86	2080.

830.00	119093	10.60	2190.
835.00	139849	11.28	2480.
840.00	161668	11.90	2760.
850.00	206618	13.13	2970.
860.00	252068	14.36	3180.
870.00	298018	15.54	3480.
880.00	344468	16.68	3780.
890.00	391793	17.76	4080.
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765.00	0	0.0	00000.
770.00	1743	1.87	550.
775.00	5332	3.69	555.
780.00	9262	5.02	560.
785.00	13524	6.35	600.
790.00	18112	7.49	610.
795.00	23024	8.50	920.
800.00	28262	9.41	980.
805.00	33777	10.29	1450.
810.00	39523	11.12	1850.
815.00	45502	11.93	1960.
820.00	51727	12.74	2180.
825.00	58842	13.34	2380.
830.00	67489	13.68	2580.
835.00	77667	13.82	2900.
845.00	101961	13.90	3440.
855.00	127786	14.22	3930.
865.00	154580	14.64	4370.
875.00	182905	15.06	4750.
885.00	212855	15.47	5130.
895.00	244430	15.86	5510.
760.00	21	0.54	00000.
765.00	880	1.85	280.
770.00	3432	3.17	570.
775.00	6639	4.57	575.
780.00	10186	5.70	580.
785.00	14135	6.89	680.
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795.00	23430	8.73	950.
800.00	28776	9.50	1250.
805.00	34733	10.13	1620.
810.00	41449	10.69	1930.
815.00	48921	11.29	2180.
820.00	57132	11.95	2380.
825.00	66264	12.48	2770.
830.00	76503	12.90	3170.
840.00	100305	13.47	5160.
850.00	128688	13.82	5650.
860.00	160601	14.14	6140.
870.00	205619	13.77	6630.
880.00	251318	13.95	7120.
890.00	297972	14.25	7610.
760.00	0	0.0	00000.
765.00	563	1.11	300.
770.00	4512	2.98	600.
775.00	9142	4.45	600.

780.00	14252	5.61	600.
785.00	23940	6.18	790.
790.00	35002	7.00	990.
795.00	47440	7.80	1300.
800.00	61252	8.56	1620.
805.00	76021	9.35	1775.
810.00	91329	10.14	2180.
815.00	107178	10.97	2750.
820.00	123601	11.84	2755.
825.00	140756	12.63	3380.
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840.00	197527	14.60	7320.
850.00	240652	15.59	7820.
860.00	289027	16.36	8320.
870.00	342277	16.98	8820.
880.00	400027	17.51	9320.
890.00	462777	17.93	9820.
760.00	0	0.0	00000.
765.00	1607	2.01	300.
770.00	5632	3.51	590.
775.00	10318	4.89	770.
780.00	15347	6.05	950.
785.00	26728	6.29	1070.
790.00	38472	7.18	1190.
795.00	50578	8.15	2170.
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805.00	75773	10.05	2385.
810.00	88654	10.97	2590.
815.00	101688	11.87	2960.
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825.00	128492	13.57	3750.
830.00	142867	14.31	4350.
840.00	173867	15.58	5370.
850.00	210942	16.44	6050.
860.00	249967	17.28	6750.
870.00	295217	17.79	7450.
880.00	342967	18.35	8150.
890.00	394967	18.75	8850.
760.00	0	0.0	00000.
765.00	2917	2.53	290.
770.00	6718	4.15	600.
775.00	10859	5.41	780.
780.00	15340	6.47	980.
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795.00	32777	9.30	1585.
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805.00	48178	10.68	2230.
810.00	56793	11.33	2550.
815.00	65994	12.01	2770.
820.00	75855	12.71	2980.
825.00	86155	13.36	2985.
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840.00	118255	15.27	3760.
850.00	148630	15.62	4350.

860.00	181755	16.03	4950.
870.00	217380	16.43	5550.
880.00	255255	16.83	6150.
890.00	295005	17.26	6750.
755.00	0	0.0	00000.
760.00	1657	2.43	600.
765.00	3946	4.10	600.
770.00	6384	5.41	600.
775.00	8968	6.53	600.
780.00	11696	7.51	600.
785.00	14824	8.42	1200.
790.00	18604	9.10	1850.
795.00	23037	9.66	2120.
800.00	28123	10.15	2450.
805.00	33764	10.66	2800.
810.00	39862	11.17	3200.
815.00	46418	11.78	3550.
820.00	53454	12.47	3760.
825.00	60803	13.13	4170.
835.00	75931	14.42	4900.
845.00	91703	15.63	5600.
855.00	108553	16.69	6500.
865.00	126566	17.61	7400.
875.00	145816	18.41	8300.
885.00	166428	19.10	9200.
750.00	0	0.0	00000.
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760.00	2597	3.11	590.
765.00	7412	4.04	700.
770.00	12729	5.25	790.
775.00	18938	6.13	880.
780.00	26467	6.70	970.
785.00	35309	7.26	1400.
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805.00	98567	9.84	3800.
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815.00	135925	11.54	4950.
820.00	155000	12.38	5750.
830.00	193613	14.01	6170.
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860.00	312450	18.43	9718.
870.00	353325	19.75	11102.
880.00	394850	21.01	12486.
745.00	0	0.0	00000.
750.00	819	1.56	380.
755.00	3001	3.51	480.
760.00	5395	4.94	600.
765.00	8144	6.13	605.
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775.00	14801	7.94	870.
780.00	18710	8.70	1180.
785.00	23006	9.39	1480.

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795.00	32758	10.62	2290.
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825.00	70297	14.39	5350.
835.00	86704	15.36	5530.
845.00	105882	16.02	6180.
855.00	127830	16.46	7080.
865.00	153114	16.66	7980.
875.00	185128	16.46	8880.
750.00	0	0.0	00000.
755.00	1416	1.89	310.
760.00	5543	3.20	600.
765.00	12118	4.58	600.
770.00	18843	5.93	610.
775.00	25718	7.16	880.
780.00	32743	8.28	1180.
785.00	39918	9.33	1280.
790.00	47243	10.31	1380.
795.00	54718	11.23	1540.
800.00	62343	12.11	1840.
805.00	70168	12.93	2250.
810.00	78242	13.71	2550.
815.00	86570	14.48	2780.
820.00	95178	15.24	3370.
830.00	114178	16.49	4750.
840.00	136178	17.39	5740.
850.00	160290	18.15	7233.
860.00	185628	18.87	8726.
870.00	212290	19.53	10219.
880.00	240378	20.13	11712.
740.00	0	0.0	00000.
745.00	323	0.99	290.
750.00	2061	3.08	590.
755.00	4231	4.52	690.
760.00	7243	5.51	770.
765.00	10886	6.46	870.
770.00	14918	7.36	960.
775.00	19336	8.18	1080.
780.00	24143	8.95	1180.
785.00	29212	9.82	1280.
790.00	34419	10.66	1380.
795.00	39765	11.46	1540.
800.00	45249	12.23	1840.
805.00	50868	12.98	2100.
810.00	56622	13.69	2175.
820.00	68678	15.19	2380.
830.00	81453	16.59	4350.
840.00	94578	17.89	5570.
850.00	108078	19.11	6950.
860.00	121978	20.24	8330.
870.00	136703	21.22	9710.
745.00	0	0.0	00000.

750.00	4135	2.28	560.
755.00	10337	4.03	670.
760.00	16905	5.39	760.
765.00	23761	6.62	840.
770.00	30830	7.71	910.
775.00	38111	8.71	1040.
780.00	45605	9.63	1180.
785.00	53261	10.66	1360.
790.00	61030	11.63	1570.
795.00	68911	12.55	1710.
800.00	76905	13.43	1770.
805.00	85051	14.26	1870.
810.00	93389	15.05	2020.
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825.00	119535	17.27	2450.
835.00	137888	18.60	2860.
845.00	157388	19.77	3170.
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865.00	207235	20.99	3960.
875.00	235279	21.44	4360.
735.00	0	0.0	00000.
740.00	986	1.56	200.
745.00	3677	3.47	390.
750.00	6657	4.83	590.
755.00	9919	5.94	780.
760.00	13462	6.90	960.
765.00	17360	7.97	1080.
770.00	21688	8.86	1180.
775.00	26444	9.64	1370.
780.00	31630	10.35	1570.
785.00	37167	11.08	1760.
790.00	42980	11.76	1950.
795.00	49067	12.42	2120.
800.00	55430	13.05	2290.
805.00	62324	13.38	2480.
815.00	78474	14.16	3170.
825.00	97694	15.27	3370.
835.00	120090	16.06	3550.
845.00	145521	16.64	4170.
855.00	172971	17.16	4950.
865.00	202349	17.63	5730.
730.00	0	0.0	00000.
735.00	116	0.74	180.
740.00	3815	2.71	380.
745.00	8122	4.42	490.
750.00	12492	5.82	600.
755.00	16924	7.04	790.
760.00	21420	8.14	980.
765.00	26312	9.10	1280.
770.00	31931	9.87	1570.
775.00	38278	10.52	1760.
780.00	45353	11.10	1950.
785.00	52986	11.70	2150.
790.00	61011	12.29	2350.
795.00	69425	12.87	2355.

800.00	78230	13.43	2760.	
810.00	97384	14.32	3750.	
820.00	118910	15.51	4170.	
830.00	142110	16.73	5160.	
840.00	166110	17.89	7930.	
850.00	202135	17.99	10700.	
860.00	240210	18.20	13470.	
725.00	0	0.0	00000.	
730.00	131	0.62	125.	
735.00	4479	1.60	270.	
740.00	15576	3.65	400.	
745.00	26774	5.21	490.	
750.00	38040	6.55	585.	
755.00	49372	7.75	780.	
760.00	60771	8.85	970.	
765.00	72587	9.86	1270.	
770.00	85170	10.76	1570.	
775.00	98520	11.57	1760.	
780.00	112637	12.32	1950.	
785.00	127262	13.11	2160.	
790.00	142137	13.89	2360.	
795.00	157262	14.64	2690.	
805.00	188925	15.87	3000.	
815.00	226235	16.85	3580.	
825.00	269325	17.87	5300.	
835.00	314575	18.86	9000.	
845.00	361363	19.83	13350.	
855.00	409613	20.77	17700.	
725.00	0	0.0	00000.	FORT LOU
730.00	131	0.62	125.	DS
735.00	4479	1.60	270.	5 X SECT
740.00	15576	3.65	400.	
745.00	26774	5.21	490.	
750.00	38040	6.55	585.	
755.00	49372	7.75	780.	
760.00	60771	8.85	970.	
765.00	72587	9.86	1270.	
770.00	85170	10.76	1570.	
775.00	98520	11.57	1760.	
780.00	112637	12.32	1950.	
785.00	127262	13.11	2160.	
790.00	142137	13.89	2360.	
795.00	157262	14.64	2690.	
805.00	188925	15.87	3000.	
815.00	226235	16.85	3580.	
825.00	269325	17.87	5300.	
835.00	314575	18.86	9000.	
845.00	361363	19.83	13350.	
855.00	409613	20.77	17700.	
725.00	0	0.0	00000.	
730.00	131	0.62	125.	
735.00	4479	1.60	270.	
740.00	15576	3.65	400.	
745.00	26774	5.21	490.	
750.00	38040	6.55	585.	

755.00	49372	7.75	780.
760.00	60771	8.85	970.
765.00	72587	9.86	1270.
770.00	85170	10.76	1570.
775.00	98520	11.57	1760.
780.00	112637	12.32	1950.
785.00	127262	13.11	2160.
790.00	142137	13.89	2360.
795.00	157262	14.64	2690.
805.00	188925	15.87	3000.
815.00	226235	16.85	3580.
825.00	269325	17.87	5300.
835.00	314575	18.86	9000.
845.00	361363	19.83	13350.
855.00	409613	20.77	17700.
725.00	0	0.0	00000.
730.00	131	0.62	125.
735.00	4479	1.60	270.
740.00	15576	3.65	400.
745.00	26774	5.21	490.
750.00	38040	6.55	585.
755.00	49372	7.75	780.
760.00	60771	8.85	970.
765.00	72587	9.86	1270.
770.00	85170	10.76	1570.
775.00	98520	11.57	1760.
780.00	112637	12.32	1950.
785.00	127262	13.11	2160.
790.00	142137	13.89	2360.
795.00	157262	14.64	2690.
805.00	188925	15.87	3000.
815.00	226235	16.85	3580.
825.00	269325	17.87	5300.
835.00	314575	18.86	9000.
845.00	361363	19.83	13350.
855.00	409613	20.77	17700.
725.00	0	0.0	00000.
730.00	131	0.62	125.
735.00	4479	1.60	270.
740.00	15576	3.65	400.
745.00	26774	5.21	490.
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765.00	72587	9.86	1270.
770.00	85170	10.76	1570.
775.00	98520	11.57	1760.
780.00	112637	12.32	1950.
785.00	127262	13.11	2160.
790.00	142137	13.89	2360.
795.00	157262	14.64	2690.
805.00	188925	15.87	3000.
815.00	226235	16.85	3580.
825.00	269325	17.87	5300.
835.00	314575	18.86	9000.

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845.00    361363     19..83    13350.
855.00    409613     20.77     17700.
725.00         0      0.0      00000.
730.00       131      0.62       125.
735.00      4479      1.60       270.
740.00     15576      3.65       400.
745.00     26774      5.21       490.
750.00     38040      6.55       585.
755.00     49372      7.75       780.
760.00     60771      8.85       970.
765.00     72587      9.86      1270.
770.00     85170     10.76      1570.
775.00     98520     11.57      1760.
780.00    112637     12.32      1950.
785.00    127262     13.11      2160.
790.00    142137     13.89      2360.
795.00    157262     14.64      2690.
805.00    188925     15.87      3000.
815.00    226235     16.85      3580.
825.00    269325     17.87      5300.
835.00    314575     18.86      9000.
845.00    361363     19.83     13350.
855.00    409613     20.77     17700.
710.00        0.      0.0          0.FT LOUDOUN
715.00        0.      0.0          0.MILE 602.3
720.00        0.      0.0          0. 17 X-SEC
725.00     2014.      1.58         0.   (1)
730.00     7175.      3.59       582.
735.00    12456.      5.14       620.
740.00    17801.      6.46       659.
745.00    23214.      7.64       959.
750.00    28726.      8.74    1046.00
755.00    34353.      9.77    1298.00
760.00    40101.     10.73    1550.00
765.00    45970.     11.62    2248.00
770.00    51960.     12.46    2480.00
775.00    61686.     12.52    3410.00
780.00    75128.     12.21    3642.00
790.00   103182.     12.18    3875.00
800.00   132371.     12.51    5037.00
810.00   162571.     12.99    6587.00
820.00   193657.     13.53    7749.00
830.00   225628.     14.09    9686.00
840.00   258486.     14.65   11623.00
710.00        0.      0.0          0.FT LOUDOUN
715.00        0.      0.0          0.MILE 602..3
720.00        0.      0.0          0. 17 X-SEC
725.00     2014.      1.58         0.   (2)
730.00     7175.      3.59       582.
735.00    12456.      5.14       620.
740.00    17801.      6.46       659.
745.00    23214.      7.64       959.
750.00    28726.      8.74    1046.00
755.00    34353.      9.77    1298.00
760.00    40101.     10.73    1550.00
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765.00    45970.    11.62   2248.00
770.00    51960.    12.46   2480.00
775.00    61686.    12.52   3410.00
780.00    75128.    12.21   3642.00
790.00   103182.    12.18   3875.00
800.00   132371.    12.51   5037.00
810.00   162571.    12.99   6587.00
820.00   193657.    13.53   7749.00
830.00   225628.    14.09   9686.00
840.00   258486.    14.65  11623.00
710.00        0.     0.0         0.FT LOUDOUN
715.00        0.     0.0         0.MILE 602.3
720.00        0.     0.0         0. 17 X-SEC
725.00     2014.     1.58        0.   (3)
730.00     7175.     3.59      582.
735.00    12456.     5.14      620.
740.00    17801.     6.46      659.
745.00    23214.     7.64      959.
750.00    28726.     8.74   1046.00
755.00    34353.     9.77   1298.00
760.00    40101.    10.73   1550.00
765.00    45970.    11.62   2248.00
770.00    51960.    12.46   2480.00
775.00    61686.    12.52   3410.00
780.00    75128.    12.21   3642.00
790.00   103182.    12.18   3875.00
800.00   132371.    12.51   5037.00
810.00   162571.    12.99   6587.00
820.00   193657.    13.53   7749.00
830.00   225628.    14.09   9686.00
840.00   258486.    14.65  11623.00
710.00        0.     0.0         0.FT LOUDOUN
715.00        0.     0.0         0.MILE 602.3
720.00        0.     0.0         0. 17 X-SEC
725.00     2014.     1.58        0.   (4)
730.00     7175.     3.59      582.
735.00    12456.     5.14      620.
740.00    17801.     6.46      659.
745.00    23214.     7.64      959.
750.00    28726.     8.74   1046.00
755.00    34353.     9.77   1298.00
760.00    40101.    10.73   1550.00
765.00    45970.    11.62   2248.00
770.00    51960.    12.46   2480.00
775.00    61686.    12.52   3410.00
780.00    75128.    12.21   3642.00
790.00   103182.    12.18   3875.00
800.00   132371.    12.51   5037.00
810.00   162571.    12.99   6587.00
820.00   193657.    13.53   7749.00
830.00   225628.    14.09   9686.00
840.00   258486.    14.65  11623.00
710.00        0.     0.0         0.FT LOUDOUN
715.00        0.     0.0         0.MILE 602.3
720.00        0.     0.0         0. 17 X-SEC
```

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725.00     2014.      1.58        0.   (5)
730.00     7175.      3.59      582.
735.00    12456.      5.14      620.
740.00    17801.      6.46      659.
745.00    23214.      7.64      959.
750.00    28726.      8.74   1046.00
755.00    34353.      9.77   1298.00
760.00    40101.     10.73   1550.00
765.00    45970.     11.62   2248.00
770.00    51960.     12.46   2480.00
775.00    61686.     12.52   3410.00
780.00    75128.     12.21   3642.00
790.00   103182.     12.18   3875.00
800.00   132371.     12.51   5037.00
810.00   162571.     12.99   6587.00
820.00   193657.     13.53   7749.00
830.00   225628.     14.09   9686.00
840.00   258486.     14.65  11623.00
710.00        0.      0.0         0.FT LOUDOUN
715.00        0.      0.0         0.MILE 602.3
720.00        0.      0.0         0. 17 X-SEC
725.00     2014.      1.58        0.
730.00     7175.      3.59      582.
735.00    12456.      5.14      620.
740.00    17801.      6.46      659.
745.00    23214.      7.64      959.
750.00    28726.      8.74   1046.00
755.00    34353.      9.77   1298.00
760.00    40101.     10.73   1550.00
765.00    45970.     11.62   2248.00
770.00    51960.     12.46   2480.00
775.00    61686.     12.52   3410.00
780.00    75128.     12.21   3642.00
790.00   103182.     12.18   3875.00
800.00   132371.     12.51   5037.00
810.00   162571.     12.99   6587.00
820.00   193657.     13.53   7749.00
830.00   225628.     14.09   9686.00
840.00   258486.     14.65  11623.00
710.00        0.      0.0         0.
715.00        0.      0.0       112.
720.00        0.      0.0       259.
725.00     1095.      1.57      396.
730.00     3971.      3.54      562.
735.00     6996.      5.03      620.
740.00    10122.      6.29      659.
745.00    13365.      7.42      775.
750.00    16880.      8.46    775.00
755.00    20790.      9.29   1066.00
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770.00    36468.     10.53   2209.00
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780.00    52593.     10.48   2712.00
790.00    71843.     10.57   3391.00
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710.00	0.	0.0	0.
715.00	0.	0.0	0.
720.00	0.	0.0	281.
725.00	1333.	1.90	465.
730.00	4035.	3.66	601.
735.00	7032.	5.05	601.
740.00	10177.	6.27	601.
745.00	13478.	7.48	695.
750.00	16962.	8.52	775.
755.00	20631.	9.43	969.
760.00	24484.	10.24	1163.
765.00	30667.	10.25	1395.
770.00	37726.	10.26	1744.
775.00	45662.	10.25	1856.
780.00	54474.	10.23	1938.
790.00	77424.	9.90	2519.
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810.00	130999.	10.10	3100.
820.00	159574.	10.43	3487.
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840.00	219274.	11.20	4069.
710.00	0.	0.0	0.
715.00	0.	0.0	0.
720.00	0.	0.0	0.
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745.00	16455.	7.54	840.
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755.00	24780.	9.60	969.
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770.00	39227.	11.79	1550.
775.00	45199.	12.23	1744.
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790.00	67673.	12.85	2422.
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715.00	0.	0.0	0.
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765.00	58779.	9.40	2519.
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760.00	49380.	10.99	1550.
765.00	57268.	11.60	1744.
770.00	65430.	12.18	1744.
775.00	73868.	12.73	1938.
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760.00	48152.	11.09	1647.
765.00	56146.	11.55	1744.
770.00	64427.	12.01	1938.
775.00	72996.	12.45	1938.
780.00	82952.	12.71	2131.
790.00	108652.	12.76	2906.
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735.00	16481.	7.11	1066.
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760.00	48542.	10.69	2519.
765.00	56846.	11.23	2906.
770.00	65296.	11.78	3875.
775.00	73893.	12.33	3875.
780.00	83715.	12.71	4262.
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745.00	51158.	9.06	1938.
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770.00	102657.	13.42	3681.

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800.00	184985.	16.51	5812.
810.00	215910.	17.38	6781.
820.00	248685.	18.19	7168.
830.00	282385.	19.06	8040.
840.00	316085.	19.94	8718.
690.00	0.	0.0	0.
695.00	0.	0.0	0.
700.00	0.	0.0	0.
705.00	0.	0.0	336.
710.00	369.	1.15	833.
715.00	4513.	2.55	850.
720.00	10110.	4.30	892.
725.00	15891.	5.64	930.
730.00	21934.	6.78	1046.
735.00	28241.	7.80	1298.
740.00	35252.	8.64	1550.
745.00	43279.	9.52	2131.
750.00	51651.	10.40	2131.
755.00	60271.	11.24	2131.
760.00	69139.	12.04	2422.
770.00	87399.	13.55	2664.
780.00	106213.	14.95	2906.
790.00	125670.	16.24	3487.
800.00	149723.	17.01	4069.
810.00	185680.	16.89	4650.
820.00	226368.	16.86	4843.
690.00	0.	0.0	0.
695.00	0.	0.0	116.
700.00	0.	0.0	269.
705.00	1707.	1.99	512.
710.00	4981.	3.77	717.
715.00	8435.	5.23	756.
720.00	11982.	6.49	775.
725.00	15818.	7.59	969.
730.00	20145.	8.50	1201.
735.00	24962.	9.29	1434.
740.00	30271.	9.99	1705.
745.00	36006.	10.77	1800.
750.00	42028.	11.54	1938.
755.00	48334.	12.26	2325.
760.00	54923.	12.93	2422.
770.00	70004.	13.94	3294.
780.00	88319.	14.59	4262.
790.00	108795.	15.22	5134.
800.00	130355.	15.86	6006.
810.00	153691.	16.39	7555.
820.00	179469.	16.82	9493.
690.00	0.	0.0	82.
695.00	0.	0.0	164.
700.00	0.	0.0	350.
705.00	415.	1.06	530.
710.00	4618.	2.78	601.

715.00	9994.	4.28	698.
720.00	15956.	5.50	814.
725.00	22450.	6.57	1821.
730.00	29432.	7.51	2422.
735.00	36902.	8.36	2635.
740.00	44865.	9.09	2839.
745.00	53499.	9.86	2906.
750.00	62382.	10.83	3681.
755.00	71445.	11.74	4069.
760.00	80688.	12.59	4069.
770.00	104022.	13.63	5812.
780.00	128495.	14.64	7943.
790.00	156733.	15.28	10268.
800.00	191360.	15.57	13173.
810.00	229751.	15.89	17241.
820.00	269282.	16.30	21310.
690.00	0.	0.0	0.
695.00	0.	0.0	0.
700.00	13.	0.54	263.
705.00	834.	1.87	582.
710.00	4466.	3.09	698.
715.00	9113.	4.55	853.
720.00	13997.	5.73	1085.
725.00	19490.	6.44	1821.
730.00	25788.	7.12	2519.
735.00	33168.	7.73	3042.
740.00	44919.	8.03	3313.
745.00	62431.	8.33	4262.
750.00	82595.	8.81	4843.
755.00	103749.	9.40	5425.
760.00	125892.	10.02	6103.
770.00	172009.	11.27	7362.
780.00	219806.	12.49	9299.
790.00	269285.	13.64	11333.
800.00	320444.	14.73	15111.
810.00	372819.	15.78	18404.
820.00	425944.	16.79	21697.
690.00	0.	0.0	126.
695.00	0.	0.0	211.
700.00	0.	0.0	328.
705.00	861.	1.01	892.
710.00	7096.	3.00	892.
715.00	14081.	4.60	892.
720.00	21709.	5.90	1000.
725.00	31906.	6.82	1337.
730.00	42995.	7.74	1976.
735.00	54977.	8.61	3158.
740.00	67852.	9.43	3933.
745.00	81734.	10.27	4650.
750.00	96859.	11.03	5037.
755.00	113234.	11.68	5618.
760.00	130859.	12.25	7168.
770.00	168172.	13.35	7943.
780.00	207109.	14.41	8330.
790.00	247672.	15.41	10268.

800.00	289859.	16.34	11817.	
810.00	332859.	17.31	13173.	
820.00	375859.	18.27	14917.	
690.00	0.	0.0	0.	
695.00	0.	0.0	0.	
700.00	947.	1.34	582.	
705.00	5153.	3.03	969.	
710.00	10458.	4.36	1453.	
715.00	16621.	5.43	1744.	
720.00	23642.	6.33	1938.	
725.00	31785.	7.24	2906.	
730.00	41315.	7.98	3875.	
735.00	56145.	8.42	5812.	
740.00	71987.	9.07	7749.	
745.00	88572.	9.88	9105.	
750.00	105347.	10.73	10461.	
755.00	122295.	11.59	11236.	
760.00	139416.	12.42	14142.	
770.00	174092.	14.03	18404.	
780.00	209289.	15.56	22666.	
790.00	245332.	16.97	28865.	
800.00	282547.	18.28	35064.	
810.00	320347.	19.54	43200.	
820.00	358147.	20.77	53080.	
690.00	0.	0.0	188.	
695.00	1650.	2.05	348.	
700.00	4538.	3.86	1066.	
705.00	7596.	5.24	1114.	
710.00	10824.	6.40	1138.	
715.00	14223.	7.41	1163.	
720.00	17792.	8.32	1686.	
725.00	21548.	9.11	1715.	
730.00	25542.	9.79	1744.	
735.00	30189.	10.50	2034.	
740.00	35306.	11.16	2712.	
745.00	40661.	11.95	2906.	
750.00	46260.	12.71	3294.	
755.00	52127.	13.41	4069.	
760.00	58271.	14.05	4456.	
770.00	71391.	15.16	5037.	
780.00	85619.	16.10	7168.	
790.00	100956.	16.89	7362.	
800.00	117402.	17.57	8524.	
810.00	134402.	18.25	9299.	
820.00	151402.	18.96	10461.	
690.00	0.	0.0	188.	M 568.23
695.00	1650.	2.05	348.	19 X-SEC
700.00	4538.	3.86	1066.	
705.00	7596.	5.24	1114.	
710.00	10824.	6.40	1138.	
715.00	14223.	7.41	1163.	
720.00	17792.	8.32	1686.	
725.00	21548.	9.11	1715.	
730.00	25542.	9.79	1744.	
735.00	30189.	10.50	2034.	

740.00	35306.	11.16	2712.
745.00	40661.	11.95	2906.
750.00	46260.	12.71	3294.
755.00	52127.	13.41	4069.
760.00	58271.	14.05	4456.
770.00	71391.	15.16	5037.
780.00	85619.	16.10	7168.
790.00	100956.	16.89	7362.
800.00	117402.	17.57	8524.
810.00	134402.	18.25	9299.
820.00	151402.	18.96	10461.
690.00	0.	0.0	0.
695.00	2350.	2.02	537.
700.00	6591.	3.83	969.
705.00	11106.	5.24	985.
710.00	15802.	6.46	1001.
715.00	20660.	7.54	1017.
720.00	25759.	8.49	1163.
725.00	31583.	9.37	1356.
730.00	38057.	10.13	1550.
735.00	46504.	10.61	1841.
740.00	55949.	11.12	2131.
745.00	66756.	11.62	2275.
750.00	77780.	12.27	2420.
755.00	89014.	12.94	2900.
760.00	100459.	13.62	2980.
770.00	123834.	14.97	3480.
780.00	147759.	16.27	3880.
790.00	174859.	17.24	4270.
800.00	207759.	17.77	4843.
810.00	243559.	18.24	5231.
820.00	279359.	18.81	5810.
690.00	0.	0.0	0.
695.00	0.	0.0	480.
700.00	3710.	2.45	1066.
705.00	8801.	4.05	1163.
710.00	14528.	5.24	1163.
715.00	20904.	6.24	1356.
720.00	27930.	7.11	1550.
725.00	39322.	7.74	1938.
730.00	51501.	8.52	2325.
735.00	64465.	9.31	2519.
740.00	78215.	10.07	2712.
745.00	92525.	10.91	2906.
750.00	106930.	11.78	3584.
755.00	121415.	12.63	4262.
760.00	135981.	13.47	4456.
770.00	165354.	15.08	4650.
780.00	195049.	16.60	6006.
790.00	225065.	18.05	6974.
800.00	255405.	19.44	8137.
810.00	285905.	20.77	9202.
820.00	316405.	22.07	10074.
690.00	0.	0.0	0.
695.00	3299.	1.58	572.

700.00	11637.	3.63	1356.
705.00	20200.	5.11	1356.
710.00	29087.	6.36	1356.
715.00	38300.	7.46	1550.
720.00	47837.	8.45	2325.
725.00	59750.	9.27	2712.
730.00	71889.	10.13	2906.
735.00	84255.	10.97	3294.
740.00	96846.	11.80	3487.
745.00	109622.	12.66	4069.
750.00	122496.	13.52	4456.
755.00	135466.	14.35	4600.
760.00	148530.	15.16	5328.
770.00	174946.	16.69	6393.
780.00	201742.	18.15	9105.
790.00	228920.	19.52	9493.
800.00	256480.	20.83	10268.
810.00	284230.	22.09	12011.
820.00	311980.	23.32	13561.
670.00	0.	0.0	0.
675.00	0.	0.0	0.
680.00	0.	0.0	0.
685.00	0.	0.0	0.
690.00	0.	0.0	396.
695.00	3952.	1.91	1356.
700.00	11634.	3.80	1356.
705.00	19565.	5.30	1356.
710.00	27659.	6.58	1356.
715.00	35915.	7.72	1938.
720.00	44334.	8.76	2712.
725.00	56501.	9.40	3100.
730.00	68903.	10.17	3100.
735.00	81539.	10.98	3487.
740.00	94410.	11.79	4069.
750.00	120744.	13.43	4650.
760.00	147737.	14.99	5521.
770.00	175519.	16.43	6781.
780.00	204220.	17.77	7168.
790.00	233716.	19.02	8524.
800.00	263882.	20.20	8718.
670.00	0.	0.0	0.
675.00	0.	0.0	0.
680.00	0.	0.0	0.
685.00	0.	0.0	0.
690.00	1185.	1.60	530.
695.00	8298.	2.99	1163.
700.00	16332.	4.67	1163.
705.00	24557.	5.95	1356.
710.00	33132.	7.07	1356.
715.00	43244.	8.03	2325.
720.00	53782.	8.96	2712.
725.00	68401.	9.55	2906.
730.00	83258.	10.30	3487.
735.00	98353.	11.09	3681.
740.00	114361.	11.82	4262.

750.00	155964.	12.80	5037.
760.00	200389.	13.88	5909.
770.00	245820.	15.02	7168.
780.00	308843.	15.33	7362.
790.00	376707.	15.70	8300.
800.00	446662.	16.17	9299.
670.00	0.	0.0	0.
675.00	0.	0.0	0.
680.00	0.	0.0	0.
685.00	219.	0.43	0.
690.00	4488.	2.86	706.
695.00	9295.	4.40	1163.
700.00	14495.	5.63	1163.
705.00	19970.	6.83	1163.
710.00	25595.	7.91	1550.
715.00	31370.	8.90	1938.
720.00	37395.	9.79	2519.
725.00	53267.	9.35	2712.
730.00	69883.	9.65	3294.
735.00	87408.	10.15	3487.
740.00	106321.	10.69	3875.
750.00	152637.	11.64	4359.
760.00	206993.	12.41	5134.
770.00	281196.	12.51	6006.
780.00	362798.	12.74	6781.
790.00	453024.	12.98	6974.
800.00	550100.	13.25	8912.
670.00	0.	0.0	0.
675.00	0.	0.0	0.
680.00	0.	0.0	0.
685.00	221.	1.31	94.
690.00	1640.	2.40	969.
695.00	4016.	3.92	969.
700.00	6762.	5.05	1163.
705.00	9878.	6.00	1356.
710.00	13363.	6.82	1938.
715.00	21815.	6.64	2325.
720.00	32931.	6.88	2906.
725.00	46253.	7.44	3295.
730.00	60623.	8.12	3487.
735.00	76041.	8.81	4069.
740.00	92818.	9.46	4262.
750.00	134192.	10.57	5037.
760.00	181540.	11.53	5812.
770.00	251293.	11.57	6684.
780.00	327326.	11.81	7555.
790.00	411820.	12.15	7943.
800.00	502957.	12.55	9299.
670.00	0.	0.0	0.
675.00	0.	0.0	0.
680.00	0.	0.0	0.
685.00	706.	0.93	151.
690.00	6484.	2.74	1163.
695.00	13957.	4.30	1163.
700.00	22115.	5.53	1163.

705.00	33527.	6.48	1356.
710.00	45865.	7.44	2325.
715.00	59265.	8.38	3100.
720.00	73165.	9.31	3487.
725.00	87980.	10.20	4262.
730.00	103426.	11.03	4262.
735.00	119504.	11.83	4456.
740.00	136542.	12.55	4650.
750.00	177185.	13.64	5521.
760.00	222098.	14.58	6393.
770.00	283359.	14.74	6781.
780.00	349059.	15.01	7555.
790.00	423649.	15.15	8137.
800.00	504780.	15.29	8718.
670.00	0.	0.0	0.
675.00	0.	0.0	0.
680.00	0.	0.0	0.
685.00	0.	0.0	526.
690.00	6031.	2.34	582.
695.00	14775.	4.05	872.
700.00	24156.	5.38	1356.
705.00	35496.	6.45	1744.
710.00	49915.	7.26	2519.
715.00	69028.	7.95	3100.
720.00	88865.	8.78	3681.
725.00	109214.	9.67	4069.
730.00	129861.	10.56	4262.
735.00	150805.	11.43	4456.
740.00	172046.	12.27	5037.
750.00	215229.	13.97	6006.
760.00	261891.	15.41	6393.
770.00	313789.	16.57	8330.
780.00	369573.	17.56	8524.
790.00	432743.	18.27	8718.
800.00	502800.	18.80	9493.
670.00	0.	0.0	0.
675.00	0.	0.0	0.
680.00	12.	0.40	0.
685.00	1610.	1.71	1120.
690.00	9364.	3.18	1163.
695.00	18054.	4.65	1356.
700.00	27488.	5.84	1744.
705.00	37717.	6.95	2131.
710.00	49611.	7.88	2712.
715.00	63899.	8.65	3100.
720.00	78391.	9.51	3487.
725.00	93063.	10.38	3875.
730.00	107891.	11.25	4456.
735.00	122875.	12.08	4843.
740.00	138016.	12.89	5425.
750.00	168951.	14.58	6500.
760.00	201188.	16.11	6974.
770.00	237625.	17.29	8137.
780.00	278250.	18.21	8912.
790.00	326063.	18.75	9880.

800.00	380000.	19.10	10849.
670.00	0.	0.0	0.
675.00	0.	0.0	179.
680.00	2778.	1.97	918.
685.00	8076.	3.78	1260.
690.00	13721.	5.18	1260.
695.00	19694.	6.35	1841.
700.00	25997.	7.38	2000.
705.00	32984.	8.34	2325.
710.00	41013.	9.12	3100.
715.00	50452.	9.88	3875.
720.00	63380.	10.26	4456.
725.00	84287.	10.02	5321.
730.00	106509.	10.38	6006.
735.00	130053.	10.87	6393.
740.00	154929.	11.40	6974.
750.00	212291.	12.55	7943.
760.00	272830.	13.74	9105.
770.00	343880.	14.56	9880.
780.00	417030.	15.44	10849.
790.00	493805.	16.25	12980.
800.00	575730.	16.97	14142.
670.00	0.	0.0	0.
675.00	4827.	2.64	361.
680.00	10489.	4.38	1105.
685.00	16211.	5.81	1145.
690.00	21992.	7.05	1163.
695.00	27833.	8.18	1356.
700.00	33733.	9.22	1744.
705.00	39769.	10.05	2325.
710.00	46014.	10.82	3100.
715.00	53933.	11.53	3875.
720.00	62191.	12.25	4650.
725.00	70713.	12.97	5037.
730.00	79424.	13.69	5812.
735.00	88554.	14.29	6587.
740.00	98336.	14.86	6974.
750.00	121865.	15.78	8524.
760.00	150602.	16.39	9105.
770.00	182850.	16.90	9880.
780.00	217715.	17.38	10849.
790.00	254999.	17.83	12592.
800.00	294427.	18.27	13755.
670.00	520.	1.72	0.
675.00	3550.	1.85	600.
680.00	10656.	3.80	860.
685.00	17914.	5.29	881.
690.00	25324.	6.57	1260.
695.00	32885.	7.71	1400.
700.00	40598.	8.75	1841.
705.00	52515.	9.21	2325.
710.00	70812.	9.16	3294.
715.00	96360.	9.28	4069.
720.00	122404.	9.84	4456.
725.00	149328.	10.47	5037.

730.00	177515.	11.14	5231.
735.00	206967.	11.82	6006.
740.00	237773.	12.48	6393.
750.00	304812.	13.86	7071.
760.00	378697.	15.05	7749.
770.00	462660.	15.96	8718.
780.00	552747.	16.78	9299.
790.00	649110.	17.51	10074.
800.00	751897.	18.16	11042.
670.00	3288.	2.87	0.
675.00	6755.	4.47	719.
680.00	10400.	5.77	733.
685.00	14222.	6.88	748.
690.00	18213.	7.90	1356.
695.00	22420.	8.87	1400.
700.00	26939.	9.74	1550.
705.00	40190.	9.00	2712.
710.00	55938.	8.96	3681.
715.00	73332.	9.36	4650.
720.00	92525.	9.83	5231.
725.00	113140.	10.45	5812.
730.00	134923.	11.09	6006.
735.00	157801.	11.77	6781.
740.00	181175.	12.51	7168.
750.00	231829.	13.88	8040.
760.00	289052.	14.98	8912.
770.00	375434.	14.96	9686.
780.00	488517.	14.53	11042.
790.00	614398.	14.30	11624.
800.00	750025.	14.22	12398.
670.00	3201.	2.46	0.
675.00	7541.	4.11	726.
680.00	12224.	5.41	748.
685.00	17092.	6.70	765.
690.00	21999.	7.87	969.
695.00	26942.	8.93	1356.
700.00	31924.	9.91	1550.
705.00	37736.	10.58	2325.
710.00	44174.	11.16	3294.
715.00	52328.	11.47	3681.
720.00	63344.	11.54	4262.
725.00	76657.	11.87	4843.
730.00	90098.	12.38	5231.
735.00	103666.	12.99	5425.
740.00	117986.	13.58	5618.
750.00	149489.	14.64	6490.
760.00	183383.	15.63	6974.
770.00	239414.	15.24	7555.
780.00	320344.	14.22	8524.
790.00	414379.	13.53	8524.
800.00	516724.	13.13	8718.
670.00	199.	0.73	0.
675.00	4609.	2.61	824.
680.00	10524.	4.18	860.
685.00	17030.	5.49	897.

690.00	23965.	6.60	1163.	
695.00	31755.	7.40	1163.	
700.00	40940.	8.29	2131.	
705.00	53346.	8.93	2906.	
710.00	66565.	9.65	3681.	
715.00	80659.	10.35	4260.	
720.00	95690.	11.04	4843.	
725.00	112635.	11.58	5812.	
730.00	132472.	12.00	6587.	
735.00	155154.	12.32	6974.	
740.00	180037.	12.75	7555.	
750.00	232869.	14.02	8815.	
760.00	287804.	15.32	9977.	
770.00	364414.	15.75	11139.	
780.00	464528.	15.65	12786.	
790.00	572644.	15.75	15304.	
800.00	684010.	16.01	16660.	
670.00	2102.	1.84	0.	
675.00	7349.	3.59	1140.	
680.00	13114.	4.99	1180.	
685.00	19250.	6.18	1222.	
690.00	25781.	7.19	1550.	
695.00	33026.	8.05	1550.	
700.00	43263.	8.50	3294.	
705.00	59127.	8.69	4069.	
710.00	78862.	9.08	4100.	
715.00	99717.	9.69	6006.	
720.00	121936.	10.33	6781.	
725.00	145284.	11.00	7749.	
730.00	169650.	11.65	8912.	
735.00	194938.	12.29	9880.	
740.00	221102.	12.90	11430.	
750.00	276453.	14.11	14336.	
760.00	336316.	15.15	17241.	
770.00	418797.	15.42	20728.	
780.00	524248.	15.27	24409.	
790.00	638169.	15.28	29252.	
800.00	756809.	15.43	33901.	
670.00	1638.	1.30	0.	WATTS BAR
675.00	7657.	3.38	1362.	M 529.9
680.00	13909.	4.89	1393.	LAST X-C
685.00	21536.	5.92	1445.	
690.00	29199.	7.14	1550.	
695.00	36896.	8.26	1937.	
700.00	44629.	9.30	3874.	
705.00	55328.	9.14	4262.	
710.00	66213.	9.99	4262.	
715.00	77254.	10.82	6586.	
720.00	88450.	11.63	7361.	
725.00	99800.	12.41	8136.	
730.00	111306.	13.17	9299.	
735.00	122968.	13.91	10073.	
740.00	134784.	14.62	12398.	
750.00	159301.	16.10	16272.	
760.00	190685.	16.95	19566.	

770.00	259041.	15.45	24990.	
780.00	359023.	13.68	29445.	
790.00	471682.	12.68	34095.	
800.00	588569.	12.21	40681.	
725.00	0.	0.0	0.	MEL HILL
735.00	1299.	3.31	251.	MILE 23.1
745.00	3871.	5.64	369.	TO 0.0
755.00	6980.	7.41	560.	23 X-SEC
765.00	11545.	8.92	792.	L CLINCH
775.00	17390.	10.20	929.	
785.00	24856.	10.84	1090.	
795.00	35334.	11.81	1365.	
805.00	46345.	13.17	1485.	
815.00	57702.	14.55	1660.	
825.00	69274.	15.90	1943.	
835.00	80874.	17.24	2186.	
845.00	92474.	18.56	2466.	
855.00	104074.	19.84	2780.	
865.00	115666.	21.12	3153.	
885.00	138888.	23.68	3800.	
905.00	162080.	26.24	4546.	
925.00	185272.	28.80	5292.	
945.00	208464.	31.36	6038.	
965.00	231656.	33.92	6784.	
985.00	254848.	36.48	7530.	
720.00	0.	0.0	0.	
725.00	170.	0.74	0.	
730.00	1071.	2.44	168.	
735.00	2439.	3.81	330.	
740.00	4103.	4.95	419.	
745.00	5929.	6.14	498.	
750.00	7857.	7.15	664.	
755.00	10239.	7.89	869.	
760.00	13544.	8.31	1107.	
765.00	17919.	8.51	1290.	
770.00	22658.	8.79	1463.	
775.00	27873.	9.10	1653.	
780.00	33511.	9.36	1829.	
785.00	41462.	9.19	1994.	
790.00	50200.	9.32	2215.	
800.00	68740.	9.91	2816.	
810.00	89628.	10.60	3366.	
820.00	111133.	11.36	4187.	
830.00	132638.	12.12	4812.	
840.00	154143.	12.88	5534.	
850.00	175648.	13.64	5962.	
720.00	0.	0.0	0.	
725.00	339.	1.49	0.	
730.00	1734.	2.95	291.	
735.00	3578.	4.32	409.	
740.00	5692.	5.40	517.	
745.00	7986.	6.64	627.	
750.00	10367.	7.71	888.	
755.00	13498.	8.37	1179.	
760.00	18042.	8.41	1518.	

765.00	24292.	8.11	1788.
770.00	31042.	8.02	2061.
775.00	38355.	8.00	2377.
780.00	46292.	8.00	2671.
785.00	58067.	7.55	2897.
790.00	70392.	7.40	3123.
800.00	96692.	7.34	4213.
810.00	127267.	7.33	5174.
820.00	158792.	7.49	6551.
830.00	190317.	7.65	7566.
840.00	221842.	7.81	8731.
850.00	253567.	7.97	9330.
720.00	0.	0.0	0.
725.00	650.	1.88	59.
730.00	2076.	3.46	386.
735.00	3783.	4.79	523.
740.00	5690.	5.90	666.
745.00	8255.	6.67	824.
750.00	11104.	7.34	1146.
755.00	14798.	7.66	1503.
760.00	19863.	7.60	1903.
765.00	26819.	7.28	2229.
770.00	34188.	7.23	2567.
775.00	42000.	7.26	2927.
780.00	50288.	7.32	3285.
785.00	60691.	7.16	3609.
790.00	71600.	7.16	3786.
800.00	94938.	7.27	5092.
810.00	121338.	7.38	6226.
820.00	149138.	7.58	7715.
830.00	176938.	7.78	8856.
840.00	204738.	7.98	10293.
850.00	232538.	8.18	11069.
720.00	0.	0.0	0.
725.00	961.	2.28	118.
730.00	2418.	3.97	481.
735.00	3988.	5.27	638.
740.00	5687.	6.40	815.
745.00	8523.	6.71	1021.
750.00	11841.	6.98	1404.
755.00	16097.	6.96	1827.
760.00	21683.	6.79	2288.
765.00	29345.	6.46	2671.
770.00	37333.	6.44	3074.
775.00	45645.	6.52	3477.
780.00	54283.	6.65	3899.
785.00	63314.	6.78	4321.
790.00	72808.	6.92	4449.
800.00	93183.	7.20	5971.
810.00	115408.	7.44	7278.
820.00	139483.	7.67	8879.
830.00	163558.	7.90	10146.
840.00	187633.	8.13	11854.
850.00	211708.	8.36	12807.
720.00	0.	0.0	0.

725.00	942.	2.27	159.
730.00	2385.	3.93	416.
735.00	3968.	5.20	545.
740.00	5701.	6.27	692.
745.00	8069.	7.03	884.
750.00	10729.	7.69	1203.
755.00	14716.	7.59	1554.
760.00	20165.	7.26	1920.
765.00	26809.	7.02	2229.
770.00	33735.	7.00	2546.
775.00	40943.	7.08	2853.
780.00	48434.	7.20	3201.
785.00	56223.	7.34	3595.
790.00	64329.	7.49	3762.
800.00	82012.	7.74	4881.
810.00	101789.	7.92	5868.
820.00	123331.	8.09	7011.
830.00	144873.	8.26	7985.
840.00	166415.	8.43	9345.
850.00	187957.	8.60	10116.
720.00	0.	0.0	0.
725.00	923.	2.27	200.
730.00	2351.	3.90	352.
735.00	3948.	5.13	452.
740.00	5714.	6.14	570.
745.00	7614.	7.36	746.
750.00	9617.	8.40	1002.
755.00	13335.	8.23	1281.
760.00	18646.	7.74	1552.
765.00	24272.	7.58	1788.
770.00	30137.	7.57	2017.
775.00	36241.	7.65	2229.
780.00	42584.	7.76	2503.
785.00	49131.	7.90	2868.
790.00	55849.	8.06	3074.
800.00	70841.	8.28	3791.
810.00	88169.	8.41	4459.
820.00	107179.	8.52	5143.
830.00	126189.	8.63	5824.
840.00	145199.	8.74	6836.
850.00	164209.	8.85	7425.
720.00	346.	0.77	88.
725.00	1718.	2.88	251.
730.00	3419.	4.40	352.
735.00	5269.	5.60	454.
740.00	7270.	6.61	530.
745.00	10210.	7.30	803.
750.00	13334.	7.96	1046.
755.00	17446.	8.04	1350.
760.00	22486.	7.94	1652.
765.00	27808.	8.02	1906.
770.00	33364.	8.16	2148.
775.00	39168.	8.33	2396.
780.00	45205.	8.52	2714.
785.00	51482.	8.70	3010.

790.00	58000.	8.88	3256.
800.00	72284.	9.18	3924.
810.00	88266.	9.40	4562.
820.00	105528.	9.62	5201.
830.00	122789.	9.82	5584.
840.00	140050.	10.04	6694.
850.00	157312.	10.24	7150.
710.00	0.	0.0	0.
715.00	0.	0.0	0.
720.00	673.	1.54	177.
725.00	2514.	3.50	303.
730.00	4487.	4.91	352.
735.00	6591.	6.07	456.
740.00	8826.	7.08	489.
745.00	12807.	7.24	860.
750.00	17051.	7.53	1090.
755.00	21557.	7.84	1418.
760.00	26326.	8.15	1752.
765.00	31344.	8.45	2023.
770.00	36601.	8.74	2279.
775.00	42094.	9.01	2563.
780.00	47826.	9.27	2925.
790.00	60151.	9.71	3438.
800.00	73726.	10.07	4056.
810.00	88363.	10.40	4665.
820.00	103876.	10.71	5260.
830.00	119389.	11.02	5883.
840.00	134902.	11.33	6551.
710.00	152.	0.66	56.
715.00	780.	1.51	190.
720.00	1915.	3.00	324.
725.00	3680.	4.60	458.
730.00	5552.	5.83	490.
735.00	7527.	6.88	618.
740.00	9607.	7.80	804.
745.00	13148.	8.02	1332.
750.00	17270.	8.16	1733.
755.00	21910.	8.27	2477.
760.00	27007.	8.38	3426.
765.00	34177.	8.12	4370.
770.00	42038.	8.04	5282.
775.00	50588.	8.04	6408.
780.00	59828.	8.06	7478.
790.00	79590.	8.26	9866.
800.00	100620.	8.50	12316.
810.00	122823.	8.76	14914.
820.00	146108.	9.03	17490.
830.00	169393.	9.30	19928.
840.00	192678.	9.56	22408.
700.00	0.	0.0	0.
705.00	0.	0.0	0.
710.00	303.	1.33	0.
715.00	1560.	3.02	0.
720.00	3157.	4.46	471.
725.00	4847.	5.70	613.

730.00	6616.	6.75	629.
735.00	8463.	7.68	780.
740.00	10388.	8.51	1118.
745.00	13488.	8.79	1803.
750.00	17488.	8.78	2377.
755.00	22263.	8.70	3536.
760.00	27688.	8.62	5101.
765.00	37010.	7.80	6718.
770.00	47475.	7.35	8285.
780.00	71830.	6.85	12031.
790.00	99028.	6.80	16294.
800.00	127513.	6.93	20576.
810.00	157283.	7.13	25163.
820.00	188340.	7.35	29720.
830.00	219397.	7.57	33972.
700.00	0.	0.0	0.
705.00	0.	0.0	0.
710.00	174.	0.99	18.
715.00	1442.	2.73	78.
720.00	3305.	4.04	515.
725.00	5478.	5.41	650.
730.00	7847.	6.54	678.
735.00	10411.	7.52	832.
740.00	13170.	8.40	1202.
745.00	16689.	8.99	1764.
750.00	20846.	9.37	2303.
755.00	25576.	9.65	3378.
760.00	30820.	9.88	4848.
765.00	38169.	9.72	6804.
770.00	46214.	9.71	7919.
780.00	64392.	9.86	11550.
790.00	84490.	10.16	15845.
800.00	105733.	10.52	20114.
810.00	128056.	10.88	24750.
820.00	151396.	11.22	29381.
830.00	174738.	11.52	33624.
690.00	0.	0.0	0.
695.00	0.	0.0	0.
700.00	0.	0.0	0.
705.00	0.	0.0	0.
710.00	44.	0.65	0.
715.00	1325.	2.44	157.
720.00	3453.	3.62	560.
725.00	6109.	5.12	688.
730.00	9078.	6.32	727.
735.00	12359.	7.36	884.
740.00	15953.	8.28	1287.
745.00	19890.	9.19	1725.
750.00	24203.	9.96	2229.
755.00	28890.	10.60	3221.
760.00	33953.	11.15	4596.
770.00	44953.	12.07	7553.
780.00	56953.	12.86	11069.
790.00	69953.	13.53	15396.
800.00	83953.	14.10	19653.

810.00	98828.	14.62	24338.
820.00	114453.	15.10	29042.
690.00	0.	0.0	0.
695.00	0.	0.0	0.
700.00	0.	0.0	0.
705.00	0.	0.0	0.
710.00	297.	1.09	37.
715.00	1733.	2.94	260.
720.00	3652.	4.25	535.
725.00	5911.	5.62	622.
730.00	8432.	6.73	683.
735.00	11215.	7.69	817.
740.00	14259.	8.55	1089.
745.00	17649.	9.41	1371.
750.00	21469.	10.08	1688.
755.00	25719.	10.60	2244.
760.00	30399.	11.01	2991.
770.00	40749.	11.70	4639.
780.00	52219.	12.28	6625.
790.00	64679.	12.82	9130.
800.00	77999.	13.30	11593.
810.00	92037.	13.77	14300.
820.00	106649.	14.23	17060.
690.00	0.	0.0	0.
695.00	0.	0.0	0.
700.00	0.	0.0	0.
705.00	0.	0.0	0.
710.00	550.	1.53	75.
715.00	2141.	3.45	363.
720.00	3850.	4.89	511.
725.00	5713.	6.13	556.
730.00	7786.	7.15	638.
735.00	10070.	8.03	750.
740.00	12565.	8.82	892.
745.00	15407.	9.63	1018.
750.00	18735.	10.20	1147.
755.00	22547.	10.60	1267.
760.00	26845.	10.88	1385.
770.00	36545.	11.33	1725.
780.00	47485.	11.71	2180.
790.00	59405.	12.11	2864.
800.00	72045.	12.50	3534.
810.00	85245.	12.93	4263.
820.00	98845.	13.37	5078.
690.00	0.	0.0	0.
695.00	0.	0.0	0.
700.00	0.	0.0	0.
705.00	80.	0.40	0.
710.00	1104.	2.22	428.
715.00	2751.	3.94	727.
720.00	4508.	5.27	943.
725.00	6460.	6.44	1106.
730.00	8717.	7.39	1444.
735.00	11291.	8.20	2017.
740.00	14183.	8.92	2665.

745.00	17432.	9.70	3298.
750.00	21080.	10.32	3838.
755.00	25127.	10.81	4469.
760.00	29573.	11.21	5161.
770.00	39273.	11.93	6542.
780.00	49793.	12.59	8063.
790.00	61115.	13.21	9554.
800.00	73223.	13.76	11252.
810.00	42623.	6.47	12915.
820.00	49423.	6.69	14619.
690.00	0.	0.0	0.
695.00	0.	0.0	0.
700.00	0.	0.0	0.
705.00	160.	0.81	0.
710.00	1657.	2.91	782.
715.00	3360.	4.44	1090.
720.00	5166.	5.65	1375.
725.00	7207.	6.76	1656.
730.00	9647.	7.64	2249.
735.00	12512.	8.38	3284.
740.00	15800.	9.03	4437.
745.00	19456.	9.77	5579.
750.00	23425.	10.44	6529.
755.00	27706.	11.03	7671.
760.00	32300.	11.54	8938.
770.00	42000.	12.53	11359.
780.00	52100.	13.48	13946.
790.00	62825.	14.31	16245.
800.00	74400.	15.02	18971.
810.00	85975.	15.73	21568.
820.00	97550.	16.44	24161.
690.00	0.	0.0	0.
695.00	0.	0.0	0.
700.00	0.	0.0	0.
705.00	129.	0.61	108.
710.00	1926.	2.88	916.
715.00	3988.	4.42	1176.
720.00	6275.	5.67	1463.
725.00	8784.	6.79	1768.
730.00	11829.	7.60	2392.
735.00	15578.	8.27	3498.
740.00	20048.	8.87	4711.
745.00	25048.	9.61	5913.
750.00	30296.	10.34	6905.
755.00	35794.	11.03	8078.
760.00	41540.	11.66	9389.
770.00	54055.	12.76	11882.
780.00	68115.	13.65	14531.
790.00	83490.	14.41	16795.
800.00	99948.	15.09	19471.
810.00	116406.	15.77	22034.
820.00	132864.	16.45	24578.
690.00	0.	0.0	0.
695.00	0.	0.0	0.
700.00	0.	0.0	0.

705.00	98.	0.42	216.
710.00	2195.	2.86	1051.
715.00	4616.	4.40	1261.
720.00	7383.	5.69	1552.
725.00	10361.	6.82	1880.
730.00	14010.	7.56	2534.
735.00	18643.	8.17	3713.
740.00	24296.	8.72	4985.
745.00	30639.	9.46	6246.
750.00	37167.	10.25	7282.
755.00	43881.	11.03	8486.
760.00	50780.	11.78	9841.
770.00	66109.	13.00	12404.
780.00	84130.	13.83	15115.
790.00	104155.	14.52	17345.
800.00	125496.	15.16	19971.
810.00	146837.	15.80	22501.
820.00	168178.	16.44	24996.
690.00	0.	0.0	0.
695.00	0.	0.0	0.
700.00	383.	0.79	0.
705.00	1598.	1.88	295.
710.00	3935.	3.86	815.
715.00	6476.	5.27	959.
720.00	9234.	6.47	1149.
725.00	12234.	7.56	1389.
730.00	15801.	8.36	1817.
735.00	20093.	9.03	2544.
740.00	25127.	9.63	3326.
745.00	30675.	10.37	4095.
750.00	36423.	11.11	4728.
755.00	42370.	11.84	5431.
760.00	48517.	12.53	6227.
770.00	62181.	13.64	7759.
780.00	78192.	14.40	9370.
790.00	96604.	14.90	10686.
800.00	117475.	15.23	12193.
810.00	138346.	15.56	13652.
820.00	159217.	15.89	15096.
690.00	0.	0.0	0.
695.00	0.	0.0	0.
700.00	765.	1.58	0.
705.00	3097.	3.34	373.
710.00	5674.	4.87	579.
715.00	8336.	6.14	656.
720.00	11084.	7.25	746.
725.00	14106.	8.31	898.
730.00	17592.	9.17	1100.
735.00	21542.	9.90	1375.
740.00	25957.	10.55	1666.
745.00	30711.	11.28	1943.
750.00	35679.	11.98	2174.
755.00	40859.	12.65	2377.
760.00	46253.	13.28	2613.
770.00	58253.	14.29	3113.

780.00	72253.	14.97	3624.	
790.00	89053.	15.29	4027.	
800.00	109453.	15.31	4416.	
810.00	129853.	15.33	4803.	
820.00	150283.	15.35	5196.	
690.00	0.	0.0	0.	
695.00	0.	0.0	0.	
700.00	933.	1.68	0.	
705.00	3467.	3.41	344.	
710.00	6284.	4.87	525.	
715.00	9272.	6.08	607.	
720.00	12430.	7.13	697.	
725.00	15823.	8.16	861.	
730.00	21081.	8.69	1061.	
735.00	27488.	9.22	1296.	
740.00	34422.	9.83	1540.	
745.00	41756.	10.59	1775.	
750.00	49317.	11.35	1971.	
755.00	57101.	12.09	2151.	
760.00	65110.	12.79	2347.	
770.00	82052.	14.03	2775.	
780.00	100400.	15.04	3187.	
790.00	120653.	15.81	3546.	
800.00	143315.	16.37	3897.	
810.00	165977.	16.93	4248.	
820.00	188639.	17.49	4601.	
690.00	0.	0.0	0.	
695.00	0.	0.0	0.	
700.00	1100.	1.78	0.	
705.00	3836.	3.49	314.	
710.00	6893.	4.88	471.	
715.00	10207.	6.02	558.	
720.00	13776.	7.00	648.	
725.00	17540.	8.02	825.	
730.00	24570.	8.22	1021.	
735.00	33433.	8.55	1218.	
740.00	42886.	9.12	1414.	
745.00	52800.	9.90	1607.	
750.00	62954.	10.72	1768.	
755.00	73343.	11.53	1925.	
760.00	83966.	12.31	2082.	
770.00	105851.	13.77	2436.	
780.00	128546.	15.12	2750.	
790.00	152253.	16.34	3064.	
800.00	177176.	17.44	3379.	
810.00	202099.	18.54	3693.	
820.00	227022.	19.64	4007.	
790.00	00000.	00.00	000.	CANAL #1
792.00	1012.	1.57	512.	9 X-SECT
794.00	2048.	2.48	524.	
796.00	3108.	3.22	536.	
798.00	4192.	3.87	548.	
800.00	5300.	4.46	560.	
802.00	6432.	4.99	572.	
804.00	7588.	5.49	584.	

806.00	160000.	14.50	3000.	
808.00	170000.	15.00	3000.	
810.00	180000.	15.33	3000.	
812.00	186000.	15.66	3000.	
814.00	192000.	16.00	3000.	
816.00	198000.	16.33	3000.	
818.00	204000.	16.66	3000.	
820.00	210000.	17.00	3000.	
830.00	240000.	18.57	3000.	
840.00	270000.	20.08	3000.	
850.00				
860.00				
870.00				
790.00	00000.	00.00	000.	CANAL
792.00	1012.	1.57	512.	
794.00	2048.	2.48	524.	
796.00	3108.	3.22	536.	
798.00	4192.	3.87	548.	
800.00	5300.	4.46	560.	
802.00	6432.	4.99	572.	
804.00	7588.	5.49	584.	
806.00	20000.	5.97	1500.	
808.00	25000.	6.41	1500.	
810.00	30000.	7.37	1500.	
812.00	33000.	7.83	1500.	
814.00	36000.	8.28	1500.	
816.00	39000.	8.74	1500.	
818.00	42000.	9.19	1500.	
820.00	45000.	9.65	1500.	
830.00	60000.	11.70	1500.	
840.00	75000.	13.57	1500.	
850.00				
860.00				
870.00				
790.00	00000.	00.00	000.	SECT # 3
792.00	1012.	1.57	512.	
794.00	2048.	2.48	524.	
796.00	3108.	3.22	536.	
798.00	4192.	3.87	548.	
800.00	5300.	4.46	560.	
802.00	6432.	4.99	572.	
804.00	7588.	5.49	584.	
806.00	8768.	5.97	596.	
808.00	9972.	6.41	608.	
810.00	11200.	6.84	620.	
812.00	12452.	7.24	632.	
814.00	13728.	7.63	644.	
816.00	15028.	7.99	656.	
818.00	16352.	8.35	668.	
820.00	17700.	8.70	680.	
830.00	24800.	10.27	740.	
840.00	32500.	11.66	800.	
850.00	40800.	12.91	860.	
860.00	49700.	14.06	920.	
870.00	59200.	15.13	980.	

790.00	00000.	00.00	000.	SECT # 4
792.00	1012.	1.57	512.	
794.00	2048.	2.48	524.	
796.00	3108.	3.22	536.	
798.00	4192.	3.87	548.	
800.00	5300.	4.46	560.	
802.00	6432.	4.99	572.	
804.00	7588.	5.49	584.	
806.00	8768.	5.97	596.	
808.00	9972.	6.41	608.	
810.00	11200.	6.84	620.	
812.00	12452.	7.24	632.	
814.00	13728.	7.63	644.	
816.00	15028.	7.99	656.	
818.00	16352.	8.35	668.	
820.00	17700.	8.70	680.	
830.00	24800.	10.27	740.	
840.00	32500.	11.66	800.	
850.00	40800.	12.91	860.	
860.00	49700.	14.06	920.	
870.00	59200.	15.13	980.	
790.00	00000.	00.00	000.	SECT # 5
792.00	1012.	1.57	512.	
794.00	2048.	2.48	524.	
796.00	3108.	3.22	536.	
798.00	4192.	3.87	548.	
800.00	5300.	4.46	560.	
802.00	6432.	4.99	572.	
804.00	7588.	5.49	584.	
806.00	8768.	5.97	596.	
808.00	9972.	6.41	608.	
810.00	11200.	6.84	620.	
812.00	12452.	7.24	632.	
814.00	13728.	7.63	644.	
816.00	15028.	7.99	656.	
818.00	16352.	8.35	668.	
820.00	17700.	8.70	680.	
830.00	24800.	10.27	740.	
840.00	32500.	11.66	800.	
850.00	40800.	12.91	860.	
860.00	49700.	14.06	920.	
870.00	59200.	15.13	980.	
790.00	00000.	00.00	000.	SECT # 6
792.00	1012.	1.57	512.	
794.00	2048.	2.48	524.	
796.00	3108.	3.22	536.	
798.00	4192.	3.87	548.	
800.00	5300.	4.46	560.	
802.00	6432.	4.99	572.	
804.00	7588.	5.49	584.	
806.00	8768.	5.97	596.	
808.00	9972.	6.41	608.	
810.00	11200.	6.84	620.	
812.00	12452.	7.24	632.	
814.00	13728.	7.63	644.	

```
816.00    15028.     7.99     656.
818.00    16352.     8.35     668.
820.00    17700.     8.70     680.
830.00    24800.    10.27     740.
840.00    32500.    11.66     800.
850.00    40800.    12.91     860.
860.00    49700.    14.06     920.
870.00    59200.    15.13     980.
790.00    00000.    00.00     000.  SECT # 7
792.00     1012.     1.57     512.
794.00     2048.     2.48     524.
796.00     3108.     3.22     536.
798.00     4192.     3.87     548.
800.00     5300.     4.46     560.
802.00     6432.     4.99     572.
804.00     7588.     5.49     584.
806.00     8768.     5.97     596.
808.00     9972.     6.41     608.
810.00    11200.     6.84     620.
812.00    12452.     7.24     632.
814.00    13728.     7.63     644.
816.00    15028.     7.99     656.
818.00    16352.     8.35     668.
820.00    17700.     8.70     680.
830.00    24800.    10.27     740.
840.00    32500.    11.66     800.
850.00    40800.    12.91     860.
860.00    49700.    14.06     920.
870.00    59200.    15.13     980.
790.00    00000.    00.00     000.  SECT # 8
792.00     1012.     1.57     512.
794.00     2048.     2.48     524.
796.00     3108.     3.22     536.
798.00     4192.     3.87     548.
800.00     5300.     4.46     560.
802.00     6432.     4.99     572.
804.00     7588.     5.49     584.
806.00    20000.     5.97    1500.
808.00    25000.     6.41    1500.
810.00    30000.     7.37    1500.
812.00    33000.     7.83    1500.
814.00    36000.     8.28    1500.
816.00    39000.     8.74    1500.
818.00    42000.     9.19    1500.
820.00    45000.     9.65    1500.
830.00    60000.    11.70    1500.
840.00    75000.    13.57    1500.
850.00
860.00
870.00
790.00    00000.    00.00     000.  SECT # 9
792.00     1012.     1.57     512.
794.00     2048.     2.48     524.
796.00     3108.     3.22     536.
798.00     4192.     3.87     548.
```

800.00	5300.	4.46	560.
802.00	6432.	4.99	572.
804.00	7588.	5.49	584.
806.00	160000.	14.50	3000.
808.00	170000.	15.00	3000.
810.00	180000.	15.33	3000.
812.00	186000.	15.66	3000.
814.00	192000.	16.00	3000.
816.00	198000.	16.33	3000.
818.00	204000.	16.66	3000.
820.00	210000.	17.00	3000.
830.00	240000.	18.57	3000.
840.00	270000.	20.08	3000.
850.00			
860.00			
870.00			

4. SOCH OUTPUT

Section 4 presents an example of typical output files produced by SOCH. These output files are for the same case for used as an example in Section 3.4 to illustrate the structure of the input files.

4.1 Data Storage Files

File FLTWBF6.sto

```
          2      106     1.00  979384.   0.0083
979211.  971655.  962959.  952898.  941834.  930593.  919935.  908422.
896136.  883203.  869646.  855703.  841467.  827039.  812483.  797871.
783252.  768625.  754317.  743620.  732758.  721814.  710808.  699766.
688720.  678496.  674055.  669440.  664692.  659814.  654822.  649724.
644537.  638304.  626563.  613526.  598945.  584918.  571373.  558827.
549922.  541045.  528848.  516703.  504942.  493591.  482763.  472272.
462103.  452240.  442663.  433361.  424331.  416473.  409581.  402769.
396048.  389413.  382859.  376395.  370017.  363725.  357525.  351421.
345413.  339504.  333698.  327996.  322396.  316896.  311494.  306190.
301265.  296612.  292031.  287520.  283082.  278718.  274432.  270227.
266101.  262052.  258083.  254192.  250377.  246665.  243082.  239596.
236170.  232802.  229487.  226225.  223016.  219859.  216754.  213699.
210692.  207734.  204822.  201955.  199239.  196784.  194345.  191924.
189518.  187126.
```

File FLTWBF6.sln

```
 794.70  508712.   796.32  675596.   789.84  541154.   793.76  694783.
 787.09  562564.   791.96  719804.   783.96  593733.   788.04  735609.
 779.62  613154.   782.93  758532.   777.39  639288.   779.22  772170.
 773.17  659099.   776.92  793942.   771.68  694020.   775.65  817505.
 769.05  768864.   769.05  768935.
 769.05  896858.   767.02 1066763.   767.32  902411.   766.65 1074823.
 766.21  911987.   765.91 1084199.   765.54  921634.   765.13 1091872.
 764.12  929972.   764.70 1099056.   763.50  939061.   764.01 1106320.
 762.59  949624.   762.76 1114368.   762.69  957213.   762.06 1122565.
 761.66  963553.   761.98 1130594.   761.00  979211.   761.00  979226.
 769.96   28750.   769.96   31140.   769.88   34001.   769.88   36965.
 769.79   40310.   769.75   43755.   769.66   46579.   769.63   49516.
 769.58   52454.   769.57   55526.   769.51   61326.   769.48   67856.
 769.43   73342.   769.38   78931.   769.29   81621.   769.25   84432.
 769.20   91870.   769.16   99498.   769.15  109920.   769.10  118135.
 769.05  121544.   769.03  125110.   769.05  127996.   769.05  127988.
```

4.2 Main Output Data File

File FLTWBF6.out

```
1-------------------------------------------------------
 1/2 PMF WITH FONTANA FAILURE - 1997      (G=FLTWBLC9)
 -------------------------------------------------------

 THIS RUN STARTS ON  3-27-1997 AT TIME 15.000

         IT ENDS ON  3-31-1997 AT TIME 24.000

 ALL THE HYDROGRAPHS
           START ON  3-26-1997 AT TIME  0.000

   THE COMPUTATION TIME STEP IS  15. SECONDS
          THE PRINT INTERVAL IS  60. MINUTES
         THE COMPLETE RUN LASTS  4.4 DAY(S)


+     THE NON-BOUNDARY LINE POINTS ARE NOT PRINTED


 SOCH INPUT DATA ARE READ FROM FILE C:\PROJECTS\Bellefonte\Computer programs\Codes\SOCH\FLTWBF6.dat

 SOCH OUTPUT LISTING IS WRITTEN TO FILE C:\PROJECTS\Bellefonte\Computer programs\Codes\SOCH\FLTWBF6.out

 THE MOST D.S. HYDROGRAPH IS SAVED TO FILE C:\PROJECTS\Bellefonte\Computer programs\Codes\SOCH\FLTWBF6.sto

 THE GEOMETRY IS READ FROM FILE C:\PROJECTS\Bellefonte\Computer programs\Codes\SOCH\FLTWBLC9.geo


 NUMBER OF CHANNEL(S):  3   NUMBER OF JUNCTION(S):  1
+_____________________      _______________________

 146 CROSS SECTIONS IN GEOMETRY FILE, EACH WITH 21 ENTRIES
     THE COMPUTED ELEVATION FIRST ESTIMATED ABOVE ENTRY  5


 CHANNEL 1 HAS  17 NODES,     IT IS CHARACTERIZED BY:
+_________
```

```
 BOUNDARY CONDITIONS PRESCRIBED (AT THE BEGINNING OF RUN):
     UPSTREAM: KUBC= 1 (0:ELEVATION; 1:DISCHARGE; 2:RATING TABLE; 3:JUNCTION)
     DOWNSTRM: KDBC= 3 (IF A TABLE IS USED, IT IS TABLE NO. 0)
               KRULE= 0 (0:NO FIXED RULE OPERATION; 1:FIXED RULE REGULAR; 2:FIXED RULE PMF)

 IF A FAILURE OCCURS ,IT IS OF TYPE KTOTFL= 0 (0:FOR PARTIAL FAILURE THEN USE TABLE 4, IF NOT PRESENT, THE RUN WILL STOP;
                                              1:FOR TOTAL FAILURE, DOWNSTREAM CHANNEL NEEDED)


   KODEN=  0 (0:MANNING N CONSTANT; 1:VARY WITH ELEVATION; 2:VARY WITH DISCHARGE)

    NUTP=  0 (NUMBER OF POINTS IN THE UPSTREAM RATING TABLE)
    NDTP=  0 (NUMBER OF POINTS IN THE DOWNSTRM RATING TABLE)
   NDTP2=  0 (NO. OF PTS IN THE 2 ND DOWNSTRM  RATING TABLE)
   NDTP3=  0 (NO. OF PTS IN THE 3 RD DOWNSTRM  RATING TABLE)
   NDTP4=  0 (NO. OF PTS IN THE 4 TH DOWNSTRM  RATING TABLE)

   KUFAX=  0 KDFAX= 0 (HOURLY FAX SHEETS DISCHARGES USED RESPECTIVELY US & DS IF KUFAX=1 & KDFAX=1)
   KSTRT=  1 (0:STARTING LINES READ WITH DATA;  1:READ FROM FILE C:\PROJECTS\Bellefonte\Computer programs\Codes\SOCH\FLTWBF6.sln
)
    KEND=  0 (0:ENDING LINE NOT SAVED;  1:SAVED IN FILE NA
)



 CHANNEL 2 HAS  19 NODES,     IT IS CHARACTERIZED BY:
+_________

 BOUNDARY CONDITIONS PRESCRIBED (AT THE BEGINNING OF RUN):
     UPSTREAM: KUBC= 3 (0:ELEVATION; 1:DISCHARGE; 2:RATING TABLE; 3:JUNCTION)
     DOWNSTRM: KDBC= 2 (IF A TABLE IS USED, IT IS TABLE NO. 0)
               KRULE= 0 (0:NO FIXED RULE OPERATION; 1:FIXED RULE REGULAR; 2:FIXED RULE PMF)

 IF A FAILURE OCCURS ,IT IS OF TYPE KTOTFL= 0 (0:FOR PARTIAL FAILURE THEN USE TABLE 4, IF NOT PRESENT, THE RUN WILL STOP;
                                              1:FOR TOTAL FAILURE, DOWNSTREAM CHANNEL NEEDED)


   KODEN=  0 (0:MANNING N CONSTANT; 1:VARY WITH ELEVATION; 2:VARY WITH DISCHARGE)

    NUTP=  0 (NUMBER OF POINTS IN THE UPSTREAM RATING TABLE)
    NDTP= 15 (NUMBER OF POINTS IN THE DOWNSTRM RATING TABLE)
   NDTP2=  0 (NO. OF PTS IN THE 2 ND DOWNSTRM  RATING TABLE)
   NDTP3=  0 (NO. OF PTS IN THE 3 RD DOWNSTRM  RATING TABLE)
   NDTP4=  0 (NO. OF PTS IN THE 4 TH DOWNSTRM  RATING TABLE)

   KUFAX=  0 KDFAX= 0 (HOURLY FAX SHEETS DISCHARGES USED RESPECTIVELY US & DS IF KUFAX=1 & KDFAX=1)
```

```
   KSTRT=  1 (0:STARTING LINES READ WITH DATA;  1:READ FROM FILE C:\PROJECTS\Bellefonte\Computer programs\Codes\SOCH\FLTWBF6.sln
)
    KEND=  0 (0:ENDING LINE NOT SAVED;  1:SAVED IN FILE NA
)



 CHANNEL 3 HAS  23 NODES,     IT IS CHARACTERIZED BY:
+_________

 BOUNDARY CONDITIONS PRESCRIBED (AT THE BEGINNING OF RUN):
     UPSTREAM: KUBC= 1 (0:ELEVATION; 1:DISCHARGE; 2:RATING TABLE; 3:JUNCTION)
     DOWNSTRM: KDBC= 3 (IF A TABLE IS USED, IT IS TABLE NO. 0)
              KRULE= 0 (0:NO FIXED RULE OPERATION; 1:FIXED RULE REGULAR; 2:FIXED RULE PMF)

 IF A FAILURE OCCURS ,IT IS OF TYPE KTOTFL= 0 (0:FOR PARTIAL FAILURE THEN USE TABLE 4, IF NOT PRESENT, THE RUN WILL STOP;
                                              1:FOR TOTAL FAILURE, DOWNSTREAM CHANNEL NEEDED)


   KODEN=  0 (0:MANNING N CONSTANT; 1:VARY WITH ELEVATION; 2:VARY WITH DISCHARGE)

    NUTP=  0 (NUMBER OF POINTS IN THE UPSTREAM RATING TABLE)
    NDTP=  0 (NUMBER OF POINTS IN THE DOWNSTRM RATING TABLE)
   NDTP2=  0 (NO. OF PTS IN THE 2 ND DOWNSTRM  RATING TABLE)
   NDTP3=  0 (NO. OF PTS IN THE 3 RD DOWNSTRM  RATING TABLE)
   NDTP4=  0 (NO. OF PTS IN THE 4 TH DOWNSTRM  RATING TABLE)

   KUFAX=  0 KDFAX= 0 (HOURLY FAX SHEETS DISCHARGES USED RESPECTIVELY US & DS IF KUFAX=1 & KDFAX=1)
   KSTRT=  1 (0:STARTING LINES READ WITH DATA;  1:READ FROM FILE C:\PROJECTS\Bellefonte\Computer programs\Codes\SOCH\FLTWBF6.sln
)
    KEND=  0 (0:ENDING LINE NOT SAVED;  1:SAVED IN FILE NA
)



 THE MODEL HAS A TOTAL NUMBER OF  59 COMPUTATION NODES
+_____________________________________________________


 FOR JUNCTION 1
 UPSTREAM BRANCH IS CHANNEL 1 AND JUNCTION NODE IS NO.  17
 DOWNSTRM BRANCH IS CHANNEL 2 AND JUNCTION NODE IS NO.  18
     SIDE BRANCH IS CHANNEL 3 AND JUNCTION NODE IS NO.  59 CONSIDERED AS 0 (0:DOWNSTRM END; 1:UPSTREAM END)
 THE SIDE BRANCH IS OF TYPE 3 (1:NO SECTION; 2:ONLY ONE SECTION; 3:FULL SIDE BRANCH)
```

```
 CHANNEL   UPSTREAM MILE   DELTA X IN FEET
    1          602.30        11243.00


 CHANNEL   UPSTREAM MILE   DELTA X IN FEET
    2          568.23        11243.00


 CHANNEL   UPSTREAM MILE   DELTA X IN FEET
    3           23.10         5544.00

0TABLE 1 FOR DOWNSTREAM BOUNDARY,CHANNEL 2

    ELEVATION  DISCHARGE

      720.00      45000.
      725.00     110000.
      730.00     200000.
      735.00     304000.
      740.00     420000.
      744.00     540000.
      745.00     560000.
      747.00     620000.
      747.90     640000.
      752.00     679000.
      755.00     755000.
      760.00     934000.
      763.50    1093000.
      765.00    1188000.
      767.00    1309000.



 87 SECTIONS OMITTED,     SECTIONS:
   1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20
  21   22   23   24   25   26   27   28   29   30   31   32   33   34   35   36   37   38   39   40
  41   42   43   44   45   46   47   48   49   50   51   52   53   54   55   56   57   58   59   60
  61   62   63   64   65   66   67   68   69   70   71   72   73   74   75   76   77   78  138  139
 140  141  142  143  144  145  146

 ALL THE HYDROGRAPHS START ON   3-26-1997 AT TIME  0.000          SKIP  39.0 HOURS
+____________________________


 PRESCRIBED UPSTREAM BOUNDARY, CHANNEL  1

     DISCHARGE   HOURS      DAY    TIME
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0.	0.00	26	0.00
504944.	39.00	27	15.00
440000.	42.00	27	18.00
390000.	48.00	27	24.00
350000.	54.00	28	6.00
320000.	60.00	28	12.00
290000.	66.00	28	18.00
270000.	72.00	28	24.00
230000.	84.00	29	12.00
190000.	96.00	29	24.00
160000.	108.00	30	12.00
130000.	126.00	31	6.00
100000.	144.00	31	24.00

PRESCRIBED UPSTREAM BOUNDARY, CHANNEL 3

DISCHARGE	HOURS	DAY	TIME
38500.	0.00	26	0.00
35500.	12.00	26	12.00
34000.	24.00	26	24.00
33500.	35.00	27	11.00
32500.	36.00	27	12.00
17500.	48.00	27	24.00
12500.	54.00	28	6.00
11000.	60.00	28	12.00
9500.	66.00	28	18.00
9500.	144.00	31	24.00

ROUGHNESS FACTORS IN CHANNEL 1

0.0280	0.0280	0.0210	0.0240	0.0310	0.0340	0.0395	0.0365
0.0400	0.0420	0.0400	0.0340	0.0430	0.0420	0.0380	0.0360
0.0300	0.0000						

ROUGHNESS FACTORS IN CHANNEL 2

0.0300	0.0310	0.0260	0.0270	0.0295	0.0295	0.0285	0.0270
0.0300	0.0310	0.0320	0.0310	0.0320	0.0310	0.0265	0.0270
0.0320	0.0315	0.0315	0.0000				

ROUGHNESS FACTORS IN CHANNEL 3

0.0305	0.0305	0.0300	0.0290	0.0290	0.0240	0.0220	0.0220
0.0220	0.0220	0.0220	0.0220	0.0260	0.0260	0.0225	0.0225

```
    0.0250     0.0250     0.0245     0.0250     0.0265     0.0260     0.0230     0.0000
NUMBER OF CONCENTRATED LOCALS:  2;  NUMBER OF DISTRIBUTED LOCALS:  3

      CONCENTRATED LOCAL NO. 1 COMES IN CHANNEL 3 AT MILE  12.000

      CONCENTRATED LOCAL NO. 2 COMES IN CHANNEL 3 AT MILE   4.400

      DISTRIBUTED LOCAL  NO. 1 COMES IN CHANNEL 1 BETWEEN MILES 602.300  & 568.300

      DISTRIBUTED LOCAL  NO. 2 COMES IN CHANNEL 2 BETWEEN MILES 568.230  & 530.000

      DISTRIBUTED LOCAL  NO. 3 COMES IN CHANNEL 3 BETWEEN MILES  23.100  &   0.100


CONCENTRATED LOCAL INFLOW NO.  1      THIS LOCAL INFLOW OCCURS IN REACH  45

    DISCHARGE   HOURS      DAY    TIME

       4300.     0.00      26     0.00
       3375.     6.00      26     6.00
       1825.    18.00      26    18.00
        900.    30.00      27     6.00
        475.    42.00      27    18.00
        350.    72.00      28    24.00
        350.   144.00      31    24.00

CONCENTRATED LOCAL INFLOW NO.  2      THIS LOCAL INFLOW OCCURS IN REACH  52

    DISCHARGE   HOURS      DAY    TIME

       5600.     0.00      26     0.00
       4800.     6.00      26     6.00
       3200.    18.00      26    18.00
       2400.    30.00      27     6.00
       2400.    42.00      27    18.00
       2400.    72.00      28    24.00
       2400.   144.00      31    24.00

DISTRIBUTED LOCAL INFLOW NO.  1      THIS LOCAL INFLOW OCCURS IN 16 REACHES:   1 THRU  16,   34.00 MILES

    DISCHARGE   HOURS      DAY    TIME

       9500.     0.00      26     0.00
       7850.     6.00      26     6.00
       4700.    18.00      26    18.00
       2350.    30.00      27     6.00
       1125.    42.00      27    18.00
        750.    72.00      28    24.00
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        750.   144.00      31    24.00

 DISTRIBUTED LOCAL INFLOW NO.  2      THIS LOCAL INFLOW OCCURS IN 18 REACHES:  17 THRU  34,   38.23 MILES

     DISCHARGE   HOURS      DAY    TIME

       12800.     0.00      26     0.00
       10600.     6.00      26     6.00
        6300.    18.00      26    18.00
        3175.    30.00      27     6.00
        1575.    42.00      27    18.00
        1000.    72.00      28    24.00
        1000.   144.00      31    24.00

 DISTRIBUTED LOCAL INFLOW NO.  3      THIS LOCAL INFLOW OCCURS IN 22 REACHES:  35 THRU  56,   23.00 MILES

     DISCHARGE   HOURS      DAY    TIME

       49500.     0.00      26     0.00
       48700.     6.00      26     6.00
       49200.    18.00      26    18.00
       48000.    30.00      27     6.00
       39500.    42.00      27    18.00
       13000.    72.00      28    24.00
        6500.   144.00      31    24.00
0THIRD LINE LOCAL INFLOWS
      89.64      89.64      89.64      89.64      89.64      89.64      89.64      89.64
      89.64      89.64      89.64      89.64      89.64      89.64      89.64      86.70
     110.00     110.00     110.00     110.00     110.00     110.00     110.00     110.00
     110.00     110.00     110.00     110.00     110.00     110.00     110.00     110.00
     110.00     104.92    1900.27    1900.27    1900.27    1900.27    1900.27    1900.27
    1900.27    1900.27    1900.27    1900.27    2481.52    1900.27    1900.27    1900.27
    1900.27    1900.27    1900.27    4300.27    1900.27    1900.27    1900.27    1719.29


 THE INITIAL CONDITIONS ARE:
+____________________________

0DATE   3-27-97      1/2 PMF WITH FONTANA FAILURE - 1997      (G=FLTWBLC9)


     TIME 15.0000    ELEVATION  DISCHARGE  VELOCITY  AREA       WIDTH    R(2/3)

     MILE  602.30      794.70     508712.     4.38     116198.     4421.    12.30
     MILE  598.04      789.84     541154.     7.03      76992.     2510.     9.90
     MILE  593.78      787.09     562564.     5.63      99874.     3568.    10.74
     MILE  589.52      783.96     593733.     6.63      89531.     2478.    13.67
     MILE  585.27      779.62     613154.     7.39      82944.     4233.    12.68
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MILE	581.01	777.39	639288.	6.32	101223.	2843.	14.60
MILE	576.75	773.17	659099.	5.91	111535.	6488.	13.96
MILE	572.49	771.68	694020.	3.98	174477.	8008.	13.53
MILE	568.23	769.05	768864.	10.97	70101.	4982.	15.06
MILE	568.23	769.05	896858.	12.79	70101.	4982.	15.06
MILE	563.97	767.32	902411.	5.73	157413.	4598.	14.66
MILE	559.71	766.21	911987.	5.53	164886.	6303.	15.90
MILE	555.45	765.54	921634.	3.74	246100.	5617.	12.41
MILE	551.20	764.12	929972.	3.78	246105.	6553.	14.61
MILE	546.94	763.50	939061.	4.39	213722.	7381.	16.53
MILE	542.68	762.59	949624.	5.99	158607.	9306.	16.51
MILE	538.42	762.69	957213.	3.08	310811.	9120.	14.93
MILE	534.16	761.66	963553.	3.21	299808.	10170.	15.38
MILE	529.90	761.00	979211.	4.97	196831.	20108.	16.69
MILE	23.10	769.96	28750.	2.01	14321.	860.	9.58
MILE	21.00	769.88	34001.	1.10	30862.	2054.	8.02
MILE	18.90	769.79	40310.	1.09	36948.	3057.	6.43
MILE	16.80	769.66	46579.	1.57	29693.	2001.	7.56
MILE	14.70	769.58	52454.	1.45	36132.	2257.	8.71
MILE	12.60	769.51	61326.	1.32	46298.	8131.	7.37
MILE	10.50	769.43	73342.	1.66	44283.	7384.	12.02
MILE	8.40	769.29	81621.	2.28	35787.	1701.	11.29
MILE	6.30	769.20	91870.	2.23	41179.	11165.	12.45
MILE	4.20	769.15	109920.	1.70	64746.	12186.	12.90
MILE	2.10	769.05	121544.	2.13	57061.	3065.	14.20
MILE	0.00	769.05	127996.	1.23	103718.	2402.	13.64

TIME	15.0042	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)
MILE	600.17	796.32	675596.	8.01	84363.	3819.	10.69
MILE	595.91	793.76	694783.	9.30	74699.	2568.	12.79
MILE	591.65	791.96	719804.	5.76	124903.	3970.	11.39
MILE	587.39	788.04	735609.	7.13	103179.	2754.	12.72
MILE	583.14	782.93	758532.	5.58	135877.	4489.	14.85
MILE	578.88	779.22	772170.	8.90	86805.	4186.	14.54
MILE	574.62	776.92	793942.	3.88	204623.	8702.	12.13
MILE	570.36	775.65	817505.	4.22	193862.	20812.	14.91
MILE	566.10	767.02	1066763.	9.14	116724.	3331.	14.58
MILE	561.84	766.65	1074823.	6.47	166046.	6036.	16.19
MILE	557.58	765.91	1084199.	4.78	226819.	6653.	14.56
MILE	553.32	765.13	1091872.	5.08	215139.	6259.	11.48
MILE	549.07	764.70	1099056.	3.84	285882.	7303.	15.97

MILE	544.81	764.01	1106320.	3.68	300321.	9416.	14.07
MILE	540.55	762.76	1114368.	2.78	401102.	8016.	15.31
MILE	536.29	762.06	1122565.	5.78	194062.	7094.	15.48
MILE	532.03	761.98	1130594.	3.21	351684.	17931.	15.18
MILE	22.05	769.96	31140.	1.38	22617.	1462.	8.79
MILE	19.95	769.88	36965.	1.09	33988.	2559.	7.23
MILE	17.85	769.75	43755.	1.31	33344.	2530.	6.99
MILE	15.75	769.63	49516.	1.50	32917.	2130.	8.15
MILE	13.65	769.57	55526.	1.34	41290.	5204.	8.04
MILE	11.55	769.48	67856.	1.50	45315.	7803.	9.70
MILE	9.45	769.38	78931.	1.97	40053.	4537.	11.65
MILE	7.35	769.25	84432.	2.19	38489.	6438.	11.87
MILE	5.25	769.16	99498.	1.88	52949.	11673.	12.67
MILE	3.15	769.10	118135.	1.94	60894.	7621.	13.54
MILE	1.05	769.03	125110.	1.56	80349.	2733.	13.91

0DATE 3-27-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	16.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	793.40	485808.	4.32	112480.	4270.	12.26	0.0280	167.	83.	0.15
MILE	598.04	788.66	515181.	6.97	73872.	2441.	9.89	0.0210	167.	79.	0.22
MILE	593.78	786.01	534815.	5.49	97366.	3527.	10.67	0.0310	167.	76.	0.18
MILE	589.52	782.98	564310.	6.43	87786.	2440.	13.57	0.0395	167.	73.	0.19
MILE	585.27	778.78	582577.	7.17	81257.	4168.	12.62	0.0400	167.	69.	0.29
MILE	581.01	776.64	608057.	6.09	99799.	2825.	14.49	0.0400	167.	87.	0.18
MILE	576.75	772.65	627900.	5.69	110277.	6376.	13.90	0.0430	167.	83.	0.24
MILE	572.49	771.21	663411.	3.84	172716.	7990.	13.48	0.0380	167.	81.	0.15
MILE	568.23	768.72	741218.	10.64	69657.	4963.	15.02	0.0300	164.	79.	0.50
MILE	568.23	768.72	869244.	12.48	69657.	4963.	15.02	0.0300	205.	79.	0.59
MILE	563.97	767.03	875317.	5.59	156561.	4592.	14.62	0.0260	205.	77.	0.17
MILE	559.71	765.96	885679.	5.39	164190.	6272.	15.86	0.0295	205.	96.	0.19
MILE	555.45	765.30	896982.	3.67	244337.	5597.	12.40	0.0285	205.	95.	0.10
MILE	551.20	763.92	907114.	3.70	244920.	6545.	14.60	0.0300	205.	94.	0.11
MILE	546.94	763.32	917845.	4.31	213065.	7360.	16.51	0.0320	205.	93.	0.14
MILE	542.68	762.43	931214.	5.89	158097.	9293.	16.51	0.0320	205.	92.	0.25
MILE	538.42	762.51	941646.	3.04	309336.	9106.	14.93	0.0265	205.	93.	0.09
MILE	534.16	761.50	950318.	3.18	298626.	10151.	15.37	0.0320	205.	91.	0.10
MILE	529.90	760.83	971655.	4.96	195767.	20015.	16.74	0.0315	200.	91.	0.28
MILE	23.10	769.62	27500.	1.95	14124.	855.	9.53	0.0305	3736.	45.	0.08

MILE	21.00	769.55	32879.	1.08	30367.	2036.	8.02	0.0300	3736.	50.	0.05
MILE	18.90	769.45	39295.	1.08	36340.	3030.	6.43	0.0290	3736.	49.	0.06
MILE	16.80	769.33	45779.	1.56	29268.	1986.	7.56	0.0220	3736.	49.	0.07
MILE	14.70	769.25	51653.	1.44	35764.	2240.	8.69	0.0220	3736.	59.	0.06
MILE	12.60	769.18	60736.	1.33	45523.	8028.	7.38	0.0220	4282.	69.	0.10
MILE	10.50	769.10	73128.	1.67	43899.	7287.	11.99	0.0260	3736.	79.	0.12
MILE	8.40	768.96	81492.	2.30	35437.	1690.	11.27	0.0225	3736.	79.	0.09
MILE	6.30	768.87	91870.	2.25	40841.	11085.	12.42	0.0250	3736.	79.	0.21
MILE	4.20	768.82	110233.	1.72	64219.	12101.	12.86	0.0245	6136.	79.	0.13
MILE	2.10	768.72	121760.	2.15	56648.	3049.	14.16	0.0265	3736.	79.	0.09
MILE	0.00	768.72	128027.	1.24	102982.	2391.	13.59	0.0230	3558.	79.	0.03

0DATE 3-27-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	17.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	792.06	462904.	4.26	108742.	4115.	12.23	0.0280	154.	82.	0.15
MILE	598.04	787.46	492228.	6.95	70814.	2371.	9.89	0.0210	154.	77.	0.22
MILE	593.78	784.94	511624.	5.39	94930.	3485.	10.59	0.0310	154.	75.	0.18
MILE	589.52	782.01	540755.	6.28	86069.	2403.	13.47	0.0395	154.	72.	0.18
MILE	585.27	777.95	558501.	7.02	79610.	4104.	12.55	0.0400	154.	68.	0.28
MILE	581.01	775.91	583590.	5.93	98414.	2807.	14.39	0.0400	154.	86.	0.18
MILE	576.75	772.10	603123.	5.53	108984.	6260.	13.85	0.0430	154.	82.	0.23
MILE	572.49	770.72	638631.	3.74	170880.	7971.	13.43	0.0380	154.	81.	0.14
MILE	568.23	768.35	716792.	10.36	69163.	4941.	14.98	0.0300	151.	78.	0.49
MILE	568.23	768.35	846909.	12.25	69163.	4941.	14.98	0.0300	190.	78.	0.58
MILE	563.97	766.71	853639.	5.49	155607.	4586.	14.56	0.0260	190.	77.	0.17
MILE	559.71	765.67	865444.	5.30	163377.	6235.	15.82	0.0295	190.	96.	0.18
MILE	555.45	765.03	878251.	3.62	242290.	5573.	12.40	0.0285	190.	95.	0.10
MILE	551.20	763.68	889391.	3.65	243446.	6536.	14.60	0.0300	190.	94.	0.11
MILE	546.94	763.08	901512.	4.25	212214.	7332.	16.48	0.0320	190.	93.	0.14
MILE	542.68	762.21	916832.	5.82	157417.	9276.	16.50	0.0320	190.	92.	0.25
MILE	538.42	762.29	928184.	3.02	307538.	9090.	14.93	0.0265	190.	92.	0.09
MILE	534.16	761.30	938269.	3.16	297147.	10128.	15.37	0.0320	190.	91.	0.10
MILE	529.90	760.64	962959.	4.95	194584.	19912.	16.78	0.0315	186.	91.	0.28
MILE	23.10	769.26	26250.	1.89	13912.	850.	9.49	0.0305	3671.	44.	0.08
MILE	21.00	769.19	31573.	1.06	29838.	2017.	8.01	0.0300	3671.	49.	0.05
MILE	18.90	769.09	37983.	1.06	35703.	3001.	6.42	0.0290	3671.	49.	0.05
MILE	16.80	768.98	44438.	1.54	28820.	1970.	7.55	0.0220	3671.	49.	0.07
MILE	14.70	768.90	50347.	1.42	35381.	2223.	8.67	0.0220	3671.	59.	0.06
MILE	12.60	768.83	59547.	1.33	44724.	7919.	7.40	0.0220	4182.	69.	0.10
MILE	10.50	768.75	72175.	1.66	43497.	7185.	11.96	0.0260	3671.	79.	0.12

MILE	8.40	768.61	80835.	2.30	35070.	1678.	11.25	0.0225	3671.	79.	0.09
MILE	6.30	768.51	91638.	2.26	40483.	10999.	12.39	0.0250	3671.	79.	0.21
MILE	4.20	768.46	111093.	1.75	63652.	12010.	12.82	0.0245	6071.	78.	0.13
MILE	2.10	768.36	123455.	2.20	56198.	3031.	14.13	0.0265	3671.	78.	0.09
MILE	0.00	768.35	130117.	1.27	102164.	2378.	13.54	0.0230	3497.	78.	0.03

0DATE 3-27-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	18.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	790.70	440000.	4.19	105029.	3956.	12.19	0.0280	141.	81.	0.14
MILE	598.04	786.24	469218.	6.92	67835.	2301.	9.90	0.0210	141.	76.	0.22
MILE	593.78	783.85	488464.	5.28	92502.	3443.	10.51	0.0310	141.	74.	0.18
MILE	589.52	781.01	517172.	6.13	84329.	2364.	13.37	0.0395	141.	71.	0.18
MILE	585.27	777.11	534494.	6.86	77949.	4038.	12.49	0.0400	141.	67.	0.28
MILE	581.01	775.16	559329.	5.77	96996.	2789.	14.29	0.0400	141.	85.	0.17
MILE	576.75	771.54	578727.	5.38	107647.	6140.	13.79	0.0430	141.	82.	0.23
MILE	572.49	770.21	614320.	3.64	168968.	7951.	13.37	0.0380	141.	80.	0.14
MILE	568.23	767.96	693198.	10.10	68628.	4918.	14.94	0.0300	139.	78.	0.48
MILE	568.23	767.96	825557.	12.03	68628.	4918.	14.94	0.0300	175.	78.	0.57
MILE	563.97	766.35	832885.	5.39	154548.	4579.	14.51	0.0260	175.	76.	0.16
MILE	559.71	765.34	845879.	5.21	162468.	6194.	15.77	0.0295	175.	95.	0.18
MILE	555.45	764.72	859317.	3.58	239970.	5545.	12.40	0.0285	175.	95.	0.10
MILE	551.20	763.40	871530.	3.60	241761.	6525.	14.60	0.0300	175.	93.	0.10
MILE	546.94	762.82	885174.	4.19	211262.	7302.	16.45	0.0320	175.	93.	0.14
MILE	542.68	761.96	901818.	5.76	156647.	9257.	16.48	0.0320	175.	92.	0.25
MILE	538.42	762.04	914793.	2.99	305487.	9070.	14.94	0.0265	175.	92.	0.09
MILE	534.16	761.07	925769.	3.13	295495.	10101.	15.36	0.0320	175.	91.	0.10
MILE	529.90	760.42	952898.	4.93	193222.	19792.	16.84	0.0315	171.	90.	0.28
MILE	23.10	768.88	25000.	1.83	13699.	845.	9.44	0.0305	3607.	44.	0.08
MILE	21.00	768.82	30311.	1.03	29304.	1996.	8.01	0.0300	3607.	49.	0.05
MILE	18.90	768.73	36838.	1.05	35064.	2971.	6.42	0.0290	3607.	49.	0.05
MILE	16.80	768.61	43343.	1.53	28361.	1953.	7.55	0.0220	3607.	49.	0.07
MILE	14.70	768.53	49407.	1.41	34981.	2204.	8.65	0.0220	3607.	59.	0.06
MILE	12.60	768.46	58963.	1.34	43886.	7802.	7.42	0.0220	4082.	68.	0.10
MILE	10.50	768.38	72164.	1.68	43060.	7073.	11.92	0.0260	3607.	78.	0.12
MILE	8.40	768.23	81014.	2.34	34671.	1665.	11.23	0.0225	3607.	78.	0.09
MILE	6.30	768.13	92319.	2.30	40090.	10905.	12.35	0.0250	3607.	78.	0.21
MILE	4.20	768.07	112508.	1.78	63032.	11910.	12.77	0.0245	6007.	78.	0.14
MILE	2.10	767.96	125498.	2.25	55706.	3011.	14.09	0.0265	3607.	78.	0.09
MILE	0.00	767.96	132360.	1.31	101278.	2364.	13.48	0.0230	3435.	78.	0.04

ODATE 3-27-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME 19.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE 602.30	789.54	431667.	4.24	101748.	3864.	12.17	0.0280	139.	80.	0.15
MILE 598.04	785.13	454539.	6.97	65225.	2236.	9.93	0.0210	139.	75.	0.23
MILE 593.78	782.80	470836.	5.22	90184.	3402.	10.44	0.0310	139.	73.	0.18
MILE 589.52	780.02	495753.	6.00	82620.	2326.	13.26	0.0395	139.	70.	0.18
MILE 585.27	776.26	511355.	6.70	76295.	3972.	12.42	0.0400	139.	66.	0.27
MILE 581.01	774.39	535599.	5.61	95556.	2770.	14.18	0.0400	139.	84.	0.17
MILE 576.75	770.96	554653.	5.22	106263.	6016.	13.73	0.0430	139.	81.	0.22
MILE 572.49	769.68	590202.	3.54	166912.	7918.	13.32	0.0380	139.	80.	0.14
MILE 568.23	767.53	669746.	9.84	68061.	4894.	14.89	0.0300	137.	78.	0.47
MILE 568.23	767.53	804055.	11.81	68061.	4894.	14.89	0.0300	173.	78.	0.56
MILE 563.97	765.96	811919.	5.29	153413.	4572.	14.45	0.0260	173.	76.	0.16
MILE 559.71	764.99	825706.	5.11	161485.	6149.	15.72	0.0295	173.	95.	0.18
MILE 555.45	764.38	840140.	3.54	237473.	5516.	12.39	0.0285	173.	94.	0.10
MILE 551.20	763.09	853328.	3.56	239930.	6513.	14.59	0.0300	173.	93.	0.10
MILE 546.94	762.53	867898.	4.13	210214.	7268.	16.42	0.0320	173.	93.	0.14
MILE 542.68	761.69	886043.	5.69	155801.	9236.	16.47	0.0320	173.	92.	0.24
MILE 538.42	761.77	900197.	2.97	303242.	9049.	14.94	0.0265	173.	92.	0.09
MILE 534.16	760.82	912123.	3.11	293665.	10072.	15.35	0.0320	173.	91.	0.10
MILE 529.90	760.17	941834.	4.91	191733.	19659.	16.90	0.0315	169.	90.	0.28
MILE 23.10	768.48	23750.	1.76	13466.	840.	9.39	0.0305	3526.	43.	0.08
MILE 21.00	768.41	29130.	1.01	28727.	1974.	8.01	0.0300	3526.	48.	0.05
MILE 18.90	768.32	35861.	1.04	34378.	2939.	6.41	0.0290	3526.	48.	0.05
MILE 16.80	768.20	42535.	1.53	27867.	1935.	7.54	0.0220	3526.	48.	0.07
MILE 14.70	768.13	48740.	1.41	34548.	2183.	8.63	0.0220	3526.	58.	0.06
MILE 12.60	768.06	58635.	1.36	42998.	7676.	7.45	0.0220	3997.	68.	0.10
MILE 10.50	767.97	72323.	1.70	42593.	6953.	11.88	0.0260	3526.	78.	0.12
MILE 8.40	767.81	81449.	2.38	34245.	1651.	11.21	0.0225	3526.	78.	0.09
MILE 6.30	767.71	93118.	2.35	39671.	10805.	12.31	0.0250	3526.	78.	0.22
MILE 4.20	767.65	113956.	1.83	62373.	11802.	12.72	0.0245	5926.	78.	0.14
MILE 2.10	767.54	127353.	2.31	55183.	2990.	14.05	0.0265	3526.	78.	0.09
MILE 0.00	767.53	134309.	1.34	100335.	2349.	13.42	0.0230	3358.	78.	0.04

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TIME 20.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE

MILE	602.30	788.53	423333.	4.29	98650.	3841.	12.15	0.0280	138.	79.	0.15
MILE	598.04	784.16	443469.	7.04	63025.	2180.	9.96	0.0210	138.	74.	0.23
MILE	593.78	781.87	457878.	5.19	88181.	3367.	10.37	0.0310	138.	72.	0.18
MILE	589.52	779.14	479494.	5.92	81050.	2258.	13.17	0.0395	138.	69.	0.17
MILE	585.27	775.47	493108.	6.59	74785.	3911.	12.37	0.0400	138.	65.	0.27
MILE	581.01	773.67	515488.	5.47	94203.	2753.	14.08	0.0400	138.	84.	0.16
MILE	576.75	770.37	533368.	5.08	104891.	5891.	13.67	0.0430	138.	80.	0.21
MILE	572.49	769.13	567947.	3.45	164785.	7876.	13.26	0.0380	138.	79.	0.13
MILE	568.23	767.09	647059.	9.59	67467.	4868.	14.85	0.0300	136.	77.	0.45
MILE	568.23	767.09	782591.	11.60	67467.	4868.	14.85	0.0300	171.	77.	0.55
MILE	563.97	765.56	790802.	5.20	152212.	4564.	14.38	0.0260	171.	76.	0.16
MILE	559.71	764.61	805289.	5.02	160439.	6102.	15.67	0.0295	171.	95.	0.17
MILE	555.45	764.01	820605.	3.49	234827.	5484.	12.39	0.0285	171.	94.	0.09
MILE	551.20	762.76	834579.	3.51	237974.	6500.	14.59	0.0300	171.	93.	0.10
MILE	546.94	762.21	850057.	4.07	209085.	7231.	16.38	0.0320	171.	92.	0.13
MILE	542.68	761.40	869582.	5.61	154887.	9213.	16.46	0.0320	171.	91.	0.24
MILE	538.42	761.47	884756.	2.94	300819.	9026.	14.95	0.0265	171.	91.	0.09
MILE	534.16	760.54	897877.	3.08	291671.	10040.	15.34	0.0320	171.	91.	0.10
MILE	529.90	759.90	930593.	4.89	190373.	19535.	16.94	0.0315	167.	90.	0.28
MILE	23.10	768.04	22500.	1.70	13215.	834.	9.33	0.0305	3445.	43.	0.08
MILE	21.00	767.97	27907.	0.99	28114.	1950.	8.02	0.0300	3445.	48.	0.05
MILE	18.90	767.89	34740.	1.03	33652.	2904.	6.41	0.0290	3445.	48.	0.05
MILE	16.80	767.77	41525.	1.52	27343.	1915.	7.54	0.0220	3445.	48.	0.07
MILE	14.70	767.69	47790.	1.40	34085.	2161.	8.60	0.0220	3445.	58.	0.06
MILE	12.60	767.62	57930.	1.38	42065.	7539.	7.48	0.0220	3912.	68.	0.10
MILE	10.50	767.53	72063.	1.71	42093.	6824.	11.85	0.0260	3445.	78.	0.12
MILE	8.40	767.37	81357.	2.41	33794.	1636.	11.19	0.0225	3445.	77.	0.09
MILE	6.30	767.27	93404.	2.38	39230.	10698.	12.26	0.0250	3445.	77.	0.22
MILE	4.20	767.21	114856.	1.86	61678.	11689.	12.67	0.0245	5845.	77.	0.14
MILE	2.10	767.09	128546.	2.35	54636.	2967.	14.00	0.0265	3445.	77.	0.10
MILE	0.00	767.09	135532.	1.36	99349.	2333.	13.36	0.0230	3281.	77.	0.04

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TIME	21.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	787.63	415000.	4.33	95926.	3820.	12.13	0.0280	136.	78.	0.15
MILE	598.04	783.27	433274.	7.09	61078.	2128.	9.99	0.0210	136.	73.	0.23
MILE	593.78	781.03	446260.	5.17	86391.	3334.	10.31	0.0310	136.	71.	0.18
MILE	589.52	778.33	465682.	5.85	79632.	2196.	13.09	0.0395	136.	68.	0.17
MILE	585.27	774.75	477864.	6.51	73449.	3875.	12.30	0.0400	136.	65.	0.26

MILE	581.01	773.00	498892.	5.37	92949.	2737.	13.98	0.0400	136.	83.	0.16
MILE	576.75	769.81	515717.	4.98	103544.	5778.	13.61	0.0430	136.	80.	0.21
MILE	572.49	768.60	549139.	3.38	162691.	7834.	13.20	0.0380	136.	79.	0.13
MILE	568.23	766.63	626599.	9.37	66857.	4841.	14.80	0.0300	134.	77.	0.44
MILE	568.23	766.63	761658.	11.39	66857.	4841.	14.80	0.0300	169.	77.	0.54
MILE	563.97	765.13	770158.	5.10	150964.	4556.	14.31	0.0260	169.	75.	0.16
MILE	559.71	764.22	785187.	4.93	159343.	6052.	15.61	0.0295	169.	94.	0.17
MILE	555.45	763.63	801134.	3.45	232063.	5451.	12.39	0.0285	169.	94.	0.09
MILE	551.20	762.41	815873.	3.46	235904.	6486.	14.59	0.0300	169.	92.	0.10
MILE	546.94	761.88	832227.	4.00	207876.	7192.	16.34	0.0320	169.	92.	0.13
MILE	542.68	761.08	853243.	5.54	153898.	9188.	16.44	0.0320	169.	91.	0.24
MILE	538.42	761.15	869916.	2.92	298191.	9001.	14.95	0.0265	169.	91.	0.09
MILE	534.16	760.23	884321.	3.05	289469.	10004.	15.33	0.0320	169.	90.	0.10
MILE	529.90	759.61	919935.	4.86	189401.	19437.	16.92	0.0315	165.	90.	0.27
MILE	23.10	767.57	21250.	1.64	12951.	827.	9.27	0.0305	3365.	43.	0.07
MILE	21.00	767.50	26662.	0.97	27476.	1925.	8.02	0.0300	3365.	48.	0.05
MILE	18.90	767.42	33555.	1.02	32902.	2866.	6.41	0.0290	3365.	47.	0.05
MILE	16.80	767.30	40403.	1.51	26799.	1894.	7.54	0.0220	3365.	47.	0.07
MILE	14.70	767.23	46697.	1.39	33600.	2137.	8.57	0.0220	3365.	57.	0.06
MILE	12.60	767.16	56975.	1.39	41107.	7394.	7.52	0.0220	3827.	67.	0.10
MILE	10.50	767.07	71323.	1.72	41570.	6688.	11.80	0.0260	3365.	77.	0.12
MILE	8.40	766.91	80670.	2.42	33326.	1620.	11.16	0.0225	3365.	77.	0.09
MILE	6.30	766.81	92793.	2.39	38772.	10586.	12.22	0.0250	3365.	77.	0.22
MILE	4.20	766.75	114378.	1.88	60959.	11571.	12.62	0.0245	5765.	77.	0.14
MILE	2.10	766.63	128103.	2.37	54074.	2944.	13.96	0.0265	3365.	77.	0.10
MILE	0.00	766.63	135059.	1.37	98335.	2317.	13.29	0.0230	3204.	77.	0.04

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TIME	22.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	786.79	406667.	4.35	93450.	3800.	12.12	0.0280	135.	77.	0.15
MILE	598.04	782.43	423560.	7.14	59306.	2079.	10.04	0.0210	135.	72.	0.24
MILE	593.78	780.24	435686.	5.14	84732.	3303.	10.26	0.0310	135.	70.	0.18
MILE	589.52	777.58	453352.	5.79	78311.	2138.	13.01	0.0395	135.	68.	0.17
MILE	585.27	774.07	464419.	6.43	72264.	3875.	12.23	0.0400	135.	64.	0.26
MILE	581.01	772.36	484449.	5.28	91765.	2721.	13.89	0.0400	135.	82.	0.16
MILE	576.75	769.25	500464.	4.90	102190.	5682.	13.55	0.0430	135.	79.	0.20
MILE	572.49	768.06	532672.	3.32	160626.	7793.	13.14	0.0380	135.	78.	0.13
MILE	568.23	766.16	608077.	9.18	66237.	4814.	14.74	0.0300	132.	76.	0.44

MILE	568.23	766.16	741612.	11.20	66237.	4814.	14.74	0.0300	167.	76.	0.53
MILE	563.97	764.69	750393.	5.01	149675.	4547.	14.24	0.0260	167.	75.	0.15
MILE	559.71	763.80	765955.	4.84	158200.	6000.	15.55	0.0295	167.	94.	0.17
MILE	555.45	763.23	782574.	3.41	229180.	5416.	12.39	0.0285	167.	93.	0.09
MILE	551.20	762.03	798032.	3.41	233709.	6472.	14.58	0.0300	167.	92.	0.10
MILE	546.94	761.51	815131.	3.95	206580.	7150.	16.29	0.0320	167.	92.	0.13
MILE	542.68	760.73	837365.	5.48	152831.	9162.	16.42	0.0320	167.	91.	0.24
MILE	538.42	760.80	855192.	2.90	295378.	8974.	14.96	0.0265	167.	91.	0.09
MILE	534.16	759.90	870689.	3.03	287239.	9965.	15.31	0.0320	167.	90.	0.10
MILE	529.90	759.29	908422.	4.82	188354.	19331.	16.89	0.0315	163.	89.	0.27
MILE	23.10	767.07	20000.	1.58	12677.	820.	9.20	0.0305	3284.	42.	0.07
MILE	21.00	767.02	25373.	0.95	26824.	1898.	8.03	0.0300	3284.	47.	0.04
MILE	18.90	766.94	32253.	1.00	32143.	2827.	6.41	0.0290	3284.	47.	0.05
MILE	16.80	766.82	39077.	1.49	26246.	1871.	7.54	0.0220	3284.	47.	0.07
MILE	14.70	766.75	45331.	1.37	33104.	2113.	8.55	0.0220	3284.	57.	0.06
MILE	12.60	766.68	55572.	1.38	40146.	7245.	7.57	0.0220	3742.	67.	0.10
MILE	10.50	766.60	69909.	1.70	41034.	6547.	11.76	0.0260	3284.	77.	0.12
MILE	8.40	766.44	79171.	2.41	32852.	1604.	11.14	0.0225	3284.	76.	0.09
MILE	6.30	766.34	91279.	2.38	38308.	10473.	12.17	0.0250	3284.	76.	0.22
MILE	4.20	766.28	112893.	1.87	60229.	11451.	12.56	0.0245	5684.	76.	0.14
MILE	2.10	766.16	126617.	2.37	53504.	2921.	13.91	0.0265	3284.	76.	0.10
MILE	0.00	766.16	133535.	1.37	97304.	2300.	13.23	0.0230	3128.	76.	0.04

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TIME	23.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	786.00	398333.	4.37	91147.	3782.	12.12	0.0280	133.	76.	0.16
MILE	598.04	781.64	414127.	7.18	57685.	2034.	10.09	0.0210	133.	72.	0.24
MILE	593.78	779.49	425513.	5.12	83065.	3255.	10.20	0.0310	133.	69.	0.18
MILE	589.52	776.86	442034.	5.74	77065.	2082.	12.93	0.0395	133.	67.	0.17
MILE	585.27	773.43	452319.	6.36	71139.	3875.	12.16	0.0400	133.	63.	0.26
MILE	581.01	771.75	471570.	5.20	90625.	2706.	13.80	0.0400	133.	82.	0.16
MILE	576.75	768.71	486850.	4.83	100862.	5587.	13.50	0.0430	133.	79.	0.20
MILE	572.49	767.53	517894.	3.27	158579.	7751.	13.09	0.0380	133.	78.	0.13
MILE	568.23	765.69	591161.	9.01	65608.	4786.	14.69	0.0300	131.	76.	0.43
MILE	568.23	765.69	722685.	11.02	65608.	4786.	14.69	0.0300	165.	76.	0.52
MILE	563.97	764.24	731682.	4.93	148349.	4538.	14.17	0.0260	165.	74.	0.15
MILE	559.71	763.37	747660.	4.76	157015.	5946.	15.49	0.0295	165.	93.	0.16
MILE	555.45	762.81	764800.	3.38	226204.	5379.	12.38	0.0285	165.	93.	0.09
MILE	551.20	761.63	780839.	3.37	231417.	6456.	14.58	0.0300	165.	92.	0.10
MILE	546.94	761.13	798479.	3.89	205216.	7106.	16.25	0.0320	165.	91.	0.13

MILE	542.68	760.36	821621.	5.42	151705.	9133.	16.41	0.0320	165.	90.	0.23
MILE	538.42	760.42	840236.	2.87	292408.	8945.	14.97	0.0265	165.	90.	0.09
MILE	534.16	759.55	856470.	3.00	285246.	9925.	15.26	0.0320	165.	90.	0.10
MILE	529.90	758.94	896136.	4.79	187239.	19218.	16.86	0.0315	161.	89.	0.27
MILE	23.10	766.57	18750.	1.51	12399.	814.	9.13	0.0305	3203.	42.	0.07
MILE	21.00	766.52	24039.	0.92	26173.	1871.	8.04	0.0300	3203.	47.	0.04
MILE	18.90	766.44	30833.	0.98	31392.	2787.	6.42	0.0290	3203.	46.	0.05
MILE	16.80	766.33	37570.	1.46	25697.	1849.	7.55	0.0220	3203.	46.	0.07
MILE	14.70	766.26	43749.	1.34	32605.	2088.	8.52	0.0220	3203.	56.	0.06
MILE	12.60	766.19	53873.	1.37	39200.	7092.	7.62	0.0220	3657.	66.	0.10
MILE	10.50	766.12	68107.	1.68	40492.	6405.	11.72	0.0260	3203.	76.	0.12
MILE	8.40	765.96	77259.	2.39	32375.	1588.	11.12	0.0225	3203.	76.	0.09
MILE	6.30	765.86	89324.	2.36	37838.	10357.	12.13	0.0250	3203.	76.	0.22
MILE	4.20	765.80	110952.	1.87	59490.	11328.	12.50	0.0245	5603.	76.	0.14
MILE	2.10	765.69	124655.	2.36	52927.	2897.	13.86	0.0265	3203.	76.	0.10
MILE	0.00	765.69	131524.	1.37	96256.	2283.	13.16	0.0230	3051.	76.	0.04

0DATE 3-27-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	24.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	785.23	390000.	4.38	88973.	3764.	12.12	0.0280	132.	75.	0.16
MILE	598.04	780.89	405087.	7.21	56182.	1990.	10.15	0.0210	132.	71.	0.24
MILE	593.78	778.78	415981.	5.11	81437.	3199.	10.15	0.0310	132.	69.	0.18
MILE	589.52	776.18	431502.	5.69	75881.	2029.	12.86	0.0395	132.	66.	0.16
MILE	585.27	772.80	441123.	6.30	70056.	3875.	12.09	0.0400	132.	63.	0.26
MILE	581.01	771.15	459723.	5.14	89518.	2692.	13.72	0.0400	132.	81.	0.16
MILE	576.75	768.17	474377.	4.77	99554.	5493.	13.44	0.0430	132.	78.	0.20
MILE	572.49	767.00	504358.	3.22	156546.	7710.	13.03	0.0380	132.	77.	0.13
MILE	568.23	765.20	575514.	8.86	64972.	4758.	14.64	0.0300	129.	75.	0.42
MILE	568.23	765.20	704756.	10.85	64972.	4758.	14.64	0.0300	163.	75.	0.52
MILE	563.97	763.78	713870.	4.86	146993.	4529.	14.09	0.0260	163.	74.	0.15
MILE	559.71	762.93	730077.	4.69	155796.	5891.	15.42	0.0295	163.	93.	0.16
MILE	555.45	762.38	747595.	3.35	223156.	5341.	12.39	0.0285	163.	92.	0.09
MILE	551.20	761.22	764079.	3.34	229044.	6440.	14.58	0.0300	163.	91.	0.10
MILE	546.94	760.73	782114.	3.84	203790.	7059.	16.20	0.0320	163.	91.	0.13
MILE	542.68	759.98	806084.	5.36	150527.	9104.	16.39	0.0320	163.	90.	0.23
MILE	538.42	760.04	825420.	2.85	289329.	8915.	14.98	0.0265	163.	90.	0.09
MILE	534.16	759.18	842082.	2.97	283148.	9881.	15.22	0.0320	163.	89.	0.10
MILE	529.90	758.58	883203.	4.75	186069.	19099.	16.83	0.0315	159.	89.	0.27

MILE	23.10	766.06	17500.	1.44	12120.	807.	9.07	0.0305	3123.	41.	0.07
MILE	21.00	766.01	22707.	0.89	25531.	1843.	8.06	0.0300	3123.	46.	0.04
MILE	18.90	765.94	29413.	0.96	30658.	2747.	6.43	0.0290	3123.	46.	0.05
MILE	16.80	765.84	36066.	1.43	25155.	1826.	7.56	0.0220	3123.	46.	0.07
MILE	14.70	765.77	42165.	1.31	32107.	2062.	8.49	0.0220	3123.	56.	0.06
MILE	12.60	765.70	52160.	1.36	38276.	6938.	7.69	0.0220	3573.	66.	0.10
MILE	10.50	765.63	66267.	1.66	39947.	6260.	11.67	0.0260	3123.	76.	0.12
MILE	8.40	765.47	75284.	2.36	31896.	1571.	11.09	0.0225	3123.	75.	0.09
MILE	6.30	765.38	87266.	2.34	37365.	10240.	12.08	0.0250	3123.	75.	0.22
MILE	4.20	765.32	108813.	1.85	58744.	11204.	12.44	0.0245	5523.	75.	0.14
MILE	2.10	765.20	122438.	2.34	52345.	2873.	13.81	0.0265	3123.	75.	0.10
MILE	0.00	765.20	129242.	1.36	95197.	2266.	13.09	0.0230	2974.	75.	0.04

ODATE 3-28-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	1.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	784.52	383333.	4.41	86970.	3747.	12.12	0.0280	130.	75.	0.16
MILE	598.04	780.17	397130.	7.25	54800.	1948.	10.21	0.0210	130.	70.	0.24
MILE	593.78	778.09	407279.	5.10	79905.	3146.	10.11	0.0310	130.	68.	0.18
MILE	589.52	775.52	421680.	5.64	74754.	1978.	12.79	0.0395	130.	66.	0.16
MILE	585.27	772.19	430760.	6.24	69001.	3875.	12.02	0.0400	130.	62.	0.26
MILE	581.01	770.56	448688.	5.07	88430.	2678.	13.63	0.0400	130.	81.	0.16
MILE	576.75	767.63	462759.	4.71	98260.	5399.	13.39	0.0430	130.	78.	0.19
MILE	572.49	766.46	491735.	3.18	154526.	7669.	12.97	0.0380	130.	76.	0.12
MILE	568.23	764.72	560880.	8.72	64332.	4730.	14.58	0.0300	128.	75.	0.42
MILE	568.23	764.72	687752.	10.69	64332.	4730.	14.58	0.0300	161.	75.	0.51
MILE	563.97	763.31	696995.	4.79	145615.	4520.	14.02	0.0260	161.	73.	0.15
MILE	559.71	762.48	713437.	4.62	154552.	5834.	15.36	0.0295	161.	92.	0.16
MILE	555.45	761.93	731145.	3.32	220070.	5303.	12.39	0.0285	161.	92.	0.09
MILE	551.20	760.80	747884.	3.30	226625.	6424.	14.58	0.0300	161.	91.	0.10
MILE	546.94	760.32	766150.	3.79	202325.	7011.	16.15	0.0320	161.	90.	0.12
MILE	542.68	759.58	790642.	5.30	149317.	9080.	16.36	0.0320	161.	90.	0.23
MILE	538.42	759.63	810349.	2.82	286861.	8880.	14.94	0.0265	161.	90.	0.09
MILE	534.16	758.79	827499.	2.95	280963.	9836.	15.17	0.0320	161.	89.	0.10
MILE	529.90	758.20	869646.	4.70	184847.	18974.	16.80	0.0315	157.	88.	0.27
MILE	23.10	765.56	16667.	1.41	11848.	800.	9.00	0.0305	3042.	41.	0.06
MILE	21.00	765.51	21734.	0.87	24909.	1816.	8.08	0.0300	3042.	46.	0.04
MILE	18.90	765.44	28263.	0.94	29949.	2706.	6.44	0.0290	3042.	45.	0.05
MILE	16.80	765.34	34771.	1.41	24625.	1804.	7.57	0.0220	3042.	45.	0.07
MILE	14.70	765.27	40759.	1.29	31613.	2037.	8.46	0.0220	3042.	55.	0.06
MILE	12.60	765.21	50533.	1.35	37376.	6783.	7.77	0.0220	3488.	65.	0.10

MILE	10.50	765.13	64427.	1.64	39400.	6114.	11.62	0.0260	3042.	75.	0.11
MILE	8.40	764.98	73283.	2.33	31417.	1554.	11.07	0.0225	3042.	75.	0.09
MILE	6.30	764.89	85166.	2.31	36890.	10121.	12.03	0.0250	3042.	75.	0.21
MILE	4.20	764.83	106608.	1.84	57994.	11079.	12.39	0.0245	5442.	75.	0.14
MILE	2.10	764.72	120142.	2.32	51761.	2849.	13.76	0.0265	3042.	75.	0.10
MILE	0.00	764.72	126872.	1.35	94129.	2249.	13.02	0.0230	2897.	75.	0.04

ODATE 3-28-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	2.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	783.84	376667.	4.42	85126.	3732.	12.12	0.0280	128.	74.	0.16
MILE	598.04	779.50	389281.	7.27	53533.	1930.	10.22	0.0210	128.	70.	0.24
MILE	593.78	777.45	399128.	5.09	78471.	3096.	10.06	0.0310	128.	67.	0.18
MILE	589.52	774.89	412788.	5.60	73679.	1934.	12.72	0.0395	128.	65.	0.16
MILE	585.27	771.59	421444.	6.20	67989.	3875.	11.96	0.0400	128.	62.	0.26
MILE	581.01	769.99	438465.	5.02	87372.	2664.	13.55	0.0400	128.	80.	0.15
MILE	576.75	767.10	451933.	4.66	96988.	5307.	13.34	0.0430	128.	77.	0.19
MILE	572.49	765.93	479985.	3.15	152521.	7628.	12.91	0.0380	128.	76.	0.12
MILE	568.23	764.22	547098.	8.59	63690.	4701.	14.53	0.0300	126.	74.	0.41
MILE	568.23	764.22	671509.	10.54	63690.	4701.	14.53	0.0300	158.	74.	0.50
MILE	563.97	762.83	680798.	4.72	144221.	4511.	13.94	0.0260	158.	73.	0.15
MILE	559.71	762.02	697260.	4.55	153288.	5776.	15.29	0.0295	158.	92.	0.16
MILE	555.45	761.48	715030.	3.30	216953.	5263.	12.39	0.0285	158.	91.	0.09
MILE	551.20	760.37	731925.	3.27	224164.	6407.	14.58	0.0300	158.	90.	0.10
MILE	546.94	759.90	750314.	3.74	200854.	6969.	16.09	0.0320	158.	90.	0.12
MILE	542.68	759.17	775200.	5.24	148078.	9056.	16.34	0.0320	158.	89.	0.23
MILE	538.42	759.22	795283.	2.80	284400.	8844.	14.90	0.0265	158.	89.	0.09
MILE	534.16	758.39	812894.	2.92	278715.	9790.	15.12	0.0320	158.	88.	0.10
MILE	529.90	757.81	855703.	4.66	183594.	18846.	16.77	0.0315	155.	88.	0.26
MILE	23.10	765.06	15833.	1.37	11575.	793.	8.93	0.0305	2961.	40.	0.06
MILE	21.00	765.01	20814.	0.86	24298.	1788.	8.11	0.0300	2961.	45.	0.04
MILE	18.90	764.94	27208.	0.93	29233.	2666.	6.46	0.0290	2961.	45.	0.05
MILE	16.80	764.84	33607.	1.40	24068.	1780.	7.58	0.0220	2961.	45.	0.07
MILE	14.70	764.78	39496.	1.27	31103.	2011.	8.44	0.0220	2961.	55.	0.06
MILE	12.60	764.71	49128.	1.35	36388.	6624.	7.82	0.0220	3403.	65.	0.10
MILE	10.50	764.64	62780.	1.62	38856.	5967.	11.58	0.0260	2961.	75.	0.11
MILE	8.40	764.49	71467.	2.31	30941.	1538.	11.05	0.0225	2961.	74.	0.09
MILE	6.30	764.40	83216.	2.29	36415.	10002.	11.98	0.0250	2961.	74.	0.21
MILE	4.20	764.34	104418.	1.82	57243.	10953.	12.32	0.0245	5361.	74.	0.14
MILE	2.10	764.22	117776.	2.30	51175.	2824.	13.71	0.0265	2961.	74.	0.10
MILE	0.00	764.22	124411.	1.34	93057.	2232.	12.95	0.0230	2820.	74.	0.04

ODATE 3-28-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	3.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	783.21	370000.	4.44	83404.	3717.	12.13	0.0280	127.	73.	0.17
MILE	598.04	778.87	382087.	7.30	52358.	1919.	10.22	0.0210	127.	69.	0.25
MILE	593.78	776.84	391538.	5.08	77140.	3049.	10.02	0.0310	127.	67.	0.18
MILE	589.52	774.29	404460.	5.57	72652.	1911.	12.65	0.0395	127.	64.	0.16
MILE	585.27	771.02	412709.	6.16	67020.	3875.	11.89	0.0400	127.	61.	0.26
MILE	581.01	769.43	428941.	4.97	86330.	2650.	13.47	0.0400	127.	79.	0.15
MILE	576.75	766.58	441892.	4.62	95742.	5215.	13.28	0.0430	127.	77.	0.19
MILE	572.49	765.41	469119.	3.12	150545.	7587.	12.86	0.0380	127.	75.	0.12
MILE	568.23	763.73	534198.	8.47	63050.	4673.	14.47	0.0300	125.	74.	0.41
MILE	568.23	763.73	656141.	10.41	63050.	4673.	14.47	0.0300	156.	74.	0.50
MILE	563.97	762.35	665417.	4.66	142818.	4502.	13.86	0.0260	156.	72.	0.15
MILE	559.71	761.56	681874.	4.49	152012.	5717.	15.22	0.0295	156.	92.	0.15
MILE	555.45	761.02	699659.	3.27	213829.	5223.	12.39	0.0285	156.	91.	0.09
MILE	551.20	759.93	716703.	3.23	221747.	6387.	14.57	0.0300	156.	90.	0.10
MILE	546.94	759.47	734905.	3.68	199451.	6949.	16.03	0.0320	156.	89.	0.12
MILE	542.68	758.75	760022.	5.18	146821.	9032.	16.31	0.0320	156.	89.	0.23
MILE	538.42	758.80	780390.	2.77	281901.	8807.	14.85	0.0265	156.	89.	0.09
MILE	534.16	757.98	798233.	2.89	276429.	9743.	15.07	0.0320	156.	88.	0.10
MILE	529.90	757.42	841467.	4.62	182318.	18715.	16.73	0.0315	153.	87.	0.26
MILE	23.10	764.55	15000.	1.32	11322.	782.	8.86	0.0305	2881.	40.	0.06
MILE	21.00	764.50	19874.	0.84	23599.	1761.	8.12	0.0300	2881.	45.	0.04
MILE	18.90	764.44	26185.	0.92	28339.	2628.	6.47	0.0290	2881.	44.	0.05
MILE	16.80	764.34	32487.	1.39	23441.	1757.	7.58	0.0220	2881.	44.	0.07
MILE	14.70	764.27	38279.	1.25	30571.	1984.	8.40	0.0220	2881.	54.	0.06
MILE	12.60	764.21	47699.	1.35	35334.	6462.	7.86	0.0220	3318.	64.	0.10
MILE	10.50	764.14	61028.	1.59	38312.	5820.	11.53	0.0260	2881.	74.	0.11
MILE	8.40	763.99	69540.	2.28	30468.	1521.	11.03	0.0225	2881.	74.	0.09
MILE	6.30	763.90	81148.	2.26	35941.	9883.	11.93	0.0250	2881.	74.	0.21
MILE	4.20	763.85	102185.	1.81	56494.	10827.	12.26	0.0245	5281.	74.	0.14
MILE	2.10	763.73	115403.	2.28	50591.	2800.	13.66	0.0265	2881.	74.	0.09
MILE	0.00	763.73	121943.	1.33	91988.	2214.	12.87	0.0230	2743.	74.	0.04

ODATE 3-28-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	4.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	782.59	363333.	4.44	81742.	3702.	12.14	0.0280	125.	73.	0.17
MILE	598.04	778.25	374998.	7.32	51240.	1909.	10.22	0.0210	125.	68.	0.25
MILE	593.78	776.25	384182.	5.06	75866.	3003.	9.98	0.0310	125.	66.	0.18
MILE	589.52	773.72	396555.	5.53	71664.	1888.	12.59	0.0395	125.	64.	0.16
MILE	585.27	770.47	404486.	6.12	66088.	3875.	11.83	0.0400	125.	60.	0.26
MILE	581.01	768.89	420039.	4.92	85319.	2637.	13.39	0.0400	125.	79.	0.15
MILE	576.75	766.06	432510.	4.58	94524.	5126.	13.23	0.0430	125.	76.	0.19
MILE	572.49	764.89	458998.	3.09	148598.	7547.	12.80	0.0380	125.	75.	0.12
MILE	568.23	763.24	522200.	8.37	62412.	4644.	14.42	0.0300	123.	73.	0.40
MILE	568.23	763.24	641442.	10.28	62412.	4644.	14.42	0.0300	154.	73.	0.49
MILE	563.97	761.87	650677.	4.60	141409.	4492.	13.78	0.0260	154.	72.	0.14
MILE	559.71	761.09	667054.	4.43	150729.	5659.	15.15	0.0295	154.	91.	0.15
MILE	555.45	760.56	684775.	3.25	210713.	5183.	12.40	0.0285	154.	91.	0.09
MILE	551.20	759.48	701698.	3.19	219654.	6348.	14.53	0.0300	154.	89.	0.10
MILE	546.94	759.03	719947.	3.64	198035.	6928.	15.97	0.0320	154.	89.	0.12
MILE	542.68	758.32	745186.	5.12	145552.	9007.	16.28	0.0320	154.	88.	0.22
MILE	538.42	758.37	765707.	2.74	279378.	8770.	14.81	0.0265	154.	88.	0.09
MILE	534.16	757.57	783708.	2.86	274117.	9695.	15.02	0.0320	154.	88.	0.09
MILE	529.90	757.01	827039.	4.57	181029.	18582.	16.70	0.0315	151.	87.	0.26
MILE	23.10	764.04	14167.	1.28	11069.	770.	8.79	0.0305	2800.	39.	0.06
MILE	21.00	763.99	18952.	0.83	22905.	1733.	8.13	0.0300	2800.	44.	0.04
MILE	18.90	763.93	25158.	0.92	27464.	2589.	6.48	0.0290	2800.	44.	0.05
MILE	16.80	763.83	31344.	1.37	22823.	1733.	7.58	0.0220	2800.	44.	0.07
MILE	14.70	763.77	37029.	1.23	30043.	1956.	8.37	0.0220	2800.	54.	0.06
MILE	12.60	763.71	46264.	1.35	34308.	6300.	7.91	0.0220	3233.	64.	0.10
MILE	10.50	763.64	59255.	1.57	37771.	5672.	11.49	0.0260	2800.	74.	0.11
MILE	8.40	763.50	67580.	2.25	29999.	1504.	11.01	0.0225	2800.	73.	0.09
MILE	6.30	763.41	79018.	2.23	35470.	9763.	11.88	0.0250	2800.	73.	0.21
MILE	4.20	763.35	99791.	1.79	55747.	10700.	12.20	0.0245	5200.	73.	0.14
MILE	2.10	763.24	112815.	2.26	50010.	2775.	13.61	0.0265	2800.	73.	0.09
MILE	0.00	763.24	119243.	1.31	90920.	2197.	12.80	0.0230	2667.	73.	0.04

ODATE 3-28-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	5.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	781.97	356667.	4.45	80127.	3688.	12.15	0.0280	124.	72.	0.17
MILE	598.04	777.65	368010.	7.34	50167.	1900.	10.22	0.0210	124.	68.	0.25
MILE	593.78	775.67	377003.	5.05	74642.	2958.	9.94	0.0310	124.	66.	0.18
MILE	589.52	773.15	388878.	5.50	70697.	1866.	12.53	0.0395	124.	63.	0.16

MILE	585.27	769.93	396541.	6.08	65172.	3861.	11.77	0.0400	124.	60.	0.26
MILE	581.01	768.35	411546.	4.88	84326.	2624.	13.31	0.0400	124.	78.	0.15
MILE	576.75	765.55	423577.	4.54	93324.	5037.	13.18	0.0430	124.	76.	0.19
MILE	572.49	764.37	449397.	3.06	146675.	7507.	12.74	0.0380	124.	74.	0.12
MILE	568.23	762.75	510868.	8.27	61777.	4616.	14.36	0.0300	122.	73.	0.40
MILE	568.23	762.75	627283.	10.15	61777.	4616.	14.36	0.0300	152.	73.	0.49
MILE	563.97	761.38	636464.	4.55	140001.	4483.	13.70	0.0260	152.	71.	0.14
MILE	559.71	760.62	652726.	4.37	149441.	5599.	15.08	0.0295	152.	91.	0.15
MILE	555.45	760.09	670352.	3.23	207618.	5142.	12.41	0.0285	152.	90.	0.09
MILE	551.20	759.03	687113.	3.16	217557.	6309.	14.49	0.0300	152.	89.	0.09
MILE	546.94	758.59	705382.	3.59	196613.	6907.	15.90	0.0320	152.	89.	0.12
MILE	542.68	757.89	730553.	5.06	144280.	8983.	16.26	0.0320	152.	88.	0.22
MILE	538.42	757.94	751073.	2.71	276848.	8732.	14.76	0.0265	152.	88.	0.08
MILE	534.16	757.15	769134.	2.83	271793.	9646.	14.96	0.0320	152.	87.	0.09
MILE	529.90	756.61	812483.	4.52	179734.	18448.	16.66	0.0315	148.	87.	0.26
MILE	23.10	763.52	13333.	1.23	10818.	758.	8.71	0.0305	2719.	39.	0.06
MILE	21.00	763.48	18017.	0.81	22224.	1706.	8.14	0.0300	2719.	43.	0.04
MILE	18.90	763.42	24108.	0.91	26613.	2550.	6.49	0.0290	2719.	43.	0.05
MILE	16.80	763.32	30179.	1.36	22219.	1709.	7.59	0.0220	2719.	43.	0.07
MILE	14.70	763.26	35747.	1.21	29520.	1929.	8.34	0.0220	2719.	53.	0.05
MILE	12.60	763.20	44770.	1.34	33309.	6136.	7.97	0.0220	3149.	63.	0.10
MILE	10.50	763.14	57384.	1.54	37232.	5523.	11.44	0.0260	2719.	73.	0.10
MILE	8.40	763.00	65510.	2.22	29535.	1487.	10.99	0.0225	2719.	73.	0.09
MILE	6.30	762.91	76761.	2.19	35001.	9643.	11.83	0.0250	2719.	73.	0.20
MILE	4.20	762.86	97273.	1.77	55004.	10573.	12.14	0.0245	5119.	73.	0.14
MILE	2.10	762.75	110098.	2.23	49432.	2750.	13.56	0.0265	2719.	73.	0.09
MILE	0.00	762.75	116416.	1.30	89856.	2179.	12.73	0.0230	2590.	73.	0.04

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TIME	6.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	781.36	350000.	4.46	78553.	3674.	12.16	0.0280	122.	71.	0.17
MILE	598.04	777.06	361076.	7.35	49128.	1890.	10.22	0.0210	122.	67.	0.25
MILE	593.78	775.11	369907.	5.04	73447.	2914.	9.91	0.0310	122.	65.	0.18
MILE	589.52	772.59	381299.	5.47	69744.	1844.	12.47	0.0395	122.	63.	0.16
MILE	585.27	769.39	388745.	6.05	64236.	3757.	11.71	0.0400	122.	59.	0.26
MILE	581.01	767.82	403253.	4.84	83343.	2611.	13.23	0.0400	122.	78.	0.15
MILE	576.75	765.05	414936.	4.50	92135.	4948.	13.12	0.0430	122.	75.	0.18
MILE	572.49	763.85	440173.	3.04	144769.	7467.	12.68	0.0380	122.	74.	0.12
MILE	568.23	762.26	500019.	8.18	61144.	4587.	14.31	0.0300	120.	72.	0.39

MILE	568.23	762.26	613507.	10.03	61144.	4587.	14.31	0.0300	150.	72.	0.48
MILE	563.97	760.90	622612.	4.49	138596.	4473.	13.62	0.0260	150.	71.	0.14
MILE	559.71	760.16	638722.	4.31	148162.	5541.	15.01	0.0295	150.	90.	0.15
MILE	555.45	759.63	656133.	3.20	204838.	5106.	12.38	0.0285	150.	90.	0.09
MILE	551.20	758.58	672890.	3.12	215455.	6270.	14.45	0.0300	150.	89.	0.09
MILE	546.94	758.15	691144.	3.54	195179.	6886.	15.84	0.0320	150.	88.	0.12
MILE	542.68	757.46	716233.	5.01	143005.	8958.	16.23	0.0320	150.	87.	0.22
MILE	538.42	757.51	736718.	2.69	274311.	8695.	14.71	0.0265	150.	88.	0.08
MILE	534.16	756.73	754713.	2.80	269464.	9598.	14.91	0.0320	150.	87.	0.09
MILE	529.90	756.20	797871.	4.47	178438.	18313.	16.63	0.0315	146.	86.	0.25
MILE	23.10	763.01	12500.	1.18	10567.	746.	8.64	0.0305	2639.	38.	0.06
MILE	21.00	762.96	17078.	0.79	21556.	1678.	8.16	0.0300	2639.	43.	0.04
MILE	18.90	762.90	23043.	0.89	25790.	2510.	6.51	0.0290	2639.	43.	0.05
MILE	16.80	762.81	28987.	1.34	21629.	1685.	7.60	0.0220	2639.	43.	0.07
MILE	14.70	762.76	34434.	1.19	29004.	1901.	8.31	0.0220	2639.	53.	0.05
MILE	12.60	762.70	43234.	1.34	32340.	5973.	8.03	0.0220	3064.	63.	0.10
MILE	10.50	762.63	55455.	1.51	36696.	5375.	11.39	0.0260	2639.	73.	0.10
MILE	8.40	762.50	63369.	2.18	29076.	1470.	10.97	0.0225	2639.	73.	0.09
MILE	6.30	762.42	74432.	2.16	34535.	9524.	11.78	0.0250	2639.	72.	0.20
MILE	4.20	762.36	94671.	1.74	54265.	10447.	12.08	0.0245	5039.	72.	0.13
MILE	2.10	762.26	107289.	2.20	48857.	2726.	13.51	0.0265	2639.	72.	0.09
MILE	0.00	762.26	113490.	1.28	88796.	2162.	12.65	0.0230	2513.	72.	0.04

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TIME	7.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	780.79	345000.	4.47	77113.	3661.	12.18	0.0280	121.	71.	0.17
MILE	598.04	776.49	355058.	7.37	48148.	1880.	10.22	0.0210	121.	66.	0.26
MILE	593.78	774.55	363334.	5.03	72212.	2836.	9.87	0.0310	121.	65.	0.18
MILE	589.52	772.04	374017.	5.44	68812.	1823.	12.41	0.0395	121.	62.	0.16
MILE	585.27	768.85	381171.	6.02	63313.	3653.	11.66	0.0400	121.	59.	0.25
MILE	581.01	767.30	395186.	4.80	82369.	2599.	13.16	0.0400	121.	77.	0.15
MILE	576.75	764.54	406532.	4.47	90959.	4860.	13.07	0.0430	121.	75.	0.18
MILE	572.49	763.34	431199.	3.02	142882.	7427.	12.63	0.0380	121.	73.	0.12
MILE	568.23	761.77	489502.	8.09	60516.	4559.	14.25	0.0300	119.	72.	0.39
MILE	568.23	761.77	599934.	9.91	60516.	4559.	14.25	0.0300	148.	72.	0.48
MILE	563.97	760.42	608965.	4.44	137198.	4464.	13.54	0.0260	148.	70.	0.14
MILE	559.71	759.69	624874.	4.25	146883.	5494.	14.94	0.0295	148.	90.	0.14
MILE	555.45	759.17	642167.	3.18	202146.	5070.	12.34	0.0285	148.	89.	0.09
MILE	551.20	758.13	658816.	3.09	213359.	6230.	14.41	0.0300	148.	88.	0.09

MILE	546.94	757.71	677012.	3.49	193745.	6866.	15.77	0.0320	148.	88.	0.12
MILE	542.68	757.03	702009.	4.95	141733.	8933.	16.20	0.0320	148.	87.	0.22
MILE	538.42	757.07	722428.	2.66	271779.	8657.	14.67	0.0265	148.	87.	0.08
MILE	534.16	756.32	740440.	2.77	267138.	9549.	14.86	0.0320	148.	86.	0.09
MILE	529.90	755.79	783252.	4.42	177145.	18179.	16.60	0.0315	144.	86.	0.25
MILE	23.10	762.51	12250.	1.19	10328.	734.	8.57	0.0305	2558.	38.	0.06
MILE	21.00	762.46	16635.	0.79	20924.	1651.	8.19	0.0300	2558.	42.	0.04
MILE	18.90	762.40	22336.	0.89	25012.	2472.	6.54	0.0290	2558.	42.	0.05
MILE	16.80	762.31	28074.	1.33	21062.	1661.	7.61	0.0220	2558.	42.	0.07
MILE	14.70	762.26	33355.	1.17	28500.	1874.	8.28	0.0220	2558.	52.	0.05
MILE	12.60	762.19	41805.	1.33	31404.	5810.	8.11	0.0220	2979.	62.	0.10
MILE	10.50	762.13	53531.	1.48	36166.	5227.	11.35	0.0260	2558.	72.	0.10
MILE	8.40	762.01	61207.	2.14	28622.	1453.	10.95	0.0225	2558.	72.	0.08
MILE	6.30	761.93	72050.	2.11	34073.	9404.	11.73	0.0250	2558.	72.	0.20
MILE	4.20	761.87	91960.	1.72	53532.	10321.	12.02	0.0245	4958.	72.	0.13
MILE	2.10	761.77	104351.	2.16	48287.	2701.	13.46	0.0265	2558.	72.	0.09
MILE	0.00	761.77	110434.	1.26	87742.	2145.	12.58	0.0230	2436.	72.	0.03

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TIME	8.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	780.25	340000.	4.49	75756.	3648.	12.20	0.0280	119.	70.	0.17
MILE	598.04	775.95	349636.	7.40	47234.	1872.	10.23	0.0210	119.	66.	0.26
MILE	593.78	774.02	357409.	5.03	71032.	2755.	9.83	0.0310	119.	64.	0.17
MILE	589.52	771.51	367434.	5.41	67925.	1802.	12.35	0.0395	119.	62.	0.16
MILE	585.27	768.33	374296.	6.00	62422.	3552.	11.60	0.0400	119.	58.	0.25
MILE	581.01	766.78	387649.	4.76	81419.	2586.	13.08	0.0400	119.	77.	0.15
MILE	576.75	764.04	398576.	4.44	89802.	4773.	13.02	0.0430	119.	74.	0.18
MILE	572.49	762.83	422617.	3.00	141020.	7387.	12.57	0.0380	119.	73.	0.12
MILE	568.23	761.28	479369.	8.00	59893.	4530.	14.20	0.0300	117.	71.	0.39
MILE	568.23	761.28	586776.	9.80	59893.	4530.	14.20	0.0300	146.	71.	0.47
MILE	563.97	759.94	595695.	4.39	135802.	4454.	13.46	0.0260	146.	70.	0.14
MILE	559.71	759.22	611393.	4.20	145606.	5453.	14.87	0.0295	146.	89.	0.14
MILE	555.45	758.71	628507.	3.15	199479.	5034.	12.31	0.0285	146.	89.	0.09
MILE	551.20	757.68	645023.	3.05	211278.	6191.	14.37	0.0300	146.	88.	0.09
MILE	546.94	757.27	663133.	3.45	192316.	6845.	15.70	0.0320	146.	87.	0.11
MILE	542.68	756.60	687926.	4.90	140470.	8908.	16.18	0.0320	146.	87.	0.22
MILE	538.42	756.64	708284.	2.63	269260.	8619.	14.62	0.0265	146.	87.	0.08
MILE	534.16	755.90	726193.	2.74	264819.	9500.	14.80	0.0320	146.	86.	0.09
MILE	529.90	755.38	768625.	4.37	175857.	18044.	16.56	0.0315	142.	85.	0.25

MILE	23.10	762.01	12000.	1.19	10092.	723.	8.50	0.0305	2477.	37.	0.06
MILE	21.00	761.97	16284.	0.80	20313.	1624.	8.22	0.0300	2477.	42.	0.04
MILE	18.90	761.91	21858.	0.90	24271.	2434.	6.58	0.0290	2477.	42.	0.05
MILE	16.80	761.81	27440.	1.34	20516.	1638.	7.63	0.0220	2477.	42.	0.07
MILE	14.70	761.76	32572.	1.16	28010.	1847.	8.25	0.0220	2477.	52.	0.05
MILE	12.60	761.70	40763.	1.34	30517.	5650.	8.20	0.0220	2894.	62.	0.10
MILE	10.50	761.64	52004.	1.46	35648.	5081.	11.30	0.0260	2477.	72.	0.10
MILE	8.40	761.52	59389.	2.11	28180.	1437.	10.93	0.0225	2477.	72.	0.08
MILE	6.30	761.44	69950.	2.08	33618.	9286.	11.69	0.0250	2477.	71.	0.19
MILE	4.20	761.38	89395.	1.69	52807.	10195.	11.96	0.0245	4877.	71.	0.13
MILE	2.10	761.28	101470.	2.13	47723.	2677.	13.41	0.0265	2477.	71.	0.09
MILE	0.00	761.28	107408.	1.24	86696.	2127.	12.51	0.0230	2359.	71.	0.03

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TIME	9.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	779.72	335000.	4.51	74339.	3629.	12.22	0.0280	117.	70.	0.18
MILE	598.04	775.43	344271.	7.43	46365.	1863.	10.24	0.0210	117.	65.	0.26
MILE	593.78	773.51	351621.	5.03	69895.	2675.	9.80	0.0310	117.	64.	0.17
MILE	589.52	770.99	361133.	5.38	67066.	1782.	12.29	0.0395	117.	61.	0.15
MILE	585.27	767.83	367807.	5.98	61557.	3454.	11.54	0.0400	117.	58.	0.25
MILE	581.01	766.28	380621.	4.73	80493.	2574.	13.01	0.0400	117.	76.	0.15
MILE	576.75	763.55	391181.	4.41	88673.	4688.	12.97	0.0430	117.	74.	0.18
MILE	572.49	762.33	414571.	2.98	139197.	7349.	12.51	0.0380	117.	72.	0.12
MILE	568.23	760.80	469617.	7.92	59281.	4502.	14.14	0.0300	116.	71.	0.38
MILE	568.23	760.80	574293.	9.69	59281.	4502.	14.14	0.0300	143.	71.	0.47
MILE	563.97	759.46	583123.	4.34	134408.	4435.	13.38	0.0260	143.	69.	0.14
MILE	559.71	758.76	598457.	4.15	144340.	5413.	14.80	0.0295	143.	89.	0.14
MILE	555.45	758.25	615307.	3.13	196847.	4999.	12.27	0.0285	143.	88.	0.09
MILE	551.20	757.24	631597.	3.02	209215.	6152.	14.32	0.0300	143.	87.	0.09
MILE	546.94	756.83	649539.	3.40	190891.	6824.	15.64	0.0320	143.	87.	0.11
MILE	542.68	756.17	674066.	4.84	139215.	8883.	16.15	0.0320	143.	86.	0.22
MILE	538.42	756.21	694253.	2.60	266756.	8581.	14.57	0.0265	143.	86.	0.08
MILE	534.16	755.48	712078.	2.71	262512.	9452.	14.75	0.0320	143.	85.	0.09
MILE	529.90	754.97	754317.	4.32	174576.	17910.	16.53	0.0315	140.	85.	0.24
MILE	23.10	761.52	11750.	1.19	9860.	711.	8.43	0.0305	2397.	37.	0.06
MILE	21.00	761.47	15910.	0.81	19720.	1597.	8.25	0.0300	2397.	41.	0.04
MILE	18.90	761.41	21339.	0.91	23562.	2396.	6.62	0.0290	2397.	41.	0.05
MILE	16.80	761.32	26780.	1.34	19989.	1614.	7.65	0.0220	2397.	41.	0.07
MILE	14.70	761.27	31779.	1.15	27530.	1821.	8.22	0.0220	2397.	51.	0.05

MILE	12.60	761.21	39724.	1.34	29661.	5491.	8.30	0.0220	2809.	61.	0.10
MILE	10.50	761.15	50544.	1.44	35138.	4936.	11.26	0.0260	2397.	71.	0.10
MILE	8.40	761.03	57711.	2.08	27746.	1420.	10.91	0.0225	2397.	71.	0.08
MILE	6.30	760.95	68007.	2.05	33171.	9168.	11.64	0.0250	2397.	71.	0.19
MILE	4.20	760.90	87090.	1.67	52095.	10071.	11.89	0.0245	4797.	71.	0.13
MILE	2.10	760.80	98887.	2.10	47169.	2653.	13.36	0.0265	2397.	71.	0.09
MILE	0.00	760.80	104678.	1.22	85666.	2110.	12.43	0.0230	2283.	71.	0.03

0DATE 3-28-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	10.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	779.21	330000.	4.53	72869.	3605.	12.24	0.0280	116.	69.	0.18
MILE	598.04	774.92	338941.	7.45	45526.	1854.	10.25	0.0210	116.	65.	0.26
MILE	593.78	773.01	346003.	5.03	68798.	2597.	9.76	0.0310	116.	63.	0.17
MILE	589.52	770.49	355101.	5.36	66233.	1763.	12.23	0.0395	116.	60.	0.15
MILE	585.27	767.33	361627.	5.96	60717.	3357.	11.49	0.0400	116.	57.	0.25
MILE	581.01	765.79	373887.	4.70	79588.	2562.	12.93	0.0400	116.	76.	0.15
MILE	576.75	763.07	384100.	4.39	87569.	4604.	12.92	0.0430	116.	73.	0.18
MILE	572.49	761.83	406881.	2.96	137408.	7310.	12.46	0.0380	116.	72.	0.12
MILE	568.23	760.32	460331.	7.85	58676.	4475.	14.09	0.0300	114.	70.	0.38
MILE	568.23	760.32	562249.	9.58	58676.	4475.	14.09	0.0300	141.	70.	0.47
MILE	563.97	758.99	570986.	4.29	133029.	4417.	13.30	0.0260	141.	69.	0.14
MILE	559.71	758.30	586007.	4.10	143088.	5373.	14.73	0.0295	141.	88.	0.14
MILE	555.45	757.80	602621.	3.10	194257.	4963.	12.24	0.0285	141.	88.	0.09
MILE	551.20	756.79	618726.	2.99	207177.	6113.	14.28	0.0300	141.	87.	0.09
MILE	546.94	756.39	636604.	3.36	189477.	6803.	15.57	0.0320	141.	86.	0.11
MILE	542.68	755.74	661184.	4.79	137967.	8858.	16.12	0.0320	141.	86.	0.21
MILE	538.42	755.77	681883.	2.58	264254.	8543.	14.53	0.0265	141.	86.	0.08
MILE	534.16	755.05	700338.	2.69	260167.	9402.	14.69	0.0320	141.	85.	0.09
MILE	529.90	754.55	743620.	4.29	173253.	17771.	16.49	0.0315	138.	85.	0.24
MILE	23.10	761.03	11500.	1.19	9630.	700.	8.36	0.0305	2316.	36.	0.06
MILE	21.00	760.98	15546.	0.81	19144.	1571.	8.30	0.0300	2316.	41.	0.04
MILE	18.90	760.92	20836.	0.91	22883.	2359.	6.67	0.0290	2316.	41.	0.05
MILE	16.80	760.83	26132.	1.34	19479.	1591.	7.68	0.0220	2316.	41.	0.07
MILE	14.70	760.78	30994.	1.15	27060.	1794.	8.19	0.0220	2316.	51.	0.05
MILE	12.60	760.72	38684.	1.34	28842.	5333.	8.42	0.0220	2724.	61.	0.10
MILE	10.50	760.66	49076.	1.42	34635.	4793.	11.21	0.0260	2316.	71.	0.09
MILE	8.40	760.55	55994.	2.05	27321.	1404.	10.90	0.0225	2316.	71.	0.08
MILE	6.30	760.47	66046.	2.02	32730.	9052.	11.59	0.0250	2316.	70.	0.19
MILE	4.20	760.42	84735.	1.65	51392.	9948.	11.83	0.0245	4716.	70.	0.13
MILE	2.10	760.32	96266.	2.06	46622.	2629.	13.31	0.0265	2316.	70.	0.09

MILE	0.00	760.32	101919.	1.20	84649.	2093.	12.36	0.0230	2206.	70.	0.03

ODATE 3-28-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	11.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	778.70	325000.	4.55	71461.	3582.	12.26	0.0280	114.	69.	0.18
MILE	598.04	774.43	333639.	7.47	44689.	1843.	10.24	0.0210	114.	64.	0.27
MILE	593.78	772.52	340405.	5.03	67741.	2521.	9.73	0.0310	114.	63.	0.17
MILE	589.52	769.99	349180.	5.34	65421.	1744.	12.18	0.0395	114.	60.	0.15
MILE	585.27	766.84	355610.	5.94	59897.	3263.	11.44	0.0400	114.	57.	0.24
MILE	581.01	765.30	367391.	4.67	78700.	2550.	12.86	0.0400	114.	75.	0.15
MILE	576.75	762.59	377292.	4.36	86486.	4521.	12.87	0.0430	114.	73.	0.18
MILE	572.49	761.35	399505.	2.95	135650.	7272.	12.40	0.0380	114.	71.	0.12
MILE	568.23	759.85	451427.	7.77	58081.	4444.	14.03	0.0300	112.	70.	0.38
MILE	568.23	759.85	550592.	9.48	58081.	4444.	14.03	0.0300	139.	70.	0.46
MILE	563.97	758.53	559303.	4.25	131662.	4399.	13.23	0.0260	139.	69.	0.14
MILE	559.71	757.84	574202.	4.05	141842.	5333.	14.67	0.0295	139.	88.	0.14
MILE	555.45	757.34	590893.	3.08	191683.	4928.	12.20	0.0285	139.	87.	0.09
MILE	551.20	756.34	607140.	2.96	205128.	6074.	14.24	0.0300	139.	86.	0.09
MILE	546.94	755.95	625214.	3.32	188042.	6782.	15.50	0.0320	139.	86.	0.11
MILE	542.68	755.30	649931.	4.75	136699.	8832.	16.10	0.0320	139.	85.	0.21
MILE	538.42	755.33	670735.	2.56	261718.	8505.	14.48	0.0265	139.	85.	0.08
MILE	534.16	754.62	689306.	2.67	257785.	9352.	14.64	0.0320	139.	85.	0.09
MILE	529.90	754.12	732758.	4.26	171915.	17630.	16.45	0.0315	136.	84.	0.24
MILE	23.10	760.54	11250.	1.20	9404.	689.	8.28	0.0305	2235.	36.	0.06
MILE	21.00	760.49	15176.	0.82	18587.	1545.	8.35	0.0300	2235.	40.	0.04
MILE	18.90	760.43	20319.	0.91	22235.	2321.	6.73	0.0290	2235.	40.	0.05
MILE	16.80	760.34	25468.	1.34	18986.	1568.	7.71	0.0220	2235.	40.	0.07
MILE	14.70	760.29	30194.	1.14	26601.	1768.	8.17	0.0220	2235.	50.	0.05
MILE	12.60	760.23	37622.	1.34	28057.	5177.	8.55	0.0220	2640.	60.	0.10
MILE	10.50	760.18	47578.	1.39	34139.	4650.	11.17	0.0260	2235.	70.	0.09
MILE	8.40	760.07	54265.	2.02	26904.	1387.	10.88	0.0225	2235.	70.	0.08
MILE	6.30	760.00	64065.	1.98	32296.	8937.	11.54	0.0250	2235.	70.	0.18
MILE	4.20	759.94	82380.	1.62	50701.	9826.	11.77	0.0245	4635.	70.	0.13
MILE	2.10	759.85	93641.	2.03	46089.	2606.	13.26	0.0265	2235.	70.	0.09
MILE	0.00	759.85	99165.	1.19	83638.	2077.	12.29	0.0230	2129.	70.	0.03

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TIME 12.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE 602.30	778.20	320000.	4.57	70080.	3559.	12.28	0.0280	113.	68.	0.18
MILE 598.04	773.94	328457.	7.49	43878.	1832.	10.24	0.0210	113.	64.	0.27
MILE 593.78	772.04	334952.	5.02	66718.	2447.	9.70	0.0310	113.	62.	0.17
MILE 589.52	769.51	343400.	5.31	64617.	1744.	12.12	0.0395	113.	60.	0.15
MILE 585.27	766.36	349741.	5.92	59099.	3170.	11.38	0.0400	113.	56.	0.24
MILE 581.01	764.82	361071.	4.64	77829.	2539.	12.79	0.0400	113.	75.	0.15
MILE 576.75	762.12	370684.	4.34	85421.	4439.	12.82	0.0430	113.	72.	0.17
MILE 572.49	760.86	392385.	2.93	133915.	7235.	12.35	0.0380	113.	71.	0.12
MILE 568.23	759.38	442971.	7.70	57493.	4408.	13.97	0.0300	111.	69.	0.38
MILE 568.23	759.38	539603.	9.39	57493.	4408.	13.97	0.0300	137.	69.	0.46
MILE 563.97	758.05	548345.	4.21	130288.	4381.	13.15	0.0260	137.	68.	0.14
MILE 559.71	757.38	563126.	4.01	140586.	5293.	14.59	0.0295	137.	87.	0.14
MILE 555.45	756.88	579784.	3.07	189101.	4893.	12.16	0.0285	137.	87.	0.09
MILE 551.20	755.89	596042.	2.94	203063.	6035.	14.20	0.0300	137.	86.	0.09
MILE 546.94	755.50	614207.	3.29	186593.	6761.	15.44	0.0320	137.	86.	0.11
MILE 542.68	754.86	638966.	4.72	135422.	8806.	16.07	0.0320	137.	85.	0.21
MILE 538.42	754.89	659797.	2.55	259164.	8466.	14.43	0.0265	137.	85.	0.08
MILE 534.16	754.18	678434.	2.66	255389.	9301.	14.58	0.0320	137.	84.	0.09
MILE 529.90	753.69	721814.	4.23	170572.	17487.	16.42	0.0315	134.	84.	0.24
MILE 23.10	760.05	11000.	1.20	9181.	677.	8.21	0.0305	2155.	35.	0.06
MILE 21.00	760.01	14807.	0.82	18048.	1518.	8.41	0.0300	2155.	40.	0.04
MILE 18.90	759.95	19787.	0.92	21616.	2283.	6.79	0.0290	2155.	40.	0.05
MILE 16.80	759.86	24780.	1.34	18479.	1545.	7.74	0.0220	2155.	40.	0.07
MILE 14.70	759.81	29370.	1.12	26133.	1739.	8.14	0.0220	2155.	50.	0.05
MILE 12.60	759.75	36516.	1.33	27395.	5024.	8.62	0.0220	2555.	60.	0.10
MILE 10.50	759.71	46100.	1.37	33644.	4515.	11.12	0.0260	2155.	70.	0.09
MILE 8.40	759.59	52551.	1.98	26478.	1375.	10.86	0.0225	2155.	70.	0.08
MILE 6.30	759.52	62133.	1.95	31847.	8817.	11.49	0.0250	2155.	70.	0.18
MILE 4.20	759.47	80149.	1.60	50038.	9698.	11.70	0.0245	4555.	69.	0.12
MILE 2.10	759.38	91217.	2.00	45572.	2584.	13.20	0.0265	2155.	69.	0.08
MILE 0.00	759.38	96633.	1.17	82623.	2062.	12.22	0.0230	2052.	69.	0.03

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TIME 13.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE 602.30	777.71	315000.	4.58	68748.	3536.	12.31	0.0280	111.	68.	0.18
MILE 598.04	773.45	323336.	7.51	43077.	1821.	10.23	0.0210	111.	63.	0.27
MILE 593.78	771.56	329537.	5.01	65712.	2374.	9.67	0.0310	111.	62.	0.17

MILE	589.52	769.04	337694.	5.29	63825.	1744.	12.07	0.0395	111.	59.	0.15
MILE	585.27	765.89	343970.	5.90	58316.	3079.	11.33	0.0400	111.	56.	0.24
MILE	581.01	764.35	354904.	4.61	76970.	2527.	12.72	0.0400	111.	74.	0.15
MILE	576.75	761.66	364263.	4.32	84371.	4358.	12.77	0.0430	111.	72.	0.17
MILE	572.49	760.38	385515.	2.92	132198.	7197.	12.29	0.0380	111.	70.	0.12
MILE	568.23	758.91	434872.	7.64	56908.	4371.	13.91	0.0300	109.	69.	0.37
MILE	568.23	758.91	529167.	9.30	56908.	4371.	13.91	0.0300	135.	69.	0.45
MILE	563.97	757.58	537909.	4.17	128915.	4362.	13.07	0.0260	135.	68.	0.14
MILE	559.71	756.92	552503.	3.97	139329.	5253.	14.52	0.0295	135.	87.	0.14
MILE	555.45	756.42	569061.	3.05	186532.	4857.	12.13	0.0285	135.	86.	0.09
MILE	551.20	755.43	585243.	2.91	201000.	5995.	14.16	0.0300	135.	85.	0.09
MILE	546.94	755.05	603401.	3.26	185138.	6739.	15.37	0.0320	135.	85.	0.11
MILE	542.68	754.41	628089.	4.68	134145.	8780.	16.04	0.0320	135.	84.	0.21
MILE	538.42	754.44	648927.	2.53	256607.	8427.	14.38	0.0265	135.	84.	0.08
MILE	534.16	753.74	667579.	2.64	252986.	9250.	14.52	0.0320	135.	84.	0.09
MILE	529.90	753.26	710808.	4.20	169226.	17344.	16.38	0.0315	132.	83.	0.24
MILE	23.10	759.58	10750.	1.20	8964.	666.	8.14	0.0305	2074.	35.	0.06
MILE	21.00	759.53	14412.	0.82	17573.	1486.	8.39	0.0300	2074.	40.	0.04
MILE	18.90	759.47	19223.	0.92	21008.	2239.	6.79	0.0290	2074.	39.	0.05
MILE	16.80	759.38	24053.	1.34	17909.	1519.	7.76	0.0220	2074.	39.	0.07
MILE	14.70	759.33	28508.	1.11	25647.	1707.	8.10	0.0220	2074.	49.	0.05
MILE	12.60	759.28	35426.	1.32	26833.	4875.	8.61	0.0220	2470.	59.	0.10
MILE	10.50	759.23	44696.	1.35	33147.	4384.	11.07	0.0260	2074.	69.	0.09
MILE	8.40	759.12	50975.	1.96	26054.	1364.	10.83	0.0225	2074.	69.	0.08
MILE	6.30	759.05	60376.	1.92	31402.	8697.	11.44	0.0250	2074.	69.	0.18
MILE	4.20	759.00	78122.	1.58	49377.	9570.	11.63	0.0245	4474.	69.	0.12
MILE	2.10	758.91	88989.	1.97	45058.	2562.	13.15	0.0265	2074.	69.	0.08
MILE	0.00	758.91	94295.	1.16	81612.	2048.	12.14	0.0230	1975.	69.	0.03

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TIME	14.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	777.23	310000.	4.60	67453.	3513.	12.34	0.0280	110.	67.	0.18
MILE	598.04	772.97	318229.	7.52	42290.	1810.	10.23	0.0210	110.	63.	0.27
MILE	593.78	771.09	324171.	5.01	64722.	2300.	9.64	0.0310	110.	61.	0.17
MILE	589.52	768.56	332139.	5.27	63033.	1744.	12.02	0.0395	110.	59.	0.15
MILE	585.27	765.42	338294.	5.88	57537.	2988.	11.28	0.0400	110.	55.	0.24
MILE	581.01	763.88	348831.	4.58	76115.	2516.	12.65	0.0400	110.	74.	0.15
MILE	576.75	761.19	357949.	4.30	83331.	4277.	12.72	0.0430	110.	71.	0.17
MILE	572.49	759.90	378785.	2.90	130486.	7136.	12.24	0.0380	110.	70.	0.12
MILE	568.23	758.44	427049.	7.58	56326.	4335.	13.85	0.0300	108.	68.	0.37

MILE	568.23	758.44	519042.	9.21	56326.	4335.	13.85	0.0300	133.	68.	0.45
MILE	563.97	757.11	527763.	4.14	127546.	4344.	12.99	0.0260	133.	67.	0.13
MILE	559.71	756.46	542168.	3.93	138076.	5213.	14.45	0.0295	133.	86.	0.13
MILE	555.45	755.96	558620.	3.04	183982.	4821.	12.09	0.0285	133.	86.	0.09
MILE	551.20	754.98	574715.	2.89	198945.	5955.	14.11	0.0300	133.	85.	0.09
MILE	546.94	754.60	592847.	3.23	183682.	6718.	15.30	0.0320	133.	85.	0.11
MILE	542.68	753.97	617425.	4.65	132872.	8754.	16.02	0.0320	133.	84.	0.21
MILE	538.42	753.99	638210.	2.51	254054.	8388.	14.33	0.0265	133.	84.	0.08
MILE	534.16	753.30	656840.	2.62	250583.	9198.	14.46	0.0320	133.	83.	0.09
MILE	529.90	752.82	699766.	4.17	167881.	17201.	16.34	0.0315	130.	83.	0.24
MILE	23.10	759.10	10500.	1.20	8749.	655.	8.07	0.0305	1993.	34.	0.06
MILE	21.00	759.05	14056.	0.82	17109.	1454.	8.38	0.0300	1993.	39.	0.04
MILE	18.90	758.99	18740.	0.92	20418.	2195.	6.79	0.0290	1993.	39.	0.05
MILE	16.80	758.91	23445.	1.35	17355.	1493.	7.78	0.0220	1993.	39.	0.07
MILE	14.70	758.86	27768.	1.10	25170.	1676.	8.07	0.0220	1993.	49.	0.05
MILE	12.60	758.80	34471.	1.31	26284.	4726.	8.61	0.0220	2385.	59.	0.10
MILE	10.50	758.75	43431.	1.33	32656.	4253.	11.01	0.0260	1993.	69.	0.08
MILE	8.40	758.65	49506.	1.93	25635.	1353.	10.80	0.0225	1993.	69.	0.08
MILE	6.30	758.58	58715.	1.90	30961.	8578.	11.40	0.0250	1993.	69.	0.18
MILE	4.20	758.53	76149.	1.56	48721.	9442.	11.56	0.0245	4393.	69.	0.12
MILE	2.10	758.44	86796.	1.95	44546.	2539.	13.09	0.0265	1993.	68.	0.08
MILE	0.00	758.44	91993.	1.14	80606.	2033.	12.07	0.0230	1899.	68.	0.03

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TIME	15.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	776.75	305000.	4.61	66190.	3491.	12.37	0.0280	108.	67.	0.19
MILE	598.04	772.49	313143.	7.54	41524.	1800.	10.23	0.0210	108.	62.	0.28
MILE	593.78	770.62	318838.	5.00	63749.	2227.	9.61	0.0310	108.	61.	0.16
MILE	589.52	768.08	326686.	5.25	62249.	1744.	11.96	0.0395	108.	58.	0.15
MILE	585.27	764.95	332730.	5.86	56762.	2902.	11.22	0.0400	108.	55.	0.23
MILE	581.01	763.41	342899.	4.56	75264.	2505.	12.57	0.0400	108.	73.	0.15
MILE	576.75	760.73	351779.	4.27	82297.	4196.	12.67	0.0430	108.	71.	0.17
MILE	572.49	759.42	372224.	2.89	128745.	6987.	12.18	0.0380	108.	69.	0.12
MILE	568.23	757.97	419332.	7.52	55747.	4299.	13.79	0.0300	106.	68.	0.37
MILE	568.23	757.97	509168.	9.13	55747.	4299.	13.79	0.0300	131.	68.	0.45
MILE	563.97	756.64	517860.	4.10	126180.	4326.	12.91	0.0260	131.	67.	0.13
MILE	559.71	756.00	532062.	3.89	136824.	5172.	14.38	0.0295	131.	86.	0.13
MILE	555.45	755.50	548395.	3.02	181451.	4786.	12.06	0.0285	131.	86.	0.09

MILE	551.20	754.52	564387.	2.87	196898.	5915.	14.07	0.0300	131.	85.	0.09
MILE	546.94	754.15	582467.	3.20	182227.	6697.	15.23	0.0320	131.	84.	0.11
MILE	542.68	753.52	606895.	4.61	131603.	8728.	15.99	0.0320	131.	84.	0.21
MILE	538.42	753.54	627592.	2.50	251510.	8349.	14.28	0.0265	131.	84.	0.08
MILE	534.16	752.86	646160.	2.60	248186.	9147.	14.40	0.0320	131.	83.	0.09
MILE	529.90	752.38	688720.	4.14	166540.	17057.	16.31	0.0315	128.	82.	0.23
MILE	23.10	758.62	10250.	1.20	8536.	644.	7.99	0.0305	1913.	34.	0.06
MILE	21.00	758.57	13696.	0.82	16653.	1421.	8.37	0.0300	1913.	39.	0.04
MILE	18.90	758.52	18241.	0.92	19842.	2151.	6.79	0.0290	1913.	39.	0.05
MILE	16.80	758.43	22818.	1.36	16814.	1467.	7.80	0.0220	1913.	38.	0.07
MILE	14.70	758.38	27016.	1.09	24700.	1644.	8.04	0.0220	1913.	48.	0.05
MILE	12.60	758.32	33509.	1.30	25744.	4577.	8.61	0.0220	2300.	58.	0.10
MILE	10.50	758.28	42181.	1.31	32168.	4123.	10.96	0.0260	1913.	68.	0.08
MILE	8.40	758.17	48075.	1.91	25221.	1342.	10.77	0.0225	1913.	68.	0.08
MILE	6.30	758.11	57112.	1.87	30523.	8459.	11.35	0.0250	1913.	68.	0.17
MILE	4.20	758.06	74290.	1.55	48068.	9315.	11.49	0.0245	4313.	68.	0.12
MILE	2.10	757.97	84746.	1.92	44038.	2517.	13.03	0.0265	1913.	68.	0.08
MILE	0.00	757.97	89836.	1.13	79606.	2018.	12.00	0.0230	1822.	68.	0.03

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TIME	16.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	776.28	300000.	4.62	64951.	3469.	12.40	0.0280	106.	66.	0.19
MILE	598.04	772.01	308080.	7.56	40775.	1789.	10.23	0.0210	106.	62.	0.28
MILE	593.78	770.16	313549.	4.99	62795.	2155.	9.58	0.0310	106.	60.	0.16
MILE	589.52	767.61	321290.	5.23	61477.	1744.	11.91	0.0395	106.	58.	0.16
MILE	585.27	764.49	327259.	5.85	55965.	2866.	11.18	0.0400	106.	54.	0.23
MILE	581.01	762.95	337071.	4.53	74422.	2493.	12.50	0.0400	106.	73.	0.15
MILE	576.75	760.27	345735.	4.25	81274.	4115.	12.62	0.0430	106.	70.	0.17
MILE	572.49	758.94	365792.	2.88	127021.	6838.	12.13	0.0380	106.	69.	0.12
MILE	568.23	757.50	411834.	7.46	55171.	4262.	13.73	0.0300	105.	67.	0.37
MILE	568.23	757.50	499501.	9.05	55171.	4262.	13.73	0.0300	128.	67.	0.44
MILE	563.97	756.17	508162.	4.07	124817.	4308.	12.83	0.0260	128.	66.	0.13
MILE	559.71	755.54	522150.	3.85	135575.	5132.	14.31	0.0295	128.	86.	0.13
MILE	555.45	755.04	538349.	3.01	178941.	4750.	12.02	0.0285	128.	85.	0.09
MILE	551.20	754.06	554217.	2.84	194862.	5875.	14.03	0.0300	128.	84.	0.09
MILE	546.94	753.69	572225.	3.17	180773.	6675.	15.16	0.0320	128.	84.	0.11
MILE	542.68	753.07	596472.	4.58	130342.	8702.	15.96	0.0320	128.	83.	0.21
MILE	538.42	753.09	617060.	2.48	248976.	8309.	14.23	0.0265	128.	83.	0.08
MILE	534.16	752.41	635567.	2.59	245797.	9095.	14.35	0.0320	128.	82.	0.09
MILE	529.90	751.95	678496.	4.11	165203.	16913.	16.27	0.0315	126.	82.	0.23

MILE	23.10	758.15	10000.	1.20	8325.	633.	7.92	0.0305	1832.	33.	0.06
MILE	21.00	758.10	13334.	0.82	16204.	1389.	8.36	0.0300	1832.	38.	0.04
MILE	18.90	758.04	17746.	0.92	19283.	2107.	6.80	0.0290	1832.	38.	0.05
MILE	16.80	757.95	22193.	1.36	16286.	1441.	7.84	0.0220	1832.	38.	0.07
MILE	14.70	757.90	26273.	1.08	24236.	1612.	8.01	0.0220	1832.	48.	0.05
MILE	12.60	757.85	32554.	1.29	25215.	4428.	8.62	0.0220	2216.	58.	0.10
MILE	10.50	757.80	40942.	1.29	31684.	3992.	10.91	0.0260	1832.	68.	0.08
MILE	8.40	757.70	46657.	1.88	24812.	1331.	10.74	0.0225	1832.	68.	0.08
MILE	6.30	757.64	55516.	1.85	30089.	8340.	11.30	0.0250	1832.	68.	0.17
MILE	4.20	757.59	72426.	1.53	47418.	9188.	11.42	0.0245	4232.	68.	0.12
MILE	2.10	757.50	82685.	1.90	43532.	2495.	12.97	0.0265	1832.	68.	0.08
MILE	0.00	757.50	87666.	1.12	78609.	2003.	11.93	0.0230	1745.	67.	0.03

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TIME	17.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	775.81	295000.	4.63	63733.	3447.	12.44	0.0280	105.	66.	0.19
MILE	598.04	771.54	302988.	7.57	40044.	1779.	10.23	0.0210	105.	62.	0.28
MILE	593.78	769.70	308213.	4.99	61800.	2119.	9.55	0.0310	105.	60.	0.16
MILE	589.52	767.15	315943.	5.20	60718.	1744.	11.85	0.0395	105.	57.	0.16
MILE	585.27	764.02	321877.	5.83	55179.	2831.	11.13	0.0400	105.	54.	0.23
MILE	581.01	762.49	331399.	4.50	73588.	2482.	12.43	0.0400	105.	72.	0.15
MILE	576.75	759.81	339862.	4.23	80330.	4069.	12.56	0.0430	105.	70.	0.17
MILE	572.49	758.46	359562.	2.87	125314.	6690.	12.08	0.0380	105.	68.	0.12
MILE	568.23	757.03	404574.	7.41	54597.	4226.	13.67	0.0300	103.	67.	0.36
MILE	568.23	757.03	490014.	8.98	54597.	4226.	13.67	0.0300	126.	67.	0.44
MILE	563.97	755.71	498635.	4.04	123459.	4289.	12.75	0.0260	126.	66.	0.13
MILE	559.71	755.07	512400.	3.81	134330.	5092.	14.24	0.0295	126.	85.	0.13
MILE	555.45	754.59	528475.	2.99	176454.	4714.	11.99	0.0285	126.	85.	0.09
MILE	551.20	753.61	544292.	2.82	192838.	5835.	13.98	0.0300	126.	84.	0.09
MILE	546.94	753.24	562462.	3.14	179319.	6654.	15.09	0.0320	126.	83.	0.11
MILE	542.68	752.62	587259.	4.55	129075.	8676.	15.93	0.0320	126.	83.	0.21
MILE	538.42	752.63	609053.	2.47	246411.	8270.	14.18	0.0265	126.	83.	0.08
MILE	534.16	751.95	628906.	2.58	243312.	9042.	14.28	0.0320	126.	82.	0.09
MILE	529.90	751.48	674055.	4.12	163778.	16760.	16.23	0.0315	123.	81.	0.23
MILE	23.10	757.67	9750.	1.20	8115.	622.	7.84	0.0305	1752.	33.	0.06
MILE	21.00	757.62	12974.	0.82	15762.	1356.	8.35	0.0300	1752.	38.	0.04
MILE	18.90	757.56	17255.	0.92	18738.	2063.	6.81	0.0290	1752.	38.	0.05
MILE	16.80	757.47	21574.	1.37	15772.	1415.	7.88	0.0220	1752.	37.	0.07

MILE	14.70	757.43	25533.	1.07	23778.	1580.	7.98	0.0220	1752.	47.	0.05
MILE	12.60	757.37	31600.	1.28	24696.	4279.	8.62	0.0220	2131.	57.	0.09
MILE	10.50	757.33	39696.	1.27	31203.	3862.	10.86	0.0260	1752.	67.	0.08
MILE	8.40	757.23	45220.	1.85	24406.	1320.	10.72	0.0225	1752.	67.	0.08
MILE	6.30	757.17	53894.	1.82	29658.	8221.	11.25	0.0250	1752.	67.	0.17
MILE	4.20	757.12	70518.	1.51	46772.	9061.	11.35	0.0245	4152.	67.	0.12
MILE	2.10	757.04	80569.	1.87	43029.	2473.	12.91	0.0265	1752.	67.	0.08
MILE	0.00	757.03	85440.	1.10	77618.	1989.	11.85	0.0230	1668.	67.	0.03

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TIME	18.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	775.34	290000.	4.64	62533.	3426.	12.49	0.0280	103.	65.	0.19
MILE	598.04	771.08	297958.	7.58	39334.	1768.	10.24	0.0210	103.	61.	0.28
MILE	593.78	769.24	303044.	4.98	60798.	2102.	9.52	0.0310	103.	59.	0.16
MILE	589.52	766.69	310715.	5.18	59974.	1744.	11.80	0.0395	103.	57.	0.16
MILE	585.27	763.57	316551.	5.82	54405.	2795.	11.08	0.0400	103.	54.	0.23
MILE	581.01	762.03	325738.	4.48	72764.	2471.	12.36	0.0400	103.	72.	0.15
MILE	576.75	759.35	334001.	4.20	79487.	4069.	12.48	0.0430	103.	69.	0.17
MILE	572.49	757.98	353389.	2.86	123624.	6543.	12.02	0.0380	103.	68.	0.12
MILE	568.23	756.57	397551.	7.36	54027.	4190.	13.61	0.0300	102.	67.	0.36
MILE	568.23	756.57	480762.	8.90	54027.	4190.	13.61	0.0300	124.	67.	0.44
MILE	563.97	755.24	489468.	4.01	122100.	4271.	12.67	0.0260	124.	65.	0.13
MILE	559.71	754.61	503378.	3.78	133078.	5052.	14.17	0.0295	124.	85.	0.13
MILE	555.45	754.12	519872.	2.99	173948.	4678.	11.95	0.0285	124.	84.	0.09
MILE	551.20	753.14	536197.	2.81	190761.	5794.	13.94	0.0300	124.	83.	0.09
MILE	546.94	752.77	554971.	3.12	177810.	6631.	15.02	0.0320	124.	83.	0.11
MILE	542.68	752.14	580406.	4.54	127753.	8649.	15.91	0.0320	124.	82.	0.21
MILE	538.42	752.16	602740.	2.47	243747.	8228.	14.13	0.0265	124.	82.	0.08
MILE	534.16	751.47	623154.	2.59	240725.	8986.	14.22	0.0320	124.	81.	0.09
MILE	529.90	750.99	669440.	4.12	162304.	16600.	16.19	0.0315	121.	81.	0.23
MILE	23.10	757.19	9500.	1.20	7906.	611.	7.77	0.0305	1671.	32.	0.06
MILE	21.00	757.14	12609.	0.82	15328.	1324.	8.35	0.0300	1671.	37.	0.04
MILE	18.90	757.08	16754.	0.92	18208.	2019.	6.82	0.0290	1671.	37.	0.05
MILE	16.80	756.99	20940.	1.37	15271.	1389.	7.92	0.0220	1671.	37.	0.07
MILE	14.70	756.95	24773.	1.06	23327.	1548.	7.95	0.0220	1671.	47.	0.05
MILE	12.60	756.90	30621.	1.27	24188.	4130.	8.63	0.0220	2046.	57.	0.09
MILE	10.50	756.86	38417.	1.25	30726.	3731.	10.81	0.0260	1671.	67.	0.08
MILE	8.40	756.76	43753.	1.82	24006.	1309.	10.69	0.0225	1671.	67.	0.07
MILE	6.30	756.70	52238.	1.79	29230.	8102.	11.21	0.0250	1671.	67.	0.17
MILE	4.20	756.65	68581.	1.49	46129.	8934.	11.28	0.0245	4071.	67.	0.12

MILE	2.10	756.57	78437.	1.84	42529.	2451.	12.85	0.0265	1671.	67.	0.08
MILE	0.00	756.57	83211.	1.09	76631.	1974.	11.78	0.0230	1591.	67.	0.03

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TIME	19.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	774.91	286667.	4.66	61494.	3393.	12.52	0.0280	102.	65.	0.19
MILE	598.04	770.64	293808.	7.60	38667.	1758.	10.25	0.0210	102.	61.	0.29
MILE	593.78	768.80	298492.	4.99	59832.	2085.	9.49	0.0310	102.	59.	0.16
MILE	589.52	766.24	305760.	5.16	59245.	1744.	11.75	0.0395	102.	56.	0.16
MILE	585.27	763.11	311334.	5.80	53644.	2760.	11.03	0.0400	102.	53.	0.23
MILE	581.01	761.57	320270.	4.45	71947.	2460.	12.29	0.0400	102.	72.	0.15
MILE	576.75	758.90	328319.	4.17	78647.	4069.	12.41	0.0430	102.	69.	0.17
MILE	572.49	757.51	347481.	2.85	121941.	6396.	11.97	0.0380	102.	68.	0.12
MILE	568.23	756.09	390940.	7.31	53453.	4154.	13.55	0.0300	100.	66.	0.36
MILE	568.23	756.09	472303.	8.84	53453.	4154.	13.55	0.0300	122.	66.	0.43
MILE	563.97	754.76	481145.	3.99	120700.	4229.	12.59	0.0260	122.	65.	0.13
MILE	559.71	754.13	495323.	3.76	131790.	5010.	14.09	0.0295	122.	84.	0.13
MILE	555.45	753.64	512052.	2.99	171384.	4641.	11.91	0.0285	122.	84.	0.09
MILE	551.20	752.65	528692.	2.80	188622.	5752.	13.89	0.0300	122.	83.	0.09
MILE	546.94	752.28	547927.	3.11	176251.	6608.	14.94	0.0320	122.	82.	0.11
MILE	542.68	751.65	573892.	4.54	126393.	8620.	15.88	0.0320	122.	82.	0.21
MILE	538.42	751.66	596688.	2.48	241006.	8185.	14.07	0.0265	122.	82.	0.08
MILE	534.16	750.98	617580.	2.59	238066.	8928.	14.15	0.0320	122.	81.	0.09
MILE	529.90	750.50	664692.	4.13	160794.	16435.	16.14	0.0315	119.	80.	0.23
MILE	23.10	756.72	9500.	1.23	7705.	600.	7.69	0.0305	1590.	32.	0.06
MILE	21.00	756.67	12456.	0.84	14911.	1292.	8.35	0.0300	1590.	37.	0.04
MILE	18.90	756.61	16403.	0.93	17701.	1975.	6.84	0.0290	1590.	37.	0.05
MILE	16.80	756.52	20418.	1.38	14788.	1363.	7.98	0.0220	1590.	37.	0.07
MILE	14.70	756.47	24100.	1.05	22886.	1517.	7.92	0.0220	1590.	46.	0.05
MILE	12.60	756.42	29682.	1.25	23691.	3981.	8.65	0.0220	1961.	56.	0.09
MILE	10.50	756.38	37156.	1.23	30252.	3601.	10.75	0.0260	1590.	66.	0.07
MILE	8.40	756.29	42308.	1.79	23610.	1297.	10.67	0.0225	1590.	66.	0.07
MILE	6.30	756.23	50661.	1.76	28805.	7983.	11.16	0.0250	1590.	66.	0.16
MILE	4.20	756.18	66878.	1.47	45486.	8806.	11.21	0.0245	3990.	66.	0.11
MILE	2.10	756.10	76649.	1.82	42027.	2429.	12.79	0.0265	1590.	66.	0.08
MILE	0.00	756.09	81363.	1.08	75638.	1959.	11.70	0.0230	1514.	66.	0.03

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TIME 20.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE 602.30	774.50	283333.	4.67	60674.	3318.	12.51	0.0280	100.	65.	0.19
MILE 598.04	770.22	290132.	7.63	38049.	1749.	10.25	0.0210	100.	60.	0.29
MILE 593.78	768.38	294520.	5.00	58933.	2069.	9.47	0.0310	100.	58.	0.17
MILE 589.52	765.81	301403.	5.15	58556.	1744.	11.70	0.0395	100.	56.	0.16
MILE 585.27	762.68	306676.	5.80	52912.	2726.	10.98	0.0400	100.	53.	0.23
MILE 581.01	761.13	315358.	4.43	71149.	2449.	12.22	0.0400	100.	71.	0.14
MILE 576.75	758.45	323161.	4.15	77811.	4069.	12.33	0.0430	100.	68.	0.17
MILE 572.49	757.03	342052.	2.84	120256.	6247.	11.91	0.0380	100.	67.	0.11
MILE 568.23	755.62	384642.	7.27	52874.	4117.	13.49	0.0300	99.	66.	0.36
MILE 568.23	755.62	464483.	8.78	52874.	4117.	13.49	0.0300	120.	66.	0.43
MILE 563.97	754.27	473335.	3.97	119270.	4162.	12.51	0.0260	120.	64.	0.13
MILE 559.71	753.65	487718.	3.74	130479.	4967.	14.01	0.0295	120.	84.	0.13
MILE 555.45	753.15	504620.	2.99	168787.	4603.	11.88	0.0285	120.	83.	0.09
MILE 551.20	752.15	521476.	2.80	186443.	5708.	13.85	0.0300	120.	82.	0.09
MILE 546.94	751.79	541062.	3.10	174655.	6585.	14.86	0.0320	120.	82.	0.11
MILE 542.68	751.15	567425.	4.54	125006.	8591.	15.85	0.0320	120.	81.	0.21
MILE 538.42	751.16	590669.	2.48	238206.	8141.	14.01	0.0265	120.	81.	0.08
MILE 534.16	750.47	611986.	2.60	235347.	8869.	14.08	0.0320	120.	80.	0.09
MILE 529.90	749.98	659814.	4.14	159259.	16265.	16.10	0.0315	117.	80.	0.23
MILE 23.10	756.26	9500.	1.27	7507.	589.	7.62	0.0305	1510.	31.	0.06
MILE 21.00	756.20	12350.	0.85	14503.	1260.	8.35	0.0300	1510.	36.	0.04
MILE 18.90	756.14	16176.	0.94	17213.	1932.	6.87	0.0290	1510.	36.	0.06
MILE 16.80	756.05	20068.	1.40	14321.	1338.	8.04	0.0220	1510.	36.	0.08
MILE 14.70	756.00	23641.	1.05	22454.	1485.	7.90	0.0220	1510.	46.	0.05
MILE 12.60	755.95	29060.	1.25	23207.	3833.	8.66	0.0220	1876.	56.	0.09
MILE 10.50	755.91	36294.	1.22	29783.	3471.	10.70	0.0260	1510.	66.	0.07
MILE 8.40	755.82	41286.	1.78	23216.	1286.	10.64	0.0225	1510.	66.	0.07
MILE 6.30	755.76	49522.	1.75	28379.	7863.	11.11	0.0250	1510.	66.	0.16
MILE 4.20	755.71	65563.	1.46	44838.	8677.	11.14	0.0245	3910.	66.	0.11
MILE 2.10	755.63	75205.	1.81	41521.	2407.	12.73	0.0265	1510.	66.	0.08
MILE 0.00	755.62	79842.	1.07	74636.	1944.	11.63	0.0230	1438.	66.	0.03

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TIME 21.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE 602.30	774.12	280000.	4.67	59899.	3246.	12.50	0.0280	99.	64.	0.19
MILE 598.04	769.82	286458.	7.65	37457.	1732.	10.26	0.0210	99.	60.	0.29

MILE	593.78	767.98	290697.	5.01	58079.	2053.	9.45	0.0310	99.	58.	0.17
MILE	589.52	765.39	297354.	5.14	57894.	1744.	11.65	0.0395	99.	55.	0.16
MILE	585.27	762.25	302418.	5.79	52206.	2693.	10.94	0.0400	99.	52.	0.23
MILE	581.01	760.69	310922.	4.42	70371.	2439.	12.15	0.0400	99.	71.	0.14
MILE	576.75	758.01	318505.	4.14	76986.	4069.	12.26	0.0430	99.	68.	0.17
MILE	572.49	756.55	337085.	2.84	118580.	6098.	11.86	0.0380	99.	67.	0.11
MILE	568.23	755.14	378650.	7.24	52293.	4080.	13.43	0.0300	97.	65.	0.36
MILE	568.23	755.14	457167.	8.74	52293.	4080.	13.43	0.0300	118.	65.	0.43
MILE	563.97	753.77	465979.	3.95	117826.	4095.	12.43	0.0260	118.	64.	0.13
MILE	559.71	753.15	480518.	3.72	129152.	4924.	13.94	0.0295	118.	83.	0.13
MILE	555.45	752.65	497533.	2.99	166172.	4564.	11.84	0.0285	118.	83.	0.09
MILE	551.20	751.64	514546.	2.79	184236.	5664.	13.80	0.0300	118.	82.	0.09
MILE	546.94	751.28	534423.	3.09	173029.	6561.	14.78	0.0320	118.	81.	0.11
MILE	542.68	750.64	561120.	4.54	123597.	8561.	15.82	0.0320	118.	81.	0.21
MILE	538.42	750.64	584744.	2.48	235356.	8096.	13.95	0.0265	118.	81.	0.08
MILE	534.16	749.94	606424.	2.61	232559.	8808.	14.01	0.0320	118.	80.	0.09
MILE	529.90	749.46	654822.	4.15	157959.	16062.	16.02	0.0315	115.	79.	0.23
MILE	23.10	755.78	9500.	1.30	7308.	578.	7.54	0.0305	1429.	31.	0.06
MILE	21.00	755.72	12264.	0.87	14099.	1228.	8.36	0.0300	1429.	36.	0.05
MILE	18.90	755.66	16006.	0.96	16734.	1888.	6.90	0.0290	1429.	36.	0.06
MILE	16.80	755.57	19815.	1.43	13861.	1312.	8.12	0.0220	1429.	36.	0.08
MILE	14.70	755.52	23302.	1.06	22021.	1453.	7.87	0.0220	1429.	46.	0.05
MILE	12.60	755.47	28568.	1.26	22724.	3683.	8.68	0.0220	1791.	55.	0.09
MILE	10.50	755.43	35582.	1.21	29310.	3339.	10.65	0.0260	1429.	65.	0.07
MILE	8.40	755.34	40436.	1.77	22821.	1275.	10.62	0.0225	1429.	65.	0.07
MILE	6.30	755.28	48554.	1.74	27952.	7741.	11.06	0.0250	1429.	65.	0.16
MILE	4.20	755.23	64449.	1.46	44189.	8548.	11.07	0.0245	3829.	65.	0.11
MILE	2.10	755.15	73964.	1.80	41014.	2384.	12.67	0.0265	1429.	65.	0.08
MILE	0.00	755.14	78517.	1.07	73631.	1929.	11.55	0.0230	1361.	65.	0.03

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TIME 22.0000		ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	773.75	276667.	4.68	59161.	3178.	12.49	0.0280	97.	64.	0.19
MILE	598.04	769.44	282949.	7.67	36886.	1705.	10.25	0.0210	97.	59.	0.29
MILE	593.78	767.60	287025.	5.01	57267.	2038.	9.42	0.0310	97.	58.	0.17
MILE	589.52	764.99	293495.	5.13	57257.	1744.	11.60	0.0395	97.	55.	0.16
MILE	585.27	761.84	298403.	5.79	51521.	2661.	10.89	0.0400	97.	52.	0.23
MILE	581.01	760.26	306773.	4.41	69609.	2428.	12.08	0.0400	97.	70.	0.15
MILE	576.75	757.56	314157.	4.12	76168.	4069.	12.18	0.0430	97.	68.	0.17
MILE	572.49	756.07	332446.	2.84	116911.	5949.	11.80	0.0380	97.	66.	0.11

MILE	568.23	754.65	373056.	7.21	51715.	4015.	13.36	0.0300	95.	65.	0.35
MILE	568.23	754.65	450214.	8.71	51715.	4015.	13.36	0.0300	116.	65.	0.43
MILE	563.97	753.27	458968.	3.94	116369.	4027.	12.34	0.0260	116.	63.	0.13
MILE	559.71	752.65	473645.	3.71	127811.	4881.	13.86	0.0295	116.	83.	0.13
MILE	555.45	752.14	490759.	3.00	163543.	4525.	11.80	0.0285	116.	82.	0.09
MILE	551.20	751.12	507906.	2.79	182001.	5619.	13.75	0.0300	116.	81.	0.09
MILE	546.94	750.76	528039.	3.08	171374.	6536.	14.70	0.0320	116.	81.	0.11
MILE	542.68	750.11	555006.	4.54	122168.	8530.	15.79	0.0320	116.	80.	0.21
MILE	538.42	750.12	578946.	2.49	232465.	8050.	13.89	0.0265	116.	80.	0.08
MILE	534.16	749.41	600962.	2.62	229623.	8741.	13.95	0.0320	116.	79.	0.09
MILE	529.90	748.92	649724.	4.15	156634.	15854.	15.95	0.0315	113.	79.	0.23
MILE	23.10	755.30	9500.	1.34	7106.	567.	7.46	0.0305	1348.	30.	0.07
MILE	21.00	755.24	12172.	0.89	13694.	1195.	8.36	0.0300	1348.	35.	0.05
MILE	18.90	755.17	15813.	0.97	16262.	1843.	6.94	0.0290	1348.	35.	0.06
MILE	16.80	755.08	19523.	1.46	13407.	1285.	8.21	0.0220	1348.	35.	0.08
MILE	14.70	755.04	22915.	1.06	21589.	1420.	7.84	0.0220	1348.	45.	0.05
MILE	12.60	754.98	28013.	1.26	22245.	3532.	8.70	0.0220	1707.	55.	0.09
MILE	10.50	754.94	34800.	1.21	28835.	3210.	10.59	0.0260	1348.	65.	0.07
MILE	8.40	754.85	39502.	1.76	22428.	1263.	10.59	0.0225	1348.	65.	0.07
MILE	6.30	754.79	47509.	1.73	27523.	7624.	11.01	0.0250	1348.	65.	0.16
MILE	4.20	754.74	63261.	1.45	43529.	8424.	10.99	0.0245	3748.	65.	0.11
MILE	2.10	754.66	72675.	1.79	40503.	2363.	12.61	0.0265	1348.	65.	0.08
MILE	0.00	754.65	77159.	1.06	72612.	1914.	11.48	0.0230	1284.	65.	0.03

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TIME	23.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	773.39	273333.	4.68	58442.	3111.	12.49	0.0280	96.	63.	0.19
MILE	598.04	769.07	279495.	7.69	36334.	1679.	10.24	0.0210	96.	59.	0.29
MILE	593.78	767.23	283451.	5.02	56483.	2024.	9.40	0.0310	96.	57.	0.17
MILE	589.52	764.60	289778.	5.12	56623.	1729.	11.55	0.0395	96.	55.	0.16
MILE	585.27	761.43	294558.	5.79	50853.	2630.	10.85	0.0400	96.	51.	0.23
MILE	581.01	759.84	302824.	4.40	68855.	2413.	12.02	0.0400	96.	70.	0.15
MILE	576.75	757.12	310037.	4.11	75354.	4069.	12.11	0.0430	96.	67.	0.17
MILE	572.49	755.59	328068.	2.85	115244.	5800.	11.75	0.0380	96.	66.	0.11
MILE	568.23	754.17	367752.	7.19	51134.	3940.	13.30	0.0300	94.	64.	0.35
MILE	568.23	754.17	443495.	8.67	51134.	3940.	13.30	0.0300	114.	64.	0.42
MILE	563.97	752.76	452204.	3.94	114896.	3959.	12.26	0.0260	114.	63.	0.13
MILE	559.71	752.14	467034.	3.69	126453.	4837.	13.78	0.0295	114.	82.	0.13

MILE	555.45	751.63	484260.	3.01	160899.	4485.	11.76	0.0285	114.	82.	0.09
MILE	551.20	750.60	501560.	2.79	179744.	5573.	13.70	0.0300	114.	81.	0.09
MILE	546.94	750.23	521947.	3.08	169694.	6511.	14.62	0.0320	114.	80.	0.11
MILE	542.68	749.58	549114.	4.54	120827.	8459.	15.74	0.0320	114.	80.	0.21
MILE	538.42	749.58	573337.	2.50	229624.	8003.	13.83	0.0265	114.	80.	0.08
MILE	534.16	748.87	595550.	2.63	226650.	8672.	13.88	0.0320	114.	79.	0.09
MILE	529.90	748.38	644537.	4.15	155287.	15643.	15.87	0.0315	111.	78.	0.23
MILE	23.10	754.82	9500.	1.37	6918.	556.	7.38	0.0305	1268.	30.	0.07
MILE	21.00	754.75	12051.	0.90	13332.	1164.	8.34	0.0300	1268.	35.	0.05
MILE	18.90	754.68	15556.	0.99	15792.	1800.	6.95	0.0290	1268.	35.	0.06
MILE	16.80	754.59	19141.	1.47	12996.	1258.	8.23	0.0220	1268.	35.	0.08
MILE	14.70	754.55	22421.	1.06	21115.	1388.	7.81	0.0220	1268.	45.	0.05
MILE	12.60	754.49	27346.	1.26	21734.	3418.	8.69	0.0220	1622.	54.	0.09
MILE	10.50	754.45	33931.	1.20	28362.	3113.	10.53	0.0260	1268.	64.	0.07
MILE	8.40	754.36	38502.	1.75	22039.	1252.	10.55	0.0225	1268.	64.	0.07
MILE	6.30	754.31	46398.	1.71	27093.	7512.	10.95	0.0250	1268.	64.	0.16
MILE	4.20	754.26	62019.	1.45	42861.	8307.	10.92	0.0245	3668.	64.	0.11
MILE	2.10	754.18	71332.	1.78	39988.	2344.	12.54	0.0265	1268.	64.	0.08
MILE	0.00	754.17	75742.	1.06	71582.	1899.	11.40	0.0230	1207.	64.	0.03

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TIME	24.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	773.04	270000.	4.68	57738.	3045.	12.48	0.0280	94.	63.	0.19
MILE	598.04	768.71	276072.	7.71	35797.	1654.	10.24	0.0210	94.	59.	0.29
MILE	593.78	766.86	279940.	5.02	55719.	2010.	9.38	0.0310	94.	57.	0.17
MILE	589.52	764.22	286161.	5.11	56000.	1714.	11.51	0.0395	94.	54.	0.16
MILE	585.27	761.02	290830.	5.79	50195.	2598.	10.80	0.0400	94.	51.	0.23
MILE	581.01	759.42	299013.	4.39	68101.	2388.	11.95	0.0400	94.	69.	0.14
MILE	576.75	756.68	306081.	4.11	74541.	4069.	12.03	0.0430	94.	67.	0.17
MILE	572.49	755.10	323870.	2.85	113578.	5649.	11.69	0.0380	94.	65.	0.11
MILE	568.23	753.67	362674.	7.17	50550.	3863.	13.23	0.0300	92.	64.	0.35
MILE	568.23	753.67	436951.	8.64	50550.	3863.	13.23	0.0300	111.	64.	0.42
MILE	563.97	752.25	445597.	3.93	113407.	3889.	12.17	0.0260	111.	62.	0.13
MILE	559.71	751.63	460557.	3.68	125079.	4792.	13.69	0.0295	111.	82.	0.13
MILE	555.45	751.11	477850.	3.02	158242.	4445.	11.72	0.0285	111.	81.	0.09
MILE	551.20	750.07	495237.	2.79	177464.	5527.	13.65	0.0300	111.	80.	0.09
MILE	546.94	749.70	515826.	3.07	168010.	6468.	14.53	0.0320	111.	80.	0.11
MILE	542.68	749.04	543169.	4.55	119499.	8375.	15.69	0.0320	111.	79.	0.21
MILE	538.42	749.04	567610.	2.50	226775.	7956.	13.75	0.0265	111.	79.	0.08
MILE	534.16	748.32	589958.	2.64	223642.	8603.	13.82	0.0320	111.	78.	0.09

MILE	529.90	747.82	638304.	4.15	153922.	15429.	15.79	0.0315	109.	78.	0.23
MILE	23.10	754.33	9500.	1.41	6756.	547.	7.30	0.0305	1187.	29.	0.07
MILE	21.00	754.26	11950.	0.92	13013.	1136.	8.28	0.0300	1187.	34.	0.05
MILE	18.90	754.19	15328.	1.00	15330.	1759.	6.94	0.0290	1187.	34.	0.06
MILE	16.80	754.09	18792.	1.49	12598.	1230.	8.23	0.0220	1187.	34.	0.08
MILE	14.70	754.05	21954.	1.06	20642.	1356.	7.77	0.0220	1187.	44.	0.05
MILE	12.60	754.00	26710.	1.26	21227.	3304.	8.69	0.0220	1537.	54.	0.09
MILE	10.50	753.96	33072.	1.19	27887.	3014.	10.47	0.0260	1187.	64.	0.07
MILE	8.40	753.87	37502.	1.73	21651.	1240.	10.51	0.0225	1187.	64.	0.07
MILE	6.30	753.81	45280.	1.70	26662.	7400.	10.89	0.0250	1187.	64.	0.16
MILE	4.20	753.76	60746.	1.44	42189.	8188.	10.84	0.0245	3587.	64.	0.11
MILE	2.10	753.68	69942.	1.77	39471.	2324.	12.48	0.0265	1187.	64.	0.08
MILE	0.00	753.67	74277.	1.05	70546.	1883.	11.32	0.0230	1130.	64.	0.03

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TIME	1.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	772.69	266667.	4.67	57054.	2980.	12.48	0.0280	94.	63.	0.19
MILE	598.04	768.34	272612.	7.73	35265.	1628.	10.23	0.0210	94.	58.	0.29
MILE	593.78	766.49	276408.	5.03	54968.	1996.	9.36	0.0310	94.	56.	0.17
MILE	589.52	763.83	282568.	5.10	55380.	1699.	11.46	0.0395	94.	54.	0.16
MILE	585.27	760.62	287150.	5.80	49544.	2567.	10.76	0.0400	94.	51.	0.23
MILE	581.01	759.01	295272.	4.38	67353.	2364.	11.88	0.0400	94.	69.	0.14
MILE	576.75	756.24	302283.	4.10	73730.	4069.	11.96	0.0430	94.	66.	0.17
MILE	572.49	754.61	319827.	2.86	111935.	5573.	11.63	0.0380	94.	65.	0.11
MILE	568.23	753.18	357732.	7.16	49965.	3786.	13.16	0.0300	92.	63.	0.35
MILE	568.23	753.18	430634.	8.62	49965.	3786.	13.16	0.0300	111.	63.	0.42
MILE	563.97	751.73	439169.	3.92	111908.	3819.	12.08	0.0260	111.	62.	0.13
MILE	559.71	751.11	454191.	3.67	123694.	4747.	13.61	0.0295	111.	81.	0.13
MILE	555.45	750.59	471470.	3.03	155578.	4404.	11.68	0.0285	111.	81.	0.09
MILE	551.20	749.52	488835.	2.79	175152.	5480.	13.59	0.0300	111.	80.	0.09
MILE	546.94	749.16	509370.	3.06	166324.	6409.	14.44	0.0320	111.	79.	0.11
MILE	542.68	748.49	536206.	4.54	118170.	8290.	15.64	0.0320	111.	78.	0.21
MILE	538.42	748.49	559511.	2.50	223938.	7908.	13.68	0.0265	111.	78.	0.08
MILE	534.16	747.78	580576.	2.63	220720.	8535.	13.75	0.0320	111.	78.	0.09
MILE	529.90	747.30	626563.	4.11	152619.	15224.	15.71	0.0315	109.	77.	0.23
MILE	23.10	753.85	9500.	1.44	6597.	538.	7.23	0.0305	1179.	29.	0.07
MILE	21.00	753.78	11883.	0.94	12700.	1108.	8.21	0.0300	1179.	34.	0.05
MILE	18.90	753.71	15149.	1.02	14883.	1718.	6.93	0.0290	1179.	34.	0.06

MILE	16.80	753.60	18505.	1.52	12211.	1203.	8.23	0.0220	1179.	34.	0.08
MILE	14.70	753.56	21583.	1.07	20179.	1324.	7.74	0.0220	1179.	44.	0.05
MILE	12.60	753.50	26170.	1.26	20733.	3189.	8.69	0.0220	1529.	54.	0.09
MILE	10.50	753.47	32314.	1.18	27417.	2917.	10.41	0.0260	1179.	63.	0.07
MILE	8.40	753.38	36627.	1.72	21266.	1228.	10.47	0.0225	1179.	63.	0.07
MILE	6.30	753.32	44270.	1.69	26232.	7287.	10.84	0.0250	1179.	63.	0.16
MILE	4.20	753.27	59524.	1.43	41518.	8069.	10.77	0.0245	3579.	63.	0.11
MILE	2.10	753.19	68596.	1.76	38954.	2303.	12.41	0.0265	1179.	63.	0.08
MILE	0.00	753.18	72902.	1.05	69509.	1868.	11.24	0.0230	1123.	63.	0.03

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TIME	2.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	772.34	263333.	4.67	56380.	2915.	12.47	0.0280	94.	62.	0.19
MILE	598.04	767.98	269175.	7.75	34743.	1603.	10.23	0.0210	94.	58.	0.29
MILE	593.78	766.13	272904.	5.03	54226.	1982.	9.34	0.0310	94.	56.	0.17
MILE	589.52	763.44	279007.	5.09	54763.	1684.	11.41	0.0395	94.	53.	0.16
MILE	585.27	760.22	283512.	5.80	48898.	2536.	10.71	0.0400	94.	50.	0.23
MILE	581.01	758.59	291587.	4.38	66608.	2340.	11.82	0.0400	94.	69.	0.14
MILE	576.75	755.80	298545.	4.09	72923.	4069.	11.88	0.0430	94.	66.	0.17
MILE	572.49	754.13	315861.	2.86	110306.	5517.	11.57	0.0380	94.	64.	0.11
MILE	568.23	752.68	352819.	7.14	49382.	3710.	13.09	0.0300	92.	63.	0.35
MILE	568.23	752.68	424584.	8.60	49382.	3710.	13.09	0.0300	111.	63.	0.42
MILE	563.97	751.21	432907.	3.92	110410.	3748.	11.99	0.0260	111.	61.	0.13
MILE	559.71	750.59	447664.	3.66	122312.	4701.	13.53	0.0295	111.	81.	0.13
MILE	555.45	750.06	464399.	3.04	152957.	4364.	11.64	0.0285	111.	80.	0.09
MILE	551.20	748.99	481159.	2.78	172886.	5433.	13.53	0.0300	111.	79.	0.09
MILE	546.94	748.63	501027.	3.04	164676.	6352.	14.36	0.0320	111.	79.	0.11
MILE	542.68	747.96	527150.	4.51	116888.	8208.	15.60	0.0320	111.	78.	0.21
MILE	538.42	747.96	549899.	2.49	221184.	7862.	13.61	0.0265	111.	78.	0.08
MILE	534.16	747.26	570146.	2.62	217896.	8469.	13.69	0.0320	111.	77.	0.09
MILE	529.90	746.78	613526.	4.05	151361.	15026.	15.64	0.0315	109.	77.	0.23
MILE	23.10	753.38	9500.	1.47	6441.	529.	7.15	0.0305	1170.	28.	0.07
MILE	21.00	753.30	11840.	0.96	12394.	1080.	8.15	0.0300	1170.	33.	0.05
MILE	18.90	753.23	15039.	1.04	14452.	1677.	6.92	0.0290	1170.	33.	0.06
MILE	16.80	753.12	18328.	1.55	11836.	1176.	8.23	0.0220	1170.	33.	0.09
MILE	14.70	753.07	21347.	1.08	19728.	1292.	7.71	0.0220	1170.	43.	0.05
MILE	12.60	753.02	25805.	1.27	20252.	3076.	8.69	0.0220	1520.	53.	0.09
MILE	10.50	752.98	31770.	1.18	26953.	2820.	10.35	0.0260	1170.	63.	0.07
MILE	8.40	752.89	35981.	1.72	20887.	1216.	10.43	0.0225	1170.	63.	0.07
MILE	6.30	752.83	43510.	1.69	25808.	7175.	10.78	0.0250	1170.	63.	0.16

MILE	4.20	752.77	58557.	1.43	40852.	7950.	10.69	0.0245	3570.	63.	0.11
MILE	2.10	752.69	67505.	1.76	38440.	2283.	12.35	0.0265	1170.	63.	0.08
MILE	0.00	752.68	71765.	1.05	68476.	1852.	11.16	0.0230	1115.	63.	0.03

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TIME	3.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	771.99	260000.	4.67	55713.	2851.	12.47	0.0280	94.	62.	0.19
MILE	598.04	767.62	265753.	7.76	34228.	1578.	10.23	0.0210	94.	58.	0.29
MILE	593.78	765.77	269429.	5.04	53496.	1968.	9.32	0.0310	94.	56.	0.17
MILE	589.52	763.06	275484.	5.09	54153.	1669.	11.37	0.0395	94.	53.	0.16
MILE	585.27	759.82	279912.	5.80	48252.	2512.	10.67	0.0400	94.	50.	0.23
MILE	581.01	758.17	287958.	4.37	65869.	2316.	11.75	0.0400	94.	68.	0.14
MILE	576.75	755.37	294859.	4.09	72122.	4069.	11.80	0.0430	94.	65.	0.17
MILE	572.49	753.64	311889.	2.87	108698.	5460.	11.51	0.0380	94.	64.	0.11
MILE	568.23	752.19	347735.	7.12	48807.	3634.	13.02	0.0300	92.	62.	0.34
MILE	568.23	752.19	418228.	8.57	48807.	3634.	13.02	0.0300	111.	62.	0.41
MILE	563.97	750.70	426216.	3.91	108947.	3679.	11.90	0.0260	111.	61.	0.13
MILE	559.71	750.08	440640.	3.64	120967.	4657.	13.44	0.0295	111.	80.	0.13
MILE	555.45	749.55	456899.	3.04	150404.	4337.	11.60	0.0285	111.	80.	0.09
MILE	551.20	748.47	473090.	2.77	170693.	5388.	13.48	0.0300	111.	78.	0.09
MILE	546.94	748.11	492116.	3.02	163075.	6297.	14.27	0.0320	111.	78.	0.10
MILE	542.68	747.45	517010.	4.47	115656.	8129.	15.55	0.0320	111.	77.	0.21
MILE	538.42	747.45	538582.	2.46	218542.	7818.	13.54	0.0265	111.	77.	0.08
MILE	534.16	746.76	557759.	2.59	215219.	8407.	13.62	0.0320	111.	77.	0.09
MILE	529.90	746.30	598945.	3.99	150165.	14838.	15.56	0.0315	109.	76.	0.22
MILE	23.10	752.91	9500.	1.51	6287.	520.	7.07	0.0305	1162.	28.	0.08
MILE	21.00	752.83	11806.	0.98	12092.	1052.	8.09	0.0300	1162.	33.	0.05
MILE	18.90	752.75	14953.	1.07	14033.	1636.	6.92	0.0290	1162.	33.	0.06
MILE	16.80	752.63	18192.	1.59	11469.	1149.	8.25	0.0220	1162.	33.	0.09
MILE	14.70	752.59	21166.	1.10	19284.	1260.	7.68	0.0220	1162.	43.	0.05
MILE	12.60	752.53	25516.	1.29	19779.	2963.	8.70	0.0220	1512.	53.	0.09
MILE	10.50	752.49	31320.	1.18	26493.	2722.	10.28	0.0260	1162.	62.	0.07
MILE	8.40	752.39	35440.	1.73	20512.	1204.	10.39	0.0225	1162.	62.	0.07
MILE	6.30	752.34	42831.	1.69	25387.	7063.	10.72	0.0250	1162.	62.	0.16
MILE	4.20	752.28	57577.	1.43	40193.	7832.	10.61	0.0245	3562.	62.	0.11
MILE	2.10	752.20	66313.	1.75	37933.	2263.	12.28	0.0265	1162.	62.	0.08
MILE	0.00	752.19	70493.	1.04	67459.	1837.	11.08	0.0230	1107.	62.	0.03

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TIME	4.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	771.65	256667.	4.66	55051.	2787.	12.46	0.0280	94.	62.	0.18
MILE	598.04	767.26	262344.	7.78	33722.	1553.	10.23	0.0210	94.	57.	0.29
MILE	593.78	765.41	265976.	5.04	52778.	1954.	9.30	0.0310	94.	55.	0.17
MILE	589.52	762.68	272002.	5.08	53551.	1654.	11.32	0.0395	94.	53.	0.16
MILE	585.27	759.43	276369.	5.81	47607.	2497.	10.63	0.0400	94.	49.	0.23
MILE	581.01	757.77	284362.	4.37	65142.	2292.	11.69	0.0400	94.	68.	0.14
MILE	576.75	754.94	291189.	4.08	71336.	4064.	11.73	0.0430	94.	65.	0.17
MILE	572.49	753.17	307901.	2.87	107118.	5405.	11.45	0.0380	94.	63.	0.11
MILE	568.23	751.71	342600.	7.10	48243.	3559.	12.95	0.0300	92.	62.	0.34
MILE	568.23	751.71	411574.	8.53	48243.	3559.	12.95	0.0300	111.	62.	0.41
MILE	563.97	750.20	419190.	3.90	107517.	3612.	11.82	0.0260	111.	60.	0.13
MILE	559.71	749.59	433117.	3.62	119640.	4626.	13.37	0.0295	111.	80.	0.13
MILE	555.45	749.06	448736.	3.03	147945.	4314.	11.55	0.0285	111.	79.	0.09
MILE	551.20	747.97	464263.	2.75	168595.	5345.	13.43	0.0300	111.	78.	0.09
MILE	546.94	747.62	482545.	2.99	161538.	6244.	14.19	0.0320	111.	78.	0.10
MILE	542.68	746.96	506500.	4.42	114481.	8053.	15.51	0.0320	111.	77.	0.21
MILE	538.42	746.96	527223.	2.44	216015.	7775.	13.48	0.0265	111.	77.	0.08
MILE	534.16	746.28	545588.	2.57	212654.	8346.	13.56	0.0320	111.	76.	0.09
MILE	529.90	745.83	584918.	3.93	149017.	14657.	15.50	0.0315	109.	76.	0.22
MILE	23.10	752.44	9500.	1.55	6134.	511.	7.00	0.0305	1154.	27.	0.08
MILE	21.00	752.35	11769.	1.00	11793.	1025.	8.03	0.0300	1154.	32.	0.05
MILE	18.90	752.26	14857.	1.09	13622.	1595.	6.92	0.0290	1154.	32.	0.07
MILE	16.80	752.15	18030.	1.62	11109.	1122.	8.26	0.0220	1154.	32.	0.09
MILE	14.70	752.10	20936.	1.11	18848.	1228.	7.65	0.0220	1154.	42.	0.05
MILE	12.60	752.04	25138.	1.30	19318.	2850.	8.71	0.0220	1504.	52.	0.09
MILE	10.50	752.00	30725.	1.18	26039.	2626.	10.22	0.0260	1154.	62.	0.07
MILE	8.40	751.91	34719.	1.72	20145.	1193.	10.35	0.0225	1154.	62.	0.07
MILE	6.30	751.85	41932.	1.68	24975.	6952.	10.66	0.0250	1154.	62.	0.16
MILE	4.20	751.80	56360.	1.43	39546.	7715.	10.54	0.0245	3554.	62.	0.11
MILE	2.10	751.72	64877.	1.73	37435.	2244.	12.22	0.0265	1154.	62.	0.07
MILE	0.00	751.71	68975.	1.04	66460.	1822.	11.00	0.0230	1099.	62.	0.03

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TIME	5.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	771.30	253333.	4.66	54390.	2722.	12.46	0.0280	94.	61.	0.18

MILE	598.04	766.90	258950.	7.79	33222.	1528.	10.23	0.0210	94.	57.	0.29
MILE	593.78	765.05	262547.	5.04	52071.	1940.	9.28	0.0310	94.	55.	0.17
MILE	589.52	762.31	268548.	5.07	52959.	1639.	11.28	0.0395	94.	52.	0.16
MILE	585.27	759.04	272863.	5.81	46973.	2482.	10.59	0.0400	94.	49.	0.24
MILE	581.01	757.36	280794.	4.36	64427.	2268.	11.62	0.0400	94.	67.	0.14
MILE	576.75	754.52	287526.	4.07	70566.	4032.	11.65	0.0430	94.	65.	0.17
MILE	572.49	752.70	303815.	2.88	105572.	5350.	11.39	0.0380	94.	63.	0.11
MILE	568.23	751.23	337391.	7.07	47690.	3485.	12.89	0.0300	92.	61.	0.34
MILE	568.23	751.23	404588.	8.48	47690.	3485.	12.89	0.0300	111.	61.	0.40
MILE	563.97	749.72	411945.	3.88	106111.	3546.	11.73	0.0260	111.	60.	0.13
MILE	559.71	749.11	425383.	3.59	118351.	4598.	13.29	0.0295	111.	79.	0.12
MILE	555.45	748.58	440456.	3.03	145577.	4290.	11.51	0.0285	111.	79.	0.09
MILE	551.20	747.49	455413.	2.73	166574.	5303.	13.37	0.0300	111.	77.	0.09
MILE	546.94	747.14	473014.	2.96	160053.	6193.	14.11	0.0320	111.	77.	0.10
MILE	542.68	746.49	496102.	4.38	113351.	7980.	15.46	0.0320	111.	76.	0.20
MILE	538.42	746.48	516057.	2.42	213580.	7733.	13.42	0.0265	111.	76.	0.08
MILE	534.16	745.82	533724.	2.54	210186.	8288.	13.51	0.0320	111.	76.	0.09
MILE	529.90	745.38	571373.	3.86	147908.	14482.	15.43	0.0315	109.	75.	0.21
MILE	23.10	751.98	9500.	1.59	5984.	502.	6.92	0.0305	1146.	27.	0.08
MILE	21.00	751.88	11711.	1.02	11500.	997.	7.96	0.0300	1146.	32.	0.05
MILE	18.90	751.79	14705.	1.11	13228.	1555.	6.92	0.0290	1146.	32.	0.07
MILE	16.80	751.67	17783.	1.65	10762.	1095.	8.28	0.0220	1146.	32.	0.09
MILE	14.70	751.62	20610.	1.12	18425.	1196.	7.62	0.0220	1146.	42.	0.05
MILE	12.60	751.56	24651.	1.31	18873.	2739.	8.72	0.0220	1496.	52.	0.09
MILE	10.50	751.52	30013.	1.17	25594.	2531.	10.16	0.0260	1146.	62.	0.06
MILE	8.40	751.43	33872.	1.71	19786.	1181.	10.31	0.0225	1146.	61.	0.07
MILE	6.30	751.37	40878.	1.66	24571.	6843.	10.61	0.0250	1146.	61.	0.15
MILE	4.20	751.32	54923.	1.41	38912.	7601.	10.46	0.0245	3546.	61.	0.11
MILE	2.10	751.25	63189.	1.71	36948.	2225.	12.15	0.0265	1146.	61.	0.07
MILE	0.00	751.23	67197.	1.03	65482.	1807.	10.93	0.0230	1091.	61.	0.03

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TIME	6.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	770.95	250000.	4.65	53732.	2657.	12.46	0.0280	94.	61.	0.18
MILE	598.04	766.54	255519.	7.81	32731.	1503.	10.23	0.0210	94.	57.	0.29
MILE	593.78	764.69	259050.	5.04	51352.	1926.	9.26	0.0310	94.	55.	0.17
MILE	589.52	761.93	265069.	5.06	52375.	1625.	11.23	0.0395	94.	52.	0.16
MILE	585.27	758.66	269354.	5.81	46350.	2467.	10.55	0.0400	94.	49.	0.24
MILE	581.01	756.96	277166.	4.35	63722.	2245.	11.56	0.0400	94.	67.	0.14
MILE	576.75	754.10	283764.	4.06	69810.	3999.	11.58	0.0430	94.	64.	0.17

MILE	572.49	752.24	299544.	2.88	104061.	5297.	11.33	0.0380	94.	62.	0.11
MILE	568.23	750.77	332216.	7.05	47150.	3413.	12.82	0.0300	92.	61.	0.33
MILE	568.23	750.77	397541.	8.43	47150.	3413.	12.82	0.0300	111.	61.	0.40
MILE	563.97	749.25	404667.	3.86	104731.	3482.	11.65	0.0260	111.	59.	0.12
MILE	559.71	748.64	417660.	3.57	117096.	4571.	13.22	0.0295	111.	79.	0.12
MILE	555.45	748.11	432216.	3.02	143286.	4268.	11.46	0.0285	111.	78.	0.09
MILE	551.20	747.02	446642.	2.71	164620.	5262.	13.32	0.0300	111.	77.	0.09
MILE	546.94	746.68	463604.	2.92	158612.	6143.	14.03	0.0320	111.	77.	0.10
MILE	542.68	746.03	485880.	4.33	112260.	7909.	15.42	0.0320	111.	76.	0.20
MILE	538.42	746.02	505154.	2.39	211229.	7693.	13.35	0.0265	111.	76.	0.08
MILE	534.16	745.37	522180.	2.51	207808.	8232.	13.45	0.0320	111.	75.	0.09
MILE	529.90	744.94	558827.	3.81	146835.	14312.	15.36	0.0315	109.	75.	0.21
MILE	23.10	751.52	9500.	1.63	5837.	494.	6.84	0.0305	1138.	27.	0.08
MILE	21.00	751.41	11653.	1.04	11215.	970.	7.90	0.0300	1138.	31.	0.05
MILE	18.90	751.32	14553.	1.13	12851.	1516.	6.93	0.0290	1138.	31.	0.07
MILE	16.80	751.20	17533.	1.68	10429.	1069.	8.31	0.0220	1138.	31.	0.09
MILE	14.70	751.15	20270.	1.13	18018.	1165.	7.59	0.0220	1138.	41.	0.05
MILE	12.60	751.09	24133.	1.31	18445.	2629.	8.73	0.0220	1488.	51.	0.09
MILE	10.50	751.05	29249.	1.16	25161.	2438.	10.10	0.0260	1138.	61.	0.06
MILE	8.40	750.96	32962.	1.70	19439.	1170.	10.28	0.0225	1138.	61.	0.07
MILE	6.30	750.91	39743.	1.64	24179.	6736.	10.55	0.0250	1138.	61.	0.15
MILE	4.20	750.86	53397.	1.39	38294.	7488.	10.39	0.0245	3538.	61.	0.11
MILE	2.10	750.78	61411.	1.68	36473.	2206.	12.09	0.0265	1138.	61.	0.07
MILE	0.00	750.77	65325.	1.01	64526.	1792.	10.85	0.0230	1083.	61.	0.03

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TIME	7.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	770.60	246667.	4.65	53078.	2592.	12.46	0.0280	94.	61.	0.18
MILE	598.04	766.19	252127.	7.82	32247.	1478.	10.23	0.0210	94.	56.	0.29
MILE	593.78	764.34	255607.	5.05	50641.	1912.	9.24	0.0310	94.	54.	0.17
MILE	589.52	761.57	261596.	5.05	51800.	1611.	11.18	0.0395	94.	52.	0.16
MILE	585.27	758.28	265829.	5.81	45740.	2452.	10.51	0.0400	94.	48.	0.24
MILE	581.01	756.57	273493.	4.34	63029.	2222.	11.50	0.0400	94.	67.	0.14
MILE	576.75	753.70	279954.	4.05	69070.	3968.	11.51	0.0430	94.	64.	0.17
MILE	572.49	751.78	295277.	2.88	102586.	5244.	11.27	0.0380	94.	62.	0.11
MILE	568.23	750.31	327070.	7.02	46623.	3343.	12.76	0.0300	92.	60.	0.33
MILE	568.23	750.31	390560.	8.38	46623.	3343.	12.76	0.0300	111.	60.	0.40
MILE	563.97	748.78	397466.	3.84	103388.	3419.	11.57	0.0260	111.	59.	0.12

MILE	559.71	748.18	410022.	3.54	115874.	4545.	13.15	0.0295	111.	78.	0.12
MILE	555.45	747.66	424100.	3.01	141072.	4246.	11.42	0.0285	111.	78.	0.09
MILE	551.20	746.57	438069.	2.69	162729.	5222.	13.28	0.0300	111.	77.	0.08
MILE	546.94	746.22	454570.	2.89	157210.	6094.	13.96	0.0320	111.	76.	0.10
MILE	542.68	745.59	476521.	4.29	111198.	7840.	15.38	0.0320	111.	76.	0.20
MILE	538.42	745.57	495968.	2.37	208924.	7654.	13.29	0.0265	111.	76.	0.08
MILE	534.16	744.92	513257.	2.50	205436.	8175.	13.39	0.0320	111.	75.	0.09
MILE	529.90	744.50	549922.	3.77	145744.	14140.	15.30	0.0315	109.	74.	0.21
MILE	23.10	751.07	9500.	1.67	5696.	485.	6.77	0.0305	1129.	26.	0.09
MILE	21.00	750.96	11593.	1.06	10941.	944.	7.84	0.0300	1129.	31.	0.05
MILE	18.90	750.86	14395.	1.15	12493.	1477.	6.94	0.0290	1129.	31.	0.07
MILE	16.80	750.74	17277.	1.71	10112.	1043.	8.34	0.0220	1129.	31.	0.10
MILE	14.70	750.69	19930.	1.13	17627.	1135.	7.57	0.0220	1129.	41.	0.05
MILE	12.60	750.63	23625.	1.31	18036.	2523.	8.75	0.0220	1479.	51.	0.09
MILE	10.50	750.59	28510.	1.15	24741.	2347.	10.04	0.0260	1129.	61.	0.06
MILE	8.40	750.50	32084.	1.68	19102.	1159.	10.24	0.0225	1129.	61.	0.07
MILE	6.30	750.45	38646.	1.62	23798.	6632.	10.49	0.0250	1129.	60.	0.15
MILE	4.20	750.40	51911.	1.38	37692.	7378.	10.31	0.0245	3529.	60.	0.11
MILE	2.10	750.33	59671.	1.66	36010.	2187.	12.02	0.0265	1129.	60.	0.07
MILE	0.00	750.31	63490.	1.00	63595.	1778.	10.77	0.0230	1075.	60.	0.03

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TIME	8.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	770.25	243333.	4.64	52425.	2527.	12.46	0.0280	94.	60.	0.18
MILE	598.04	765.83	248724.	7.83	31770.	1453.	10.24	0.0210	94.	56.	0.30
MILE	593.78	763.99	252168.	5.05	49939.	1899.	9.22	0.0310	94.	54.	0.17
MILE	589.52	761.20	258127.	5.04	51232.	1597.	11.14	0.0395	94.	51.	0.16
MILE	585.27	757.90	262305.	5.81	45143.	2438.	10.47	0.0400	94.	48.	0.24
MILE	581.01	756.19	269820.	4.33	62350.	2200.	11.43	0.0400	94.	66.	0.14
MILE	576.75	753.30	276150.	4.04	68348.	3937.	11.44	0.0430	94.	63.	0.17
MILE	572.49	751.34	291031.	2.88	101151.	5193.	11.21	0.0380	94.	61.	0.11
MILE	568.23	749.87	321993.	6.98	46112.	3284.	12.69	0.0300	92.	60.	0.33
MILE	568.23	749.87	383717.	8.32	46112.	3284.	12.69	0.0300	111.	60.	0.39
MILE	563.97	748.33	390480.	3.83	102078.	3358.	11.50	0.0260	111.	58.	0.12
MILE	559.71	747.74	402803.	3.51	114680.	4519.	13.07	0.0295	111.	78.	0.12
MILE	555.45	747.21	416728.	3.00	138909.	4224.	11.38	0.0285	111.	77.	0.09
MILE	551.20	746.11	430601.	2.68	160859.	5182.	13.23	0.0300	111.	76.	0.08
MILE	546.94	745.77	446947.	2.87	155811.	6045.	13.88	0.0320	111.	76.	0.10
MILE	542.68	745.13	468670.	4.26	110135.	7770.	15.34	0.0320	111.	75.	0.20
MILE	538.42	745.12	487872.	2.36	206626.	7614.	13.23	0.0265	111.	75.	0.08

MILE	534.16	744.47	504927.	2.49	203072.	8119.	13.34	0.0320	111.	74.	0.09
MILE	529.90	744.05	541045.	3.74	144657.	13968.	15.23	0.0315	109.	74.	0.20
MILE	23.10	750.64	9500.	1.71	5559.	477.	6.69	0.0305	1121.	26.	0.09
MILE	21.00	750.52	11538.	1.08	10677.	918.	7.78	0.0300	1121.	31.	0.06
MILE	18.90	750.42	14250.	1.17	12153.	1440.	6.96	0.0290	1121.	30.	0.07
MILE	16.80	750.29	17041.	1.74	9809.	1018.	8.37	0.0220	1121.	30.	0.10
MILE	14.70	750.24	19612.	1.14	17251.	1106.	7.54	0.0220	1121.	40.	0.05
MILE	12.60	750.18	23147.	1.31	17644.	2419.	8.77	0.0220	1471.	50.	0.09
MILE	10.50	750.14	27813.	1.14	24334.	2258.	9.98	0.0260	1121.	60.	0.06
MILE	8.40	750.06	31253.	1.66	18777.	1148.	10.20	0.0225	1121.	60.	0.07
MILE	6.30	750.00	37602.	1.61	23428.	6530.	10.44	0.0250	1121.	60.	0.15
MILE	4.20	749.95	50486.	1.36	37105.	7272.	10.24	0.0245	3521.	60.	0.11
MILE	2.10	749.88	58000.	1.63	35559.	2169.	11.96	0.0265	1121.	60.	0.07
MILE	0.00	749.87	61725.	0.98	62683.	1764.	10.70	0.0230	1068.	60.	0.03

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TIME	9.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	769.90	240000.	4.63	51838.	2475.	12.44	0.0280	94.	60.	0.18
MILE	598.04	765.48	245326.	7.84	31299.	1429.	10.24	0.0210	94.	55.	0.30
MILE	593.78	763.64	248732.	5.05	49247.	1885.	9.20	0.0310	94.	54.	0.17
MILE	589.52	760.84	254660.	5.03	50673.	1583.	11.09	0.0395	94.	51.	0.16
MILE	585.27	757.54	258786.	5.81	44559.	2423.	10.43	0.0400	94.	48.	0.24
MILE	581.01	755.81	266156.	4.31	61684.	2178.	11.37	0.0400	94.	66.	0.14
MILE	576.75	752.91	272360.	4.03	67642.	3907.	11.37	0.0430	94.	63.	0.17
MILE	572.49	750.90	286838.	2.88	99751.	5142.	11.15	0.0380	94.	61.	0.12
MILE	568.23	749.43	317068.	6.95	45617.	3250.	12.63	0.0300	92.	59.	0.33
MILE	568.23	749.43	377250.	8.27	45617.	3250.	12.63	0.0300	111.	59.	0.39
MILE	563.97	747.88	383931.	3.81	100782.	3297.	11.42	0.0260	111.	58.	0.12
MILE	559.71	747.29	396078.	3.49	113494.	4493.	13.00	0.0295	111.	77.	0.12
MILE	555.45	746.76	409801.	3.00	136772.	4202.	11.33	0.0285	111.	77.	0.09
MILE	551.20	745.66	423481.	2.66	159002.	5143.	13.18	0.0300	111.	76.	0.08
MILE	546.94	745.32	439569.	2.85	154417.	5997.	13.81	0.0320	111.	75.	0.10
MILE	542.68	744.69	460830.	4.22	109082.	7700.	15.30	0.0320	111.	75.	0.20
MILE	538.42	744.67	479153.	2.34	204360.	7575.	13.17	0.0265	111.	75.	0.08
MILE	534.16	744.04	495187.	2.47	200786.	8064.	13.28	0.0320	111.	74.	0.09
MILE	529.90	743.63	528848.	3.68	143620.	13804.	15.17	0.0315	109.	74.	0.20
MILE	23.10	750.22	9500.	1.75	5427.	469.	6.62	0.0305	1113.	25.	0.09
MILE	21.00	750.09	11488.	1.10	10421.	893.	7.72	0.0300	1113.	30.	0.06

MILE	18.90	749.99	14124.	1.19	11830.	1403.	6.98	0.0290	1113.	30.	0.07
MILE	16.80	749.85	16822.	1.76	9557.	994.	8.37	0.0220	1113.	30.	0.10
MILE	14.70	749.81	19312.	1.14	16870.	1081.	7.52	0.0220	1113.	40.	0.05
MILE	12.60	749.74	22678.	1.31	17265.	2348.	8.77	0.0220	1463.	50.	0.09
MILE	10.50	749.71	27150.	1.13	23944.	2200.	9.92	0.0260	1113.	60.	0.06
MILE	8.40	749.62	30475.	1.65	18473.	1137.	10.16	0.0225	1113.	60.	0.07
MILE	6.30	749.57	36628.	1.59	23071.	6447.	10.38	0.0250	1113.	60.	0.15
MILE	4.20	749.52	49207.	1.35	36521.	7182.	10.18	0.0245	3513.	60.	0.11
MILE	2.10	749.45	56526.	1.61	35117.	2148.	11.90	0.0265	1113.	59.	0.07
MILE	0.00	749.43	60182.	0.97	61779.	1750.	10.63	0.0230	1060.	59.	0.03

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TIME	10.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	769.55	236667.	4.60	51412.	2459.	12.39	0.0280	94.	60.	0.18
MILE	598.04	765.13	241927.	7.85	30834.	1404.	10.25	0.0210	94.	55.	0.30
MILE	593.78	763.29	245293.	5.05	48563.	1872.	9.18	0.0310	94.	53.	0.17
MILE	589.52	760.48	251192.	5.01	50119.	1569.	11.05	0.0395	94.	50.	0.16
MILE	585.27	757.17	255268.	5.80	43985.	2409.	10.39	0.0400	94.	47.	0.24
MILE	581.01	755.43	262505.	4.30	61029.	2156.	11.31	0.0400	94.	65.	0.14
MILE	576.75	752.53	268598.	4.01	66949.	3877.	11.30	0.0430	94.	63.	0.17
MILE	572.49	750.48	282707.	2.87	98380.	5092.	11.09	0.0380	94.	60.	0.12
MILE	568.23	749.00	312247.	6.92	45131.	3217.	12.56	0.0300	92.	59.	0.33
MILE	568.23	749.00	371168.	8.22	45131.	3217.	12.56	0.0300	111.	59.	0.39
MILE	563.97	747.44	377715.	3.80	99505.	3237.	11.34	0.0260	111.	57.	0.12
MILE	559.71	746.85	389529.	3.47	112327.	4467.	12.93	0.0295	111.	77.	0.12
MILE	555.45	746.33	402777.	2.99	134685.	4181.	11.29	0.0285	111.	76.	0.09
MILE	551.20	745.22	415852.	2.65	157198.	5105.	13.13	0.0300	111.	75.	0.08
MILE	546.94	744.88	431194.	2.82	153066.	5950.	13.73	0.0320	111.	75.	0.10
MILE	542.68	744.26	451513.	4.18	108078.	7634.	15.26	0.0320	111.	74.	0.20
MILE	538.42	744.24	469144.	2.32	202191.	7538.	13.11	0.0265	111.	74.	0.08
MILE	534.16	743.62	484545.	2.44	198608.	8011.	13.23	0.0320	111.	74.	0.09
MILE	529.90	743.22	516703.	3.62	142631.	13647.	15.11	0.0315	109.	73.	0.20
MILE	23.10	749.81	9500.	1.79	5299.	461.	6.55	0.0305	1105.	25.	0.09
MILE	21.00	749.67	11421.	1.12	10210.	871.	7.64	0.0300	1105.	30.	0.06
MILE	18.90	749.56	13940.	1.21	11522.	1371.	6.95	0.0290	1105.	30.	0.07
MILE	16.80	749.43	16541.	1.76	9386.	973.	8.29	0.0220	1105.	29.	0.10
MILE	14.70	749.38	18962.	1.15	16480.	1062.	7.49	0.0220	1105.	39.	0.05
MILE	12.60	749.32	22262.	1.32	16897.	2299.	8.77	0.0220	1455.	49.	0.09
MILE	10.50	749.28	26627.	1.13	23566.	2157.	9.85	0.0260	1105.	59.	0.06
MILE	8.40	749.19	29875.	1.64	18179.	1126.	10.11	0.0225	1105.	59.	0.07

MILE	6.30	749.14	35897.	1.58	22722.	6366.	10.33	0.0250	1105.	59.	0.15
MILE	4.20	749.09	48203.	1.34	35949.	7093.	10.11	0.0245	3505.	59.	0.10
MILE	2.10	749.02	55340.	1.60	34684.	2129.	11.85	0.0265	1105.	59.	0.07
MILE	0.00	749.00	58922.	0.97	60893.	1736.	10.56	0.0230	1052.	59.	0.03

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TIME 11.0000		ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	769.19	233333.	4.58	50986.	2443.	12.33	0.0280	94.	59.	0.18
MILE	598.04	764.78	238456.	7.85	30370.	1385.	10.25	0.0210	94.	55.	0.30
MILE	593.78	762.95	241820.	5.05	47887.	1858.	9.16	0.0310	94.	53.	0.18
MILE	589.52	760.13	247719.	5.00	49572.	1555.	11.01	0.0395	94.	50.	0.16
MILE	585.27	756.81	251757.	5.80	43421.	2395.	10.35	0.0400	94.	47.	0.24
MILE	581.01	755.06	258872.	4.29	60383.	2135.	11.25	0.0400	94.	65.	0.14
MILE	576.75	752.15	264855.	4.00	66268.	3848.	11.23	0.0430	94.	62.	0.17
MILE	572.49	750.06	278605.	2.87	97040.	5044.	11.04	0.0380	94.	60.	0.12
MILE	568.23	748.58	307433.	6.88	44657.	3184.	12.50	0.0300	92.	59.	0.32
MILE	568.23	748.58	365100.	8.18	44657.	3184.	12.50	0.0300	111.	59.	0.38
MILE	563.97	747.01	371399.	3.78	98269.	3179.	11.27	0.0260	111.	57.	0.12
MILE	559.71	746.43	382729.	3.44	111201.	4442.	12.86	0.0295	111.	76.	0.12
MILE	555.45	745.90	395452.	2.98	132688.	4161.	11.25	0.0285	111.	76.	0.09
MILE	551.20	744.80	408028.	2.62	155475.	5068.	13.08	0.0300	111.	75.	0.08
MILE	546.94	744.47	422772.	2.79	151770.	5905.	13.66	0.0320	111.	74.	0.10
MILE	542.68	743.85	442303.	4.13	107117.	7570.	15.22	0.0320	111.	74.	0.19
MILE	538.42	743.83	459282.	2.30	200109.	7502.	13.05	0.0265	111.	74.	0.08
MILE	534.16	743.22	474113.	2.41	196513.	7960.	13.17	0.0320	111.	73.	0.09
MILE	529.90	742.83	504942.	3.56	141674.	13495.	15.05	0.0315	109.	73.	0.19
MILE	23.10	749.41	9500.	1.83	5177.	453.	6.48	0.0305	1096.	24.	0.10
MILE	21.00	749.27	11385.	1.14	10015.	850.	7.56	0.0300	1096.	29.	0.06
MILE	18.90	749.15	13845.	1.23	11227.	1339.	6.92	0.0290	1096.	29.	0.08
MILE	16.80	749.01	16388.	1.78	9218.	952.	8.20	0.0220	1096.	29.	0.10
MILE	14.70	748.96	18756.	1.16	16102.	1042.	7.46	0.0220	1096.	39.	0.05
MILE	12.60	748.90	21961.	1.33	16541.	2251.	8.76	0.0220	1446.	49.	0.09
MILE	10.50	748.86	26200.	1.13	23197.	2114.	9.79	0.0260	1096.	59.	0.06
MILE	8.40	748.77	29369.	1.64	17892.	1115.	10.06	0.0225	1096.	59.	0.07
MILE	6.30	748.72	35220.	1.57	22381.	6286.	10.27	0.0250	1096.	59.	0.15
MILE	4.20	748.67	47240.	1.33	35389.	7006.	10.05	0.0245	3496.	59.	0.10
MILE	2.10	748.60	54172.	1.58	34261.	2109.	11.79	0.0265	1096.	59.	0.07
MILE	0.00	748.58	57667.	0.96	60029.	1722.	10.49	0.0230	1044.	59.	0.03

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TIME 12.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE 602.30	768.84	230000.	4.55	50564.	2426.	12.27	0.0280	94.	59.	0.18
MILE 598.04	764.43	235056.	7.86	29914.	1369.	10.24	0.0210	94.	54.	0.30
MILE 593.78	762.60	238380.	5.05	47228.	1845.	9.14	0.0310	94.	53.	0.18
MILE 589.52	759.77	244248.	4.98	49022.	1550.	10.96	0.0395	94.	50.	0.16
MILE 585.27	756.46	248257.	5.79	42868.	2382.	10.32	0.0400	94.	46.	0.24
MILE 581.01	754.70	255274.	4.27	59748.	2131.	11.19	0.0400	94.	65.	0.14
MILE 576.75	751.78	261097.	3.98	65602.	3819.	11.16	0.0430	94.	62.	0.17
MILE 572.49	749.65	274485.	2.87	95762.	5010.	10.98	0.0380	94.	60.	0.12
MILE 568.23	748.17	302625.	6.85	44195.	3152.	12.44	0.0300	92.	58.	0.32
MILE 568.23	748.17	358963.	8.12	44195.	3152.	12.44	0.0300	111.	58.	0.38
MILE 563.97	746.59	365058.	3.76	97072.	3122.	11.19	0.0260	111.	57.	0.12
MILE 559.71	746.02	375983.	3.41	110110.	4419.	12.80	0.0295	111.	76.	0.12
MILE 555.45	745.49	388263.	2.97	130767.	4141.	11.21	0.0285	111.	75.	0.09
MILE 551.20	744.39	400390.	2.60	153817.	5032.	13.04	0.0300	111.	74.	0.08
MILE 546.94	744.06	414593.	2.75	150516.	5861.	13.59	0.0320	111.	74.	0.10
MILE 542.68	743.45	433415.	4.08	106191.	7508.	15.18	0.0320	111.	73.	0.19
MILE 538.42	743.43	449777.	2.27	198102.	7467.	13.00	0.0265	111.	73.	0.08
MILE 534.16	742.83	464037.	2.39	194496.	7911.	13.12	0.0320	111.	73.	0.08
MILE 529.90	742.45	493591.	3.51	140751.	13348.	14.99	0.0315	109.	72.	0.19
MILE 23.10	749.02	9500.	1.88	5058.	446.	6.41	0.0305	1088.	24.	0.10
MILE 21.00	748.87	11348.	1.16	9823.	829.	7.48	0.0300	1088.	29.	0.06
MILE 18.90	748.75	13748.	1.26	10941.	1308.	6.90	0.0290	1088.	29.	0.08
MILE 16.80	748.60	16229.	1.79	9053.	931.	8.12	0.0220	1088.	29.	0.10
MILE 14.70	748.55	18543.	1.18	15735.	1023.	7.43	0.0220	1088.	39.	0.05
MILE 12.60	748.49	21657.	1.34	16196.	2203.	8.75	0.0220	1438.	48.	0.09
MILE 10.50	748.45	25777.	1.13	22836.	2073.	9.73	0.0260	1088.	58.	0.06
MILE 8.40	748.36	28858.	1.64	17613.	1105.	10.02	0.0225	1088.	58.	0.07
MILE 6.30	748.31	34527.	1.57	22050.	6207.	10.22	0.0250	1088.	58.	0.15
MILE 4.20	748.26	46221.	1.33	34847.	6921.	9.98	0.0245	3488.	58.	0.10
MILE 2.10	748.19	52934.	1.56	33850.	2090.	11.73	0.0265	1088.	58.	0.07
MILE 0.00	748.17	56338.	0.95	59189.	1709.	10.43	0.0230	1036.	58.	0.03

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TIME 13.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE

MILE	602.30	768.49	226667.	4.52	50138.	2410.	12.21	0.0280	94.	58.	0.17
MILE	598.04	764.08	231669.	7.86	29463.	1352.	10.23	0.0210	94.	54.	0.30
MILE	593.78	762.26	234966.	5.04	46580.	1832.	9.12	0.0310	94.	52.	0.18
MILE	589.52	759.43	240826.	4.97	48477.	1550.	10.92	0.0395	94.	49.	0.16
MILE	585.27	756.11	244797.	5.78	42330.	2368.	10.28	0.0400	94.	46.	0.24
MILE	581.01	754.35	251696.	4.26	59126.	2131.	11.13	0.0400	94.	64.	0.14
MILE	576.75	751.42	257360.	3.96	64952.	3792.	11.09	0.0430	94.	61.	0.17
MILE	572.49	749.24	270402.	2.86	94522.	4979.	10.92	0.0380	94.	59.	0.12
MILE	568.23	747.77	297872.	6.81	43745.	3121.	12.38	0.0300	92.	58.	0.32
MILE	568.23	747.77	352903.	8.07	43745.	3121.	12.38	0.0300	111.	58.	0.38
MILE	563.97	746.19	358810.	3.74	95909.	3067.	11.12	0.0260	111.	56.	0.12
MILE	559.71	745.62	369364.	3.39	109051.	4395.	12.73	0.0295	111.	76.	0.12
MILE	555.45	745.09	381222.	2.96	128912.	4122.	11.18	0.0285	111.	75.	0.09
MILE	551.20	743.99	392923.	2.58	152215.	4997.	13.00	0.0300	111.	74.	0.08
MILE	546.94	743.67	406630.	2.72	149303.	5819.	13.53	0.0320	111.	74.	0.09
MILE	542.68	743.06	424816.	4.03	105300.	7449.	15.15	0.0320	111.	73.	0.19
MILE	538.42	743.04	440622.	2.25	196177.	7433.	12.94	0.0265	111.	73.	0.08
MILE	534.16	742.46	454363.	2.36	192576.	7865.	13.08	0.0320	111.	72.	0.08
MILE	529.90	742.09	482763.	3.45	139871.	13208.	14.94	0.0315	109.	72.	0.19
MILE	23.10	748.64	9500.	1.92	4941.	439.	6.34	0.0305	1080.	24.	0.10
MILE	21.00	748.48	11303.	1.17	9636.	809.	7.40	0.0300	1080.	28.	0.06
MILE	18.90	748.35	13630.	1.28	10665.	1278.	6.87	0.0290	1080.	28.	0.08
MILE	16.80	748.20	16032.	1.80	8892.	910.	8.04	0.0220	1080.	28.	0.10
MILE	14.70	748.15	18280.	1.19	15383.	1005.	7.41	0.0220	1080.	38.	0.05
MILE	12.60	748.08	21296.	1.34	15864.	2157.	8.75	0.0220	1430.	48.	0.09
MILE	10.50	748.05	25292.	1.12	22486.	2032.	9.67	0.0260	1080.	58.	0.06
MILE	8.40	747.96	28283.	1.63	17342.	1094.	9.97	0.0225	1080.	58.	0.07
MILE	6.30	747.91	33787.	1.55	21729.	6131.	10.17	0.0250	1080.	58.	0.15
MILE	4.20	747.86	45192.	1.32	34319.	6838.	9.92	0.0245	3480.	58.	0.10
MILE	2.10	747.79	51707.	1.55	33451.	2072.	11.68	0.0265	1080.	58.	0.07
MILE	0.00	747.77	55031.	0.94	58372.	1696.	10.36	0.0230	1028.	58.	0.03

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TIME	14.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	768.13	223333.	4.49	49708.	2393.	12.15	0.0280	94.	58.	0.17
MILE	598.04	763.74	228300.	7.87	29019.	1336.	10.23	0.0210	94.	54.	0.30
MILE	593.78	761.93	231574.	5.04	45945.	1819.	9.10	0.0310	94.	52.	0.18
MILE	589.52	759.08	237402.	4.95	47936.	1550.	10.88	0.0395	94.	49.	0.16
MILE	585.27	755.77	241343.	5.77	41802.	2355.	10.24	0.0400	94.	46.	0.24
MILE	581.01	754.00	248140.	4.24	58517.	2131.	11.08	0.0400	94.	64.	0.14

MILE	576.75	751.07	253655.	3.94	64318.	3764.	11.03	0.0430	94.	61.	0.17
MILE	572.49	748.85	266364.	2.85	93313.	4948.	10.86	0.0380	94.	59.	0.12
MILE	568.23	747.38	293181.	6.77	43307.	3091.	12.32	0.0300	92.	57.	0.32
MILE	568.23	747.38	346924.	8.01	43307.	3091.	12.32	0.0300	111.	57.	0.38
MILE	563.97	745.79	352672.	3.72	94780.	3013.	11.05	0.0260	111.	56.	0.12
MILE	559.71	745.23	362900.	3.36	108025.	4373.	12.67	0.0295	111.	75.	0.12
MILE	555.45	744.71	374375.	2.94	127130.	4103.	11.14	0.0285	111.	75.	0.09
MILE	551.20	743.61	385670.	2.56	150680.	4964.	12.95	0.0300	111.	74.	0.08
MILE	546.94	743.29	398894.	2.69	148137.	5779.	13.46	0.0320	111.	73.	0.09
MILE	542.68	742.69	416462.	3.99	104447.	7391.	15.11	0.0320	111.	73.	0.19
MILE	538.42	742.67	431741.	2.22	194327.	7401.	12.89	0.0265	111.	73.	0.08
MILE	534.16	742.10	445001.	2.33	190725.	7819.	13.03	0.0320	111.	72.	0.08
MILE	529.90	741.74	472272.	3.40	139019.	13073.	14.89	0.0315	109.	72.	0.18
MILE	23.10	748.27	9500.	1.97	4829.	431.	6.27	0.0305	1072.	23.	0.10
MILE	21.00	748.10	11259.	1.19	9454.	789.	7.32	0.0300	1072.	28.	0.06
MILE	18.90	747.97	13514.	1.30	10402.	1248.	6.85	0.0290	1072.	28.	0.08
MILE	16.80	747.82	15844.	1.81	8736.	890.	7.96	0.0220	1072.	28.	0.10
MILE	14.70	747.76	18030.	1.20	15045.	987.	7.38	0.0220	1072.	38.	0.05
MILE	12.60	747.69	20952.	1.35	15546.	2112.	8.75	0.0220	1422.	48.	0.09
MILE	10.50	747.66	24823.	1.12	22146.	1993.	9.61	0.0260	1072.	58.	0.06
MILE	8.40	747.57	27730.	1.62	17080.	1084.	9.93	0.0225	1072.	58.	0.07
MILE	6.30	747.51	33066.	1.54	21416.	6057.	10.11	0.0250	1072.	58.	0.14
MILE	4.20	747.46	44181.	1.31	33806.	6756.	9.86	0.0245	3472.	57.	0.10
MILE	2.10	747.40	50500.	1.53	33062.	2054.	11.62	0.0265	1072.	57.	0.07
MILE	0.00	747.38	53743.	0.93	57577.	1684.	10.30	0.0230	1021.	57.	0.03

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TIME	15.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	767.77	220000.	4.46	49278.	2377.	12.09	0.0280	94.	58.	0.17
MILE	598.04	763.39	224907.	7.87	28574.	1320.	10.22	0.0210	94.	53.	0.30
MILE	593.78	761.59	228176.	5.04	45315.	1806.	9.08	0.0310	94.	52.	0.18
MILE	589.52	758.74	233921.	4.94	47396.	1550.	10.84	0.0395	94.	49.	0.16
MILE	585.27	755.43	237859.	5.76	41280.	2342.	10.21	0.0400	94.	45.	0.24
MILE	581.01	753.65	244570.	4.22	57916.	2131.	11.02	0.0400	94.	64.	0.14
MILE	576.75	750.73	249946.	3.92	63696.	3738.	10.97	0.0430	94.	61.	0.17
MILE	572.49	748.47	262336.	2.85	92136.	4918.	10.80	0.0380	94.	58.	0.12
MILE	568.23	747.00	288514.	6.73	42880.	3061.	12.26	0.0300	92.	57.	0.32
MILE	568.23	747.00	341017.	7.95	42880.	3061.	12.26	0.0300	111.	57.	0.37

MILE	563.97	745.41	346597.	3.70	93687.	2961.	10.98	0.0260	111.	55.	0.12
MILE	559.71	744.85	356495.	3.33	107032.	4351.	12.61	0.0295	111.	75.	0.12
MILE	555.45	744.33	367610.	2.93	125413.	4085.	11.10	0.0285	111.	74.	0.09
MILE	551.20	743.23	378537.	2.54	149199.	4932.	12.91	0.0300	111.	73.	0.08
MILE	546.94	742.92	391315.	2.66	147008.	5739.	13.40	0.0320	111.	73.	0.09
MILE	542.68	742.33	408303.	3.94	103624.	7336.	15.08	0.0320	111.	72.	0.18
MILE	538.42	742.31	423086.	2.20	192540.	7370.	12.84	0.0265	111.	72.	0.08
MILE	534.16	741.75	435882.	2.31	188938.	7776.	12.98	0.0320	111.	72.	0.08
MILE	529.90	741.40	462103.	3.34	138194.	12942.	14.83	0.0315	109.	71.	0.18
MILE	23.10	747.91	9500.	2.01	4721.	425.	6.20	0.0305	1063.	23.	0.11
MILE	21.00	747.73	11219.	1.21	9278.	770.	7.24	0.0300	1063.	28.	0.06
MILE	18.90	747.59	13408.	1.32	10150.	1220.	6.83	0.0290	1063.	28.	0.08
MILE	16.80	747.44	15671.	1.83	8584.	871.	7.88	0.0220	1063.	27.	0.10
MILE	14.70	747.38	17801.	1.21	14720.	969.	7.36	0.0220	1063.	37.	0.05
MILE	12.60	747.31	20634.	1.35	15240.	2068.	8.75	0.0220	1413.	47.	0.09
MILE	10.50	747.27	24388.	1.12	21816.	1954.	9.55	0.0260	1063.	57.	0.06
MILE	8.40	747.19	27214.	1.62	16826.	1074.	9.88	0.0225	1063.	57.	0.07
MILE	6.30	747.13	32388.	1.53	21113.	5984.	10.06	0.0250	1063.	57.	0.14
MILE	4.20	747.08	43214.	1.30	33308.	6677.	9.80	0.0245	3463.	57.	0.10
MILE	2.10	747.02	49339.	1.51	32684.	2036.	11.57	0.0265	1063.	57.	0.07
MILE	0.00	747.00	52503.	0.92	56804.	1671.	10.24	0.0230	1013.	57.	0.03

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TIME	16.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	767.41	216667.	4.44	48846.	2360.	12.03	0.0280	94.	57.	0.17
MILE	598.04	763.04	221536.	7.88	28131.	1304.	10.22	0.0210	94.	53.	0.30
MILE	593.78	761.25	224789.	5.03	44688.	1793.	9.06	0.0310	94.	51.	0.18
MILE	589.52	758.39	230429.	4.92	46858.	1550.	10.79	0.0395	94.	48.	0.16
MILE	585.27	755.09	234345.	5.75	40764.	2328.	10.17	0.0400	94.	45.	0.24
MILE	581.01	753.31	240972.	4.20	57321.	2131.	10.96	0.0400	94.	63.	0.14
MILE	576.75	750.39	246215.	3.90	63086.	3711.	10.90	0.0430	94.	60.	0.17
MILE	572.49	748.09	258305.	2.84	90987.	4889.	10.75	0.0380	94.	58.	0.12
MILE	568.23	746.63	283876.	6.69	42464.	3032.	12.20	0.0300	92.	57.	0.31
MILE	568.23	746.63	335230.	7.89	42464.	3032.	12.20	0.0300	111.	57.	0.37
MILE	563.97	745.03	340649.	3.68	92623.	2911.	10.92	0.0260	111.	55.	0.11
MILE	559.71	744.48	350194.	3.30	106067.	4329.	12.55	0.0295	111.	74.	0.12
MILE	555.45	743.97	360957.	2.92	123753.	4067.	11.07	0.0285	111.	74.	0.09
MILE	551.20	742.87	371526.	2.51	147765.	4900.	12.87	0.0300	111.	73.	0.08
MILE	546.94	742.57	383878.	2.63	145911.	5701.	13.34	0.0320	111.	73.	0.09
MILE	542.68	741.99	400317.	3.89	102827.	7282.	15.05	0.0320	111.	72.	0.18

MILE	538.42	741.96	414626.	2.17	190810.	7339.	12.79	0.0265	111.	72.	0.08
MILE	534.16	741.41	426995.	2.28	187209.	7733.	12.94	0.0320	111.	71.	0.08
MILE	529.90	741.07	452240.	3.29	137394.	12814.	14.78	0.0315	109.	71.	0.18
MILE	23.10	747.56	9500.	2.06	4617.	418.	6.14	0.0305	1055.	23.	0.11
MILE	21.00	747.37	11181.	1.23	9107.	751.	7.16	0.0300	1055.	27.	0.06
MILE	18.90	747.23	13307.	1.34	9908.	1192.	6.81	0.0290	1055.	27.	0.08
MILE	16.80	747.07	15505.	1.84	8436.	852.	7.80	0.0220	1055.	27.	0.10
MILE	14.70	747.00	17580.	1.22	14408.	952.	7.34	0.0220	1055.	37.	0.06
MILE	12.60	746.94	20328.	1.36	14945.	2025.	8.75	0.0220	1405.	47.	0.09
MILE	10.50	746.90	23972.	1.12	21496.	1916.	9.49	0.0260	1055.	57.	0.06
MILE	8.40	746.81	26720.	1.61	16579.	1065.	9.84	0.0225	1055.	57.	0.07
MILE	6.30	746.76	31745.	1.52	20820.	5913.	10.01	0.0250	1055.	57.	0.14
MILE	4.20	746.71	42312.	1.29	32825.	6600.	9.74	0.0245	3455.	57.	0.10
MILE	2.10	746.64	48262.	1.49	32316.	2019.	11.52	0.0265	1055.	57.	0.07
MILE	0.00	746.63	51354.	0.92	56052.	1659.	10.17	0.0230	1005.	57.	0.03

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TIME	17.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	767.05	213333.	4.41	48411.	2343.	11.97	0.0280	94.	57.	0.17
MILE	598.04	762.69	218163.	7.88	27690.	1288.	10.22	0.0210	94.	53.	0.30
MILE	593.78	760.91	221398.	5.02	44064.	1779.	9.04	0.0310	94.	51.	0.18
MILE	589.52	758.04	226924.	4.90	46323.	1550.	10.75	0.0395	94.	48.	0.16
MILE	585.27	754.75	230807.	5.73	40261.	2325.	10.13	0.0400	94.	45.	0.24
MILE	581.01	752.97	237363.	4.18	56734.	2131.	10.91	0.0400	94.	63.	0.14
MILE	576.75	750.06	242485.	3.88	62486.	3685.	10.84	0.0430	94.	60.	0.17
MILE	572.49	747.72	254311.	2.83	89864.	4861.	10.69	0.0380	94.	58.	0.12
MILE	568.23	746.26	279272.	6.64	42059.	3004.	12.15	0.0300	92.	56.	0.31
MILE	568.23	746.26	329554.	7.84	42059.	3004.	12.15	0.0300	111.	56.	0.37
MILE	563.97	744.67	334833.	3.66	91564.	2893.	10.86	0.0260	111.	55.	0.11
MILE	559.71	744.13	344047.	3.27	105129.	4309.	12.49	0.0295	111.	74.	0.12
MILE	555.45	743.62	354465.	2.90	122147.	4050.	11.04	0.0285	111.	74.	0.09
MILE	551.20	742.52	364679.	2.49	146377.	4870.	12.83	0.0300	111.	73.	0.08
MILE	546.94	742.22	376611.	2.60	144845.	5664.	13.28	0.0320	111.	72.	0.09
MILE	542.68	741.65	392522.	3.85	102056.	7229.	15.01	0.0320	111.	72.	0.18
MILE	538.42	741.62	406382.	2.15	189134.	7310.	12.74	0.0265	111.	72.	0.07
MILE	534.16	741.08	418343.	2.25	185536.	7692.	12.90	0.0320	111.	71.	0.08
MILE	529.90	740.76	442663.	3.24	136618.	12691.	14.74	0.0315	109.	71.	0.17
MILE	23.10	747.22	9500.	2.10	4516.	411.	6.07	0.0305	1047.	22.	0.11

MILE	21.00	747.02	11144.	1.25	8941.	733.	7.09	0.0300	1047.	27.	0.06
MILE	18.90	746.87	13210.	1.37	9676.	1164.	6.79	0.0290	1047.	27.	0.08
MILE	16.80	746.70	15348.	1.85	8292.	833.	7.73	0.0220	1047.	27.	0.10
MILE	14.70	746.64	17372.	1.23	14107.	935.	7.32	0.0220	1047.	37.	0.06
MILE	12.60	746.57	20041.	1.37	14662.	1983.	8.75	0.0220	1397.	47.	0.09
MILE	10.50	746.53	23584.	1.11	21185.	1880.	9.43	0.0260	1047.	57.	0.06
MILE	8.40	746.45	26260.	1.61	16340.	1055.	9.80	0.0225	1047.	56.	0.07
MILE	6.30	746.39	31146.	1.52	20534.	5844.	9.96	0.0250	1047.	56.	0.14
MILE	4.20	746.34	41471.	1.28	32353.	6524.	9.68	0.0245	3447.	56.	0.10
MILE	2.10	746.28	47257.	1.48	31958.	2002.	11.46	0.0265	1047.	56.	0.07
MILE	0.00	746.26	50282.	0.91	55318.	1648.	10.11	0.0230	997.	56.	0.03

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TIME	18.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	766.68	210000.	4.38	47972.	2326.	11.91	0.0280	94.	57.	0.17
MILE	598.04	762.33	214785.	7.88	27251.	1271.	10.22	0.0210	94.	52.	0.30
MILE	593.78	760.57	218001.	5.02	43446.	1766.	9.03	0.0310	94.	51.	0.18
MILE	589.52	757.70	223416.	4.88	45793.	1550.	10.71	0.0395	94.	48.	0.16
MILE	585.27	754.42	227277.	5.72	39767.	2325.	10.09	0.0400	94.	44.	0.24
MILE	581.01	752.63	233757.	4.16	56154.	2131.	10.85	0.0400	94.	63.	0.14
MILE	576.75	749.73	238766.	3.86	61900.	3639.	10.78	0.0430	94.	60.	0.16
MILE	572.49	747.36	250336.	2.82	88764.	4832.	10.64	0.0380	94.	57.	0.12
MILE	568.23	745.91	274688.	6.59	41662.	2976.	12.09	0.0300	92.	56.	0.31
MILE	568.23	745.91	323969.	7.78	41662.	2976.	12.09	0.0300	111.	56.	0.37
MILE	563.97	744.32	329107.	3.64	90534.	2879.	10.80	0.0260	111.	54.	0.11
MILE	559.71	743.78	338005.	3.24	104218.	4288.	12.43	0.0295	111.	74.	0.12
MILE	555.45	743.27	348105.	2.89	120596.	4033.	11.00	0.0285	111.	73.	0.09
MILE	551.20	742.18	358002.	2.47	145033.	4840.	12.80	0.0300	111.	72.	0.08
MILE	546.94	741.89	369545.	2.57	143811.	5628.	13.22	0.0320	111.	72.	0.09
MILE	542.68	741.32	384953.	3.80	101309.	7178.	14.98	0.0320	111.	71.	0.18
MILE	538.42	741.29	398375.	2.12	187510.	7281.	12.70	0.0265	111.	71.	0.07
MILE	534.16	740.77	409938.	2.23	183916.	7652.	12.85	0.0320	111.	71.	0.08
MILE	529.90	740.45	433361.	3.19	135865.	12570.	14.69	0.0315	109.	70.	0.17
MILE	23.10	746.89	9500.	2.15	4419.	405.	6.01	0.0305	1039.	22.	0.11
MILE	21.00	746.68	11109.	1.27	8779.	715.	7.01	0.0300	1039.	27.	0.06
MILE	18.90	746.52	13121.	1.39	9454.	1138.	6.77	0.0290	1039.	27.	0.08
MILE	16.80	746.35	15202.	1.87	8151.	815.	7.65	0.0220	1039.	26.	0.10
MILE	14.70	746.29	17179.	1.24	13818.	919.	7.30	0.0220	1039.	36.	0.06
MILE	12.60	746.21	19775.	1.37	14389.	1942.	8.76	0.0220	1389.	46.	0.09
MILE	10.50	746.18	23223.	1.11	20881.	1844.	9.38	0.0260	1039.	56.	0.06

MILE	8.40	746.09	25833.	1.60	16108.	1046.	9.76	0.0225	1039.	56.	0.07
MILE	6.30	746.04	30590.	1.51	20255.	5776.	9.91	0.0250	1039.	56.	0.14
MILE	4.20	745.99	40689.	1.28	31894.	6450.	9.62	0.0245	3439.	56.	0.10
MILE	2.10	745.92	46321.	1.47	31608.	1986.	11.41	0.0265	1039.	56.	0.06
MILE	0.00	745.91	49281.	0.90	54603.	1636.	10.05	0.0230	989.	56.	0.03

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TIME	19.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	766.31	206667.	4.35	47529.	2309.	11.84	0.0280	94.	56.	0.17
MILE	598.04	761.98	211410.	7.88	26816.	1255.	10.22	0.0210	94.	52.	0.30
MILE	593.78	760.23	214609.	5.01	42833.	1753.	9.01	0.0310	94.	50.	0.18
MILE	589.52	757.35	219918.	4.86	45267.	1550.	10.67	0.0395	94.	47.	0.16
MILE	585.27	754.09	223763.	5.70	39279.	2325.	10.05	0.0400	94.	44.	0.24
MILE	581.01	752.30	230143.	4.14	55582.	2131.	10.79	0.0400	94.	62.	0.14
MILE	576.75	749.41	235042.	3.83	61325.	3589.	10.72	0.0430	94.	59.	0.16
MILE	572.49	747.00	246374.	2.81	87687.	4805.	10.58	0.0380	94.	57.	0.12
MILE	568.23	745.56	270122.	6.54	41274.	2949.	12.04	0.0300	92.	56.	0.31
MILE	568.23	745.56	318459.	7.72	41274.	2949.	12.04	0.0300	111.	56.	0.36
MILE	563.97	743.97	323461.	3.61	89529.	2866.	10.74	0.0260	111.	54.	0.11
MILE	559.71	743.44	332064.	3.21	103329.	4269.	12.37	0.0295	111.	73.	0.12
MILE	555.45	742.94	341862.	2.87	119093.	4017.	10.97	0.0285	111.	73.	0.09
MILE	551.20	741.85	351448.	2.45	143731.	4811.	12.76	0.0300	111.	72.	0.08
MILE	546.94	741.56	362627.	2.54	142805.	5593.	13.16	0.0320	111.	72.	0.09
MILE	542.68	741.00	377552.	3.75	100586.	7129.	14.95	0.0320	111.	71.	0.18
MILE	538.42	740.97	390561.	2.10	185937.	7253.	12.65	0.0265	111.	71.	0.07
MILE	534.16	740.46	401748.	2.20	182348.	7613.	12.81	0.0320	111.	70.	0.08
MILE	529.90	740.14	424331.	3.14	135134.	12454.	14.64	0.0315	109.	70.	0.17
MILE	23.10	746.57	9500.	2.20	4325.	399.	5.95	0.0305	1030.	22.	0.12
MILE	21.00	746.35	11077.	1.28	8621.	697.	6.94	0.0300	1030.	26.	0.06
MILE	18.90	746.18	13037.	1.41	9239.	1112.	6.76	0.0290	1030.	26.	0.09
MILE	16.80	746.01	15066.	1.88	8013.	797.	7.58	0.0220	1030.	26.	0.10
MILE	14.70	745.94	16998.	1.26	13538.	903.	7.28	0.0220	1030.	36.	0.06
MILE	12.60	745.87	19524.	1.38	14125.	1902.	8.77	0.0220	1380.	46.	0.09
MILE	10.50	745.83	22882.	1.11	20586.	1809.	9.32	0.0260	1030.	56.	0.06
MILE	8.40	745.74	25429.	1.60	15881.	1037.	9.72	0.0225	1030.	56.	0.07
MILE	6.30	745.69	30064.	1.50	19984.	5709.	9.86	0.0250	1030.	56.	0.14
MILE	4.20	745.63	39949.	1.27	31446.	6378.	9.56	0.0245	3430.	56.	0.10
MILE	2.10	745.57	45437.	1.45	31266.	1969.	11.36	0.0265	1030.	56.	0.06
MILE	0.00	745.56	48337.	0.90	53903.	1625.	9.99	0.0230	981.	56.	0.03

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TIME 20.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE 602.30	765.93	203333.	4.32	47082.	2291.	11.78	0.0280	94.	56.	0.17
MILE 598.04	761.62	208032.	7.88	26383.	1238.	10.22	0.0210	94.	52.	0.30
MILE 593.78	759.89	211182.	5.00	42227.	1736.	8.99	0.0310	94.	50.	0.18
MILE 589.52	757.01	216425.	4.84	44745.	1550.	10.62	0.0395	94.	47.	0.16
MILE 585.27	753.76	220258.	5.68	38796.	2325.	10.01	0.0400	94.	44.	0.24
MILE 581.01	751.97	226535.	4.12	55016.	2131.	10.74	0.0400	94.	62.	0.14
MILE 576.75	749.09	231325.	3.81	60760.	3540.	10.66	0.0430	94.	59.	0.16
MILE 572.49	746.65	242413.	2.80	86632.	4778.	10.53	0.0380	94.	57.	0.12
MILE 568.23	745.21	265592.	6.49	40895.	2922.	11.98	0.0300	92.	55.	0.31
MILE 568.23	745.21	313029.	7.65	40895.	2922.	11.98	0.0300	111.	55.	0.36
MILE 563.97	743.63	317898.	3.59	88550.	2853.	10.69	0.0260	111.	54.	0.11
MILE 559.71	743.11	326216.	3.18	102463.	4249.	12.32	0.0295	111.	73.	0.11
MILE 555.45	742.61	335722.	2.85	117634.	4001.	10.94	0.0285	111.	73.	0.09
MILE 551.20	741.53	345013.	2.42	142467.	4783.	12.72	0.0300	111.	72.	0.08
MILE 546.94	741.24	355840.	2.51	141827.	5558.	13.11	0.0320	111.	71.	0.09
MILE 542.68	740.69	370318.	3.71	99885.	7081.	14.92	0.0320	111.	71.	0.17
MILE 538.42	740.66	383013.	2.08	184410.	7226.	12.61	0.0265	111.	71.	0.07
MILE 534.16	740.16	394035.	2.18	180821.	7575.	12.77	0.0320	111.	70.	0.08
MILE 529.90	739.85	416473.	3.10	134421.	12327.	14.60	0.0315	109.	70.	0.17
MILE 23.10	746.26	9500.	2.24	4233.	393.	5.89	0.0305	1022.	21.	0.12
MILE 21.00	746.02	11045.	1.30	8466.	680.	6.87	0.0300	1022.	26.	0.07
MILE 18.90	745.85	12957.	1.43	9033.	1086.	6.74	0.0290	1022.	26.	0.09
MILE 16.80	745.67	14934.	1.90	7878.	780.	7.51	0.0220	1022.	26.	0.11
MILE 14.70	745.59	16823.	1.27	13268.	887.	7.27	0.0220	1022.	36.	0.06
MILE 12.60	745.52	19284.	1.39	13870.	1863.	8.77	0.0220	1372.	46.	0.09
MILE 10.50	745.49	22558.	1.11	20297.	1774.	9.27	0.0260	1022.	55.	0.06
MILE 8.40	745.40	25045.	1.60	15660.	1028.	9.68	0.0225	1022.	55.	0.07
MILE 6.30	745.34	29565.	1.50	19719.	5644.	9.82	0.0250	1022.	55.	0.14
MILE 4.20	745.29	39247.	1.27	31008.	6306.	9.51	0.0245	3422.	55.	0.10
MILE 2.10	745.23	44595.	1.44	30932.	1954.	11.31	0.0265	1022.	55.	0.06
MILE 0.00	745.21	47437.	0.89	53220.	1614.	9.94	0.0230	973.	55.	0.03

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TIME 21.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE

MILE	602.30	765.56	200000.	4.29	46635.	2274.	11.72	0.0280	94.	56.	0.17
MILE	598.04	761.26	204623.	7.88	25955.	1222.	10.22	0.0210	94.	51.	0.30
MILE	593.78	759.55	207739.	4.99	41631.	1709.	8.96	0.0310	94.	50.	0.18
MILE	589.52	756.67	212892.	4.81	44226.	1550.	10.58	0.0395	94.	47.	0.16
MILE	585.27	753.43	216729.	5.66	38319.	2325.	9.97	0.0400	94.	43.	0.25
MILE	581.01	751.65	222919.	4.09	54456.	2131.	10.68	0.0400	94.	62.	0.14
MILE	576.75	748.78	227610.	3.78	60203.	3492.	10.60	0.0430	94.	59.	0.16
MILE	572.49	746.30	238472.	2.79	85599.	4751.	10.47	0.0380	94.	56.	0.12
MILE	568.23	744.87	261113.	6.44	40525.	2901.	11.93	0.0300	92.	55.	0.30
MILE	568.23	744.87	307678.	7.59	40525.	2901.	11.93	0.0300	111.	55.	0.36
MILE	563.97	743.30	312422.	3.57	87595.	2840.	10.63	0.0260	111.	53.	0.11
MILE	559.71	742.78	320478.	3.15	101617.	4231.	12.26	0.0295	111.	73.	0.11
MILE	555.45	742.29	329738.	2.84	116217.	3986.	10.91	0.0285	111.	72.	0.09
MILE	551.20	741.21	338833.	2.40	141236.	4756.	12.69	0.0300	111.	71.	0.08
MILE	546.94	740.93	349494.	2.48	140867.	5525.	13.05	0.0320	111.	71.	0.09
MILE	542.68	740.38	363876.	3.67	99194.	7033.	14.90	0.0320	111.	70.	0.17
MILE	538.42	740.35	376552.	2.06	182900.	7199.	12.56	0.0265	111.	70.	0.07
MILE	534.16	739.85	387519.	2.16	179278.	7538.	12.74	0.0320	111.	70.	0.08
MILE	529.90	739.55	409581.	3.06	133714.	12189.	14.56	0.0315	109.	70.	0.16
MILE	23.10	745.95	9500.	2.29	4144.	387.	5.83	0.0305	1014.	21.	0.12
MILE	21.00	745.70	11016.	1.32	8316.	664.	6.80	0.0300	1014.	26.	0.07
MILE	18.90	745.52	12880.	1.46	8834.	1061.	6.73	0.0290	1014.	26.	0.09
MILE	16.80	745.33	14809.	1.91	7746.	763.	7.43	0.0220	1014.	25.	0.11
MILE	14.70	745.26	16657.	1.28	13007.	872.	7.25	0.0220	1014.	35.	0.06
MILE	12.60	745.19	19054.	1.40	13623.	1824.	8.78	0.0220	1364.	45.	0.09
MILE	10.50	745.15	22246.	1.11	20015.	1740.	9.21	0.0260	1014.	55.	0.06
MILE	8.40	745.06	24675.	1.60	15445.	1020.	9.64	0.0225	1014.	55.	0.07
MILE	6.30	745.01	29082.	1.49	19460.	5580.	9.77	0.0250	1014.	55.	0.14
MILE	4.20	744.95	38567.	1.26	30578.	6234.	9.45	0.0245	3414.	55.	0.10
MILE	2.10	744.89	43782.	1.43	30605.	1937.	11.26	0.0265	1014.	55.	0.06
MILE	0.00	744.87	46564.	0.89	52543.	1602.	9.88	0.0230	966.	55.	0.03

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TIME	22.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	765.18	196667.	4.26	46184.	2256.	11.65	0.0280	94.	55.	0.17
MILE	598.04	760.90	201240.	7.88	25531.	1205.	10.22	0.0210	94.	51.	0.30
MILE	593.78	759.21	204342.	4.98	41039.	1683.	8.93	0.0310	94.	49.	0.18
MILE	589.52	756.33	209386.	4.79	43712.	1550.	10.54	0.0395	94.	46.	0.16
MILE	585.27	753.11	213210.	5.63	37848.	2325.	9.93	0.0400	94.	43.	0.25

MILE	581.01	751.32	219306.	4.07	53903.	2131.	10.63	0.0400	94.	61.	0.14
MILE	576.75	748.47	223898.	3.75	59654.	3444.	10.54	0.0430	94.	58.	0.16
MILE	572.49	745.96	234548.	2.77	84586.	4725.	10.42	0.0380	94.	56.	0.12
MILE	568.23	744.54	256702.	6.39	40165.	2888.	11.88	0.0300	92.	55.	0.30
MILE	568.23	744.54	302436.	7.53	40165.	2888.	11.88	0.0300	111.	55.	0.36
MILE	563.97	742.98	307121.	3.54	86658.	2827.	10.58	0.0260	111.	53.	0.11
MILE	559.71	742.46	315050.	3.13	100785.	4212.	12.21	0.0295	111.	72.	0.11
MILE	555.45	741.97	324208.	2.82	114823.	3970.	10.88	0.0285	111.	72.	0.09
MILE	551.20	740.90	333196.	2.38	140014.	4728.	12.65	0.0300	111.	71.	0.08
MILE	546.94	740.62	343697.	2.46	139912.	5491.	13.00	0.0320	111.	71.	0.09
MILE	542.68	740.08	357857.	3.63	98508.	6986.	14.87	0.0320	111.	70.	0.17
MILE	538.42	740.05	370361.	2.04	181403.	7172.	12.52	0.0265	111.	70.	0.07
MILE	534.16	739.55	381168.	2.14	177740.	7503.	12.71	0.0320	111.	70.	0.08
MILE	529.90	739.26	402769.	3.03	133016.	12053.	14.52	0.0315	109.	69.	0.16
MILE	23.10	745.66	9500.	2.34	4058.	382.	5.77	0.0305	1006.	21.	0.13
MILE	21.00	745.39	10986.	1.34	8169.	647.	6.73	0.0300	1006.	25.	0.07
MILE	18.90	745.20	12805.	1.48	8642.	1036.	6.72	0.0290	1006.	25.	0.09
MILE	16.80	745.01	14688.	1.93	7617.	746.	7.36	0.0220	1006.	25.	0.11
MILE	14.70	744.93	16493.	1.29	12745.	855.	7.24	0.0220	1006.	35.	0.06
MILE	12.60	744.86	18832.	1.41	13392.	1783.	8.78	0.0220	1356.	45.	0.09
MILE	10.50	744.82	21949.	1.11	19744.	1709.	9.16	0.0260	1006.	55.	0.06
MILE	8.40	744.73	24325.	1.60	15249.	1011.	9.59	0.0225	1006.	55.	0.07
MILE	6.30	744.67	28622.	1.49	19210.	5505.	9.72	0.0250	1006.	55.	0.14
MILE	4.20	744.62	37915.	1.26	30142.	6151.	9.41	0.0245	3406.	55.	0.10
MILE	2.10	744.56	43000.	1.42	30282.	1919.	11.22	0.0265	1006.	55.	0.06
MILE	0.00	744.54	45735.	0.88	51866.	1589.	9.83	0.0230	958.	55.	0.03

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TIME	23.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	764.80	193333.	4.23	45731.	2220.	11.58	0.0280	94.	55.	0.16
MILE	598.04	760.54	197864.	7.88	25110.	1188.	10.23	0.0210	94.	51.	0.30
MILE	593.78	758.87	200949.	4.97	40450.	1656.	8.90	0.0310	94.	49.	0.18
MILE	589.52	755.99	205889.	4.77	43201.	1550.	10.50	0.0395	94.	46.	0.16
MILE	585.27	752.79	209700.	5.61	37382.	2325.	9.89	0.0400	94.	43.	0.25
MILE	581.01	751.00	215704.	4.04	53355.	2131.	10.57	0.0400	94.	61.	0.14
MILE	576.75	748.17	220203.	3.73	59112.	3397.	10.48	0.0430	94.	58.	0.16
MILE	572.49	745.63	230661.	2.76	83589.	4699.	10.37	0.0380	94.	56.	0.12
MILE	568.23	744.22	252377.	6.34	39810.	2876.	11.83	0.0300	92.	54.	0.30

MILE	568.23	744.22	297405.	7.47	39810.	2876.	11.83	0.0300	111.	54.	0.35
MILE	563.97	742.65	302023.	3.52	85732.	2815.	10.52	0.0260	111.	53.	0.11
MILE	559.71	742.15	309789.	3.10	99960.	4194.	12.16	0.0295	111.	72.	0.11
MILE	555.45	741.66	318813.	2.81	113449.	3955.	10.85	0.0285	111.	72.	0.09
MILE	551.20	740.59	327682.	2.36	138807.	4701.	12.62	0.0300	111.	71.	0.08
MILE	546.94	740.31	338026.	2.43	138966.	5458.	12.94	0.0320	111.	70.	0.08
MILE	542.68	739.77	351975.	3.60	97886.	6957.	14.83	0.0320	111.	70.	0.17
MILE	538.42	739.74	364298.	2.02	179954.	7148.	12.47	0.0265	111.	70.	0.07
MILE	534.16	739.26	374940.	2.13	176229.	7469.	12.69	0.0320	111.	69.	0.08
MILE	529.90	738.97	396048.	2.99	132328.	11918.	14.48	0.0315	109.	69.	0.16
MILE	23.10	745.36	9500.	2.39	3975.	376.	5.71	0.0305	997.	20.	0.13
MILE	21.00	745.08	10955.	1.37	8025.	631.	6.66	0.0300	997.	25.	0.07
MILE	18.90	744.89	12726.	1.51	8452.	1016.	6.70	0.0290	997.	25.	0.09
MILE	16.80	744.69	14569.	1.94	7495.	735.	7.29	0.0220	997.	25.	0.11
MILE	14.70	744.61	16337.	1.31	12460.	831.	7.22	0.0220	997.	35.	0.06
MILE	12.60	744.53	18609.	1.41	13177.	1739.	8.76	0.0220	1347.	45.	0.09
MILE	10.50	744.49	21653.	1.11	19482.	1681.	9.10	0.0260	997.	54.	0.06
MILE	8.40	744.40	23986.	1.59	15059.	1003.	9.54	0.0225	997.	54.	0.07
MILE	6.30	744.35	28195.	1.49	18964.	5430.	9.68	0.0250	997.	54.	0.14
MILE	4.20	744.30	37346.	1.26	29713.	6068.	9.36	0.0245	3397.	54.	0.10
MILE	2.10	744.23	42336.	1.41	29965.	1901.	11.17	0.0265	997.	54.	0.06
MILE	0.00	744.22	45028.	0.88	51200.	1577.	9.78	0.0230	950.	54.	0.03

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TIME	24.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	764.41	190000.	4.20	45274.	2166.	11.52	0.0280	94.	54.	0.16
MILE	598.04	760.18	194488.	7.88	24691.	1171.	10.24	0.0210	94.	50.	0.30
MILE	593.78	758.52	197558.	4.96	39863.	1629.	8.87	0.0310	94.	49.	0.18
MILE	589.52	755.65	202394.	4.74	42692.	1550.	10.45	0.0395	94.	46.	0.16
MILE	585.27	752.46	206195.	5.58	36920.	2325.	9.85	0.0400	94.	42.	0.25
MILE	581.01	750.68	212113.	4.02	52810.	2131.	10.52	0.0400	94.	61.	0.14
MILE	576.75	747.86	216524.	3.70	58575.	3350.	10.42	0.0430	94.	58.	0.16
MILE	572.49	745.30	226806.	2.75	82604.	4673.	10.32	0.0380	94.	55.	0.12
MILE	568.23	743.89	248113.	6.29	39459.	2863.	11.78	0.0300	92.	54.	0.30
MILE	568.23	743.89	292488.	7.41	39459.	2863.	11.78	0.0300	111.	54.	0.35
MILE	563.97	742.33	297045.	3.50	84818.	2803.	10.47	0.0260	111.	52.	0.11
MILE	559.71	741.83	304658.	3.07	99146.	4175.	12.10	0.0295	111.	72.	0.11
MILE	555.45	741.35	313533.	2.80	112100.	3940.	10.82	0.0285	111.	71.	0.09
MILE	551.20	740.28	322239.	2.34	137621.	4674.	12.58	0.0300	111.	70.	0.08
MILE	546.94	740.01	332391.	2.41	138034.	5426.	12.89	0.0320	111.	70.	0.08

MILE	542.68	739.48	346104.	3.56	97294.	6933.	14.80	0.0320	111.	69.	0.17
MILE	538.42	739.44	358215.	2.01	178534.	7125.	12.43	0.0265	111.	69.	0.07
MILE	534.16	738.97	368707.	2.11	174744.	7435.	12.66	0.0320	111.	69.	0.08
MILE	529.90	738.68	389413.	2.96	131649.	11785.	14.44	0.0315	109.	69.	0.16
MILE	23.10	745.08	9500.	2.44	3895.	371.	5.66	0.0305	989.	20.	0.13
MILE	21.00	744.79	10928.	1.39	7887.	622.	6.59	0.0300	989.	25.	0.07
MILE	18.90	744.58	12663.	1.53	8259.	1004.	6.68	0.0290	989.	25.	0.09
MILE	16.80	744.37	14471.	1.96	7376.	724.	7.21	0.0220	989.	24.	0.11
MILE	14.70	744.29	16205.	1.33	12183.	807.	7.20	0.0220	989.	34.	0.06
MILE	12.60	744.21	18423.	1.42	12967.	1695.	8.74	0.0220	1339.	44.	0.09
MILE	10.50	744.17	21405.	1.11	19224.	1653.	9.05	0.0260	989.	54.	0.06
MILE	8.40	744.08	23697.	1.59	14872.	995.	9.49	0.0225	989.	54.	0.07
MILE	6.30	744.03	27827.	1.49	18722.	5356.	9.63	0.0250	989.	54.	0.14
MILE	4.20	743.97	36833.	1.26	29291.	5987.	9.31	0.0245	3389.	54.	0.10
MILE	2.10	743.91	41723.	1.41	29652.	1883.	11.13	0.0265	989.	54.	0.06
MILE	0.00	743.89	44375.	0.88	50544.	1564.	9.73	0.0230	942.	54.	0.03

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TIME	1.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	764.04	187500.	4.18	44842.	2115.	11.45	0.0280	94.	54.	0.16
MILE	598.04	759.83	191591.	7.87	24349.	1156.	10.21	0.0210	94.	50.	0.30
MILE	593.78	758.18	194477.	4.95	39288.	1603.	8.83	0.0310	94.	48.	0.18
MILE	589.52	755.31	199009.	4.72	42189.	1550.	10.41	0.0395	94.	45.	0.16
MILE	585.27	752.14	202718.	5.56	36462.	2325.	9.81	0.0400	94.	42.	0.25
MILE	581.01	750.36	208524.	3.99	52269.	2131.	10.46	0.0400	94.	60.	0.14
MILE	576.75	747.56	212877.	3.67	58042.	3303.	10.36	0.0430	94.	58.	0.15
MILE	572.49	744.97	222993.	2.73	81636.	4645.	10.26	0.0380	94.	55.	0.11
MILE	568.23	743.57	243895.	6.24	39112.	2851.	11.73	0.0300	92.	54.	0.30
MILE	568.23	743.57	287652.	7.35	39112.	2851.	11.73	0.0300	111.	54.	0.35
MILE	563.97	742.02	292138.	3.48	83918.	2790.	10.42	0.0260	111.	52.	0.11
MILE	559.71	741.52	299588.	3.05	98343.	4157.	12.05	0.0295	111.	72.	0.11
MILE	555.45	741.04	308314.	2.78	110775.	3925.	10.79	0.0285	111.	71.	0.09
MILE	551.20	739.98	316890.	2.32	136462.	4649.	12.55	0.0300	111.	70.	0.08
MILE	546.94	739.71	326851.	2.38	137117.	5391.	12.84	0.0320	111.	70.	0.08
MILE	542.68	739.18	340336.	3.52	96710.	6911.	14.77	0.0320	111.	69.	0.17
MILE	538.42	739.15	352253.	1.99	177136.	7102.	12.39	0.0265	111.	69.	0.07
MILE	534.16	738.68	362595.	2.09	173284.	7401.	12.64	0.0320	111.	69.	0.08
MILE	529.90	738.40	382859.	2.92	130979.	11654.	14.40	0.0315	109.	68.	0.15

MILE	23.10	744.81	9500.	2.49	3815.	367.	5.60	0.0305	981.	20.	0.14
MILE	21.00	744.49	10909.	1.41	7752.	616.	6.52	0.0300	981.	24.	0.07
MILE	18.90	744.28	12617.	1.56	8071.	991.	6.65	0.0290	981.	24.	0.10
MILE	16.80	744.06	14397.	1.98	7258.	713.	7.14	0.0220	981.	24.	0.11
MILE	14.70	743.97	16098.	1.35	11913.	784.	7.18	0.0220	981.	34.	0.06
MILE	12.60	743.89	18263.	1.43	12760.	1652.	8.72	0.0220	1331.	44.	0.09
MILE	10.50	743.86	21186.	1.12	18970.	1625.	8.99	0.0260	981.	54.	0.06
MILE	8.40	743.76	23438.	1.60	14688.	987.	9.44	0.0225	981.	54.	0.07
MILE	6.30	743.71	27488.	1.49	18484.	5284.	9.58	0.0250	981.	54.	0.14
MILE	4.20	743.65	36351.	1.26	28876.	5906.	9.27	0.0245	3381.	54.	0.10
MILE	2.10	743.59	41145.	1.40	29343.	1865.	11.08	0.0265	981.	54.	0.06
MILE	0.00	743.57	43757.	0.88	49897.	1552.	9.68	0.0230	934.	54.	0.03

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TIME	2.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	763.70	185000.	4.16	44432.	2066.	11.39	0.0280	94.	54.	0.16
MILE	598.04	759.50	188824.	7.84	24093.	1144.	10.16	0.0210	94.	50.	0.30
MILE	593.78	757.86	191579.	4.95	38740.	1578.	8.80	0.0310	94.	48.	0.18
MILE	589.52	754.98	195869.	4.70	41703.	1549.	10.37	0.0395	94.	45.	0.16
MILE	585.27	751.83	199462.	5.54	36017.	2325.	9.77	0.0400	94.	42.	0.25
MILE	581.01	750.05	205083.	3.96	51739.	2131.	10.41	0.0400	94.	60.	0.14
MILE	576.75	747.27	209347.	3.64	57515.	3257.	10.31	0.0430	94.	57.	0.15
MILE	572.49	744.64	219253.	2.72	80708.	4598.	10.21	0.0380	94.	55.	0.11
MILE	568.23	743.25	239733.	6.18	38770.	2838.	11.68	0.0300	92.	53.	0.29
MILE	568.23	743.25	282901.	7.30	38770.	2838.	11.68	0.0300	111.	53.	0.35
MILE	563.97	741.71	287326.	3.46	83030.	2778.	10.36	0.0260	111.	52.	0.11
MILE	559.71	741.22	294626.	3.02	97550.	4140.	12.00	0.0295	111.	71.	0.11
MILE	555.45	740.74	303207.	2.77	109472.	3911.	10.76	0.0285	111.	71.	0.09
MILE	551.20	739.68	311616.	2.30	135422.	4637.	12.50	0.0300	111.	70.	0.08
MILE	546.94	739.41	321408.	2.36	136213.	5356.	12.80	0.0320	111.	69.	0.08
MILE	542.68	738.89	334661.	3.48	96135.	6888.	14.74	0.0320	111.	69.	0.16
MILE	538.42	738.86	346390.	1.97	175758.	7080.	12.35	0.0265	111.	69.	0.07
MILE	534.16	738.39	356569.	2.07	171849.	7368.	12.61	0.0320	111.	68.	0.08
MILE	529.90	738.12	376395.	2.89	130319.	11524.	14.36	0.0315	109.	68.	0.15
MILE	23.10	744.54	9500.	2.54	3736.	364.	5.55	0.0305	973.	20.	0.14
MILE	21.00	744.20	10890.	1.43	7618.	609.	6.45	0.0300	973.	24.	0.07
MILE	18.90	743.98	12573.	1.59	7887.	979.	6.63	0.0290	973.	24.	0.10
MILE	16.80	743.76	14325.	2.01	7141.	702.	7.07	0.0220	973.	24.	0.11
MILE	14.70	743.66	15995.	1.37	11649.	761.	7.17	0.0220	973.	34.	0.06
MILE	12.60	743.58	18108.	1.44	12558.	1609.	8.70	0.0220	1323.	44.	0.09

MILE	10.50	743.54	20974.	1.12	18720.	1597.	8.93	0.0260	973.	54.	0.06
MILE	8.40	743.45	23189.	1.60	14507.	979.	9.39	0.0225	973.	53.	0.07
MILE	6.30	743.39	27162.	1.49	18249.	5211.	9.54	0.0250	973.	53.	0.14
MILE	4.20	743.34	35893.	1.26	28467.	5826.	9.22	0.0245	3373.	53.	0.10
MILE	2.10	743.27	40595.	1.40	29039.	1847.	11.03	0.0265	973.	53.	0.06
MILE	0.00	743.25	43168.	0.88	49259.	1540.	9.64	0.0230	926.	53.	0.03

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TIME	3.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	763.36	182500.	4.14	44033.	2019.	11.33	0.0280	94.	53.	0.16
MILE	598.04	759.19	186176.	7.81	23846.	1131.	10.11	0.0210	94.	49.	0.30
MILE	593.78	757.54	188837.	4.94	38220.	1553.	8.78	0.0310	94.	48.	0.18
MILE	589.52	754.67	192900.	4.68	41216.	1537.	10.33	0.0395	94.	45.	0.16
MILE	585.27	751.53	196384.	5.52	35589.	2325.	9.73	0.0400	94.	42.	0.25
MILE	581.01	749.75	201823.	3.94	51221.	2131.	10.36	0.0400	94.	60.	0.14
MILE	576.75	746.98	205988.	3.61	57000.	3213.	10.25	0.0430	94.	57.	0.15
MILE	572.49	744.32	215663.	2.70	79795.	4552.	10.16	0.0380	94.	54.	0.11
MILE	568.23	742.94	235687.	6.13	38433.	2826.	11.63	0.0300	92.	53.	0.29
MILE	568.23	742.94	278257.	7.24	38433.	2826.	11.63	0.0300	111.	53.	0.35
MILE	563.97	741.40	282605.	3.44	82152.	2766.	10.31	0.0260	111.	51.	0.11
MILE	559.71	740.91	289734.	2.99	96765.	4122.	11.95	0.0295	111.	71.	0.11
MILE	555.45	740.44	298158.	2.76	108187.	3896.	10.73	0.0285	111.	70.	0.09
MILE	551.20	739.38	306428.	2.28	134399.	4626.	12.46	0.0300	111.	69.	0.07
MILE	546.94	739.12	316034.	2.34	135322.	5322.	12.75	0.0320	111.	69.	0.08
MILE	542.68	738.61	329044.	3.44	95570.	6866.	14.70	0.0320	111.	69.	0.16
MILE	538.42	738.57	340576.	1.95	174403.	7057.	12.30	0.0265	111.	69.	0.07
MILE	534.16	738.11	350609.	2.06	170440.	7336.	12.59	0.0320	111.	68.	0.08
MILE	529.90	737.85	370017.	2.85	129668.	11396.	14.32	0.0315	109.	68.	0.15
MILE	23.10	744.27	9500.	2.60	3660.	360.	5.50	0.0305	964.	19.	0.14
MILE	21.00	743.92	10871.	1.45	7487.	603.	6.39	0.0300	964.	24.	0.07
MILE	18.90	743.68	12528.	1.63	7709.	967.	6.61	0.0290	964.	24.	0.10
MILE	16.80	743.45	14252.	2.03	7025.	691.	7.00	0.0220	964.	23.	0.11
MILE	14.70	743.35	15891.	1.40	11391.	738.	7.16	0.0220	964.	33.	0.06
MILE	12.60	743.27	17954.	1.45	12360.	1566.	8.68	0.0220	1314.	43.	0.09
MILE	10.50	743.23	20764.	1.12	18472.	1570.	8.88	0.0260	964.	53.	0.06
MILE	8.40	743.14	22942.	1.60	14327.	971.	9.34	0.0225	964.	53.	0.07
MILE	6.30	743.08	26839.	1.49	18018.	5140.	9.49	0.0250	964.	53.	0.14
MILE	4.20	743.02	35430.	1.26	28064.	5747.	9.18	0.0245	3364.	53.	0.10
MILE	2.10	742.96	40037.	1.39	28738.	1830.	10.99	0.0265	964.	53.	0.06
MILE	0.00	742.94	42569.	0.88	48631.	1527.	9.59	0.0230	918.	53.	0.03

0DATE 3-30-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	4.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	763.02	180000.	4.12	43639.	1972.	11.27	0.0280	94.	53.	0.15
MILE	598.04	758.88	183560.	7.78	23607.	1120.	10.06	0.0210	94.	49.	0.30
MILE	593.78	757.24	186142.	4.93	37722.	1530.	8.75	0.0310	94.	47.	0.18
MILE	589.52	754.36	190046.	4.67	40737.	1525.	10.30	0.0395	94.	44.	0.16
MILE	585.27	751.23	193433.	5.50	35172.	2325.	9.69	0.0400	94.	41.	0.25
MILE	581.01	749.45	198708.	3.92	50716.	2131.	10.31	0.0400	94.	59.	0.14
MILE	576.75	746.69	202782.	3.59	56497.	3169.	10.20	0.0430	94.	57.	0.15
MILE	572.49	744.00	212229.	2.69	78899.	4506.	10.11	0.0380	94.	54.	0.11
MILE	568.23	742.63	231776.	6.08	38100.	2814.	11.58	0.0300	92.	53.	0.29
MILE	568.23	742.63	273721.	7.18	38100.	2814.	11.58	0.0300	111.	53.	0.34
MILE	563.97	741.09	277993.	3.42	81289.	2754.	10.26	0.0260	111.	51.	0.11
MILE	559.71	740.61	284960.	2.97	95991.	4105.	11.90	0.0295	111.	71.	0.11
MILE	555.45	740.14	293222.	2.74	106927.	3882.	10.70	0.0285	111.	70.	0.09
MILE	551.20	739.09	301358.	2.26	133391.	4615.	12.42	0.0300	111.	69.	0.07
MILE	546.94	738.83	310758.	2.31	134443.	5289.	12.70	0.0320	111.	69.	0.08
MILE	542.68	738.32	323525.	3.41	95013.	6844.	14.67	0.0320	111.	68.	0.16
MILE	538.42	738.29	334857.	1.93	173068.	7036.	12.26	0.0265	111.	68.	0.07
MILE	534.16	737.84	344738.	2.04	169055.	7304.	12.56	0.0320	111.	68.	0.07
MILE	529.90	737.57	363725.	2.82	129027.	11270.	14.28	0.0315	109.	68.	0.15
MILE	23.10	744.01	9500.	2.65	3585.	357.	5.45	0.0305	956.	19.	0.15
MILE	21.00	743.64	10852.	1.48	7357.	597.	6.32	0.0300	956.	24.	0.07
MILE	18.90	743.39	12483.	1.66	7535.	955.	6.59	0.0290	956.	23.	0.10
MILE	16.80	743.15	14179.	2.05	6911.	681.	6.93	0.0220	956.	23.	0.11
MILE	14.70	743.05	15787.	1.42	11140.	715.	7.14	0.0220	956.	33.	0.06
MILE	12.60	742.96	17798.	1.46	12166.	1524.	8.66	0.0220	1306.	43.	0.09
MILE	10.50	742.92	20549.	1.13	18228.	1543.	8.82	0.0260	956.	53.	0.06
MILE	8.40	742.83	22688.	1.60	14151.	963.	9.29	0.0225	956.	53.	0.07
MILE	6.30	742.77	26503.	1.49	17790.	5069.	9.45	0.0250	956.	53.	0.14
MILE	4.20	742.71	34950.	1.26	27668.	5669.	9.13	0.0245	3356.	53.	0.10
MILE	2.10	742.65	39455.	1.39	28443.	1813.	10.94	0.0265	956.	53.	0.06
MILE	0.00	742.63	41945.	0.87	48014.	1515.	9.54	0.0230	911.	53.	0.03

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TIME	5.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	762.69	177500.	4.10	43254.	1926.	11.22	0.0280	94.	53.	0.15
MILE	598.04	758.58	180952.	7.74	23372.	1108.	10.02	0.0210	94.	49.	0.30
MILE	593.78	756.95	183473.	4.93	37235.	1507.	8.72	0.0310	94.	47.	0.17
MILE	589.52	754.05	187252.	4.65	40270.	1513.	10.26	0.0395	94.	44.	0.16
MILE	585.27	750.94	190571.	5.48	34766.	2325.	9.65	0.0400	94.	41.	0.25
MILE	581.01	749.16	195701.	3.90	50222.	2131.	10.26	0.0400	94.	59.	0.14
MILE	576.75	746.42	199689.	3.57	56003.	3125.	10.14	0.0430	94.	56.	0.15
MILE	572.49	743.69	208908.	2.68	78019.	4462.	10.06	0.0380	94.	54.	0.11
MILE	568.23	742.32	227985.	6.04	37772.	2802.	11.53	0.0300	92.	52.	0.29
MILE	568.23	742.32	269300.	7.13	37772.	2802.	11.53	0.0300	111.	52.	0.34
MILE	563.97	740.79	273501.	3.40	80437.	2743.	10.21	0.0260	111.	51.	0.11
MILE	559.71	740.32	280327.	2.94	95226.	4087.	11.84	0.0295	111.	70.	0.11
MILE	555.45	739.85	288404.	2.73	105734.	3863.	10.67	0.0285	111.	70.	0.09
MILE	551.20	738.80	296412.	2.24	132399.	4604.	12.38	0.0300	111.	69.	0.07
MILE	546.94	738.54	305596.	2.29	133577.	5255.	12.66	0.0320	111.	69.	0.08
MILE	542.68	738.04	318124.	3.37	94465.	6823.	14.64	0.0320	111.	68.	0.16
MILE	538.42	738.01	329260.	1.92	171755.	7014.	12.22	0.0265	111.	68.	0.07
MILE	534.16	737.57	338973.	2.02	167695.	7272.	12.54	0.0320	111.	68.	0.07
MILE	529.90	737.31	357525.	2.78	128395.	11146.	14.24	0.0315	109.	67.	0.14
MILE	23.10	743.76	9500.	2.70	3513.	354.	5.40	0.0305	948.	19.	0.15
MILE	21.00	743.36	10833.	1.50	7230.	591.	6.25	0.0300	948.	23.	0.08
MILE	18.90	743.10	12436.	1.69	7365.	943.	6.57	0.0290	948.	23.	0.11
MILE	16.80	742.85	14103.	2.07	6798.	670.	6.85	0.0220	948.	23.	0.11
MILE	14.70	742.74	15678.	1.44	10895.	693.	7.13	0.0220	948.	33.	0.06
MILE	12.60	742.66	17637.	1.47	11976.	1482.	8.64	0.0220	1298.	43.	0.09
MILE	10.50	742.62	20327.	1.13	17988.	1516.	8.77	0.0260	948.	53.	0.06
MILE	8.40	742.52	22425.	1.60	13977.	956.	9.24	0.0225	948.	53.	0.07
MILE	6.30	742.46	26158.	1.49	17566.	4999.	9.40	0.0250	948.	52.	0.14
MILE	4.20	742.41	34462.	1.26	27279.	5592.	9.08	0.0245	3348.	52.	0.10
MILE	2.10	742.34	38868.	1.38	28152.	1796.	10.90	0.0265	948.	52.	0.06
MILE	0.00	742.32	41316.	0.87	47407.	1504.	9.49	0.0230	903.	52.	0.03

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TIME	6.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	762.37	175000.	4.08	42874.	1881.	11.16	0.0280	94.	52.	0.15
MILE	598.04	758.28	178376.	7.71	23140.	1096.	9.97	0.0210	94.	48.	0.30
MILE	593.78	756.65	180851.	4.92	36757.	1484.	8.70	0.0310	94.	47.	0.17
MILE	589.52	753.75	184514.	4.63	39812.	1502.	10.23	0.0395	94.	44.	0.16

MILE	585.27	750.66	187772.	5.46	34369.	2325.	9.62	0.0400	94.	41.	0.25
MILE	581.01	748.87	192771.	3.88	49737.	2131.	10.21	0.0400	94.	59.	0.14
MILE	576.75	746.14	196681.	3.54	55519.	3083.	10.09	0.0430	94.	56.	0.15
MILE	572.49	743.38	205684.	2.67	77154.	4417.	10.01	0.0380	94.	53.	0.11
MILE	568.23	742.02	224293.	5.99	37449.	2790.	11.49	0.0300	92.	52.	0.29
MILE	568.23	742.02	264985.	7.08	37449.	2790.	11.49	0.0300	111.	52.	0.34
MILE	563.97	740.49	269107.	3.38	79600.	2731.	10.16	0.0260	111.	50.	0.11
MILE	559.71	740.03	275776.	2.92	94474.	4070.	11.79	0.0295	111.	70.	0.11
MILE	555.45	739.56	283678.	2.71	104601.	3841.	10.64	0.0285	111.	70.	0.09
MILE	551.20	738.52	291536.	2.22	131423.	4593.	12.34	0.0300	111.	69.	0.07
MILE	546.94	738.26	300550.	2.26	132725.	5223.	12.61	0.0320	111.	68.	0.08
MILE	542.68	737.77	312826.	3.33	93926.	6801.	14.61	0.0320	111.	68.	0.16
MILE	538.42	737.73	323755.	1.90	170465.	6993.	12.18	0.0265	111.	68.	0.07
MILE	534.16	737.30	333301.	2.00	166362.	7241.	12.52	0.0320	111.	67.	0.07
MILE	529.90	737.04	351421.	2.75	127774.	11023.	14.20	0.0315	109.	67.	0.14
MILE	23.10	743.51	9500.	2.76	3443.	351.	5.35	0.0305	940.	19.	0.16
MILE	21.00	743.09	10812.	1.52	7106.	585.	6.19	0.0300	940.	23.	0.08
MILE	18.90	742.82	12388.	1.72	7201.	931.	6.55	0.0290	940.	23.	0.11
MILE	16.80	742.56	14024.	2.10	6687.	660.	6.78	0.0220	940.	23.	0.12
MILE	14.70	742.45	15568.	1.46	10657.	671.	7.12	0.0220	940.	32.	0.06
MILE	12.60	742.36	17476.	1.48	11790.	1441.	8.63	0.0220	1290.	42.	0.09
MILE	10.50	742.32	20109.	1.13	17752.	1490.	8.71	0.0260	940.	52.	0.06
MILE	8.40	742.22	22167.	1.61	13806.	948.	9.19	0.0225	940.	52.	0.07
MILE	6.30	742.16	25818.	1.49	17347.	4930.	9.36	0.0250	940.	52.	0.14
MILE	4.20	742.10	33979.	1.26	26898.	5515.	9.04	0.0245	3340.	52.	0.10
MILE	2.10	742.04	38286.	1.37	27866.	1779.	10.85	0.0265	940.	52.	0.06
MILE	0.00	742.02	40692.	0.87	46810.	1492.	9.44	0.0230	895.	52.	0.03

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TIME	7.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	762.05	172500.	4.06	42496.	1836.	11.10	0.0280	94.	52.	0.15
MILE	598.04	757.98	175815.	7.67	22911.	1085.	9.92	0.0210	94.	48.	0.29
MILE	593.78	756.36	178251.	4.91	36288.	1462.	8.67	0.0310	94.	46.	0.17
MILE	589.52	753.45	181817.	4.62	39363.	1490.	10.19	0.0395	94.	43.	0.16
MILE	585.27	750.38	185028.	5.45	33980.	2325.	9.58	0.0400	94.	40.	0.25
MILE	581.01	748.59	189905.	3.86	49261.	2131.	10.16	0.0400	94.	59.	0.14
MILE	576.75	745.87	193741.	3.52	55042.	3041.	10.03	0.0430	94.	56.	0.15
MILE	572.49	743.07	202532.	2.65	76304.	4374.	9.95	0.0380	94.	53.	0.11
MILE	568.23	741.72	220697.	5.94	37131.	2779.	11.44	0.0300	92.	52.	0.29

MILE	568.23	741.72	260770.	7.02	37131.	2779.	11.44	0.0300	111.	52.	0.34
MILE	563.97	740.20	264817.	3.36	78776.	2720.	10.10	0.0260	111.	50.	0.11
MILE	559.71	739.74	271362.	2.90	93722.	4038.	11.75	0.0295	111.	70.	0.11
MILE	555.45	739.28	279076.	2.70	103491.	3819.	10.61	0.0285	111.	69.	0.09
MILE	551.20	738.24	286789.	2.20	130463.	4582.	12.30	0.0300	111.	68.	0.07
MILE	546.94	737.99	295594.	2.24	131886.	5191.	12.57	0.0320	111.	68.	0.08
MILE	542.68	737.50	307617.	3.29	93397.	6780.	14.58	0.0320	111.	67.	0.16
MILE	538.42	737.46	318333.	1.88	169197.	6972.	12.14	0.0265	111.	67.	0.07
MILE	534.16	737.03	327716.	1.99	165054.	7210.	12.49	0.0320	111.	67.	0.07
MILE	529.90	736.78	345413.	2.72	127163.	10903.	14.17	0.0315	109.	67.	0.14
MILE	23.10	743.27	9500.	2.82	3375.	349.	5.30	0.0305	931.	18.	0.16
MILE	21.00	742.83	10793.	1.55	6984.	579.	6.12	0.0300	931.	23.	0.08
MILE	18.90	742.54	12341.	1.75	7042.	920.	6.53	0.0290	931.	23.	0.11
MILE	16.80	742.27	13949.	2.12	6578.	650.	6.71	0.0220	931.	22.	0.12
MILE	14.70	742.15	15461.	1.48	10425.	649.	7.11	0.0220	931.	32.	0.07
MILE	12.60	742.07	17319.	1.49	11609.	1401.	8.61	0.0220	1281.	42.	0.09
MILE	10.50	742.02	19894.	1.14	17520.	1464.	8.66	0.0260	931.	52.	0.06
MILE	8.40	741.92	21913.	1.61	13639.	941.	9.14	0.0225	931.	52.	0.07
MILE	6.30	741.86	25483.	1.49	17131.	4863.	9.31	0.0250	931.	52.	0.14
MILE	4.20	741.81	33499.	1.26	26524.	5440.	9.00	0.0245	3331.	52.	0.10
MILE	2.10	741.74	37709.	1.37	27585.	1763.	10.81	0.0265	931.	52.	0.06
MILE	0.00	741.72	40073.	0.87	46225.	1481.	9.40	0.0230	887.	52.	0.03

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TIME	8.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	761.73	170000.	4.04	42120.	1791.	11.04	0.0280	94.	52.	0.15
MILE	598.04	757.69	173263.	7.64	22683.	1073.	9.87	0.0210	94.	48.	0.29
MILE	593.78	756.07	175667.	4.90	35824.	1439.	8.64	0.0310	94.	46.	0.17
MILE	589.52	753.16	179149.	4.60	38920.	1479.	10.16	0.0395	94.	43.	0.16
MILE	585.27	750.10	182320.	5.43	33598.	2325.	9.54	0.0400	94.	40.	0.25
MILE	581.01	748.31	187088.	3.83	48792.	2131.	10.11	0.0400	94.	58.	0.14
MILE	576.75	745.61	190857.	3.50	54572.	3000.	9.98	0.0430	94.	56.	0.14
MILE	572.49	742.77	199451.	2.64	75467.	4331.	9.90	0.0380	94.	53.	0.11
MILE	568.23	741.43	217186.	5.90	36818.	2767.	11.39	0.0300	92.	51.	0.29
MILE	568.23	741.43	256665.	6.97	36818.	2767.	11.39	0.0300	111.	51.	0.34
MILE	563.97	739.91	260630.	3.34	77966.	2709.	10.06	0.0260	111.	50.	0.11
MILE	559.71	739.45	267051.	2.87	92983.	4005.	11.70	0.0295	111.	69.	0.11
MILE	555.45	739.00	274586.	2.68	102403.	3797.	10.58	0.0285	111.	69.	0.09
MILE	551.20	737.96	282158.	2.18	129521.	4571.	12.26	0.0300	111.	68.	0.07

MILE	546.94	737.71	290758.	2.22	131061.	5159.	12.52	0.0320	111.	68.	0.08
MILE	542.68	737.23	302528.	3.26	92877.	6760.	14.55	0.0320	111.	67.	0.15
MILE	538.42	737.20	313036.	1.86	167952.	6951.	12.10	0.0265	111.	67.	0.07
MILE	534.16	736.77	322244.	1.97	163773.	7180.	12.47	0.0320	111.	67.	0.07
MILE	529.90	736.53	339504.	2.68	126563.	10785.	14.13	0.0315	109.	67.	0.14
MILE	23.10	743.03	9500.	2.87	3309.	346.	5.26	0.0305	923.	18.	0.16
MILE	21.00	742.57	10773.	1.57	6864.	573.	6.06	0.0300	923.	23.	0.08
MILE	18.90	742.27	12294.	1.79	6887.	908.	6.51	0.0290	923.	22.	0.11
MILE	16.80	741.99	13873.	2.14	6470.	640.	6.64	0.0220	923.	22.	0.12
MILE	14.70	741.86	15354.	1.51	10200.	627.	7.10	0.0220	923.	32.	0.07
MILE	12.60	741.77	17163.	1.50	11432.	1361.	8.60	0.0220	1273.	42.	0.09
MILE	10.50	741.73	19682.	1.14	17293.	1439.	8.61	0.0260	923.	52.	0.06
MILE	8.40	741.63	21662.	1.61	13474.	933.	9.09	0.0225	923.	52.	0.07
MILE	6.30	741.57	25154.	1.49	16919.	4796.	9.27	0.0250	923.	52.	0.14
MILE	4.20	741.51	33038.	1.26	26157.	5366.	8.95	0.0245	3323.	52.	0.10
MILE	2.10	741.45	37155.	1.36	27308.	1746.	10.77	0.0265	923.	51.	0.06
MILE	0.00	741.43	39479.	0.86	45650.	1469.	9.35	0.0230	879.	51.	0.03

ODATE 3-30-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	9.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	761.41	167500.	4.01	41743.	1746.	10.99	0.0280	94.	51.	0.14
MILE	598.04	757.40	170719.	7.60	22456.	1062.	9.83	0.0210	94.	47.	0.29
MILE	593.78	755.79	173099.	4.89	35366.	1417.	8.62	0.0310	94.	46.	0.17
MILE	589.52	752.87	176505.	4.59	38484.	1467.	10.12	0.0395	94.	43.	0.16
MILE	585.27	749.83	179627.	5.41	33227.	2295.	9.50	0.0400	94.	40.	0.25
MILE	581.01	748.04	184301.	3.81	48329.	2131.	10.06	0.0400	94.	58.	0.14
MILE	576.75	745.35	188012.	3.47	54109.	2960.	9.93	0.0430	94.	55.	0.14
MILE	572.49	742.48	196423.	2.63	74643.	4288.	9.86	0.0380	94.	52.	0.11
MILE	568.23	741.14	213746.	5.85	36510.	2756.	11.34	0.0300	92.	51.	0.28
MILE	568.23	741.14	252649.	6.92	36510.	2756.	11.34	0.0300	111.	51.	0.34
MILE	563.97	739.63	256530.	3.32	77164.	2698.	10.02	0.0260	111.	50.	0.11
MILE	559.71	739.18	262838.	2.85	92258.	3973.	11.66	0.0295	111.	69.	0.10
MILE	555.45	738.73	270196.	2.67	101340.	3776.	10.55	0.0285	111.	69.	0.09
MILE	551.20	737.69	277628.	2.16	128598.	4560.	12.22	0.0300	111.	68.	0.07
MILE	546.94	737.45	286030.	2.20	130251.	5128.	12.48	0.0320	111.	67.	0.08
MILE	542.68	736.97	297546.	3.22	92367.	6740.	14.52	0.0320	111.	67.	0.15
MILE	538.42	736.93	307842.	1.85	166731.	6931.	12.06	0.0265	111.	67.	0.07
MILE	534.16	736.52	316875.	1.95	162520.	7151.	12.45	0.0320	111.	67.	0.07
MILE	529.90	736.28	333698.	2.65	125974.	10668.	14.09	0.0315	109.	66.	0.14

MILE	23.10	742.80	9500.	2.93	3245.	343.	5.21	0.0305	915.	18.	0.17
MILE	21.00	742.31	10753.	1.59	6747.	568.	5.99	0.0300	915.	22.	0.08
MILE	18.90	742.00	12248.	1.82	6737.	897.	6.50	0.0290	915.	22.	0.12
MILE	16.80	741.71	13799.	2.17	6364.	630.	6.57	0.0220	915.	22.	0.12
MILE	14.70	741.58	15251.	1.53	9982.	606.	7.09	0.0220	915.	32.	0.07
MILE	12.60	741.49	17013.	1.51	11259.	1322.	8.58	0.0220	1265.	41.	0.09
MILE	10.50	741.45	19479.	1.14	17069.	1414.	8.55	0.0260	915.	51.	0.06
MILE	8.40	741.34	21423.	1.61	13312.	926.	9.05	0.0225	915.	51.	0.07
MILE	6.30	741.28	24840.	1.49	16711.	4730.	9.23	0.0250	915.	51.	0.14
MILE	4.20	741.22	32592.	1.26	25796.	5293.	8.91	0.0245	3315.	51.	0.10
MILE	2.10	741.16	36618.	1.35	27036.	1730.	10.72	0.0265	915.	51.	0.06
MILE	0.00	741.14	38902.	0.86	45084.	1458.	9.30	0.0230	871.	51.	0.03

ODATE 3-30-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	10.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	761.08	165000.	3.99	41367.	1701.	10.93	0.0280	94.	51.	0.14
MILE	598.04	757.10	168173.	7.57	22230.	1051.	9.78	0.0210	94.	47.	0.29
MILE	593.78	755.50	170529.	4.88	34911.	1395.	8.59	0.0310	94.	45.	0.17
MILE	589.52	752.58	173860.	4.57	38051.	1456.	10.09	0.0395	94.	43.	0.16
MILE	585.27	749.55	176941.	5.38	32863.	2247.	9.46	0.0400	94.	40.	0.25
MILE	581.01	747.76	181529.	3.79	47868.	2131.	10.02	0.0400	94.	58.	0.14
MILE	576.75	745.09	185190.	3.45	53649.	2919.	9.88	0.0430	94.	55.	0.14
MILE	572.49	742.19	193405.	2.62	73834.	4246.	9.81	0.0380	94.	52.	0.11
MILE	568.23	740.85	210369.	5.81	36207.	2745.	11.30	0.0300	92.	51.	0.28
MILE	568.23	740.85	248705.	6.87	36207.	2745.	11.30	0.0300	111.	51.	0.33
MILE	563.97	739.35	252501.	3.31	76376.	2687.	9.97	0.0260	111.	49.	0.11
MILE	559.71	738.90	258695.	2.83	91545.	3941.	11.62	0.0295	111.	69.	0.10
MILE	555.45	738.46	265880.	2.65	100298.	3755.	10.53	0.0285	111.	68.	0.09
MILE	551.20	737.43	273171.	2.14	127691.	4550.	12.18	0.0300	111.	67.	0.07
MILE	546.94	737.18	281383.	2.17	129456.	5097.	12.44	0.0320	111.	67.	0.08
MILE	542.68	736.72	292652.	3.19	91867.	6720.	14.49	0.0320	111.	67.	0.15
MILE	538.42	736.68	302737.	1.83	165535.	6911.	12.02	0.0265	111.	67.	0.07
MILE	534.16	736.27	311598.	1.93	161293.	7121.	12.43	0.0320	111.	66.	0.07
MILE	529.90	736.03	327996.	2.62	125396.	10554.	14.06	0.0315	109.	66.	0.13
MILE	23.10	742.58	9500.	2.98	3184.	340.	5.16	0.0305	907.	18.	0.17
MILE	21.00	742.06	10735.	1.62	6633.	562.	5.93	0.0300	907.	22.	0.08
MILE	18.90	741.73	12204.	1.85	6592.	886.	6.48	0.0290	907.	22.	0.12
MILE	16.80	741.43	13728.	2.19	6259.	620.	6.51	0.0220	907.	21.	0.12
MILE	14.70	741.30	15151.	1.55	9769.	585.	7.09	0.0220	907.	31.	0.07

MILE	12.60	741.21	16867.	1.52	11090.	1283.	8.57	0.0220	1257.	41.	0.09
MILE	10.50	741.16	19281.	1.14	16849.	1389.	8.50	0.0260	907.	51.	0.06
MILE	8.40	741.06	21188.	1.61	13153.	919.	9.00	0.0225	907.	51.	0.08
MILE	6.30	741.00	24531.	1.49	16507.	4665.	9.18	0.0250	907.	51.	0.14
MILE	4.20	740.94	32153.	1.26	25443.	5221.	8.86	0.0245	3307.	51.	0.10
MILE	2.10	740.87	36090.	1.35	26769.	1714.	10.68	0.0265	907.	51.	0.06
MILE	0.00	740.85	38336.	0.86	44529.	1447.	9.26	0.0230	864.	51.	0.03

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TIME	11.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	760.76	162500.	3.96	40990.	1656.	10.87	0.0280	94.	51.	0.14
MILE	598.04	756.81	165631.	7.53	22005.	1039.	9.73	0.0210	94.	47.	0.29
MILE	593.78	755.21	167964.	4.87	34458.	1372.	8.57	0.0310	94.	45.	0.17
MILE	589.52	752.29	171226.	4.55	37620.	1445.	10.05	0.0395	94.	42.	0.16
MILE	585.27	749.28	174274.	5.36	32502.	2199.	9.42	0.0400	94.	39.	0.25
MILE	581.01	747.49	178808.	3.77	47410.	2131.	9.97	0.0400	94.	57.	0.14
MILE	576.75	744.83	182458.	3.43	53192.	2904.	9.83	0.0430	94.	55.	0.14
MILE	572.49	741.90	190445.	2.61	73036.	4205.	9.76	0.0380	94.	52.	0.11
MILE	568.23	740.57	207036.	5.77	35908.	2734.	11.25	0.0300	92.	51.	0.28
MILE	568.23	740.57	244823.	6.82	35908.	2734.	11.25	0.0300	111.	51.	0.33
MILE	563.97	739.07	248534.	3.29	75604.	2676.	9.93	0.0260	111.	49.	0.11
MILE	559.71	738.63	254616.	2.80	90844.	3910.	11.57	0.0295	111.	69.	0.10
MILE	555.45	738.19	261633.	2.64	99277.	3735.	10.50	0.0285	111.	68.	0.09
MILE	551.20	737.17	268788.	2.12	126802.	4540.	12.15	0.0300	111.	67.	0.07
MILE	546.94	736.93	276811.	2.15	128675.	5067.	12.40	0.0320	111.	67.	0.08
MILE	542.68	736.46	287837.	3.15	91377.	6700.	14.46	0.0320	111.	66.	0.15
MILE	538.42	736.42	297716.	1.81	164362.	6891.	11.99	0.0265	111.	66.	0.07
MILE	534.16	736.02	306408.	1.91	160092.	7093.	12.41	0.0320	111.	66.	0.07
MILE	529.90	735.79	322396.	2.58	124828.	10442.	14.02	0.0315	109.	66.	0.13
MILE	23.10	742.36	9500.	3.04	3125.	338.	5.12	0.0305	898.	17.	0.18
MILE	21.00	741.82	10716.	1.64	6521.	557.	5.87	0.0300	898.	22.	0.08
MILE	18.90	741.47	12160.	1.88	6451.	876.	6.47	0.0290	898.	21.	0.12
MILE	16.80	741.16	13657.	2.22	6156.	611.	6.44	0.0220	898.	21.	0.12
MILE	14.70	741.02	15052.	1.57	9563.	565.	7.08	0.0220	898.	31.	0.07
MILE	12.60	740.93	16723.	1.53	10925.	1245.	8.55	0.0220	1248.	41.	0.09
MILE	10.50	740.88	19085.	1.15	16632.	1364.	8.45	0.0260	898.	51.	0.06
MILE	8.40	740.78	20957.	1.61	12996.	912.	8.95	0.0225	898.	51.	0.08
MILE	6.30	740.71	24229.	1.49	16306.	4600.	9.14	0.0250	898.	51.	0.14
MILE	4.20	740.65	31728.	1.26	25095.	5150.	8.82	0.0245	3298.	51.	0.10
MILE	2.10	740.59	35580.	1.34	26506.	1699.	10.64	0.0265	898.	51.	0.06

MILE	0.00	740.57	37787.	0.86	43983.	1436.	9.21	0.0230	856.	51.	0.03

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TIME	12.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	760.44	160000.	3.94	40613.	1611.	10.81	0.0280	94.	50.	0.14
MILE	598.04	756.51	163094.	7.49	21779.	1028.	9.68	0.0210	94.	47.	0.29
MILE	593.78	754.92	165395.	4.86	34010.	1354.	8.54	0.0310	94.	45.	0.17
MILE	589.52	752.00	168619.	4.53	37194.	1434.	10.02	0.0395	94.	42.	0.16
MILE	585.27	749.01	171647.	5.34	32145.	2152.	9.38	0.0400	94.	39.	0.24
MILE	581.01	747.22	176122.	3.75	46956.	2131.	9.92	0.0400	94.	57.	0.14
MILE	576.75	744.57	179736.	3.41	52740.	2900.	9.80	0.0430	94.	55.	0.14
MILE	572.49	741.61	187534.	2.60	72250.	4164.	9.71	0.0380	94.	52.	0.11
MILE	568.23	740.29	203761.	5.72	35614.	2723.	11.21	0.0300	92.	50.	0.28
MILE	568.23	740.29	241008.	6.77	35614.	2723.	11.21	0.0300	111.	50.	0.33
MILE	563.97	738.80	244638.	3.27	74846.	2666.	9.89	0.0260	111.	49.	0.11
MILE	559.71	738.37	250607.	2.78	90155.	3879.	11.53	0.0295	111.	68.	0.10
MILE	555.45	737.93	257458.	2.62	98278.	3714.	10.47	0.0285	111.	68.	0.09
MILE	551.20	736.91	264477.	2.10	125929.	4530.	12.11	0.0300	111.	67.	0.07
MILE	546.94	736.67	272314.	2.13	127907.	5038.	12.36	0.0320	111.	67.	0.07
MILE	542.68	736.22	283103.	3.11	90896.	6681.	14.43	0.0320	111.	66.	0.15
MILE	538.42	736.18	292782.	1.79	163211.	6872.	11.95	0.0265	111.	66.	0.06
MILE	534.16	735.78	301309.	1.90	158918.	7065.	12.39	0.0320	111.	66.	0.07
MILE	529.90	735.56	316896.	2.55	124272.	10331.	13.99	0.0315	109.	66.	0.13
MILE	23.10	742.15	9500.	3.10	3067.	335.	5.08	0.0305	890.	17.	0.18
MILE	21.00	741.58	10697.	1.67	6411.	552.	5.81	0.0300	890.	22.	0.09
MILE	18.90	741.22	12117.	1.92	6315.	865.	6.45	0.0290	890.	21.	0.13
MILE	16.80	740.90	13587.	2.24	6055.	602.	6.37	0.0220	890.	21.	0.12
MILE	14.70	740.75	14954.	1.60	9362.	545.	7.08	0.0220	890.	31.	0.07
MILE	12.60	740.65	16583.	1.54	10764.	1207.	8.54	0.0220	1240.	41.	0.09
MILE	10.50	740.61	18896.	1.15	16419.	1340.	8.40	0.0260	890.	51.	0.06
MILE	8.40	740.50	20733.	1.61	12843.	905.	8.90	0.0225	890.	51.	0.08
MILE	6.30	740.44	23933.	1.49	16109.	4537.	9.10	0.0250	890.	50.	0.14
MILE	4.20	740.38	31310.	1.26	24755.	5080.	8.78	0.0245	3290.	50.	0.10
MILE	2.10	740.31	35076.	1.34	26248.	1683.	10.60	0.0265	890.	50.	0.06
MILE	0.00	740.29	37247.	0.86	43447.	1425.	9.17	0.0230	848.	50.	0.03

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TIME 13.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE 602.30	760.15	158333.	3.93	40277.	1571.	10.76	0.0280	94.	50.	0.14
MILE 598.04	756.24	160993.	7.46	21568.	1017.	9.64	0.0210	94.	46.	0.29
MILE 593.78	754.64	163087.	4.86	33580.	1348.	8.51	0.0310	94.	45.	0.17
MILE 589.52	751.72	166105.	4.52	36777.	1423.	9.99	0.0395	94.	42.	0.16
MILE 585.27	748.74	169048.	5.32	31791.	2105.	9.34	0.0400	94.	39.	0.24
MILE 581.01	746.95	173441.	3.73	46506.	2131.	9.87	0.0400	94.	57.	0.14
MILE 576.75	744.32	177012.	3.38	52293.	2897.	9.76	0.0430	94.	54.	0.14
MILE 572.49	741.33	184628.	2.58	71476.	4124.	9.66	0.0380	94.	51.	0.11
MILE 568.23	740.02	200526.	5.68	35325.	2713.	11.16	0.0300	92.	50.	0.28
MILE 568.23	740.02	237251.	6.72	35325.	2713.	11.16	0.0300	111.	50.	0.33
MILE 563.97	738.54	240801.	3.25	74101.	2656.	9.85	0.0260	111.	49.	0.11
MILE 559.71	738.10	246662.	2.76	89478.	3848.	11.49	0.0295	111.	68.	0.10
MILE 555.45	737.67	253353.	2.60	97298.	3694.	10.44	0.0285	111.	68.	0.09
MILE 551.20	736.66	260240.	2.08	125073.	4520.	12.07	0.0300	111.	67.	0.07
MILE 546.94	736.42	267897.	2.11	127154.	5009.	12.31	0.0320	111.	66.	0.07
MILE 542.68	735.97	278454.	3.08	90424.	6662.	14.40	0.0320	111.	66.	0.15
MILE 538.42	735.93	287935.	1.78	162083.	6853.	11.91	0.0265	111.	66.	0.06
MILE 534.16	735.54	296299.	1.88	157768.	7037.	12.37	0.0320	111.	66.	0.07
MILE 529.90	735.32	311494.	2.52	123725.	10223.	13.96	0.0315	109.	65.	0.13
MILE 23.10	741.95	9500.	3.15	3012.	333.	5.03	0.0305	882.	17.	0.18
MILE 21.00	741.34	10679.	1.69	6304.	547.	5.75	0.0300	882.	21.	0.09
MILE 18.90	740.97	12074.	1.95	6182.	855.	6.44	0.0290	882.	21.	0.13
MILE 16.80	740.63	13518.	2.27	5955.	592.	6.30	0.0220	882.	21.	0.13
MILE 14.70	740.48	14859.	1.62	9166.	525.	7.08	0.0220	882.	30.	0.07
MILE 12.60	740.38	16445.	1.55	10607.	1170.	8.53	0.0220	1232.	40.	0.09
MILE 10.50	740.34	18709.	1.15	16210.	1316.	8.34	0.0260	882.	50.	0.06
MILE 8.40	740.23	20512.	1.62	12692.	898.	8.86	0.0225	882.	50.	0.08
MILE 6.30	740.16	23645.	1.49	15915.	4474.	9.06	0.0250	882.	50.	0.14
MILE 4.20	740.10	30904.	1.27	24420.	5011.	8.74	0.0245	3282.	50.	0.10
MILE 2.10	740.04	34590.	1.33	25994.	1668.	10.56	0.0265	882.	50.	0.06
MILE 0.00	740.02	36725.	0.86	42920.	1415.	9.12	0.0230	840.	50.	0.03

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TIME 14.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE 602.30	759.88	156667.	3.92	39966.	1544.	10.71	0.0280	94.	50.	0.14
MILE 598.04	755.98	159168.	7.45	21374.	1007.	9.59	0.0210	94.	46.	0.28
MILE 593.78	754.39	161130.	4.86	33187.	1343.	8.48	0.0310	94.	44.	0.17

MILE	589.52	751.46	163929.	4.50	36390.	1412.	9.96	0.0395	94.	41.	0.16
MILE	585.27	748.48	166703.	5.30	31455.	2060.	9.31	0.0400	94.	38.	0.24
MILE	581.01	746.69	170910.	3.71	46069.	2131.	9.83	0.0400	94.	57.	0.14
MILE	576.75	744.07	174387.	3.36	51855.	2894.	9.72	0.0430	94.	54.	0.14
MILE	572.49	741.05	181797.	2.57	70714.	4084.	9.61	0.0380	94.	51.	0.11
MILE	568.23	739.75	197412.	5.63	35039.	2678.	11.13	0.0300	92.	50.	0.27
MILE	568.23	739.75	233663.	6.67	35039.	2678.	11.13	0.0300	111.	50.	0.32
MILE	563.97	738.27	237104.	3.23	73370.	2645.	9.81	0.0260	111.	48.	0.11
MILE	559.71	737.85	242823.	2.73	88813.	3818.	11.45	0.0295	111.	68.	0.10
MILE	555.45	737.42	249332.	2.59	96338.	3675.	10.41	0.0285	111.	67.	0.09
MILE	551.20	736.41	256076.	2.06	124233.	4511.	12.04	0.0300	111.	66.	0.07
MILE	546.94	736.18	263554.	2.08	126414.	4980.	12.27	0.0320	111.	66.	0.07
MILE	542.68	735.73	273883.	3.04	89962.	6644.	14.37	0.0320	111.	66.	0.15
MILE	538.42	735.69	283171.	1.76	160977.	6835.	11.88	0.0265	111.	66.	0.06
MILE	534.16	735.31	291374.	1.86	156643.	7010.	12.35	0.0320	111.	65.	0.07
MILE	529.90	735.09	306190.	2.49	123189.	10117.	13.92	0.0315	109.	65.	0.13
MILE	23.10	741.75	9500.	3.21	2959.	331.	4.99	0.0305	874.	17.	0.19
MILE	21.00	741.11	10660.	1.72	6199.	541.	5.69	0.0300	874.	21.	0.09
MILE	18.90	740.72	12032.	1.99	6054.	845.	6.43	0.0290	874.	21.	0.13
MILE	16.80	740.37	13451.	2.30	5856.	583.	6.24	0.0220	874.	20.	0.13
MILE	14.70	740.21	14765.	1.64	8976.	505.	7.08	0.0220	874.	30.	0.07
MILE	12.60	740.11	16311.	1.56	10453.	1134.	8.51	0.0220	1224.	40.	0.09
MILE	10.50	740.07	18529.	1.16	16004.	1293.	8.29	0.0260	874.	50.	0.06
MILE	8.40	739.96	20303.	1.62	12544.	891.	8.81	0.0225	874.	50.	0.08
MILE	6.30	739.89	23374.	1.49	15726.	4412.	9.02	0.0250	874.	50.	0.14
MILE	4.20	739.83	30534.	1.27	24093.	4942.	8.70	0.0245	3274.	50.	0.10
MILE	2.10	739.77	34148.	1.33	25745.	1653.	10.52	0.0265	874.	50.	0.06
MILE	0.00	739.75	36251.	0.86	42379.	1404.	9.09	0.0230	832.	50.	0.03

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TIME 15.0000		ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	759.63	155000.	3.91	39668.	1531.	10.66	0.0280	94.	50.	0.14
MILE	598.04	755.74	157388.	7.43	21189.	998.	9.55	0.0210	94.	46.	0.28
MILE	593.78	754.14	159263.	4.85	32815.	1338.	8.45	0.0310	94.	44.	0.17
MILE	589.52	751.21	161906.	4.49	36024.	1403.	9.93	0.0395	94.	41.	0.16
MILE	585.27	748.24	164557.	5.28	31137.	2017.	9.27	0.0400	94.	38.	0.24
MILE	581.01	746.44	168595.	3.69	45654.	2131.	9.78	0.0400	94.	56.	0.14
MILE	576.75	743.83	171976.	3.34	51432.	2890.	9.68	0.0430	94.	54.	0.14
MILE	572.49	740.78	179156.	2.56	69968.	4045.	9.57	0.0380	94.	51.	0.11
MILE	568.23	739.48	194403.	5.59	34758.	2641.	11.09	0.0300	92.	49.	0.27

MILE	568.23	739.48	230165.	6.62	34758.	2641.	11.09	0.0300	111.	49.	0.32
MILE	563.97	738.02	233521.	3.21	72653.	2635.	9.78	0.0260	111.	48.	0.11
MILE	559.71	737.59	239122.	2.71	88159.	3789.	11.41	0.0295	111.	68.	0.10
MILE	555.45	737.17	245464.	2.57	95398.	3655.	10.39	0.0285	111.	67.	0.09
MILE	551.20	736.16	252061.	2.04	123409.	4501.	12.00	0.0300	111.	66.	0.07
MILE	546.94	735.94	259343.	2.06	125688.	4952.	12.23	0.0320	111.	66.	0.07
MILE	542.68	735.50	269423.	3.01	89509.	6625.	14.35	0.0320	111.	65.	0.14
MILE	538.42	735.46	278537.	1.74	159893.	6816.	11.84	0.0265	111.	65.	0.06
MILE	534.16	735.08	286642.	1.84	155539.	6983.	12.33	0.0320	111.	65.	0.07
MILE	529.90	734.87	301265.	2.46	122658.	10053.	13.89	0.0315	109.	65.	0.12
MILE	23.10	741.56	9500.	3.27	2908.	328.	4.95	0.0305	865.	17.	0.19
MILE	21.00	740.89	10643.	1.75	6096.	537.	5.63	0.0300	865.	21.	0.09
MILE	18.90	740.48	11994.	2.02	5929.	835.	6.42	0.0290	865.	20.	0.13
MILE	16.80	740.12	13395.	2.33	5759.	574.	6.17	0.0220	865.	20.	0.13
MILE	14.70	739.95	14692.	1.67	8802.	489.	7.07	0.0220	865.	30.	0.07
MILE	12.60	739.85	16198.	1.57	10329.	1108.	8.49	0.0220	1215.	40.	0.09
MILE	10.50	739.80	18377.	1.16	15806.	1271.	8.25	0.0260	865.	50.	0.06
MILE	8.40	739.69	20122.	1.62	12407.	883.	8.77	0.0225	865.	50.	0.08
MILE	6.30	739.63	23127.	1.49	15542.	4351.	8.98	0.0250	865.	50.	0.14
MILE	4.20	739.56	30168.	1.27	23773.	4874.	8.67	0.0245	3265.	50.	0.10
MILE	2.10	739.50	33699.	1.32	25501.	1637.	10.49	0.0265	865.	50.	0.06
MILE	0.00	739.48	35763.	0.85	41848.	1394.	9.06	0.0230	824.	49.	0.03

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TIME	16.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	759.37	153333.	3.89	39378.	1518.	10.61	0.0280	94.	49.	0.13
MILE	598.04	755.50	155642.	7.41	21011.	989.	9.51	0.0210	94.	46.	0.28
MILE	593.78	753.91	157457.	4.85	32460.	1333.	8.42	0.0310	94.	44.	0.17
MILE	589.52	750.97	159985.	4.48	35677.	1393.	9.90	0.0395	94.	41.	0.16
MILE	585.27	748.00	162544.	5.27	30834.	1977.	9.23	0.0400	94.	38.	0.24
MILE	581.01	746.20	166435.	3.68	45255.	2131.	9.74	0.0400	94.	56.	0.14
MILE	576.75	743.59	169729.	3.33	51025.	2887.	9.65	0.0430	94.	54.	0.14
MILE	572.49	740.51	176671.	2.55	69240.	4006.	9.52	0.0380	94.	51.	0.11
MILE	568.23	739.21	191512.	5.55	34483.	2605.	11.06	0.0300	92.	49.	0.27
MILE	568.23	739.21	226755.	6.58	34483.	2605.	11.06	0.0300	111.	49.	0.32
MILE	563.97	737.76	230025.	3.20	71950.	2626.	9.74	0.0260	111.	48.	0.11
MILE	559.71	737.34	235508.	2.69	87517.	3760.	11.37	0.0295	111.	67.	0.10
MILE	555.45	736.92	241696.	2.56	94477.	3636.	10.36	0.0285	111.	67.	0.09

MILE	551.20	735.92	248186.	2.02	122599.	4492.	11.97	0.0300	111.	66.	0.07
MILE	546.94	735.70	255341.	2.04	124972.	4924.	12.20	0.0320	111.	66.	0.07
MILE	542.68	735.26	265292.	2.98	89061.	6607.	14.32	0.0320	111.	65.	0.14
MILE	538.42	735.22	274297.	1.73	158822.	6798.	11.80	0.0265	111.	65.	0.06
MILE	534.16	734.85	282289.	1.83	154457.	6963.	12.31	0.0320	111.	65.	0.07
MILE	529.90	734.64	296612.	2.43	122133.	10018.	13.86	0.0315	109.	65.	0.12
MILE	23.10	741.38	9500.	3.32	2858.	326.	4.91	0.0305	857.	16.	0.20
MILE	21.00	740.67	10627.	1.77	5995.	532.	5.58	0.0300	857.	21.	0.09
MILE	18.90	740.24	11957.	2.06	5807.	825.	6.41	0.0290	857.	20.	0.14
MILE	16.80	739.86	13331.	2.35	5664.	567.	6.11	0.0220	857.	20.	0.13
MILE	14.70	739.69	14601.	1.68	8684.	487.	7.02	0.0220	857.	30.	0.07
MILE	12.60	739.59	16085.	1.57	10226.	1090.	8.44	0.0220	1207.	40.	0.09
MILE	10.50	739.54	18224.	1.17	15612.	1250.	8.20	0.0260	857.	50.	0.06
MILE	8.40	739.43	19930.	1.62	12272.	876.	8.73	0.0225	857.	49.	0.08
MILE	6.30	739.36	22867.	1.49	15362.	4290.	8.95	0.0250	857.	49.	0.14
MILE	4.20	739.30	29780.	1.27	23460.	4807.	8.64	0.0245	3257.	49.	0.10
MILE	2.10	739.24	33219.	1.31	25262.	1622.	10.45	0.0265	857.	49.	0.06
MILE	0.00	739.21	35242.	0.85	41328.	1383.	9.03	0.0230	816.	49.	0.03

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TIME	17.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	759.13	151667.	3.88	39091.	1506.	10.57	0.0280	94.	49.	0.13
MILE	598.04	755.27	153916.	7.39	20837.	980.	9.48	0.0210	94.	45.	0.28
MILE	593.78	753.68	155688.	4.85	32115.	1328.	8.40	0.0310	94.	44.	0.17
MILE	589.52	750.73	158125.	4.47	35342.	1385.	9.87	0.0395	94.	41.	0.16
MILE	585.27	747.78	160614.	5.26	30543.	1937.	9.20	0.0400	94.	38.	0.23
MILE	581.01	745.97	164382.	3.66	44871.	2131.	9.70	0.0400	94.	56.	0.14
MILE	576.75	743.37	167597.	3.31	50633.	2884.	9.61	0.0430	94.	53.	0.14
MILE	572.49	740.25	174307.	2.54	68530.	3969.	9.47	0.0380	94.	50.	0.11
MILE	568.23	738.96	188738.	5.52	34213.	2570.	11.03	0.0300	92.	49.	0.27
MILE	568.23	738.96	223458.	6.53	34213.	2570.	11.03	0.0300	111.	49.	0.32
MILE	563.97	737.51	226662.	3.18	71261.	2616.	9.70	0.0260	111.	48.	0.11
MILE	559.71	737.10	232063.	2.67	86886.	3731.	11.33	0.0295	111.	67.	0.10
MILE	555.45	736.68	238131.	2.54	93573.	3617.	10.33	0.0285	111.	67.	0.09
MILE	551.20	735.69	244520.	2.01	121800.	4483.	11.93	0.0300	111.	66.	0.07
MILE	546.94	735.46	251526.	2.02	124265.	4897.	12.16	0.0320	111.	65.	0.07
MILE	542.68	735.03	261280.	2.95	88620.	6590.	14.29	0.0320	111.	65.	0.14
MILE	538.42	734.99	270123.	1.71	157766.	6780.	11.77	0.0265	111.	65.	0.06
MILE	534.16	734.63	277990.	1.81	153401.	6945.	12.30	0.0320	111.	65.	0.07
MILE	529.90	734.42	292031.	2.40	121615.	9984.	13.83	0.0315	109.	64.	0.12

MILE	23.10	741.20	9500.	3.38	2810.	324.	4.87	0.0305	849.	16.	0.20
MILE	21.00	740.45	10609.	1.80	5896.	527.	5.52	0.0300	849.	20.	0.09
MILE	18.90	740.00	11915.	2.09	5689.	815.	6.40	0.0290	849.	20.	0.14
MILE	16.80	739.62	13263.	2.38	5572.	561.	6.07	0.0220	849.	20.	0.13
MILE	14.70	739.44	14514.	1.69	8568.	485.	6.97	0.0220	849.	29.	0.07
MILE	12.60	739.33	15970.	1.58	10126.	1073.	8.40	0.0220	1199.	39.	0.09
MILE	10.50	739.28	18068.	1.17	15423.	1229.	8.15	0.0260	849.	49.	0.06
MILE	8.40	739.17	19738.	1.63	12140.	869.	8.69	0.0225	849.	49.	0.08
MILE	6.30	739.10	22599.	1.49	15187.	4230.	8.92	0.0250	849.	49.	0.14
MILE	4.20	739.04	29383.	1.27	23155.	4741.	8.62	0.0245	3249.	49.	0.10
MILE	2.10	738.98	32736.	1.31	25029.	1607.	10.42	0.0265	849.	49.	0.06
MILE	0.00	738.96	34720.	0.85	40821.	1373.	9.00	0.0230	809.	49.	0.03

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TIME	18.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	758.88	150000.	3.87	38807.	1494.	10.52	0.0280	94.	49.	0.13
MILE	598.04	755.05	152204.	7.36	20666.	971.	9.44	0.0210	94.	45.	0.28
MILE	593.78	753.46	153943.	4.84	31778.	1323.	8.37	0.0310	94.	43.	0.17
MILE	589.52	750.51	156307.	4.46	35017.	1376.	9.84	0.0395	94.	41.	0.16
MILE	585.27	747.56	158740.	5.25	30261.	1899.	9.17	0.0400	94.	38.	0.23
MILE	581.01	745.74	162400.	3.65	44498.	2131.	9.65	0.0400	94.	56.	0.14
MILE	576.75	743.15	165544.	3.29	50251.	2881.	9.58	0.0430	94.	53.	0.14
MILE	572.49	739.99	172037.	2.54	67835.	3932.	9.43	0.0380	94.	50.	0.11
MILE	568.23	738.70	186068.	5.48	33949.	2536.	10.99	0.0300	92.	49.	0.26
MILE	568.23	738.70	220291.	6.49	33949.	2536.	10.99	0.0300	111.	49.	0.31
MILE	563.97	737.27	223421.	3.17	70585.	2606.	9.66	0.0260	111.	47.	0.11
MILE	559.71	736.86	228720.	2.65	86266.	3703.	11.29	0.0295	111.	67.	0.10
MILE	555.45	736.44	234652.	2.53	92687.	3599.	10.31	0.0285	111.	66.	0.09
MILE	551.20	735.45	240936.	1.99	121014.	4474.	11.90	0.0300	111.	65.	0.07
MILE	546.94	735.23	247798.	2.01	123570.	4870.	12.12	0.0320	111.	65.	0.07
MILE	542.68	734.81	257367.	2.92	88197.	6557.	14.27	0.0320	111.	65.	0.14
MILE	538.42	734.77	266026.	1.70	156702.	6745.	11.74	0.0265	111.	65.	0.06
MILE	534.16	734.41	273761.	1.80	152364.	6928.	12.28	0.0320	111.	64.	0.07
MILE	529.90	734.21	287520.	2.37	121106.	9950.	13.79	0.0315	109.	64.	0.12
MILE	23.10	741.03	9500.	3.44	2764.	322.	4.84	0.0305	841.	16.	0.21
MILE	21.00	740.24	10591.	1.83	5800.	522.	5.46	0.0300	841.	20.	0.10
MILE	18.90	739.77	11872.	2.12	5608.	807.	6.35	0.0290	841.	20.	0.14
MILE	16.80	739.37	13196.	2.41	5483.	555.	6.02	0.0220	841.	19.	0.13

MILE	14.70	739.19	14428.	1.71	8454.	484.	6.92	0.0220	841.	29.	0.07
MILE	12.60	739.08	15858.	1.58	10028.	1056.	8.36	0.0220	1191.	39.	0.09
MILE	10.50	739.03	17917.	1.18	15238.	1209.	8.11	0.0260	841.	49.	0.06
MILE	8.40	738.92	19554.	1.63	12011.	861.	8.66	0.0225	841.	49.	0.08
MILE	6.30	738.85	22342.	1.49	15015.	4172.	8.88	0.0250	841.	49.	0.14
MILE	4.20	738.79	29010.	1.27	22857.	4676.	8.59	0.0245	3241.	49.	0.10
MILE	2.10	738.72	32278.	1.30	24800.	1592.	10.39	0.0265	841.	49.	0.06
MILE	0.00	738.70	34223.	0.85	40326.	1363.	8.97	0.0230	801.	49.	0.03

ODATE 3-30-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	19.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	758.63	148333.	3.85	38524.	1481.	10.47	0.0280	94.	49.	0.13
MILE	598.04	754.82	150497.	7.34	20499.	962.	9.40	0.0210	94.	45.	0.28
MILE	593.78	753.24	152212.	4.84	31448.	1319.	8.34	0.0310	94.	43.	0.17
MILE	589.52	750.29	154515.	4.45	34700.	1367.	9.81	0.0395	94.	40.	0.16
MILE	585.27	747.34	156904.	5.23	29987.	1862.	9.13	0.0400	94.	37.	0.23
MILE	581.01	745.52	160473.	3.64	44134.	2131.	9.61	0.0400	94.	56.	0.14
MILE	576.75	742.94	163561.	3.28	49880.	2878.	9.55	0.0430	94.	53.	0.14
MILE	572.49	739.74	169866.	2.53	67168.	3893.	9.39	0.0380	94.	50.	0.11
MILE	568.23	738.45	183487.	5.45	33691.	2502.	10.96	0.0300	92.	48.	0.26
MILE	568.23	738.45	217229.	6.45	33691.	2502.	10.96	0.0300	111.	48.	0.31
MILE	563.97	737.02	220288.	3.15	69923.	2597.	9.63	0.0260	111.	47.	0.11
MILE	559.71	736.62	225487.	2.63	85658.	3675.	11.25	0.0295	111.	67.	0.10
MILE	555.45	736.21	231281.	2.52	91819.	3581.	10.28	0.0285	111.	66.	0.09
MILE	551.20	735.22	237449.	1.97	120243.	4465.	11.86	0.0300	111.	65.	0.07
MILE	546.94	735.00	244157.	1.99	122886.	4843.	12.08	0.0320	111.	65.	0.07
MILE	542.68	734.59	253535.	2.89	87783.	6523.	14.24	0.0320	111.	65.	0.14
MILE	538.42	734.54	262003.	1.68	155657.	6710.	11.71	0.0265	111.	65.	0.06
MILE	534.16	734.19	269597.	1.78	151347.	6911.	12.27	0.0320	111.	64.	0.07
MILE	529.90	733.99	283082.	2.35	120606.	9917.	13.76	0.0315	109.	64.	0.12
MILE	23.10	740.86	9500.	3.49	2721.	320.	4.80	0.0305	833.	16.	0.21
MILE	21.00	740.03	10572.	1.85	5706.	518.	5.41	0.0300	833.	20.	0.10
MILE	18.90	739.55	11829.	2.14	5530.	799.	6.31	0.0290	833.	20.	0.14
MILE	16.80	739.14	13129.	2.43	5396.	550.	5.98	0.0220	833.	19.	0.14
MILE	14.70	738.94	14342.	1.72	8343.	482.	6.88	0.0220	833.	29.	0.07
MILE	12.60	738.84	15745.	1.59	9932.	1039.	8.32	0.0220	1183.	39.	0.09
MILE	10.50	738.79	17767.	1.18	15057.	1189.	8.07	0.0260	833.	49.	0.06
MILE	8.40	738.67	19372.	1.63	11885.	854.	8.62	0.0225	833.	49.	0.08
MILE	6.30	738.60	22094.	1.49	14847.	4115.	8.85	0.0250	833.	49.	0.14
MILE	4.20	738.54	28648.	1.27	22567.	4613.	8.56	0.0245	3233.	49.	0.10

MILE	2.10	738.48	31835.	1.30	24576.	1577.	10.36	0.0265	833.	48.	0.06
MILE	0.00	738.45	33743.	0.85	39843.	1353.	8.95	0.0230	793.	48.	0.03

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TIME	20.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	758.39	146667.	3.84	38242.	1469.	10.43	0.0280	94.	48.	0.13
MILE	598.04	754.60	148803.	7.32	20333.	954.	9.36	0.0210	94.	45.	0.28
MILE	593.78	753.02	150493.	4.84	31122.	1314.	8.32	0.0310	94.	43.	0.18
MILE	589.52	750.07	152744.	4.44	34388.	1359.	9.79	0.0395	94.	40.	0.16
MILE	585.27	747.13	155093.	5.22	29719.	1825.	9.10	0.0400	94.	37.	0.23
MILE	581.01	745.30	158581.	3.62	43777.	2131.	9.58	0.0400	94.	55.	0.14
MILE	576.75	742.73	161612.	3.26	49516.	2876.	9.52	0.0430	94.	53.	0.14
MILE	572.49	739.50	167722.	2.52	66515.	3855.	9.35	0.0380	94.	49.	0.11
MILE	568.23	738.21	180978.	5.41	33438.	2469.	10.93	0.0300	92.	48.	0.26
MILE	568.23	738.21	214253.	6.41	33438.	2469.	10.93	0.0300	111.	48.	0.31
MILE	563.97	736.79	217240.	3.14	69275.	2588.	9.59	0.0260	111.	47.	0.11
MILE	559.71	736.39	222337.	2.61	85061.	3648.	11.21	0.0295	111.	66.	0.10
MILE	555.45	735.98	227994.	2.51	90971.	3563.	10.26	0.0285	111.	66.	0.09
MILE	551.20	734.99	234043.	1.96	119487.	4456.	11.83	0.0300	111.	65.	0.07
MILE	546.94	734.78	240602.	1.97	122209.	4826.	12.04	0.0320	111.	65.	0.07
MILE	542.68	734.37	249797.	2.86	87377.	6489.	14.22	0.0320	111.	64.	0.14
MILE	538.42	734.32	258075.	1.67	154633.	6676.	11.68	0.0265	111.	64.	0.06
MILE	534.16	733.98	265527.	1.77	150352.	6895.	12.25	0.0320	111.	64.	0.07
MILE	529.90	733.78	278718.	2.32	120114.	9885.	13.73	0.0315	109.	64.	0.12
MILE	23.10	740.70	9500.	3.55	2679.	318.	4.77	0.0305	824.	16.	0.22
MILE	21.00	739.83	10557.	1.88	5616.	513.	5.37	0.0300	824.	20.	0.10
MILE	18.90	739.33	11789.	2.16	5454.	791.	6.26	0.0290	824.	19.	0.15
MILE	16.80	738.90	13066.	2.46	5312.	544.	5.93	0.0220	824.	19.	0.14
MILE	14.70	738.71	14260.	1.73	8235.	480.	6.83	0.0220	824.	29.	0.07
MILE	12.60	738.60	15639.	1.59	9838.	1023.	8.28	0.0220	1174.	39.	0.09
MILE	10.50	738.54	17623.	1.18	14880.	1170.	8.02	0.0260	824.	49.	0.06
MILE	8.40	738.43	19195.	1.63	11761.	847.	8.58	0.0225	824.	48.	0.08
MILE	6.30	738.36	21852.	1.49	14683.	4058.	8.82	0.0250	824.	48.	0.14
MILE	4.20	738.29	28294.	1.27	22283.	4550.	8.53	0.0245	3224.	48.	0.10
MILE	2.10	738.23	31403.	1.29	24357.	1563.	10.33	0.0265	824.	48.	0.06
MILE	0.00	738.21	33275.	0.85	39371.	1344.	8.92	0.0230	785.	48.	0.03

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TIME 21.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE 602.30	758.14	145000.	3.82	37959.	1456.	10.38	0.0280	94.	48.	0.13
MILE 598.04	754.38	147102.	7.29	20168.	945.	9.32	0.0210	94.	44.	0.28
MILE 593.78	752.80	148774.	4.83	30802.	1309.	8.29	0.0310	94.	43.	0.18
MILE 589.52	749.85	151012.	4.43	34123.	1353.	9.75	0.0395	94.	40.	0.16
MILE 585.27	746.93	153312.	5.21	29454.	1789.	9.07	0.0400	94.	37.	0.23
MILE 581.01	745.09	156712.	3.61	43426.	2131.	9.54	0.0400	94.	55.	0.14
MILE 576.75	742.52	159688.	3.25	49160.	2873.	9.49	0.0430	94.	53.	0.14
MILE 572.49	739.25	165616.	2.51	65875.	3817.	9.31	0.0380	94.	49.	0.11
MILE 568.23	737.97	178529.	5.38	33189.	2436.	10.90	0.0300	92.	48.	0.26
MILE 568.23	737.97	211355.	6.37	33189.	2436.	10.90	0.0300	111.	48.	0.30
MILE 563.97	736.55	214273.	3.12	68640.	2579.	9.55	0.0260	111.	47.	0.11
MILE 559.71	736.16	219272.	2.60	84475.	3622.	11.17	0.0295	111.	66.	0.09
MILE 555.45	735.75	224792.	2.49	90141.	3545.	10.23	0.0285	111.	66.	0.09
MILE 551.20	734.77	230706.	1.94	118761.	4447.	11.79	0.0300	111.	65.	0.07
MILE 546.94	734.56	237141.	1.95	121544.	4809.	12.01	0.0320	111.	65.	0.07
MILE 542.68	734.15	246149.	2.83	86979.	6455.	14.19	0.0320	111.	64.	0.14
MILE 538.42	734.11	254232.	1.65	153630.	6643.	11.65	0.0265	111.	64.	0.06
MILE 534.16	733.77	261539.	1.75	149378.	6879.	12.24	0.0320	111.	64.	0.07
MILE 529.90	733.58	274432.	2.29	119632.	9853.	13.70	0.0315	109.	64.	0.12
MILE 23.10	740.55	9500.	3.60	2639.	316.	4.73	0.0305	816.	16.	0.22
MILE 21.00	739.63	10539.	1.91	5528.	509.	5.33	0.0300	816.	20.	0.10
MILE 18.90	739.12	11750.	2.18	5380.	784.	6.21	0.0290	816.	19.	0.15
MILE 16.80	738.67	13004.	2.49	5229.	539.	5.89	0.0220	816.	19.	0.14
MILE 14.70	738.47	14181.	1.74	8128.	479.	6.78	0.0220	816.	28.	0.07
MILE 12.60	738.36	15535.	1.59	9746.	1007.	8.25	0.0220	1166.	38.	0.09
MILE 10.50	738.30	17484.	1.19	14707.	1150.	7.98	0.0260	816.	48.	0.06
MILE 8.40	738.19	19026.	1.63	11640.	841.	8.54	0.0225	816.	48.	0.08
MILE 6.30	738.12	21620.	1.49	14523.	4003.	8.79	0.0250	816.	48.	0.14
MILE 4.20	738.05	27955.	1.27	22006.	4489.	8.51	0.0245	3216.	48.	0.10
MILE 2.10	737.99	30990.	1.28	24143.	1549.	10.29	0.0265	816.	48.	0.06
MILE 0.00	737.97	32827.	0.84	38909.	1334.	8.89	0.0230	777.	48.	0.03

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TIME 22.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE 602.30	757.90	143333.	3.80	37678.	1444.	10.33	0.0280	94.	48.	0.13
MILE 598.04	754.16	145400.	7.27	20005.	936.	9.28	0.0210	94.	44.	0.28

MILE	593.78	752.59	147050.	4.82	30484.	1305.	8.27	0.0310	94.	43.	0.18
MILE	589.52	749.64	149273.	4.41	33882.	1349.	9.71	0.0395	94.	40.	0.15
MILE	585.27	746.72	151538.	5.19	29191.	1753.	9.04	0.0400	94.	37.	0.22
MILE	581.01	744.88	154872.	3.60	43078.	2117.	9.50	0.0400	94.	55.	0.14
MILE	576.75	742.32	157794.	3.23	48809.	2870.	9.45	0.0430	94.	52.	0.14
MILE	572.49	739.01	163547.	2.51	65248.	3780.	9.27	0.0380	94.	49.	0.11
MILE	568.23	737.73	176133.	5.35	32946.	2404.	10.87	0.0300	92.	48.	0.25
MILE	568.23	737.73	208525.	6.33	32946.	2404.	10.87	0.0300	111.	48.	0.30
MILE	563.97	736.32	211376.	3.11	68017.	2570.	9.52	0.0260	111.	46.	0.11
MILE	559.71	735.93	216277.	2.58	83901.	3595.	11.13	0.0295	111.	66.	0.09
MILE	555.45	735.53	221665.	2.48	89328.	3528.	10.21	0.0285	111.	66.	0.09
MILE	551.20	734.55	227438.	1.93	118048.	4439.	11.76	0.0300	111.	65.	0.07
MILE	546.94	734.34	233747.	1.93	120891.	4792.	11.97	0.0320	111.	64.	0.07
MILE	542.68	733.94	242569.	2.80	86589.	6423.	14.17	0.0320	111.	64.	0.13
MILE	538.42	733.90	250459.	1.64	152647.	6610.	11.62	0.0265	111.	64.	0.06
MILE	534.16	733.56	257624.	1.74	148425.	6863.	12.22	0.0320	111.	64.	0.07
MILE	529.90	733.38	270227.	2.27	119159.	9822.	13.67	0.0315	109.	63.	0.11
MILE	23.10	740.40	9500.	3.65	2600.	315.	4.70	0.0305	808.	15.	0.22
MILE	21.00	739.44	10522.	1.93	5443.	505.	5.29	0.0300	808.	19.	0.10
MILE	18.90	738.91	11711.	2.21	5308.	776.	6.17	0.0290	808.	19.	0.15
MILE	16.80	738.45	12943.	2.51	5148.	533.	5.84	0.0220	808.	18.	0.14
MILE	14.70	738.24	14103.	1.76	8024.	477.	6.74	0.0220	808.	28.	0.08
MILE	12.60	738.13	15433.	1.60	9656.	991.	8.21	0.0220	1158.	38.	0.09
MILE	10.50	738.07	17348.	1.19	14537.	1131.	7.94	0.0260	808.	48.	0.06
MILE	8.40	737.95	18860.	1.64	11522.	834.	8.51	0.0225	808.	48.	0.08
MILE	6.30	737.88	21395.	1.49	14366.	3948.	8.76	0.0250	808.	48.	0.14
MILE	4.20	737.81	27627.	1.27	21736.	4429.	8.48	0.0245	3208.	48.	0.10
MILE	2.10	737.75	30590.	1.28	23933.	1535.	10.26	0.0265	808.	48.	0.06
MILE	0.00	737.73	32392.	0.84	38458.	1325.	8.86	0.0230	769.	48.	0.03

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TIME 23.0000		ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	757.66	141667.	3.79	37398.	1432.	10.29	0.0280	94.	48.	0.13
MILE	598.04	753.94	143698.	7.24	19842.	928.	9.24	0.0210	94.	44.	0.28
MILE	593.78	752.37	145331.	4.82	30169.	1300.	8.24	0.0310	94.	42.	0.18
MILE	589.52	749.42	147543.	4.39	33641.	1345.	9.67	0.0395	94.	39.	0.15
MILE	585.27	746.52	149776.	5.18	28932.	1717.	9.01	0.0400	94.	37.	0.22
MILE	581.01	744.67	153042.	3.58	42731.	2092.	9.46	0.0400	94.	55.	0.14
MILE	576.75	742.12	155919.	3.22	48463.	2867.	9.42	0.0430	94.	52.	0.14
MILE	572.49	738.78	161511.	2.50	64632.	3744.	9.24	0.0380	94.	49.	0.11

MILE	568.23	737.50	173783.	5.31	32707.	2373.	10.83	0.0300	92.	47.	0.25
MILE	568.23	737.50	205756.	6.29	32707.	2373.	10.83	0.0300	111.	47.	0.30
MILE	563.97	736.10	208541.	3.09	67408.	2561.	9.48	0.0260	111.	46.	0.11
MILE	559.71	735.71	213346.	2.56	83337.	3570.	11.10	0.0295	111.	66.	0.09
MILE	555.45	735.31	218603.	2.47	88533.	3511.	10.18	0.0285	111.	65.	0.09
MILE	551.20	734.34	224237.	1.91	117349.	4430.	11.73	0.0300	111.	64.	0.07
MILE	546.94	734.13	230420.	1.92	120251.	4776.	11.94	0.0320	111.	64.	0.07
MILE	542.68	733.73	239058.	2.77	86207.	6391.	14.14	0.0320	111.	64.	0.13
MILE	538.42	733.69	246762.	1.63	151685.	6578.	11.60	0.0265	111.	64.	0.06
MILE	534.16	733.36	253785.	1.72	147494.	6847.	12.21	0.0320	111.	63.	0.07
MILE	529.90	733.18	266101.	2.24	118695.	9791.	13.64	0.0315	109.	63.	0.11
MILE	23.10	740.26	9500.	3.71	2563.	313.	4.67	0.0305	800.	15.	0.23
MILE	21.00	739.26	10505.	1.96	5361.	501.	5.25	0.0300	800.	19.	0.11
MILE	18.90	738.70	11673.	2.23	5237.	769.	6.12	0.0290	800.	19.	0.15
MILE	16.80	738.23	12884.	2.54	5069.	528.	5.80	0.0220	800.	18.	0.14
MILE	14.70	738.01	14027.	1.77	7922.	476.	6.69	0.0220	800.	28.	0.08
MILE	12.60	737.90	15334.	1.60	9567.	976.	8.17	0.0220	1150.	38.	0.09
MILE	10.50	737.84	17216.	1.20	14370.	1113.	7.90	0.0260	800.	48.	0.06
MILE	8.40	737.72	18699.	1.64	11406.	827.	8.47	0.0225	800.	48.	0.08
MILE	6.30	737.65	21175.	1.49	14213.	3895.	8.73	0.0250	800.	48.	0.14
MILE	4.20	737.58	27309.	1.27	21471.	4370.	8.46	0.0245	3200.	48.	0.10
MILE	2.10	737.52	30202.	1.27	23727.	1522.	10.23	0.0265	800.	48.	0.06
MILE	0.00	737.50	31973.	0.84	38016.	1316.	8.84	0.0230	761.	47.	0.03

0DATE 3-30-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	24.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	757.41	140000.	3.77	37120.	1420.	10.24	0.0280	94.	47.	0.13
MILE	598.04	753.72	142007.	7.22	19680.	919.	9.20	0.0210	94.	44.	0.27
MILE	593.78	752.16	143618.	4.81	29857.	1296.	8.22	0.0310	94.	42.	0.18
MILE	589.52	749.21	145816.	4.37	33402.	1341.	9.62	0.0395	94.	39.	0.15
MILE	585.27	746.31	148019.	5.16	28674.	1682.	8.98	0.0400	94.	36.	0.22
MILE	581.01	744.46	151220.	3.57	42388.	2068.	9.43	0.0400	94.	54.	0.14
MILE	576.75	741.92	154056.	3.20	48120.	2865.	9.39	0.0430	94.	52.	0.14
MILE	572.49	738.55	159500.	2.49	64025.	3708.	9.20	0.0380	94.	49.	0.11
MILE	568.23	737.27	171476.	5.28	32473.	2341.	10.80	0.0300	92.	47.	0.25
MILE	568.23	737.27	203042.	6.25	32473.	2341.	10.80	0.0300	111.	47.	0.30
MILE	563.97	735.88	205760.	3.08	66811.	2553.	9.45	0.0260	111.	46.	0.11
MILE	559.71	735.49	210466.	2.54	82785.	3544.	11.06	0.0295	111.	65.	0.09

MILE	555.45	735.10	215616.	2.46	87756.	3494.	10.16	0.0285	111.	65.	0.09
MILE	551.20	734.13	221111.	1.90	116665.	4422.	11.69	0.0300	111.	64.	0.07
MILE	546.94	733.92	227167.	1.90	119624.	4760.	11.91	0.0320	111.	64.	0.07
MILE	542.68	733.53	235619.	2.75	85832.	6359.	14.12	0.0320	111.	64.	0.13
MILE	538.42	733.49	243138.	1.61	150743.	6546.	11.57	0.0265	111.	63.	0.06
MILE	534.16	733.16	250019.	1.71	146583.	6832.	12.20	0.0320	111.	63.	0.06
MILE	529.90	732.98	262052.	2.22	118240.	9761.	13.62	0.0315	109.	63.	0.11
MILE	23.10	740.12	9500.	3.76	2528.	311.	4.64	0.0305	791.	15.	0.23
MILE	21.00	739.08	10489.	1.99	5282.	497.	5.22	0.0300	791.	19.	0.11
MILE	18.90	738.50	11635.	2.25	5169.	762.	6.08	0.0290	791.	19.	0.15
MILE	16.80	738.01	12826.	2.57	4992.	523.	5.76	0.0220	791.	18.	0.15
MILE	14.70	737.79	13952.	1.78	7822.	474.	6.65	0.0220	791.	28.	0.08
MILE	12.60	737.67	15237.	1.61	9480.	961.	8.13	0.0220	1141.	38.	0.09
MILE	10.50	737.61	17088.	1.20	14207.	1095.	7.85	0.0260	791.	48.	0.06
MILE	8.40	737.49	18543.	1.64	11292.	821.	8.43	0.0225	791.	47.	0.08
MILE	6.30	737.42	20963.	1.49	14062.	3842.	8.70	0.0250	791.	47.	0.14
MILE	4.20	737.35	27002.	1.27	21212.	4311.	8.43	0.0245	3191.	47.	0.10
MILE	2.10	737.29	29828.	1.27	23525.	1508.	10.20	0.0265	791.	47.	0.06
MILE	0.00	737.27	31566.	0.84	37584.	1307.	8.81	0.0230	754.	47.	0.03

0DATE 3-31-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	1.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	757.17	138333.	3.75	36844.	1408.	10.19	0.0280	94.	47.	0.13
MILE	598.04	753.50	140318.	7.19	19519.	911.	9.17	0.0210	94.	44.	0.27
MILE	593.78	751.95	141910.	4.80	29546.	1291.	8.19	0.0310	94.	42.	0.18
MILE	589.52	749.00	144097.	4.35	33164.	1337.	9.58	0.0395	94.	39.	0.15
MILE	585.27	746.11	146271.	5.15	28419.	1646.	8.94	0.0400	94.	36.	0.22
MILE	581.01	744.25	149411.	3.55	42048.	2044.	9.39	0.0400	94.	54.	0.14
MILE	576.75	741.72	152211.	3.19	47781.	2862.	9.36	0.0430	94.	52.	0.14
MILE	572.49	738.32	157519.	2.48	63427.	3672.	9.16	0.0380	94.	48.	0.11
MILE	568.23	737.04	169191.	5.25	32243.	2311.	10.77	0.0300	92.	47.	0.25
MILE	568.23	737.04	200371.	6.21	32243.	2311.	10.77	0.0300	111.	47.	0.29
MILE	563.97	735.66	203027.	3.07	66225.	2544.	9.41	0.0260	111.	46.	0.11
MILE	559.71	735.28	207638.	2.52	82242.	3519.	11.03	0.0295	111.	65.	0.09
MILE	555.45	734.89	212690.	2.45	86986.	3483.	10.14	0.0285	111.	65.	0.09
MILE	551.20	733.92	218049.	1.88	115994.	4414.	11.66	0.0300	111.	64.	0.06
MILE	546.94	733.72	223984.	1.88	119008.	4744.	11.87	0.0320	111.	64.	0.07
MILE	542.68	733.33	232257.	2.72	85465.	6328.	14.09	0.0320	111.	63.	0.13
MILE	538.42	733.29	239592.	1.60	149821.	6516.	11.54	0.0265	111.	63.	0.06
MILE	534.16	732.97	246332.	1.69	145694.	6817.	12.19	0.0320	111.	63.	0.06

MILE	529.90	732.79	258083.	2.19	117794.	9731.	13.59	0.0315	109.	63.	0.11
MILE	23.10	739.99	9500.	3.81	2494.	310.	4.61	0.0305	783.	15.	0.24
MILE	21.00	738.90	10473.	2.01	5205.	493.	5.18	0.0300	783.	19.	0.11
MILE	18.90	738.31	11599.	2.27	5102.	755.	6.04	0.0290	783.	18.	0.15
MILE	16.80	737.80	12769.	2.60	4916.	518.	5.72	0.0220	783.	18.	0.15
MILE	14.70	737.57	13879.	1.80	7724.	473.	6.60	0.0220	783.	28.	0.08
MILE	12.60	737.45	15142.	1.61	9395.	946.	8.10	0.0220	1133.	37.	0.09
MILE	10.50	737.39	16961.	1.21	14047.	1077.	7.81	0.0260	783.	47.	0.06
MILE	8.40	737.27	18389.	1.64	11180.	814.	8.40	0.0225	783.	47.	0.08
MILE	6.30	737.20	20756.	1.49	13915.	3790.	8.67	0.0250	783.	47.	0.14
MILE	4.20	737.13	26708.	1.27	20959.	4254.	8.41	0.0245	3183.	47.	0.10
MILE	2.10	737.07	29472.	1.26	23327.	1495.	10.17	0.0265	783.	47.	0.06
MILE	0.00	737.04	31180.	0.84	37161.	1298.	8.79	0.0230	746.	47.	0.03

0DATE 3-31-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	2.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	756.93	136667.	3.74	36568.	1395.	10.15	0.0280	94.	47.	0.13
MILE	598.04	753.29	138630.	7.16	19358.	903.	9.13	0.0210	94.	43.	0.27
MILE	593.78	751.73	140206.	4.80	29238.	1287.	8.17	0.0310	94.	42.	0.18
MILE	589.52	748.79	142382.	4.32	32926.	1333.	9.54	0.0395	94.	39.	0.15
MILE	585.27	745.91	144528.	5.13	28166.	1611.	8.91	0.0400	94.	36.	0.22
MILE	581.01	744.04	147617.	3.54	41711.	2020.	9.36	0.0400	94.	54.	0.14
MILE	576.75	741.52	150382.	3.17	47446.	2859.	9.33	0.0430	94.	52.	0.14
MILE	572.49	738.09	155556.	2.48	62839.	3637.	9.13	0.0380	94.	48.	0.10
MILE	568.23	736.82	166933.	5.21	32017.	2281.	10.74	0.0300	92.	47.	0.25
MILE	568.23	736.82	197741.	6.18	32017.	2281.	10.74	0.0300	111.	47.	0.29
MILE	563.97	735.44	200340.	3.05	65651.	2536.	9.38	0.0260	111.	45.	0.11
MILE	559.71	735.07	204856.	2.51	81710.	3495.	10.99	0.0295	111.	65.	0.09
MILE	555.45	734.68	209810.	2.43	86226.	3475.	10.12	0.0285	111.	65.	0.09
MILE	551.20	733.72	215044.	1.86	115336.	4406.	11.63	0.0300	111.	64.	0.06
MILE	546.94	733.52	220859.	1.87	118405.	4728.	11.84	0.0320	111.	64.	0.07
MILE	542.68	733.13	228956.	2.69	85106.	6298.	14.07	0.0320	111.	63.	0.13
MILE	538.42	733.09	236113.	1.59	148919.	6485.	11.52	0.0265	111.	63.	0.06
MILE	534.16	732.78	242715.	1.68	144824.	6802.	12.17	0.0320	111.	63.	0.06
MILE	529.90	732.61	254192.	2.17	117357.	9702.	13.56	0.0315	109.	63.	0.11
MILE	23.10	739.87	9500.	3.86	2462.	308.	4.58	0.0305	775.	15.	0.24
MILE	21.00	738.73	10456.	2.04	5131.	490.	5.14	0.0300	775.	19.	0.11
MILE	18.90	738.12	11563.	2.30	5037.	748.	6.00	0.0290	775.	18.	0.16

MILE	16.80	737.59	12713.	2.63	4843.	513.	5.67	0.0220	775.	18.	0.15
MILE	14.70	737.35	13808.	1.81	7627.	472.	6.56	0.0220	775.	27.	0.08
MILE	12.60	737.23	15050.	1.62	9311.	931.	8.06	0.0220	1125.	37.	0.09
MILE	10.50	737.17	16840.	1.21	13890.	1059.	7.77	0.0260	775.	47.	0.06
MILE	8.40	737.05	18243.	1.65	11071.	808.	8.36	0.0225	775.	47.	0.08
MILE	6.30	736.97	20559.	1.49	13771.	3739.	8.64	0.0250	775.	47.	0.14
MILE	4.20	736.90	26426.	1.28	20711.	4198.	8.38	0.0245	3175.	47.	0.10
MILE	2.10	736.84	29128.	1.26	23133.	1482.	10.15	0.0265	775.	47.	0.06
MILE	0.00	736.82	30808.	0.84	36746.	1289.	8.76	0.0230	738.	47.	0.03

ODATE 3-31-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	3.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	756.69	135000.	3.72	36292.	1383.	10.10	0.0280	94.	47.	0.13
MILE	598.04	753.07	136944.	7.13	19198.	894.	9.09	0.0210	94.	43.	0.27
MILE	593.78	751.52	138505.	4.79	28932.	1282.	8.14	0.0310	94.	42.	0.18
MILE	589.52	748.57	140677.	4.30	32689.	1329.	9.50	0.0395	94.	39.	0.15
MILE	585.27	745.71	142788.	5.12	27914.	1576.	8.88	0.0400	94.	36.	0.21
MILE	581.01	743.84	145834.	3.52	41377.	1996.	9.32	0.0400	94.	54.	0.14
MILE	576.75	741.33	148567.	3.15	47115.	2857.	9.30	0.0430	94.	51.	0.14
MILE	572.49	737.87	153614.	2.47	62260.	3603.	9.09	0.0380	94.	48.	0.10
MILE	568.23	736.60	164707.	5.18	31795.	2251.	10.72	0.0300	92.	47.	0.24
MILE	568.23	736.60	195151.	6.14	31795.	2251.	10.72	0.0300	111.	47.	0.29
MILE	563.97	735.23	197694.	3.04	65088.	2528.	9.35	0.0260	111.	45.	0.11
MILE	559.71	734.86	202113.	2.49	81179.	3476.	10.96	0.0295	111.	65.	0.09
MILE	555.45	734.48	206970.	2.42	85482.	3467.	10.10	0.0285	111.	64.	0.09
MILE	551.20	733.52	212078.	1.85	114692.	4399.	11.60	0.0300	111.	64.	0.06
MILE	546.94	733.32	217780.	1.85	117814.	4713.	11.81	0.0320	111.	63.	0.07
MILE	542.68	732.94	225708.	2.66	84754.	6268.	14.05	0.0320	111.	63.	0.13
MILE	538.42	732.90	232696.	1.57	148037.	6455.	11.49	0.0265	111.	63.	0.06
MILE	534.16	732.59	239165.	1.66	143975.	6788.	12.16	0.0320	111.	63.	0.06
MILE	529.90	732.42	250377.	2.14	116930.	9674.	13.53	0.0315	109.	62.	0.11
MILE	23.10	739.75	9500.	3.91	2432.	307.	4.55	0.0305	767.	15.	0.24
MILE	21.00	738.57	10441.	2.06	5059.	486.	5.11	0.0300	767.	19.	0.11
MILE	18.90	737.93	11528.	2.32	4973.	742.	5.95	0.0290	767.	18.	0.16
MILE	16.80	737.39	12659.	2.65	4771.	508.	5.63	0.0220	767.	17.	0.15
MILE	14.70	737.14	13738.	1.82	7533.	470.	6.52	0.0220	767.	27.	0.08
MILE	12.60	737.02	14960.	1.62	9229.	916.	8.02	0.0220	1117.	37.	0.09
MILE	10.50	736.96	16722.	1.22	13736.	1042.	7.73	0.0260	767.	47.	0.06
MILE	8.40	736.83	18099.	1.65	10963.	802.	8.33	0.0225	767.	47.	0.08
MILE	6.30	736.76	20366.	1.49	13629.	3689.	8.61	0.0250	767.	47.	0.14

MILE	4.20	736.69	26150.	1.28	20468.	4142.	8.36	0.0245	3167.	47.	0.10
MILE	2.10	736.63	28794.	1.26	22942.	1470.	10.12	0.0265	767.	47.	0.06
MILE	0.00	736.60	30444.	0.84	36340.	1281.	8.73	0.0230	730.	47.	0.03

0DATE 3-31-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	4.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	756.45	133333.	3.70	36016.	1371.	10.06	0.0280	94.	46.	0.13
MILE	598.04	752.85	135261.	7.10	19038.	886.	9.05	0.0210	94.	43.	0.27
MILE	593.78	751.31	136809.	4.78	28628.	1278.	8.12	0.0310	94.	41.	0.18
MILE	589.52	748.36	138974.	4.28	32453.	1325.	9.45	0.0395	94.	38.	0.15
MILE	585.27	745.51	141046.	5.10	27663.	1541.	8.85	0.0400	94.	36.	0.21
MILE	581.01	743.63	144042.	3.51	41043.	1972.	9.29	0.0400	94.	54.	0.14
MILE	576.75	741.13	146743.	3.14	46779.	2854.	9.27	0.0430	94.	51.	0.14
MILE	572.49	737.65	151698.	2.46	61698.	3569.	9.05	0.0380	94.	48.	0.10
MILE	568.23	736.39	162554.	5.15	31577.	2222.	10.69	0.0300	92.	46.	0.24
MILE	568.23	736.39	192626.	6.10	31577.	2222.	10.69	0.0300	111.	46.	0.29
MILE	563.97	735.03	195107.	3.02	64537.	2520.	9.31	0.0260	111.	45.	0.11
MILE	559.71	734.66	199423.	2.47	80656.	3461.	10.93	0.0295	111.	65.	0.09
MILE	555.45	734.28	204183.	2.41	84754.	3459.	10.08	0.0285	111.	64.	0.09
MILE	551.20	733.33	209167.	1.83	114060.	4391.	11.57	0.0300	111.	63.	0.06
MILE	546.94	733.13	214753.	1.83	117234.	4698.	11.78	0.0320	111.	63.	0.06
MILE	542.68	732.75	222517.	2.64	84410.	6239.	14.02	0.0320	111.	63.	0.13
MILE	538.42	732.71	229347.	1.56	147174.	6426.	11.46	0.0265	111.	63.	0.06
MILE	534.16	732.41	235689.	1.65	143148.	6773.	12.15	0.0320	111.	62.	0.06
MILE	529.90	732.24	246665.	2.12	116513.	9646.	13.51	0.0315	109.	62.	0.11
MILE	23.10	739.63	9500.	3.95	2403.	306.	4.52	0.0305	758.	15.	0.25
MILE	21.00	738.41	10425.	2.09	4989.	483.	5.08	0.0300	758.	18.	0.11
MILE	18.90	737.75	11494.	2.34	4911.	735.	5.91	0.0290	758.	18.	0.16
MILE	16.80	737.19	12606.	2.68	4700.	504.	5.59	0.0220	758.	17.	0.15
MILE	14.70	736.93	13670.	1.84	7440.	469.	6.48	0.0220	758.	27.	0.08
MILE	12.60	736.81	14872.	1.63	9148.	902.	7.99	0.0220	1108.	37.	0.09
MILE	10.50	736.74	16606.	1.22	13585.	1025.	7.69	0.0260	758.	47.	0.06
MILE	8.40	736.62	17958.	1.65	10858.	796.	8.29	0.0225	758.	47.	0.08
MILE	6.30	736.54	20176.	1.50	13490.	3639.	8.59	0.0250	758.	47.	0.14
MILE	4.20	736.47	25873.	1.28	20231.	4087.	8.33	0.0245	3158.	46.	0.10
MILE	2.10	736.41	28453.	1.25	22754.	1457.	10.09	0.0265	758.	46.	0.06
MILE	0.00	736.39	30072.	0.84	35942.	1272.	8.71	0.0230	722.	46.	0.03

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TIME	5.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	756.21	131667.	3.68	35740.	1359.	10.01	0.0280	94.	46.	0.13
MILE	598.04	752.64	133572.	7.08	18878.	877.	9.01	0.0210	94.	43.	0.27
MILE	593.78	751.09	135102.	4.77	28324.	1273.	8.09	0.0310	94.	41.	0.18
MILE	589.52	748.15	137255.	4.26	32215.	1320.	9.41	0.0395	94.	38.	0.15
MILE	585.27	745.30	139286.	5.08	27410.	1506.	8.82	0.0400	94.	35.	0.21
MILE	581.01	743.42	142242.	3.49	40705.	1948.	9.25	0.0400	94.	53.	0.13
MILE	576.75	740.93	144916.	3.12	46440.	2851.	9.24	0.0430	94.	51.	0.14
MILE	572.49	737.44	149814.	2.45	61145.	3536.	9.02	0.0380	94.	47.	0.10
MILE	568.23	736.17	160428.	5.12	31363.	2193.	10.66	0.0300	92.	46.	0.24
MILE	568.23	736.17	190139.	6.06	31363.	2193.	10.66	0.0300	111.	46.	0.28
MILE	563.97	734.82	192569.	3.01	63993.	2512.	9.28	0.0260	111.	45.	0.11
MILE	559.71	734.46	196798.	2.46	80144.	3445.	10.90	0.0295	111.	64.	0.09
MILE	555.45	734.08	201469.	2.40	84045.	3452.	10.06	0.0285	111.	64.	0.09
MILE	551.20	733.14	206340.	1.82	113445.	4384.	11.54	0.0300	111.	63.	0.06
MILE	546.94	732.94	211820.	1.82	116669.	4684.	11.74	0.0320	111.	63.	0.06
MILE	542.68	732.57	219429.	2.61	84076.	6211.	14.00	0.0320	111.	63.	0.13
MILE	538.42	732.53	226108.	1.55	146338.	6398.	11.44	0.0265	111.	63.	0.06
MILE	534.16	732.23	232332.	1.63	142352.	6760.	12.14	0.0320	111.	62.	0.06
MILE	529.90	732.07	243082.	2.09	116112.	9620.	13.48	0.0315	109.	62.	0.11
MILE	23.10	739.52	9500.	4.00	2375.	304.	4.50	0.0305	750.	15.	0.25
MILE	21.00	738.25	10410.	2.12	4921.	479.	5.04	0.0300	750.	18.	0.12
MILE	18.90	737.57	11460.	2.36	4850.	729.	5.87	0.0290	750.	18.	0.16
MILE	16.80	736.99	12553.	2.71	4631.	499.	5.55	0.0220	750.	17.	0.16
MILE	14.70	736.73	13601.	1.85	7349.	467.	6.43	0.0220	750.	27.	0.08
MILE	12.60	736.60	14782.	1.63	9069.	888.	7.95	0.0220	1100.	37.	0.09
MILE	10.50	736.54	16486.	1.23	13436.	1008.	7.65	0.0260	750.	47.	0.06
MILE	8.40	736.41	17812.	1.66	10754.	790.	8.26	0.0225	750.	46.	0.08
MILE	6.30	736.33	19977.	1.50	13354.	3591.	8.56	0.0250	750.	46.	0.14
MILE	4.20	736.26	25594.	1.28	19998.	4033.	8.31	0.0245	3150.	46.	0.10
MILE	2.10	736.20	28118.	1.25	22571.	1445.	10.06	0.0265	750.	46.	0.06
MILE	0.00	736.17	29710.	0.84	35553.	1264.	8.69	0.0230	714.	46.	0.03

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TIME	6.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	755.97	130000.	3.67	35466.	1347.	9.96	0.0280	94.	46.	0.13

MILE	598.04	752.42	131882.	7.05	18718.	869.	8.97	0.0210	94.	42.	0.27
MILE	593.78	750.88	133393.	4.76	28020.	1269.	8.07	0.0310	94.	41.	0.18
MILE	589.52	747.94	135535.	4.24	31976.	1316.	9.37	0.0395	94.	38.	0.15
MILE	585.27	745.10	137526.	5.06	27157.	1470.	8.79	0.0400	94.	35.	0.21
MILE	581.01	743.22	140443.	3.48	40365.	1924.	9.22	0.0400	94.	53.	0.13
MILE	576.75	740.73	143092.	3.10	46101.	2849.	9.21	0.0430	94.	51.	0.14
MILE	572.49	737.22	147929.	2.44	60598.	3503.	8.98	0.0380	94.	47.	0.10
MILE	568.23	735.96	158300.	5.08	31153.	2165.	10.63	0.0300	92.	46.	0.24
MILE	568.23	735.96	187674.	6.02	31153.	2165.	10.63	0.0300	111.	46.	0.28
MILE	563.97	734.63	190063.	2.99	63460.	2504.	9.25	0.0260	111.	45.	0.10
MILE	559.71	734.26	194218.	2.44	79645.	3430.	10.86	0.0295	111.	64.	0.09
MILE	555.45	733.89	198816.	2.39	83356.	3444.	10.04	0.0285	111.	64.	0.09
MILE	551.20	732.95	203582.	1.80	112849.	4377.	11.51	0.0300	111.	63.	0.06
MILE	546.94	732.76	208969.	1.80	116123.	4670.	11.71	0.0320	111.	63.	0.06
MILE	542.68	732.39	216437.	2.58	83753.	6183.	13.98	0.0320	111.	62.	0.12
MILE	538.42	732.35	222967.	1.53	145532.	6371.	11.42	0.0265	111.	62.	0.06
MILE	534.16	732.06	229079.	1.62	141582.	6747.	12.13	0.0320	111.	62.	0.06
MILE	529.90	731.90	239596.	2.07	115722.	9594.	13.46	0.0315	109.	62.	0.11
MILE	23.10	739.42	9500.	4.04	2349.	303.	4.48	0.0305	742.	14.	0.26
MILE	21.00	738.10	10395.	2.14	4856.	476.	5.01	0.0300	742.	18.	0.12
MILE	18.90	737.40	11425.	2.38	4791.	723.	5.83	0.0290	742.	17.	0.16
MILE	16.80	736.80	12499.	2.74	4564.	494.	5.51	0.0220	742.	17.	0.16
MILE	14.70	736.53	13532.	1.86	7260.	466.	6.39	0.0220	742.	27.	0.08
MILE	12.60	736.40	14693.	1.63	8991.	874.	7.92	0.0220	1092.	36.	0.09
MILE	10.50	736.33	16371.	1.23	13291.	991.	7.62	0.0260	742.	46.	0.06
MILE	8.40	736.20	17674.	1.66	10653.	784.	8.23	0.0225	742.	46.	0.08
MILE	6.30	736.12	19795.	1.50	13221.	3543.	8.53	0.0250	742.	46.	0.14
MILE	4.20	736.05	25337.	1.28	19770.	3980.	8.29	0.0245	3142.	46.	0.10
MILE	2.10	735.99	27808.	1.24	22390.	1433.	10.03	0.0265	742.	46.	0.06
MILE	0.00	735.96	29374.	0.84	35170.	1256.	8.66	0.0230	707.	46.	0.03

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TIME	7.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	755.73	128333.	3.65	35192.	1335.	9.91	0.0280	94.	46.	0.13
MILE	598.04	752.20	130195.	7.02	18559.	860.	8.93	0.0210	94.	42.	0.27
MILE	593.78	750.67	131690.	4.75	27718.	1264.	8.04	0.0310	94.	41.	0.18
MILE	589.52	747.72	133826.	4.22	31737.	1312.	9.32	0.0395	94.	38.	0.15
MILE	585.27	744.89	135791.	5.05	26911.	1451.	8.75	0.0400	94.	35.	0.21
MILE	581.01	743.01	138658.	3.46	40027.	1899.	9.18	0.0400	94.	53.	0.13
MILE	576.75	740.53	141277.	3.09	45765.	2846.	9.17	0.0430	94.	51.	0.14

MILE	572.49	737.01	146048.	2.43	60060.	3470.	8.95	0.0380	94.	47.	0.10
MILE	568.23	735.76	156180.	5.05	30946.	2137.	10.60	0.0300	92.	46.	0.23
MILE	568.23	735.76	185223.	5.99	30946.	2137.	10.60	0.0300	111.	46.	0.28
MILE	563.97	734.43	187572.	2.98	62941.	2497.	9.22	0.0260	111.	44.	0.10
MILE	559.71	734.08	191659.	2.42	79158.	3415.	10.83	0.0295	111.	64.	0.09
MILE	555.45	733.70	196186.	2.37	82687.	3437.	10.02	0.0285	111.	64.	0.09
MILE	551.20	732.77	200854.	1.79	112270.	4370.	11.48	0.0300	111.	63.	0.06
MILE	546.94	732.58	206148.	1.78	115592.	4656.	11.68	0.0320	111.	63.	0.06
MILE	542.68	732.22	213479.	2.56	83439.	6156.	13.96	0.0320	111.	62.	0.12
MILE	538.42	732.18	219868.	1.52	144745.	6344.	11.39	0.0265	111.	62.	0.06
MILE	534.16	731.89	225872.	1.60	140829.	6734.	12.12	0.0320	111.	62.	0.06
MILE	529.90	731.74	236170.	2.05	115339.	9568.	13.43	0.0315	109.	62.	0.10
MILE	23.10	739.32	9500.	4.09	2324.	302.	4.45	0.0305	734.	14.	0.26
MILE	21.00	737.95	10380.	2.17	4793.	473.	4.98	0.0300	734.	18.	0.12
MILE	18.90	737.23	11392.	2.41	4733.	717.	5.80	0.0290	734.	17.	0.17
MILE	16.80	736.61	12448.	2.77	4498.	490.	5.47	0.0220	734.	17.	0.16
MILE	14.70	736.33	13467.	1.88	7172.	465.	6.35	0.0220	734.	26.	0.08
MILE	12.60	736.19	14610.	1.64	8914.	861.	7.89	0.0220	1084.	36.	0.09
MILE	10.50	736.13	16262.	1.24	13148.	975.	7.58	0.0260	734.	46.	0.06
MILE	8.40	736.00	17542.	1.66	10553.	778.	8.19	0.0225	734.	46.	0.08
MILE	6.30	735.92	19619.	1.50	13090.	3495.	8.50	0.0250	734.	46.	0.14
MILE	4.20	735.84	25087.	1.28	19547.	3928.	8.26	0.0245	3134.	46.	0.10
MILE	2.10	735.78	27504.	1.24	22213.	1421.	10.00	0.0265	734.	46.	0.06
MILE	0.00	735.76	29043.	0.83	34796.	1248.	8.64	0.0230	699.	46.	0.03

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TIME	8.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	755.49	126667.	3.63	34918.	1323.	9.87	0.0280	94.	45.	0.12
MILE	598.04	751.98	128514.	6.98	18400.	852.	8.89	0.0210	94.	42.	0.26
MILE	593.78	750.45	129998.	4.74	27418.	1260.	8.01	0.0310	94.	40.	0.18
MILE	589.52	747.51	132134.	4.19	31498.	1308.	9.28	0.0395	94.	38.	0.15
MILE	585.27	744.69	134066.	5.03	26674.	1446.	8.72	0.0400	94.	35.	0.21
MILE	581.01	742.80	136894.	3.45	39691.	1875.	9.14	0.0400	94.	53.	0.13
MILE	576.75	740.34	139484.	3.07	45431.	2843.	9.14	0.0430	94.	50.	0.14
MILE	572.49	736.81	144188.	2.42	59529.	3438.	8.92	0.0380	94.	47.	0.10
MILE	568.23	735.55	154079.	5.01	30742.	2109.	10.58	0.0300	92.	46.	0.23
MILE	568.23	735.55	182797.	5.95	30742.	2109.	10.58	0.0300	111.	46.	0.27
MILE	563.97	734.24	185100.	2.96	62432.	2490.	9.19	0.0260	111.	44.	0.10

MILE	559.71	733.89	189109.	2.40	78680.	3401.	10.81	0.0295	111.	64.	0.09
MILE	555.45	733.52	193563.	2.36	82031.	3430.	10.00	0.0285	111.	64.	0.09
MILE	551.20	732.60	198136.	1.77	111701.	4363.	11.45	0.0300	111.	63.	0.06
MILE	546.94	732.41	203342.	1.77	115070.	4642.	11.66	0.0320	111.	62.	0.06
MILE	542.68	732.05	210544.	2.53	83130.	6130.	13.94	0.0320	111.	62.	0.12
MILE	538.42	732.01	216804.	1.51	143973.	6318.	11.37	0.0265	111.	62.	0.06
MILE	534.16	731.73	222705.	1.59	140090.	6721.	12.11	0.0320	111.	62.	0.06
MILE	529.90	731.58	232802.	2.03	114962.	9543.	13.41	0.0315	109.	62.	0.10
MILE	23.10	739.23	9500.	4.13	2300.	301.	4.43	0.0305	725.	14.	0.26
MILE	21.00	737.81	10366.	2.19	4732.	470.	4.95	0.0300	725.	18.	0.12
MILE	18.90	737.06	11360.	2.43	4677.	711.	5.76	0.0290	725.	17.	0.17
MILE	16.80	736.42	12399.	2.80	4433.	486.	5.43	0.0220	725.	16.	0.16
MILE	14.70	736.13	13403.	1.89	7086.	463.	6.31	0.0220	725.	26.	0.09
MILE	12.60	736.00	14527.	1.64	8839.	847.	7.85	0.0220	1075.	36.	0.09
MILE	10.50	735.93	16153.	1.24	13007.	959.	7.54	0.0260	725.	46.	0.06
MILE	8.40	735.79	17410.	1.67	10455.	773.	8.16	0.0225	725.	46.	0.08
MILE	6.30	735.71	19443.	1.50	12961.	3449.	8.48	0.0250	725.	46.	0.14
MILE	4.20	735.64	24839.	1.29	19328.	3876.	8.24	0.0245	3125.	46.	0.10
MILE	2.10	735.58	27205.	1.23	22038.	1409.	9.98	0.0265	725.	46.	0.06
MILE	0.00	735.55	28718.	0.83	34428.	1240.	8.61	0.0230	691.	46.	0.03

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TIME	9.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	755.25	125000.	3.61	34644.	1311.	9.82	0.0280	94.	45.	0.12
MILE	598.04	751.77	126832.	6.95	18241.	843.	8.85	0.0210	94.	42.	0.26
MILE	593.78	750.24	128310.	4.73	27119.	1255.	7.99	0.0310	94.	40.	0.18
MILE	589.52	747.30	130444.	4.17	31261.	1304.	9.24	0.0395	94.	37.	0.15
MILE	585.27	744.49	132345.	5.01	26438.	1441.	8.68	0.0400	94.	34.	0.21
MILE	581.01	742.59	135139.	3.43	39358.	1851.	9.11	0.0400	94.	53.	0.13
MILE	576.75	740.14	137703.	3.05	45100.	2841.	9.11	0.0430	94.	50.	0.14
MILE	572.49	736.60	142344.	2.41	59007.	3406.	8.88	0.0380	94.	47.	0.10
MILE	568.23	735.35	152004.	4.98	30542.	2082.	10.55	0.0300	92.	45.	0.23
MILE	568.23	735.35	180410.	5.91	30542.	2082.	10.55	0.0300	111.	45.	0.27
MILE	563.97	734.05	182666.	2.95	61932.	2482.	9.17	0.0260	111.	44.	0.10
MILE	559.71	733.70	186598.	2.39	78210.	3387.	10.78	0.0295	111.	64.	0.09
MILE	555.45	733.34	190976.	2.35	81388.	3423.	9.98	0.0285	111.	63.	0.08
MILE	551.20	732.42	195453.	1.76	111141.	4356.	11.42	0.0300	111.	62.	0.06
MILE	546.94	732.24	200570.	1.75	114555.	4629.	11.63	0.0320	111.	62.	0.06
MILE	542.68	731.89	207644.	2.51	82826.	6104.	13.92	0.0320	111.	62.	0.12
MILE	538.42	731.84	213777.	1.49	143214.	6292.	11.35	0.0265	111.	62.	0.06

MILE	534.16	731.57	219582.	1.58	139366.	6708.	12.10	0.0320	111.	62.	0.06
MILE	529.90	731.42	229487.	2.00	114592.	9518.	13.38	0.0315	109.	61.	0.10
MILE	23.10	739.14	9500.	4.17	2278.	300.	4.41	0.0305	717.	14.	0.27
MILE	21.00	737.67	10351.	2.21	4674.	467.	4.92	0.0300	717.	18.	0.12
MILE	18.90	736.90	11328.	2.45	4622.	705.	5.72	0.0290	717.	17.	0.17
MILE	16.80	736.24	12349.	2.83	4370.	481.	5.40	0.0220	717.	16.	0.17
MILE	14.70	735.94	13339.	1.91	7001.	462.	6.27	0.0220	717.	26.	0.09
MILE	12.60	735.80	14445.	1.65	8765.	834.	7.82	0.0220	1067.	36.	0.09
MILE	10.50	735.73	16046.	1.25	12869.	943.	7.50	0.0260	717.	46.	0.06
MILE	8.40	735.60	17281.	1.67	10358.	767.	8.13	0.0225	717.	46.	0.08
MILE	6.30	735.51	19272.	1.50	12835.	3403.	8.45	0.0250	717.	46.	0.14
MILE	4.20	735.44	24600.	1.29	19113.	3825.	8.22	0.0245	3117.	45.	0.10
MILE	2.10	735.38	26917.	1.23	21867.	1397.	9.95	0.0265	717.	45.	0.05
MILE	0.00	735.35	28406.	0.83	34067.	1232.	8.59	0.0230	683.	45.	0.03

0DATE 3-31-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	10.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	755.01	123333.	3.59	34369.	1299.	9.77	0.0280	94.	45.	0.12
MILE	598.04	751.55	125148.	6.92	18082.	835.	8.81	0.0210	94.	42.	0.26
MILE	593.78	750.02	126628.	4.72	26822.	1250.	7.96	0.0310	94.	40.	0.18
MILE	589.52	747.08	128760.	4.15	31023.	1300.	9.19	0.0395	94.	37.	0.15
MILE	585.27	744.29	130630.	4.99	26203.	1436.	8.65	0.0400	94.	34.	0.21
MILE	581.01	742.38	133392.	3.42	39026.	1827.	9.07	0.0400	94.	52.	0.13
MILE	576.75	739.94	135942.	3.04	44773.	2837.	9.08	0.0430	94.	50.	0.13
MILE	572.49	736.40	140514.	2.40	58492.	3375.	8.85	0.0380	94.	46.	0.10
MILE	568.23	735.16	149953.	4.94	30345.	2055.	10.52	0.0300	92.	45.	0.23
MILE	568.23	735.16	178060.	5.87	30345.	2055.	10.52	0.0300	111.	45.	0.27
MILE	563.97	733.87	180272.	2.93	61440.	2475.	9.14	0.0260	111.	44.	0.10
MILE	559.71	733.52	184129.	2.37	77747.	3373.	10.75	0.0295	111.	64.	0.09
MILE	555.45	733.16	188433.	2.33	80755.	3416.	9.97	0.0285	111.	63.	0.08
MILE	551.20	732.25	192817.	1.74	110590.	4349.	11.40	0.0300	111.	62.	0.06
MILE	546.94	732.07	197848.	1.73	114049.	4616.	11.60	0.0320	111.	62.	0.06
MILE	542.68	731.72	204795.	2.48	82527.	6079.	13.90	0.0320	111.	62.	0.12
MILE	538.42	731.68	210804.	1.48	142468.	6266.	11.32	0.0265	111.	62.	0.05
MILE	534.16	731.41	216512.	1.56	138654.	6696.	12.09	0.0320	111.	61.	0.06
MILE	529.90	731.26	226225.	1.98	114227.	9494.	13.36	0.0315	109.	61.	0.10
MILE	23.10	739.06	9500.	4.21	2257.	299.	4.39	0.0305	709.	14.	0.27
MILE	21.00	737.54	10337.	2.24	4617.	464.	4.89	0.0300	709.	18.	0.13

MILE	18.90	736.74	11296.	2.47	4569.	700.	5.68	0.0290	709.	17.	0.17
MILE	16.80	736.06	12301.	2.85	4308.	477.	5.36	0.0220	709.	16.	0.17
MILE	14.70	735.75	13277.	1.92	6918.	461.	6.23	0.0220	709.	26.	0.09
MILE	12.60	735.61	14365.	1.65	8692.	821.	7.79	0.0220	1059.	36.	0.09
MILE	10.50	735.54	15942.	1.25	12734.	927.	7.46	0.0260	709.	46.	0.06
MILE	8.40	735.40	17156.	1.67	10263.	761.	8.10	0.0225	709.	45.	0.08
MILE	6.30	735.32	19107.	1.50	12711.	3357.	8.42	0.0250	709.	45.	0.14
MILE	4.20	735.24	24371.	1.29	18902.	3775.	8.20	0.0245	3109.	45.	0.10
MILE	2.10	735.18	26641.	1.23	21698.	1386.	9.92	0.0265	709.	45.	0.05
MILE	0.00	735.16	28106.	0.83	33713.	1224.	8.57	0.0230	675.	45.	0.03

ODATE 3-31-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	11.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	754.77	121667.	3.57	34097.	1287.	9.72	0.0280	94.	45.	0.12
MILE	598.04	751.33	123459.	6.89	17923.	827.	8.77	0.0210	94.	41.	0.26
MILE	593.78	749.81	124932.	4.71	26533.	1247.	7.93	0.0310	94.	40.	0.18
MILE	589.52	746.87	127074.	4.13	30786.	1296.	9.15	0.0395	94.	37.	0.15
MILE	585.27	744.09	128923.	4.96	25969.	1432.	8.62	0.0400	94.	34.	0.21
MILE	581.01	742.18	131664.	3.40	38695.	1803.	9.03	0.0400	94.	52.	0.13
MILE	576.75	739.75	134197.	3.02	44454.	2829.	9.05	0.0430	94.	50.	0.13
MILE	572.49	736.20	138714.	2.39	57984.	3344.	8.81	0.0380	94.	46.	0.10
MILE	568.23	734.96	147934.	4.91	30152.	2032.	10.49	0.0300	92.	45.	0.22
MILE	568.23	734.96	175747.	5.83	30152.	2032.	10.49	0.0300	111.	45.	0.27
MILE	563.97	733.68	177915.	2.92	60956.	2468.	9.11	0.0260	111.	44.	0.10
MILE	559.71	733.34	181700.	2.35	77291.	3359.	10.72	0.0295	111.	63.	0.09
MILE	555.45	732.99	185933.	2.32	80134.	3409.	9.95	0.0285	111.	63.	0.08
MILE	551.20	732.08	190227.	1.73	110048.	4343.	11.37	0.0300	111.	62.	0.06
MILE	546.94	731.90	195172.	1.72	113551.	4603.	11.57	0.0320	111.	62.	0.06
MILE	542.68	731.56	201996.	2.46	82233.	6054.	13.88	0.0320	111.	62.	0.12
MILE	538.42	731.52	207882.	1.47	141735.	6241.	11.30	0.0265	111.	62.	0.05
MILE	534.16	731.25	213493.	1.55	137956.	6684.	12.08	0.0320	111.	61.	0.06
MILE	529.90	731.11	223016.	1.96	113869.	9470.	13.34	0.0315	109.	61.	0.10
MILE	23.10	738.98	9500.	4.25	2237.	298.	4.37	0.0305	701.	14.	0.27
MILE	21.00	737.41	10323.	2.26	4562.	461.	4.87	0.0300	701.	17.	0.13
MILE	18.90	736.59	11266.	2.49	4517.	694.	5.65	0.0290	701.	17.	0.17
MILE	16.80	735.88	12253.	2.88	4248.	473.	5.32	0.0220	701.	16.	0.17
MILE	14.70	735.56	13216.	1.93	6836.	460.	6.19	0.0220	701.	26.	0.09
MILE	12.60	735.42	14287.	1.66	8621.	808.	7.75	0.0220	1051.	35.	0.09
MILE	10.50	735.35	15841.	1.26	12600.	912.	7.43	0.0260	701.	45.	0.06
MILE	8.40	735.21	17034.	1.67	10170.	756.	8.06	0.0225	701.	45.	0.08

MILE	6.30	735.12	18947.	1.51	12589.	3313.	8.40	0.0250	701.	45.	0.14
MILE	4.20	735.05	24148.	1.29	18695.	3725.	8.18	0.0245	3101.	45.	0.10
MILE	2.10	734.99	26373.	1.22	21532.	1374.	9.90	0.0265	701.	45.	0.05
MILE	0.00	734.96	27813.	0.83	33359.	1216.	8.55	0.0230	667.	45.	0.03

0DATE 3-31-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	12.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	754.53	120000.	3.55	33825.	1274.	9.68	0.0280	94.	45.	0.12
MILE	598.04	751.11	121778.	6.85	17765.	818.	8.73	0.0210	94.	41.	0.26
MILE	593.78	749.60	123253.	4.70	26247.	1243.	7.90	0.0310	94.	40.	0.18
MILE	589.52	746.66	125397.	4.10	30549.	1292.	9.11	0.0395	94.	37.	0.15
MILE	585.27	743.88	127218.	4.94	25737.	1427.	8.58	0.0400	94.	34.	0.21
MILE	581.01	741.97	129932.	3.39	38366.	1779.	9.00	0.0400	94.	52.	0.13
MILE	576.75	739.56	132449.	3.00	44136.	2821.	9.03	0.0430	94.	50.	0.13
MILE	572.49	736.00	136918.	2.38	57483.	3313.	8.78	0.0380	94.	46.	0.10
MILE	568.23	734.77	145942.	4.87	29968.	2021.	10.47	0.0300	92.	45.	0.22
MILE	568.23	734.77	173465.	5.79	29968.	2021.	10.47	0.0300	111.	45.	0.26
MILE	563.97	733.50	175594.	2.90	60479.	2461.	9.08	0.0260	111.	44.	0.10
MILE	559.71	733.17	179309.	2.33	76842.	3345.	10.69	0.0295	111.	63.	0.09
MILE	555.45	732.82	183473.	2.31	79524.	3403.	9.93	0.0285	111.	63.	0.08
MILE	551.20	731.91	187678.	1.71	109515.	4336.	11.34	0.0300	111.	62.	0.06
MILE	546.94	731.74	192539.	1.70	113061.	4591.	11.54	0.0320	111.	62.	0.06
MILE	542.68	731.40	199240.	2.43	81944.	6029.	13.86	0.0320	111.	61.	0.12
MILE	538.42	731.36	205006.	1.45	141016.	6217.	11.28	0.0265	111.	61.	0.05
MILE	534.16	731.10	210521.	1.53	137272.	6672.	12.07	0.0320	111.	61.	0.06
MILE	529.90	730.95	219859.	1.94	113517.	9447.	13.31	0.0315	109.	61.	0.10
MILE	23.10	738.90	9500.	4.28	2219.	297.	4.35	0.0305	692.	14.	0.28
MILE	21.00	737.28	10310.	2.29	4508.	458.	4.84	0.0300	692.	17.	0.13
MILE	18.90	736.44	11236.	2.52	4466.	689.	5.61	0.0290	692.	16.	0.17
MILE	16.80	735.71	12207.	2.91	4189.	469.	5.28	0.0220	692.	16.	0.17
MILE	14.70	735.38	13156.	1.95	6756.	459.	6.15	0.0220	692.	25.	0.09
MILE	12.60	735.23	14210.	1.66	8550.	796.	7.72	0.0220	1042.	35.	0.09
MILE	10.50	735.16	15742.	1.26	12468.	897.	7.39	0.0260	692.	45.	0.06
MILE	8.40	735.02	16915.	1.68	10078.	750.	8.03	0.0225	692.	45.	0.08
MILE	6.30	734.93	18790.	1.51	12471.	3270.	8.37	0.0250	692.	45.	0.14
MILE	4.20	734.86	23926.	1.29	18501.	3679.	8.15	0.0245	3092.	45.	0.10
MILE	2.10	734.80	26103.	1.22	21375.	1364.	9.87	0.0265	692.	45.	0.05
MILE	0.00	734.77	27523.	0.83	32990.	1209.	8.53	0.0230	659.	45.	0.03

ODATE 3-31-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME 13.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE 602.30	754.29	118333.	3.53	33553.	1262.	9.63	0.0280	94.	44.	0.12
MILE 598.04	750.89	120097.	6.82	17607.	810.	8.69	0.0210	94.	41.	0.26
MILE 593.78	749.38	121575.	4.68	25962.	1239.	7.87	0.0310	94.	39.	0.18
MILE 589.52	746.45	123720.	4.08	30312.	1288.	9.06	0.0395	94.	36.	0.15
MILE 585.27	743.68	125515.	4.92	25504.	1422.	8.55	0.0400	94.	34.	0.20
MILE 581.01	741.76	128208.	3.37	38035.	1755.	8.96	0.0400	94.	52.	0.13
MILE 576.75	739.36	130700.	2.98	43823.	2813.	9.00	0.0430	94.	49.	0.13
MILE 572.49	735.80	135128.	2.37	56990.	3283.	8.75	0.0380	94.	46.	0.10
MILE 568.23	734.58	143970.	4.83	29787.	2010.	10.44	0.0300	92.	45.	0.22
MILE 568.23	734.58	171214.	5.75	29787.	2010.	10.44	0.0300	111.	45.	0.26
MILE 563.97	733.32	173302.	2.89	60011.	2454.	9.05	0.0260	111.	43.	0.10
MILE 559.71	732.99	176949.	2.32	76400.	3332.	10.66	0.0295	111.	63.	0.09
MILE 555.45	732.65	181044.	2.29	78925.	3396.	9.92	0.0285	111.	63.	0.08
MILE 551.20	731.75	185164.	1.70	108991.	4330.	11.32	0.0300	111.	62.	0.06
MILE 546.94	731.58	189944.	1.69	112579.	4578.	11.52	0.0320	111.	62.	0.06
MILE 542.68	731.24	196527.	2.41	81661.	6005.	13.84	0.0320	111.	61.	0.12
MILE 538.42	731.20	202177.	1.44	140309.	6192.	11.26	0.0265	111.	61.	0.05
MILE 534.16	730.94	207597.	1.52	136600.	6660.	12.06	0.0320	111.	61.	0.06
MILE 529.90	730.81	216754.	1.92	113171.	9424.	13.29	0.0315	109.	61.	0.10
MILE 23.10	738.83	9500.	4.32	2201.	296.	4.34	0.0305	684.	14.	0.28
MILE 21.00	737.16	10296.	2.31	4457.	456.	4.81	0.0300	684.	17.	0.13
MILE 18.90	736.29	11206.	2.54	4417.	684.	5.58	0.0290	684.	16.	0.18
MILE 16.80	735.54	12161.	2.94	4131.	465.	5.25	0.0220	684.	16.	0.17
MILE 14.70	735.20	13096.	1.96	6677.	457.	6.11	0.0220	684.	25.	0.09
MILE 12.60	735.05	14132.	1.67	8480.	783.	7.69	0.0220	1034.	35.	0.09
MILE 10.50	734.97	15642.	1.27	12339.	883.	7.35	0.0260	684.	45.	0.06
MILE 8.40	734.83	16794.	1.68	9989.	746.	8.00	0.0225	684.	45.	0.08
MILE 6.30	734.74	18633.	1.51	12358.	3231.	8.34	0.0250	684.	45.	0.14
MILE 4.20	734.67	23712.	1.29	18315.	3634.	8.13	0.0245	3084.	45.	0.10
MILE 2.10	734.61	25848.	1.22	21220.	1353.	9.84	0.0265	684.	45.	0.05
MILE 0.00	734.58	27244.	0.83	32629.	1201.	8.52	0.0230	652.	45.	0.03

ODATE 3-31-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME 14.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE

MILE	602.30	754.05	116667.	3.51	33279.	1250.	9.58	0.0280	94.	44.	0.12
MILE	598.04	750.68	118417.	6.79	17449.	801.	8.65	0.0210	94.	41.	0.26
MILE	593.78	749.17	119898.	4.67	25677.	1235.	7.83	0.0310	94.	39.	0.18
MILE	589.52	746.23	122047.	4.06	30074.	1284.	9.02	0.0395	94.	36.	0.15
MILE	585.27	743.48	123817.	4.90	25272.	1418.	8.51	0.0400	94.	33.	0.20
MILE	581.01	741.56	126486.	3.35	37706.	1731.	8.92	0.0400	94.	52.	0.13
MILE	576.75	739.17	128953.	2.96	43511.	2805.	8.97	0.0430	94.	49.	0.13
MILE	572.49	735.61	133341.	2.36	56502.	3253.	8.71	0.0380	94.	46.	0.10
MILE	568.23	734.39	142010.	4.80	29608.	1999.	10.42	0.0300	92.	44.	0.22
MILE	568.23	734.39	168989.	5.71	29608.	1999.	10.42	0.0300	111.	44.	0.26
MILE	563.97	733.15	171039.	2.87	59550.	2447.	9.03	0.0260	111.	43.	0.10
MILE	559.71	732.82	174620.	2.30	75965.	3318.	10.63	0.0295	111.	63.	0.08
MILE	555.45	732.48	178650.	2.28	78336.	3390.	9.90	0.0285	111.	62.	0.08
MILE	551.20	731.59	182686.	1.68	108476.	4324.	11.29	0.0300	111.	62.	0.06
MILE	546.94	731.42	187386.	1.67	112105.	4566.	11.49	0.0320	111.	61.	0.06
MILE	542.68	731.09	193853.	2.38	81382.	5981.	13.82	0.0320	111.	61.	0.11
MILE	538.42	731.05	199388.	1.43	139615.	6169.	11.24	0.0265	111.	61.	0.05
MILE	534.16	730.79	204718.	1.51	135942.	6648.	12.05	0.0320	111.	61.	0.06
MILE	529.90	730.66	213699.	1.89	112830.	9401.	13.27	0.0315	109.	61.	0.10
MILE	23.10	738.76	9500.	4.35	2184.	295.	4.32	0.0305	676.	14.	0.28
MILE	21.00	737.04	10283.	2.33	4408.	453.	4.79	0.0300	676.	17.	0.13
MILE	18.90	736.14	11176.	2.56	4368.	679.	5.54	0.0290	676.	16.	0.18
MILE	16.80	735.37	12115.	2.97	4074.	461.	5.21	0.0220	676.	15.	0.18
MILE	14.70	735.02	13036.	1.98	6599.	456.	6.07	0.0220	676.	25.	0.09
MILE	12.60	734.86	14056.	1.67	8412.	776.	7.66	0.0220	1026.	35.	0.09
MILE	10.50	734.79	15546.	1.27	12215.	877.	7.32	0.0260	676.	45.	0.06
MILE	8.40	734.64	16682.	1.68	9901.	742.	7.97	0.0225	676.	45.	0.08
MILE	6.30	734.56	18485.	1.51	12246.	3192.	8.32	0.0250	676.	45.	0.14
MILE	4.20	734.48	23509.	1.30	18131.	3590.	8.11	0.0245	3076.	44.	0.10
MILE	2.10	734.42	25604.	1.22	21068.	1343.	9.82	0.0265	676.	44.	0.05
MILE	0.00	734.39	26979.	0.84	32273.	1194.	8.50	0.0230	644.	44.	0.03

0DATE 3-31-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME	15.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	753.81	115000.	3.48	33005.	1238.	9.53	0.0280	94.	44.	0.12
MILE	598.04	750.46	116738.	6.75	17290.	793.	8.61	0.0210	94.	40.	0.25
MILE	593.78	748.95	118223.	4.66	25392.	1232.	7.80	0.0310	94.	39.	0.18
MILE	589.52	746.02	120377.	4.03	29836.	1280.	8.97	0.0395	94.	36.	0.15
MILE	585.27	743.28	122122.	4.88	25040.	1413.	8.48	0.0400	94.	33.	0.20
MILE	581.01	741.35	124769.	3.34	37377.	1707.	8.89	0.0400	94.	51.	0.13

MILE	576.75	738.98	127211.	2.94	43202.	2798.	8.95	0.0430	94.	49.	0.13
MILE	572.49	735.42	131560.	2.35	56021.	3223.	8.68	0.0380	94.	45.	0.10
MILE	568.23	734.20	140059.	4.76	29432.	1988.	10.39	0.0300	92.	44.	0.22
MILE	568.23	734.20	166788.	5.67	29432.	1988.	10.39	0.0300	111.	44.	0.26
MILE	563.97	732.98	168801.	2.86	59096.	2440.	9.00	0.0260	111.	43.	0.10
MILE	559.71	732.65	172319.	2.28	75536.	3305.	10.61	0.0295	111.	63.	0.08
MILE	555.45	732.31	176284.	2.27	77758.	3383.	9.88	0.0285	111.	62.	0.08
MILE	551.20	731.43	180239.	1.67	107969.	4318.	11.26	0.0300	111.	61.	0.06
MILE	546.94	731.26	184862.	1.66	111639.	4554.	11.46	0.0320	111.	61.	0.06
MILE	542.68	730.94	191217.	2.36	81108.	5957.	13.80	0.0320	111.	61.	0.11
MILE	538.42	730.90	196642.	1.42	138933.	6145.	11.22	0.0265	111.	61.	0.05
MILE	534.16	730.65	201883.	1.49	135295.	6637.	12.04	0.0320	111.	61.	0.06
MILE	529.90	730.51	210692.	1.87	112495.	9379.	13.25	0.0315	109.	61.	0.10
MILE	23.10	738.70	9500.	4.38	2169.	295.	4.30	0.0305	668.	14.	0.28
MILE	21.00	736.92	10270.	2.36	4360.	451.	4.76	0.0300	668.	17.	0.13
MILE	18.90	736.00	11147.	2.58	4321.	674.	5.51	0.0290	668.	16.	0.18
MILE	16.80	735.21	12069.	3.00	4018.	457.	5.18	0.0220	668.	15.	0.18
MILE	14.70	734.84	12978.	1.99	6522.	453.	6.04	0.0220	668.	25.	0.09
MILE	12.60	734.68	13983.	1.68	8344.	770.	7.62	0.0220	1018.	35.	0.09
MILE	10.50	734.61	15457.	1.28	12092.	872.	7.28	0.0260	668.	45.	0.06
MILE	8.40	734.46	16576.	1.69	9815.	738.	7.94	0.0225	668.	44.	0.08
MILE	6.30	734.37	18347.	1.51	12136.	3154.	8.29	0.0250	668.	44.	0.14
MILE	4.20	734.29	23318.	1.30	17951.	3546.	8.09	0.0245	3068.	44.	0.10
MILE	2.10	734.23	25375.	1.21	20917.	1333.	9.79	0.0265	668.	44.	0.05
MILE	0.00	734.20	26729.	0.84	31924.	1187.	8.49	0.0230	636.	44.	0.03

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TIME	16.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	753.56	113333.	3.46	32730.	1225.	9.48	0.0280	94.	44.	0.12
MILE	598.04	750.24	115057.	6.72	17131.	784.	8.56	0.0210	94.	40.	0.25
MILE	593.78	748.73	116553.	4.64	25107.	1228.	7.77	0.0310	94.	39.	0.18
MILE	589.52	745.81	118706.	4.01	29598.	1276.	8.93	0.0395	94.	36.	0.15
MILE	585.27	743.08	120431.	4.85	24809.	1408.	8.44	0.0400	94.	33.	0.20
MILE	581.01	741.14	123056.	3.32	37050.	1683.	8.85	0.0400	94.	51.	0.12
MILE	576.75	738.79	125473.	2.93	42894.	2790.	8.92	0.0430	94.	49.	0.13
MILE	572.49	735.23	129785.	2.34	55545.	3193.	8.65	0.0380	94.	45.	0.10
MILE	568.23	734.02	138119.	4.72	29258.	1977.	10.36	0.0300	92.	44.	0.22
MILE	568.23	734.02	164607.	5.63	29258.	1977.	10.36	0.0300	111.	44.	0.26

MILE	563.97	732.80	166585.	2.84	58649.	2434.	8.97	0.0260	111.	43.	0.10
MILE	559.71	732.49	170042.	2.26	75114.	3292.	10.58	0.0295	111.	62.	0.08
MILE	555.45	732.15	173946.	2.25	77189.	3377.	9.87	0.0285	111.	62.	0.08
MILE	551.20	731.27	177823.	1.65	107470.	4311.	11.24	0.0300	111.	61.	0.06
MILE	546.94	731.11	182371.	1.64	111180.	4542.	11.44	0.0320	111.	61.	0.06
MILE	542.68	730.79	188617.	2.33	80838.	5934.	13.79	0.0320	111.	61.	0.11
MILE	538.42	730.75	193935.	1.40	138263.	6122.	11.19	0.0265	111.	61.	0.05
MILE	534.16	730.50	199090.	1.48	134661.	6626.	12.03	0.0320	111.	61.	0.06
MILE	529.90	730.37	207734.	1.85	112166.	9357.	13.23	0.0315	109.	60.	0.09
MILE	23.10	738.64	9500.	4.41	2154.	294.	4.29	0.0305	659.	14.	0.29
MILE	21.00	736.81	10257.	2.38	4314.	448.	4.74	0.0300	659.	17.	0.14
MILE	18.90	735.87	11119.	2.60	4276.	669.	5.48	0.0290	659.	16.	0.18
MILE	16.80	735.05	12026.	3.03	3964.	453.	5.14	0.0220	659.	15.	0.18
MILE	14.70	734.67	12922.	2.00	6447.	449.	6.00	0.0220	659.	25.	0.09
MILE	12.60	734.51	13912.	1.68	8277.	765.	7.59	0.0220	1009.	35.	0.09
MILE	10.50	734.43	15370.	1.28	11971.	866.	7.25	0.0260	659.	44.	0.06
MILE	8.40	734.28	16473.	1.69	9730.	734.	7.91	0.0225	659.	44.	0.08
MILE	6.30	734.19	18213.	1.51	12027.	3116.	8.26	0.0250	659.	44.	0.14
MILE	4.20	734.11	23134.	1.30	17773.	3503.	8.06	0.0245	3059.	44.	0.10
MILE	2.10	734.05	25154.	1.21	20768.	1323.	9.77	0.0265	659.	44.	0.05
MILE	0.00	734.02	26488.	0.84	31580.	1179.	8.48	0.0230	628.	44.	0.03

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TIME	17.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	753.31	111667.	3.44	32451.	1213.	9.43	0.0280	94.	43.	0.12
MILE	598.04	750.01	113385.	6.68	16972.	776.	8.52	0.0210	94.	40.	0.25
MILE	593.78	748.52	114886.	4.63	24823.	1224.	7.73	0.0310	94.	39.	0.18
MILE	589.52	745.59	117035.	3.99	29359.	1271.	8.88	0.0395	94.	36.	0.15
MILE	585.27	742.87	118735.	4.83	24578.	1404.	8.41	0.0400	94.	33.	0.20
MILE	581.01	740.94	121342.	3.30	36722.	1659.	8.81	0.0400	94.	51.	0.12
MILE	576.75	738.60	123738.	2.91	42587.	2782.	8.89	0.0430	94.	49.	0.13
MILE	572.49	735.04	128016.	2.32	55074.	3164.	8.62	0.0380	94.	45.	0.10
MILE	568.23	733.84	136191.	4.68	29085.	1967.	10.34	0.0300	92.	44.	0.21
MILE	568.23	733.84	162444.	5.59	29085.	1967.	10.34	0.0300	111.	44.	0.26
MILE	563.97	732.63	164388.	2.82	58209.	2427.	8.95	0.0260	111.	43.	0.10
MILE	559.71	732.32	167787.	2.25	74697.	3280.	10.55	0.0295	111.	62.	0.08
MILE	555.45	731.99	171631.	2.24	76630.	3371.	9.85	0.0285	111.	62.	0.08
MILE	551.20	731.12	175434.	1.64	106979.	4305.	11.21	0.0300	111.	61.	0.06
MILE	546.94	730.96	179910.	1.62	110728.	4530.	11.41	0.0320	111.	61.	0.06
MILE	542.68	730.64	186051.	2.31	80573.	5911.	13.77	0.0320	111.	61.	0.11

MILE	538.42	730.60	191266.	1.39	137605.	6099.	11.17	0.0265	111.	61.	0.05
MILE	534.16	730.36	196338.	1.46	134038.	6615.	12.02	0.0320	111.	60.	0.06
MILE	529.90	730.23	204822.	1.83	111842.	9335.	13.20	0.0315	109.	60.	0.09
MILE	23.10	738.59	9500.	4.44	2140.	293.	4.28	0.0305	651.	14.	0.29
MILE	21.00	736.71	10244.	2.40	4269.	446.	4.71	0.0300	651.	17.	0.14
MILE	18.90	735.73	11091.	2.62	4231.	664.	5.45	0.0290	651.	16.	0.18
MILE	16.80	734.89	11982.	3.06	3910.	450.	5.10	0.0220	651.	15.	0.18
MILE	14.70	734.49	12866.	2.02	6372.	445.	5.96	0.0220	651.	24.	0.09
MILE	12.60	734.33	13842.	1.69	8211.	760.	7.56	0.0220	1001.	34.	0.09
MILE	10.50	734.25	15284.	1.29	11852.	860.	7.21	0.0260	651.	44.	0.06
MILE	8.40	734.10	16372.	1.70	9645.	730.	7.88	0.0225	651.	44.	0.08
MILE	6.30	734.01	18082.	1.52	11920.	3079.	8.24	0.0250	651.	44.	0.14
MILE	4.20	733.93	22954.	1.30	17598.	3460.	8.04	0.0245	3051.	44.	0.10
MILE	2.10	733.87	24938.	1.21	20622.	1313.	9.74	0.0265	651.	44.	0.05
MILE	0.00	733.84	26253.	0.84	31241.	1172.	8.46	0.0230	620.	44.	0.03

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TIME	18.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	753.07	110000.	3.42	32172.	1201.	9.38	0.0280	94.	43.	0.12
MILE	598.04	749.79	111705.	6.64	16815.	772.	8.48	0.0210	94.	40.	0.25
MILE	593.78	748.30	113213.	4.61	24539.	1220.	7.70	0.0310	94.	38.	0.18
MILE	589.52	745.38	115361.	3.96	29118.	1267.	8.84	0.0395	94.	35.	0.15
MILE	585.27	742.67	117038.	4.81	24346.	1399.	8.37	0.0400	94.	33.	0.20
MILE	581.01	740.73	119627.	3.29	36395.	1635.	8.77	0.0400	94.	51.	0.12
MILE	576.75	738.42	122004.	2.89	42281.	2774.	8.86	0.0430	94.	48.	0.13
MILE	572.49	734.85	126253.	2.31	54609.	3123.	8.59	0.0380	94.	45.	0.10
MILE	568.23	733.66	134271.	4.64	28915.	1956.	10.31	0.0300	92.	44.	0.21
MILE	568.23	733.66	160295.	5.54	28915.	1956.	10.31	0.0300	111.	44.	0.25
MILE	563.97	732.47	162207.	2.81	57774.	2421.	8.92	0.0260	111.	42.	0.10
MILE	559.71	732.16	165550.	2.23	74286.	3267.	10.53	0.0295	111.	62.	0.08
MILE	555.45	731.83	169339.	2.23	76079.	3365.	9.83	0.0285	111.	62.	0.08
MILE	551.20	730.97	173069.	1.63	106496.	4300.	11.19	0.0300	111.	61.	0.06
MILE	546.94	730.81	177476.	1.61	110283.	4518.	11.39	0.0320	111.	61.	0.06
MILE	542.68	730.50	183515.	2.29	80312.	5889.	13.75	0.0320	111.	60.	0.11
MILE	538.42	730.46	188633.	1.38	136957.	6077.	11.15	0.0265	111.	60.	0.05
MILE	534.16	730.22	193624.	1.45	133426.	6604.	12.01	0.0320	111.	60.	0.06
MILE	529.90	730.09	201955.	1.81	111523.	9314.	13.18	0.0315	109.	60.	0.09
MILE	23.10	738.53	9500.	4.47	2127.	293.	4.26	0.0305	643.	14.	0.29

MILE	21.00	736.60	10232.	2.42	4226.	444.	4.69	0.0300	643.	17.	0.14
MILE	18.90	735.60	11063.	2.64	4188.	659.	5.42	0.0290	643.	16.	0.18
MILE	16.80	734.73	11940.	3.10	3858.	447.	5.07	0.0220	643.	15.	0.19
MILE	14.70	734.32	12811.	2.03	6299.	442.	5.92	0.0220	643.	24.	0.09
MILE	12.60	734.16	13773.	1.69	8146.	755.	7.53	0.0220	993.	34.	0.09
MILE	10.50	734.07	15199.	1.30	11734.	855.	7.18	0.0260	643.	44.	0.06
MILE	8.40	733.92	16273.	1.70	9562.	726.	7.85	0.0225	643.	44.	0.08
MILE	6.30	733.83	17953.	1.52	11815.	3042.	8.21	0.0250	643.	44.	0.14
MILE	4.20	733.75	22779.	1.31	17425.	3418.	8.02	0.0245	3043.	44.	0.10
MILE	2.10	733.69	24728.	1.21	20477.	1303.	9.71	0.0265	643.	44.	0.05
MILE	0.00	733.66	26024.	0.84	30908.	1165.	8.45	0.0230	612.	44.	0.03

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TIME 19.0000		ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	752.82	108333.	3.40	31891.	1188.	9.33	0.0280	94.	43.	0.12
MILE	598.04	749.57	110026.	6.61	16657.	768.	8.43	0.0210	94.	40.	0.25
MILE	593.78	748.08	111540.	4.60	24256.	1217.	7.67	0.0310	94.	38.	0.18
MILE	589.52	745.16	113687.	3.94	28876.	1263.	8.79	0.0395	94.	35.	0.15
MILE	585.27	742.47	115341.	4.78	24115.	1394.	8.34	0.0400	94.	32.	0.20
MILE	581.01	740.52	117912.	3.27	36067.	1610.	8.74	0.0400	94.	51.	0.12
MILE	576.75	738.23	120268.	2.87	41976.	2767.	8.84	0.0430	94.	48.	0.13
MILE	572.49	734.67	124486.	2.30	54147.	3079.	8.55	0.0380	94.	45.	0.10
MILE	568.23	733.48	132355.	4.60	28747.	1946.	10.29	0.0300	92.	43.	0.21
MILE	568.23	733.48	158158.	5.50	28747.	1946.	10.29	0.0300	111.	43.	0.25
MILE	563.97	732.30	160040.	2.79	57346.	2414.	8.89	0.0260	111.	42.	0.10
MILE	559.71	732.00	163330.	2.21	73880.	3255.	10.50	0.0295	111.	62.	0.08
MILE	555.45	731.67	167064.	2.21	75537.	3359.	9.82	0.0285	111.	62.	0.08
MILE	551.20	730.82	170726.	1.61	106020.	4294.	11.16	0.0300	111.	61.	0.06
MILE	546.94	730.66	175067.	1.59	109845.	4507.	11.36	0.0320	111.	61.	0.06
MILE	542.68	730.35	181011.	2.26	80056.	5867.	13.73	0.0320	111.	60.	0.11
MILE	538.42	730.31	186036.	1.36	136320.	6055.	11.13	0.0265	111.	60.	0.05
MILE	534.16	730.08	190967.	1.44	132824.	6593.	12.00	0.0320	111.	60.	0.06
MILE	529.90	729.96	199239.	1.79	111207.	9289.	13.16	0.0315	109.	60.	0.09
MILE	23.10	738.48	9500.	4.49	2115.	292.	4.25	0.0305	635.	13.	0.29
MILE	21.00	736.50	10219.	2.44	4185.	441.	4.67	0.0300	635.	17.	0.14
MILE	18.90	735.47	11036.	2.66	4145.	655.	5.39	0.0290	635.	15.	0.19
MILE	16.80	734.58	11898.	3.13	3806.	444.	5.04	0.0220	635.	15.	0.19
MILE	14.70	734.16	12756.	2.05	6227.	438.	5.89	0.0220	635.	24.	0.10
MILE	12.60	733.99	13705.	1.70	8081.	749.	7.50	0.0220	985.	34.	0.09
MILE	10.50	733.90	15116.	1.30	11617.	849.	7.14	0.0260	635.	44.	0.06

MILE	8.40	733.74	16175.	1.71	9480.	722.	7.82	0.0225	635.	44.	0.08
MILE	6.30	733.65	17828.	1.52	11711.	3005.	8.19	0.0250	635.	44.	0.14
MILE	4.20	733.57	22609.	1.31	17255.	3376.	8.00	0.0245	3035.	44.	0.10
MILE	2.10	733.51	24525.	1.21	20333.	1293.	9.69	0.0265	635.	44.	0.05
MILE	0.00	733.48	25804.	0.84	30579.	1158.	8.44	0.0230	604.	43.	0.03

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TIME	20.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	752.57	106667.	3.37	31608.	1175.	9.28	0.0280	94.	43.	0.11
MILE	598.04	749.34	108347.	6.57	16499.	765.	8.39	0.0210	94.	39.	0.25
MILE	593.78	747.86	109867.	4.58	23972.	1213.	7.63	0.0310	94.	38.	0.18
MILE	589.52	744.94	112016.	3.91	28633.	1257.	8.75	0.0395	94.	35.	0.14
MILE	585.27	742.26	113644.	4.76	23882.	1389.	8.30	0.0400	94.	32.	0.20
MILE	581.01	740.31	116197.	3.25	35738.	1586.	8.70	0.0400	94.	50.	0.12
MILE	576.75	738.04	118532.	2.84	41671.	2759.	8.81	0.0430	94.	48.	0.13
MILE	572.49	734.48	122721.	2.29	53690.	3035.	8.52	0.0380	94.	44.	0.10
MILE	568.23	733.30	130446.	4.56	28580.	1935.	10.26	0.0300	92.	43.	0.21
MILE	568.23	733.30	156033.	5.46	28580.	1935.	10.26	0.0300	111.	43.	0.25
MILE	563.97	732.14	157886.	2.77	56923.	2408.	8.87	0.0260	111.	42.	0.10
MILE	559.71	731.84	161126.	2.19	73479.	3242.	10.48	0.0295	111.	62.	0.08
MILE	555.45	731.52	164811.	2.20	75002.	3353.	9.80	0.0285	111.	62.	0.08
MILE	551.20	730.67	168416.	1.60	105550.	4288.	11.14	0.0300	111.	61.	0.06
MILE	546.94	730.51	172718.	1.58	109412.	4496.	11.34	0.0320	111.	61.	0.06
MILE	542.68	730.21	178631.	2.24	79802.	5845.	13.72	0.0320	111.	60.	0.11
MILE	538.42	730.17	183653.	1.35	135689.	6033.	11.11	0.0265	111.	60.	0.05
MILE	534.16	729.94	188583.	1.43	132236.	6578.	12.00	0.0320	111.	60.	0.06
MILE	529.90	729.82	196784.	1.77	110891.	9257.	13.14	0.0315	109.	60.	0.09
MILE	23.10	738.44	9500.	4.52	2104.	292.	4.24	0.0305	626.	13.	0.30
MILE	21.00	736.40	10207.	2.46	4145.	439.	4.65	0.0300	626.	16.	0.14
MILE	18.90	735.35	11010.	2.68	4104.	650.	5.36	0.0290	626.	15.	0.19
MILE	16.80	734.42	11857.	3.16	3756.	440.	5.00	0.0220	626.	14.	0.19
MILE	14.70	733.99	12703.	2.06	6155.	435.	5.85	0.0220	626.	24.	0.10
MILE	12.60	733.82	13639.	1.70	8017.	744.	7.47	0.0220	976.	34.	0.09
MILE	10.50	733.73	15035.	1.31	11502.	844.	7.11	0.0260	626.	44.	0.06
MILE	8.40	733.57	16080.	1.71	9399.	718.	7.79	0.0225	626.	44.	0.08
MILE	6.30	733.48	17705.	1.53	11608.	2968.	8.16	0.0250	626.	43.	0.14
MILE	4.20	733.39	22443.	1.31	17086.	3334.	7.98	0.0245	3026.	43.	0.10
MILE	2.10	733.33	24327.	1.20	20191.	1283.	9.66	0.0265	626.	43.	0.05
MILE	0.00	733.30	25587.	0.85	30255.	1151.	8.43	0.0230	597.	43.	0.03

0DATE 3-31-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME 21.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE 602.30	752.31	105000.	3.35	31325.	1163.	9.23	0.0280	94.	42.	0.11
MILE 598.04	749.12	106667.	6.53	16341.	761.	8.34	0.0210	94.	39.	0.25
MILE 593.78	747.64	108195.	4.57	23688.	1209.	7.60	0.0310	94.	38.	0.18
MILE 589.52	744.72	110344.	3.89	28391.	1247.	8.70	0.0395	94.	35.	0.14
MILE 585.27	742.06	111949.	4.73	23650.	1385.	8.26	0.0400	94.	32.	0.20
MILE 581.01	740.10	114483.	3.23	35409.	1562.	8.66	0.0400	94.	50.	0.12
MILE 576.75	737.85	116798.	2.82	41366.	2751.	8.78	0.0430	94.	48.	0.13
MILE 572.49	734.30	120958.	2.27	53237.	2992.	8.49	0.0380	94.	44.	0.09
MILE 568.23	733.12	128546.	4.52	28415.	1925.	10.24	0.0300	92.	43.	0.21
MILE 568.23	733.12	153923.	5.42	28415.	1925.	10.24	0.0300	111.	43.	0.25
MILE 563.97	731.98	155755.	2.76	56504.	2402.	8.84	0.0260	111.	42.	0.10
MILE 559.71	731.68	158969.	2.18	73082.	3230.	10.45	0.0295	111.	62.	0.08
MILE 555.45	731.36	162640.	2.18	74473.	3347.	9.79	0.0285	111.	61.	0.08
MILE 551.20	730.52	166223.	1.58	105082.	4282.	11.12	0.0300	111.	61.	0.06
MILE 546.94	730.37	170502.	1.56	108980.	4484.	11.31	0.0320	111.	60.	0.06
MILE 542.68	730.07	176367.	2.22	79548.	5823.	13.70	0.0320	111.	60.	0.11
MILE 538.42	730.03	181351.	1.34	135060.	6011.	11.09	0.0265	111.	60.	0.05
MILE 534.16	729.81	186232.	1.41	131669.	6557.	11.98	0.0320	111.	60.	0.06
MILE 529.90	729.69	194345.	1.76	110576.	9226.	13.12	0.0315	109.	60.	0.09
MILE 23.10	738.39	9500.	4.54	2093.	291.	4.23	0.0305	618.	13.	0.30
MILE 21.00	736.31	10195.	2.48	4106.	437.	4.62	0.0300	618.	16.	0.14
MILE 18.90	735.23	10983.	2.70	4063.	646.	5.33	0.0290	618.	15.	0.19
MILE 16.80	734.27	11817.	3.19	3706.	437.	4.97	0.0220	618.	14.	0.19
MILE 14.70	733.82	12651.	2.08	6084.	432.	5.81	0.0220	618.	24.	0.10
MILE 12.60	733.65	13573.	1.71	7954.	739.	7.44	0.0220	968.	34.	0.09
MILE 10.50	733.56	14955.	1.31	11388.	839.	7.07	0.0260	618.	44.	0.06
MILE 8.40	733.40	15986.	1.72	9319.	714.	7.76	0.0225	618.	43.	0.08
MILE 6.30	733.30	17584.	1.53	11506.	2932.	8.14	0.0250	618.	43.	0.14
MILE 4.20	733.22	22280.	1.32	16920.	3293.	7.96	0.0245	3018.	43.	0.10
MILE 2.10	733.15	24132.	1.20	20051.	1274.	9.64	0.0265	618.	43.	0.05
MILE 0.00	733.12	25377.	0.85	29935.	1144.	8.41	0.0230	589.	43.	0.03

0DATE 3-31-97 1/2 PMF WITH FONTANA FAILURE - 1997 (G=FLTWBLC9)

TIME 22.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE

MILE	602.30	752.06	103333.	3.33	31040.	1150.	9.17	0.0280	94.	42.	0.11
MILE	598.04	748.89	104988.	6.49	16181.	757.	8.30	0.0210	94.	39.	0.25
MILE	593.78	747.42	106522.	4.55	23403.	1205.	7.56	0.0310	94.	37.	0.18
MILE	589.52	744.50	108671.	3.86	28148.	1237.	8.65	0.0395	94.	34.	0.14
MILE	585.27	741.85	110259.	4.71	23417.	1380.	8.23	0.0400	94.	32.	0.20
MILE	581.01	739.89	112805.	3.21	35093.	1544.	8.62	0.0400	94.	50.	0.12
MILE	576.75	737.65	115082.	2.80	41062.	2743.	8.75	0.0430	94.	48.	0.13
MILE	572.49	734.11	119203.	2.26	52787.	2948.	8.46	0.0380	94.	44.	0.09
MILE	568.23	732.95	126664.	4.48	28250.	1915.	10.21	0.0300	92.	43.	0.21
MILE	568.23	732.95	151848.	5.38	28250.	1915.	10.21	0.0300	111.	43.	0.25
MILE	563.97	731.81	153663.	2.74	56088.	2395.	8.82	0.0260	111.	42.	0.10
MILE	559.71	731.52	156850.	2.16	72686.	3218.	10.42	0.0295	111.	62.	0.08
MILE	555.45	731.21	160497.	2.17	73948.	3341.	9.77	0.0285	111.	61.	0.08
MILE	551.20	730.38	164042.	1.57	104617.	4277.	11.09	0.0300	111.	60.	0.06
MILE	546.94	730.22	168295.	1.55	108551.	4473.	11.29	0.0320	111.	60.	0.06
MILE	542.68	729.93	174109.	2.20	79298.	5801.	13.68	0.0320	111.	60.	0.10
MILE	538.42	729.89	179053.	1.33	134429.	6002.	11.08	0.0265	111.	60.	0.05
MILE	534.16	729.67	183893.	1.40	131107.	6536.	11.97	0.0320	111.	60.	0.06
MILE	529.90	729.55	191924.	1.74	110264.	9195.	13.10	0.0315	109.	60.	0.09
MILE	23.10	738.35	9500.	4.56	2083.	291.	4.22	0.0305	610.	13.	0.30
MILE	21.00	736.22	10183.	2.50	4069.	435.	4.60	0.0300	610.	16.	0.14
MILE	18.90	735.11	10957.	2.72	4024.	642.	5.30	0.0290	610.	15.	0.19
MILE	16.80	734.13	11777.	3.22	3657.	435.	4.93	0.0220	610.	14.	0.20
MILE	14.70	733.66	12599.	2.09	6014.	428.	5.78	0.0220	610.	24.	0.10
MILE	12.60	733.48	13508.	1.71	7892.	734.	7.41	0.0220	960.	33.	0.09
MILE	10.50	733.39	14876.	1.32	11276.	833.	7.04	0.0260	610.	43.	0.06
MILE	8.40	733.22	15894.	1.72	9239.	710.	7.73	0.0225	610.	43.	0.08
MILE	6.30	733.13	17468.	1.53	11405.	2896.	8.11	0.0250	610.	43.	0.14
MILE	4.20	733.04	22129.	1.32	16756.	3251.	7.93	0.0245	3010.	43.	0.10
MILE	2.10	732.98	23955.	1.20	19911.	1264.	9.61	0.0265	610.	43.	0.05
MILE	0.00	732.95	25184.	0.85	29618.	1137.	8.40	0.0230	581.	43.	0.03

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TIME	23.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	751.81	101667.	3.31	30754.	1137.	9.12	0.0280	94.	42.	0.11
MILE	598.04	748.66	103311.	6.45	16021.	754.	8.25	0.0210	94.	39.	0.25
MILE	593.78	747.20	104855.	4.54	23118.	1201.	7.53	0.0310	94.	37.	0.18
MILE	589.52	744.28	107009.	3.84	27903.	1226.	8.61	0.0395	94.	34.	0.14
MILE	585.27	741.64	108576.	4.68	23183.	1375.	8.19	0.0400	94.	32.	0.20

MILE	581.01	739.68	111118.	3.19	34788.	1534.	8.59	0.0400	94.	50.	0.12
MILE	576.75	737.46	113383.	2.78	40757.	2736.	8.73	0.0430	94.	47.	0.13
MILE	572.49	733.93	117478.	2.24	52339.	2905.	8.43	0.0380	94.	44.	0.09
MILE	568.23	732.77	124803.	4.44	28087.	1905.	10.19	0.0300	92.	43.	0.20
MILE	568.23	732.77	149799.	5.33	28087.	1905.	10.19	0.0300	111.	43.	0.24
MILE	563.97	731.65	151596.	2.72	55675.	2389.	8.79	0.0260	111.	42.	0.10
MILE	559.71	731.36	154752.	2.14	72294.	3206.	10.40	0.0295	111.	61.	0.08
MILE	555.45	731.06	158369.	2.16	73427.	3335.	9.76	0.0285	111.	61.	0.08
MILE	551.20	730.23	161873.	1.55	104155.	4271.	11.07	0.0300	111.	60.	0.06
MILE	546.94	730.08	166093.	1.54	108125.	4462.	11.26	0.0320	111.	60.	0.05
MILE	542.68	729.79	171852.	2.17	79051.	5779.	13.66	0.0320	111.	60.	0.10
MILE	538.42	729.75	176758.	1.32	133802.	5996.	11.06	0.0265	111.	60.	0.05
MILE	534.16	729.53	181562.	1.39	130550.	6515.	11.96	0.0320	111.	60.	0.05
MILE	529.90	729.42	189518.	1.72	109954.	9164.	13.08	0.0315	109.	59.	0.09
MILE	23.10	738.32	9500.	4.58	2074.	290.	4.21	0.0305	602.	13.	0.30
MILE	21.00	736.13	10172.	2.52	4033.	433.	4.58	0.0300	602.	16.	0.15
MILE	18.90	734.99	10932.	2.74	3986.	638.	5.27	0.0290	602.	15.	0.19
MILE	16.80	733.98	11738.	3.25	3610.	432.	4.90	0.0220	602.	14.	0.20
MILE	14.70	733.50	12549.	2.11	5945.	425.	5.74	0.0220	602.	23.	0.10
MILE	12.60	733.31	13447.	1.72	7830.	729.	7.38	0.0220	952.	33.	0.09
MILE	10.50	733.22	14802.	1.33	11164.	828.	7.01	0.0260	602.	43.	0.06
MILE	8.40	733.05	15807.	1.73	9160.	706.	7.70	0.0225	602.	43.	0.08
MILE	6.30	732.95	17359.	1.54	11305.	2861.	8.09	0.0250	602.	43.	0.14
MILE	4.20	732.87	21983.	1.32	16593.	3210.	7.91	0.0245	3002.	43.	0.10
MILE	2.10	732.81	23782.	1.20	19773.	1254.	9.59	0.0265	602.	43.	0.05
MILE	0.00	732.77	24996.	0.85	29305.	1130.	8.39	0.0230	573.	43.	0.03

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TIME	24.0000	ELEVATION	DISCHARGE	VELOCITY	AREA	WIDTH	R(2/3)	MANN N	LOCAL INFLOW	DEPTH	FROUDE
MILE	602.30	751.55	100000.	3.28	30467.	1124.	9.07	0.0280	94.	42.	0.11
MILE	598.04	748.43	101630.	6.41	15860.	750.	8.21	0.0210	94.	38.	0.25
MILE	593.78	746.97	103180.	4.52	22832.	1197.	7.49	0.0310	94.	37.	0.18
MILE	589.52	744.05	105334.	3.81	27655.	1216.	8.56	0.0395	94.	34.	0.14
MILE	585.27	741.43	106894.	4.66	22947.	1370.	8.15	0.0400	94.	31.	0.20
MILE	581.01	739.47	109424.	3.17	34485.	1523.	8.55	0.0400	94.	49.	0.12
MILE	576.75	737.27	111676.	2.76	40453.	2728.	8.70	0.0430	94.	47.	0.13
MILE	572.49	733.75	115752.	2.23	51893.	2862.	8.40	0.0380	94.	44.	0.09
MILE	568.23	732.60	122954.	4.40	27925.	1895.	10.17	0.0300	92.	43.	0.20

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    MILE  568.23      732.60     147764.     5.29      27925.      1895.    10.17   0.0300        111.       43.    0.24
    MILE  563.97      731.49     149542.     2.71      55266.      2383.     8.76   0.0260        111.       41.    0.10
    MILE  559.71      731.21     152667.     2.12      71904.      3194.    10.37   0.0295        111.       61.    0.08
    MILE  555.45      730.90     156255.     2.14      72912.      3329.     9.74   0.0285        111.       61.    0.08
    MILE  551.20      730.09     159729.     1.54     103697.      4265.    11.04   0.0300        111.       60.    0.06
    MILE  546.94      729.94     163915.     1.52     107699.      4449.    11.24   0.0320        111.       60.    0.05
    MILE  542.68      729.65     169616.     2.15      78806.      5758.    13.64   0.0320        111.       60.    0.10
    MILE  538.42      729.61     174487.     1.31     133181.      5991.    11.04   0.0265        111.       60.    0.05
    MILE  534.16      729.40     179251.     1.38     129998.      6494.    11.95   0.0320        111.       59.    0.05
    MILE  529.90      729.28     187126.     1.71     109646.      9133.    13.06   0.0315        109.       59.    0.09


    MILE   23.10      738.28       9500.     4.60       2065.       290.     4.20   0.0305        593.       13.    0.30
    MILE   21.00      736.05      10161.     2.54       3998.       432.     4.56   0.0300        593.       16.    0.15
    MILE   18.90      734.88      10908.     2.76       3949.       634.     5.24   0.0290        593.       15.    0.20
    MILE   16.80      733.84      11701.     3.28       3562.       429.     4.87   0.0220        593.       14.    0.20
    MILE   14.70      733.34      12500.     2.13       5877.       421.     5.70   0.0220        593.       23.    0.10
    MILE   12.60      733.15      13386.     1.72       7768.       724.     7.35   0.0220        943.       33.    0.09
    MILE   10.50      733.05      14728.     1.33      11053.       823.     6.97   0.0260        593.       43.    0.06
    MILE    8.40      732.88      15721.     1.73       9082.       703.     7.67   0.0225        593.       43.    0.08
    MILE    6.30      732.78      17250.     1.54      11206.      2825.     8.06   0.0250        593.       43.    0.14
    MILE    4.20      732.70      21839.     1.33      16431.      3170.     7.89   0.0245       2993.       43.    0.10
    MILE    2.10      732.63      23612.     1.20      19635.      1245.     9.56   0.0265        593.       43.    0.05
    MILE    0.00      732.60      24811.     0.86      28994.      1123.     8.38   0.0230        565.       43.    0.03


ELEVATION  -0.518906D+60 BELOW GEOMETRY RANGE, TABLE   2
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  757.80
     VELOCITY FROM ******* TO    4.35


ELEVATION  -0.541299D+60 BELOW GEOMETRY RANGE, TABLE   4
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  748.54
     VELOCITY FROM ******* TO    5.29


ELEVATION  -0.399788D+60 BELOW GEOMETRY RANGE, TABLE   6
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  747.20
     VELOCITY FROM ******* TO    4.13


ELEVATION  -0.541704D+60 BELOW GEOMETRY RANGE, TABLE   8
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*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  742.26
     VELOCITY FROM ******* TO    4.19


ELEVATION  -0.318789D+60 BELOW GEOMETRY RANGE, TABLE  10
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  732.73
     VELOCITY FROM ******* TO    3.77


ELEVATION  -0.337408D+60 BELOW GEOMETRY RANGE, TABLE  12
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  746.24
     VELOCITY FROM ******* TO    2.95


ELEVATION  -0.171147D+60 BELOW GEOMETRY RANGE, TABLE  14
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  740.39
     VELOCITY FROM ******* TO    2.46


ELEVATION  -0.918698D+59 BELOW GEOMETRY RANGE, TABLE  16
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  729.30
     VELOCITY FROM ******* TO    2.99


ELEVATION  -0.288387D+60 BELOW GEOMETRY RANGE, TABLE  19
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  732.16
     VELOCITY FROM ******* TO    3.57


ELEVATION  -0.157687D+60 BELOW GEOMETRY RANGE, TABLE  21
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  726.61
     VELOCITY FROM ******* TO    2.38


ELEVATION  -0.133302D+60 BELOW GEOMETRY RANGE, TABLE  23
```

```
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  726.38
     VELOCITY FROM ******* TO    2.13


ELEVATION  -0.133980D+60 BELOW GEOMETRY RANGE, TABLE  25
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  738.70
     VELOCITY FROM ******* TO    1.79


ELEVATION  -0.109672D+60 BELOW GEOMETRY RANGE, TABLE  27
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  724.16
     VELOCITY FROM ******* TO    1.53


ELEVATION  -0.784325D+59 BELOW GEOMETRY RANGE, TABLE  29
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  727.09
     VELOCITY FROM ******* TO    1.79


ELEVATION  -0.896124D+59 BELOW GEOMETRY RANGE, TABLE  31
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  716.91
     VELOCITY FROM ******* TO    1.62


ELEVATION  -0.902557D+59 BELOW GEOMETRY RANGE, TABLE  33
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  744.44
     VELOCITY FROM ******* TO    1.34


ELEVATION  -0.523565D+59 BELOW GEOMETRY RANGE, TABLE  35
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  719.54
     VELOCITY FROM ******* TO    1.53


ELEVATION  -0.209963D+61 BELOW GEOMETRY RANGE, TABLE  38
```

```
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  736.86
     VELOCITY FROM ******* TO    3.24


ELEVATION  -0.141731D+61 BELOW GEOMETRY RANGE, TABLE  40
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  735.52
     VELOCITY FROM ******* TO    2.65


ELEVATION  -0.144867D+61 BELOW GEOMETRY RANGE, TABLE  42
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  734.35
     VELOCITY FROM ******* TO    3.01


ELEVATION  -0.182888D+61 BELOW GEOMETRY RANGE, TABLE  44
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  733.55
     VELOCITY FROM ******* TO    2.56


ELEVATION  -0.135398D+61 BELOW GEOMETRY RANGE, TABLE  46
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  733.25
     VELOCITY FROM ******* TO    1.90


ELEVATION  -0.119774D+62 BELOW GEOMETRY RANGE, TABLE  48
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  733.09
     VELOCITY FROM ******* TO    1.49


ELEVATION  -0.101633D+61 BELOW GEOMETRY RANGE, TABLE  50
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  732.98
     VELOCITY FROM ******* TO    1.51


ELEVATION  -0.438072D+60 BELOW GEOMETRY RANGE, TABLE  52
```

```
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  732.83
     VELOCITY FROM ******* TO    1.63


ELEVATION  -0.309126D+61 BELOW GEOMETRY RANGE, TABLE  54
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  732.73
     VELOCITY FROM ******* TO    1.41


ELEVATION  -0.352116D+60 BELOW GEOMETRY RANGE, TABLE  56
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  732.66
     VELOCITY FROM ******* TO    1.26


ELEVATION  -0.624085D+60 BELOW GEOMETRY RANGE, TABLE  58
*** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO THIS X-SECT TO STAY ALIVE
    ELEVATION FROM ******* TO  732.60
     VELOCITY FROM ******* TO    1.00


ELEVATION  -0.893343D+59 BELOW GEOMETRY RANGE, TABLE  17
1                                 1/2 PMF WITH FONTANA FAILURE - 1997      (G=FLTWBLC9)

    THE COMPUTATION STARTED ON  3-27-97 AT TIME 15.00 AND TERMINATED ON  3-31-97 AT TIME 24.00

                                THE MAXIMUM ELEVATIONS, DISCHARGES, VELOCITIES ARE:

                        EL(FT)    DAY   TIME          Q(CFS)    DAY   TIME          V(FPS)    DAY   TIME


    MILE  602.30        794.69    27   15.01         508521.    27   15.01           4.68    28   22.87
    MILE  598.04        789.83    27   15.01         540789.    27   15.01           7.89    29   19.93
    MILE  593.78        787.08    27   15.01         562176.    27   15.01           5.63    27   15.01
    MILE  589.52        783.95    27   15.01         593278.    27   15.01           6.63    27   15.01
    MILE  585.27        779.61    27   15.01         612612.    27   15.01           7.39    27   15.01
    MILE  581.01        777.38    27   15.01         638840.    27   15.01           6.31    27   15.01
    MILE  576.75        773.17    27   15.01         658650.    27   15.01           5.91    27   15.01
    MILE  572.49        771.68    27   15.01         693641.    27   15.01           3.98    27   15.01
    MILE  568.23        769.06    27   15.01         776697.    27   15.01          11.08    27   15.01


    MILE  568.23        769.06    27   15.01         903352.    27   15.01          12.88    27   15.01
```

MILE	563.97	767.32	27	15.01	902126.	27	15.01	5.73	27	15.01
MILE	559.71	766.21	27	15.01	911694.	27	15.01	5.53	27	15.01
MILE	555.45	765.54	27	15.01	921383.	27	15.01	3.74	27	15.01
MILE	551.20	764.12	27	15.01	929802.	27	15.01	3.78	27	15.01
MILE	546.94	763.50	27	15.01	938785.	27	15.01	4.39	27	15.01
MILE	542.68	762.59	27	15.01	949398.	27	15.01	5.99	27	15.01
MILE	538.42	762.69	27	15.01	957127.	27	15.01	3.08	27	15.01
MILE	534.16	761.66	27	15.01	963319.	27	15.01	3.21	27	15.01
MILE	529.90	761.00	27	15.01	979384.	27	15.01	4.98	27	15.01
MILE	23.10	769.96	27	15.01	28740.	27	15.01	4.60	31	24.00
MILE	21.00	769.88	27	15.01	34001.	27	15.01	2.54	31	24.00
MILE	18.90	769.79	27	15.01	40294.	27	15.01	2.76	31	24.00
MILE	16.80	769.66	27	15.01	46576.	27	15.01	3.28	31	24.00
MILE	14.70	769.58	27	15.01	52434.	27	15.01	2.13	31	24.00
MILE	12.60	769.51	27	15.01	61321.	27	15.01	1.72	31	24.00
MILE	10.50	769.43	27	15.01	73645.	27	15.25	1.72	27	20.73
MILE	8.40	769.29	27	15.01	81959.	27	15.43	2.42	27	21.02
MILE	6.30	769.20	27	15.01	93422.	27	19.84	2.39	27	20.92
MILE	4.20	769.15	27	15.01	114890.	27	20.19	1.88	27	21.36
MILE	2.10	769.05	27	15.01	128592.	27	20.22	2.37	27	21.30
MILE	0.00	769.06	27	15.01	135566.	27	20.19	1.37	27	21.32

31 LOCATIONS LISTED
1 DISCHARGES AT DOWNSTREAM END OF CHANNEL 2; RM = 529.90

DATE	TIME	DISCHARGE
3-27-97	15.0	979211.
	16.0	971655.
	17.0	962959.
	18.0	952898.
	19.0	941834.
	20.0	930593.
	21.0	919935.
	22.0	908422.
	23.0	896136.
	24.0	883203.
3-28-97	1.0	869646.
	2.0	855703.
	3.0	841467.
	4.0	827039.
	5.0	812483.
	6.0	797871.
	7.0	783252.

	8.0	768625.
	9.0	754317.
	10.0	743620.
	11.0	732758.
	12.0	721814.
	13.0	710808.
	14.0	699766.
	15.0	688720.
	16.0	678496.
	17.0	674055.
	18.0	669440.
	19.0	664692.
	20.0	659814.
	21.0	654822.
	22.0	649724.
	23.0	644537.
	24.0	638304.
3-29-97	1.0	626563.
	2.0	613526.
	3.0	598945.
	4.0	584918.
	5.0	571373.
	6.0	558827.
	7.0	549922.
	8.0	541045.
	9.0	528848.
	10.0	516703.
	11.0	504942.
	12.0	493591.
	13.0	482763.
	14.0	472272.
	15.0	462103.
	16.0	452240.
	17.0	442663.
	18.0	433361.
	19.0	424331.
	20.0	416473.
	21.0	409581.
	22.0	402769.
	23.0	396048.
	24.0	389413.
3-30-97	1.0	382859.
	2.0	376395.
	3.0	370017.
	4.0	363725.
	5.0	357525.
	6.0	351421.
	7.0	345413.
	8.0	339504.

	9.0	333698.
	10.0	327996.
	11.0	322396.
	12.0	316896.
	13.0	311494.
	14.0	306190.
	15.0	301265.
	16.0	296612.
	17.0	292031.
	18.0	287520.
	19.0	283082.
	20.0	278718.
	21.0	274432.
	22.0	270227.
	23.0	266101.
	24.0	262052.
3-31-97	1.0	258083.
	2.0	254192.
	3.0	250377.
	4.0	246665.
	5.0	243082.
	6.0	239596.
	7.0	236170.
	8.0	232802.
	9.0	229487.
	10.0	226225.
	11.0	223016.
	12.0	219859.
	13.0	216754.
	14.0	213699.
	15.0	210692.
	16.0	207734.
	17.0	204822.
	18.0	201955.
	19.0	199239.
	20.0	196784.
	21.0	194345.
	22.0	191924.
	23.0	189518.
	24.0	187126.

RUN BEGINS ON JUN 22, 2008, 12:58:53.45 PM
RUN ENDS ON JUN 22, 2008, 12:58:54.81 PM

5. REFERENCES

1. Jean-Pierre Granju: SOCH User's Guide, Flood Protection Branch in TVA's Division of Air and Water Resources
2. TVA, 2008: User's Guide for the Computer Codes UNITGRAPH, FLDHYDRO, TRBROUT, CHANROUT and THIESSEN (in preparation)
3. TVA, 2008: User's Guide for the Computer Codes CONVEYANCE and WTDWIDTH (in preparation)
4. TVA, 2008: DBREACH User's Guide(in preparation)
5. TVA, 2008: Software Verification and Validation Report (SVVR) for SOCH (in preparation)
6. TVA, 2008: Software Verification and Validation Report (SVVR) for UNITGRAPH, FLDHYDRO, TRBROUT, CHANROUT and THIESSEN (in preparation)
7. TVA, 2008: Software Verification and Validation Report (SVVR) for CONVEYANCE and WTDWIDTH (in preparation)
8. TVA, 2008: Software Verification and Validation Report (SVVR) for DBREACH (in preparation)
9. Stoker, J.J., Numerical Solution of Flood Prediction and River Regulation Problems, New York University, Institute of Mathematical Sciences, Reports I and II, New York, 1953-54.
10. U.S. National Weather Service, 1986: Probable Maximum and TVA Precipitation, Estimates with Areal Distribution for Tennessee River Drainages less than 3,000 Square Miles in Area, Hydrometeorological Report No. 56, Silver Spring, Maryland

APPENDIX A – STEPS FOR RUNNING SOCH

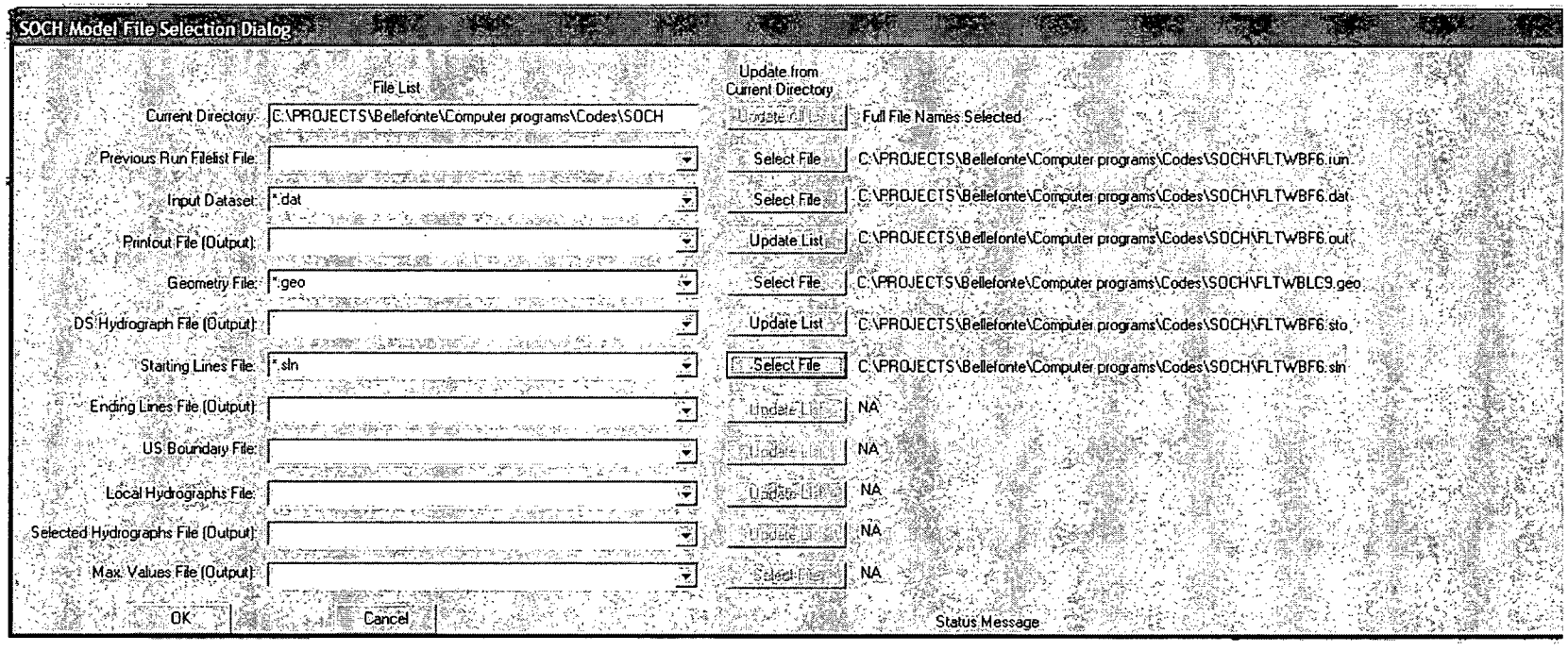
Appendix A provides step-by-step instructions for running SOCH. The overall sequence of the preparation of the input data to SOCH is illustrated in Figure 1. This includes the preparation of the flood hydrographs for all contributing basins and the data for the geometry of the channel where the flood flows are routed.

The main steps for running SOCH in a watershed are:

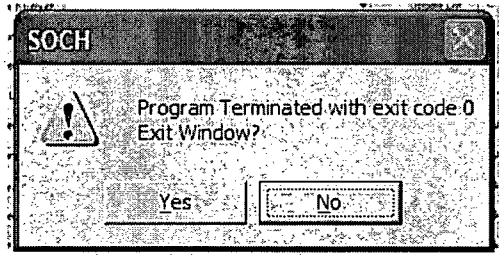
1. Develop unit hydrographs for all sub-basins within the basin
2. Estimate the time distributed precipitation for each sub-basin. For PMF calculations this should be the probable maximum precipitation (PMP). Estimates of the PMP for the TVA basin are given in Reference 10.
3. Estimate the flood hydrographs for all sub-basins using FLDHYDRO (see Reference 2).
4. Obtain channel routing coefficients from CHANROUT (see Reference 2).
5. Use the code TRBROUTE to estimate the distributed local flows from tributaries (see Reference 2). Use as input to TRBROUTE the reservoir storage and discharge rating curves together with the channel routing coefficients obtained from CHANROUT and flood hydrographs obtained with FLDHYDRO.
6. Use the codes WTDWIDTH and CONVEYANCE (Reference 3) to estimate the geometric parameters needed for flood routing through the river channel.
7. If the flood scenario analyzed involves a dam break use the code DBREACH to obtain (Reference 4) the time of the dam breach.
8. Prepare the general input file as described in Section 3.4.2. Use the data obtained in Steps 3 and 5.
9. Prepare the geometry input file to SOCH as described in Section 3.4.3. For this purpose use the data obtained in Step 6.

10. Run SOCH.

SOCH90PC provides an interactive screen for entering the names of the input files. Here is an example of this interactive screen:



If the run is successful the code gives the following message:



At this point the user should respond "Yes" and search for the output files produced by SOCH in the designated folder(s).

11. Process the output file obtained from SOCH (see Section 4.2) to develop to develop graphics as needed.

APPENDIX B – LISTING OF THE SOCH SOURCE CODE

```
C=====================================================================
C@(#)  $Header: soch.f,v 1.3 96/05/07 13:12:40 sal Exp $
C@(#)  $Source: /users/dev/ro/sal/hydro/RCS/soch.f,v $
C@(#)  soch - SOCH dynamic routing model
C
C  PROGRAM DESCRIPTION
C
C     TRANSIENT FLOW MODEL-VARIABLE DX-VARIABLE N'S-MULTIPLE JUNCTIONS-
C   A transient flow model with variable reach lengths, variable N's,
C   multiple junctions, main river reservoir fixed rules, etc.
C
C  RUN INSTRUCTIONS
C
C   soch <inputfile >listfile
C
C   where:
C          inputfile - is input dataset for SOCH model
C          listfile - is output generated by SOCH model
C
C NOTE: program now used by models Naturals, FloodX, and RRR.
C       Prior to execution a dataset generation program unique
C       to each model is run similiar to the following:
C
C   soch_data ... >inputfile
C
C
C  CONTACTS
C
C   Steve Limback
C
C  INPUT  (for models Naturals, FloodX, and RRR)
C
C   1) Storm dependent & independent data in input dataset inputfile
C   2) Channel geometry in file geo.tmp
C   3) Starting conditions in file sln.tmp
C   4) Upstream boundary discharge hydrographs in file bnd.tmp
C   5) Concentrated & distributed local hydrographs in file loc.tmp
C
C  OUTPUT
C
C   1) Standard output from program into file listfile
C   2) Ending conditions (ending line) into file sav.tmp
C   3) Most downstream discharge hydrograph into file sto.tmp
C   4) Hydrographs at selected locations into file prt.tmp
C   5) Maximum values at node points into file max.tmp
C
C
C=====================================================================
C
C==REVISION LOG=====BEGIN==============================================
```

```
C  $Log:    soch.f,v $
c Revision 1.3  96/05/07  13:12:40  13:12:40  sal (Steve Limback)
c Fix a downstream boundary bug
c
c Revision 1.2  95/02/22  08:58:43  08:58:43  sal (Steve Limback)
c FloodX revision to allow switch from scheduled Qs to maintain HW
c
c Revision 1.1  94/11/29  13:04:59  13:04:59  sal (Steve Limback)
c Initial revision
c
C==REVISION LOG=====END==============================================
C
C     TRANSIENT FLOW MODEL-VARIABLE DX-VARIABLE N'S-MULTIPLE JUNCTIONS-
C     (MAX:MXCHAN CHANNELS) SUBMERGENCE CORRECTION -2 FIXED RULE, KSPL,
C     & LSPL. FAX DATA OPTION-PARTIAL/TOTAL DAM FLR OPTIONS-X-SECT
C     SKIP, DUPLICATE INTERP. OPTION-LOCALS DEFINED BY MILES-DEPTH &
C     FROUDE NO. CALCULATED
C     NEW GEOMETRY SUBROUTINE ALLOWS ANY INTERVAL ENTRY
C     OPTION TO READ LOCAL INFLOWS ON UNIT 8
C
C     POST SOCH88 MODS UP TO RCS VERSION 1.1:
C
C       1. US BOUNDARIES CAN BE INPUT FROM A SEPARATE FILE WITH THESE
C          OPTIONS: A) A FIXED TIME INTERVAL UNIQUE FOR EACH BOUNDARY,
C          B) PEAK DISCHARGE & TIME CAN BE INPUT, & C) SOCH MODEL
C          COMPUTED FLOWS AT THE MOST DS SECTION CAN BE SAVED AS
C          BOUNDARY INPUT FURTHER DS.
C
C       2. LOCAL HYDROGRAPH TIME INTERVALS CAN BE DIFFERENT.
C
C       3. INPUT HYDROGRAPHS (LOCALS & BOUNDARIES) DO NOT NEED TO EXTEND
C          TO THE END OF THE RUN DATE AND TIME.
C
C       4. LOCAL HYDROGRAPHS CAN BE DISTRIBUTED OVER MORE THAN 1 PARTIAL
C          CHANNEL WITH THE DISTRIBUTED LENGHT COMPUTED AUTOMATICALLY.
C
C       5. INITIAL CONDITIONS (THE STARTING LINE) CAN BE AUTOMATICALLY
C          COMPUTED.
C
C       6. A SUMMARY PRINTOUT OF HYDROGRAPHS AT ANY NODE POINT CAN BE
C          REQUESTED.
C
C       7. COMPUTATIONAL NODE POINTS CAN NOW BE "PATCHED" TO PREVENT
C          SOCH MODEL FROM ABORTING.
C
C       8. GEOMETRY TABLE INTERPOLATION HAS BEEN IMPROVED.
C
C       9. REQUESTED HYDROGRAPHS ARE OUTPUT INTO A SEPARATE FILE.
C
C      10. MAXIMUMS AT EACH (ODD) NODE POINT ARE SAVED IN A FILE.
C
C      11. A NATURAL CONDITIONS RUN FLAG CAN BE INPUT.
C
C      12. A FREE-SURFACE JUNCTION WITH NO SIDE CHANNEL IS COMPUTED
C          AS IF NO JUNCTION WERE SPECIFIED.
```

```
C
C-----------------------------------------------------------------------
C
C          IN VARIABLE NAMES UPSTREAM IS NOTED BY U OR L (LEFT)
C                            DOWNSTREAM IS NOTED BY D OR R (RIGHT)
C                             ELEVATION IS NOTED BY E, EL, OR H
C                             DISCHARGE IS NOTED BY Q
C-----------------------------------------------------------------------
c     PROGRAM SOCH_MODEL(GEOFIL,SLNFIL,SAVFIL,BNDFIL,STOFIL,LOCFIL)
      USE DIALOGM
      IMPLICIT REAL*8 (A-H,O-Z)

      CHARACTER*80 TITLE
      CHARACTER*28 SDATE,EDATE
      LOGICAL DONE,RULES,RATBL,PMFCHK,IREAD,KSWT1,OPE,MILPRT,ARZERO
      LOGICAL PRTFLG
      INTEGER RMPCHN,SWCHNL,SWTABL
      REAL RAMPTM,RAMPQ,TBLTIM
      INTEGER MDS(2)

      REAL(8), ALLOCATABLE, DIMENSION (:) :: AL,AR,BL,BR,HL,HR,QL,QR,RL,
     1                                       RR,VL,VR,ALJ,ARJ,BLJ,BRJ,
     2                                       HLJ,HRJ,QLJ,QRJ,RLJ,RRJ,
     3                                       VLJ,VRJ,ENEXTL,ENEXTR,
     4                                       EPREVL,EPREVR,QNEXTL,
     5                                       QNEXTR,QPREVL,QPREVR,
      6                                       TMILE,G,H,V,W,S,T,XK,XL,
     7                                       REFDX,SURCH,FLRH,FLRQ,
     8                                       FLRDAY,FLRTIM,PEAKH,PEAKQ,
     9                                       USBO,QLL,QRL,QLG,QRG
      INTEGER, ALLOCATABLE, DIMENSION (:) :: IECKL,IECKR,IEL,IER,IQCKL,
     1                                       IQCKR,IQL,IQR,MSTACK,
     2                                       JNCTDS,JNCTUS,MFRSRF,MORDER
     3                                      ,NDTP,NUTP,KTAB,NREACH,KKU,
     4                                       KTOTFL,KSTRT,KEND,NDTP2,
     5                                       NDTP3,NDTP4,KODEN,KRULE,
     6                                       KUFAX,KDFAX,NUBP,NDBP,IUS,
     7                                       IDS
      LOGICAL, ALLOCATABLE, DIMENSION (:) :: IFL,STU,STD
      INTEGER, ALLOCATABLE, DIMENSION (:) :: LN,NODES,L,N,KDBC,KUBC
      REAL(8), ALLOCATABLE, DIMENSION (:) :: REFTW
      REAL(8), ALLOCATABLE, DIMENSION (:,:) :: REFH,REFQ
      INTEGER, ALLOCATABLE, DIMENSION (:) :: NDSBR,NSIBR,NUSBR,JSIDE,
     1                                       ITRIB,NNU,NND,NNS
      REAL(8), ALLOCATABLE, DIMENSION (:,:) :: UELTAB,UQTAB,DELTAB,DQTAB
     1                                        ,DELTB2,DQTAB2,DELTB3,
     2                                        DQTAB3,DELTB4,DQTAB4
      INTEGER, ALLOCATABLE, DIMENSION (:) :: ICROSS,IOM,IDU
      REAL(8), ALLOCATABLE, DIMENSION (:) :: DX,DXM,U,PRMILE,PTCHTM,
     1                                       XINFL,PXINFL,RXINFL
      REAL(8), ALLOCATABLE, DIMENSION (:,:) :: AREA,ELEV,R23,WIDTH
      INTEGER, ALLOCATABLE, DIMENSION (:) :: MEXDAY,MQXDAY,MVXDAY
      REAL(8), ALLOCATABLE, DIMENSION (:) :: ELMAX,QMAX,EMXTIM,VMAX,
     1                                       QMXTIM,VMXTIM,
     2                                       A1,A2,A3,B1,B2,B3,H1,H2,H3,
```

```
     3                                        Q1,Q2,Q3,R1,R2,R3,V1,V2,V3,
     4                                        D3,FF3,QDG,XNU
      REAL(8), ALLOCATABLE, DIMENSION (:,:,:) :: HQBMT,XNBMT
      REAL(8), ALLOCATABLE, DIMENSION (:) :: BNDRM
      REAL(8), ALLOCATABLE, DIMENSION (:,:) :: BNDOUT
      CHARACTER(80), ALLOCATABLE, DIMENSION (:) :: OTITLE
      REAL(8), ALLOCATABLE, DIMENSION (:,:) :: QOUT,HOUT
      REAL(8), ALLOCATABLE, DIMENSION (:) :: UQFAX,DQFAX
      REAL(8), ALLOCATABLE, DIMENSION (:) :: USB,UST,DSB,DST

      REAL HRDIFF
C-----------------------------------------------------------------------
C
      COMMON /HYD/ IYEAR,IDAY,HTIME,IMNTH,MC(12)
      CHARACTER*160 DATFIL,OUTFIL,GEOFIL,STOFIL,SLNFIL,SAVFIL
      CHARACTER*160 BNDFIL,LOCFIL,PRTFIL,MAXFIL,RUNFIL
      COMMON /FILES/DATFIL,OUTFIL,GEOFIL,STOFIL,SLNFIL,SAVFIL,
      1              BNDFIL,LOCFIL,PRTFIL,MAXFIL
C-----------------------------------------------------------------------
      DATA PRTFLG/.TRUE./
      DATA INBND/5/
C-----------------------------------------------------------------------
      DATA MC/31,28,31,30,31,30,31,31,30,31,30,31/

      IF ( NARGS() .GT. 1 ) THEN
            CALL GETARG(1,RUNFIL,LENGTH)
            OPEN(UNIT=3,FILE=RUNFIL)
            READ (3,'(A)') DATFIL
            READ (3,'(A)') OUTFIL
            READ (3,'(A)') GEOFIL
            READ (3,'(A)') STOFIL
            READ (3,'(A)') SLNFIL
            READ (3,'(A)') SAVFIL
            READ (3,'(A)') BNDFIL
            READ (3,'(A)') LOCFIL
            READ (3,'(A)') PRTFIL
            READ (3,'(A)') MAXFIL
            CLOSE (3)
      ELSE
            CALL DoDialog( )
      END IF

      CALL DATELINE(SDATE)

      OPEN (5,FILE=DATFIL)
      OPEN (6,FILE=OUTFIL)
C
      WRITE(6,50)
   50 FORMAT('1-------------------------------------------------------')
C
      KWRITE = 1
      READ(5,100,END=9990) TITLE
  100 FORMAT(A80)
      WRITE(6,100) TITLE
C-----------------------------------------------------------------------
```

```
      READ(5,200) KYEAR,MNTH,KDAY,TIME,DT,PRINT,PTCHUP,ZNATRN
      READ(5,200) LYEAR,LMNTH,LDAY,ETIME
      READ(5,200) IYEAR,IMNTH,IDAY,HTIME,ZLOC,ZNBL,ZBOUND,ZMAX
  200 FORMAT(3I3,7F9.0)
      KDATE = 100 * ( 100 * MNTH + KDAY ) + KYEAR
      LDATE = 100 * ( 100 * LMNTH + LDAY ) + LYEAR
      IDATE = 100 * ( 100 * IMNTH + IDAY ) + IYEAR
      KCENT = 20 - KYEAR / 50
      LCENT = 20 - LYEAR / 50
      ICENT = 20 - IYEAR / 50
CC-----------------------------------------------------------------------
      IF ( MOD(LYEAR,4) .EQ. 0 ) MC(2) = 29
C-----------------------------------------------------------------------
C     COMPUTE TIME STEP IN HOURS,DDT.
C
      DDT = DT / 3600.0
      DDT2 = 2. * DDT
C-----------------------------------------------------------------------
      LMTE = PRINT * 60. / DT + 0.1
      IF ( PRINT .LE. 0.001 ) LMTE = 2
C
C     COMPUTE SKIP THE TIME DIFFERENCE BETWEEN THE START OF RUN AND
C     THE START OF HYDROGRAPHS, AND THTIME THE NUMBER OF HOURS
C     BETWEEN TIME 0 OF 1ST DAY OF HYD AND THE START OF THE RUN
C
      SKIP = HRDIFF(IDATE,HTIME,KDATE,TIME)
      OLDSKIP = TIME - HTIME + 24. * DFLOAT(KDAY-IDAY)
      IF ( IYEAR .LT. KYEAR .OR. IMNTH .LT. MNTH )
     1   OLDSKIP = OLDSKIP + 24. * MC(IMNTH)
      THTIME = HTIME + SKIP
C-----------------------------------------------------------------------
C            SAVE DATE AND TIME OF START (STIME)
C            COMPUTE THE DURATION,DUR IN HOURS, TDUR IS THE CUMULATED
C            TIME OF RUN
C-----------------------------------------------------------------------
      KSY = KYEAR
      KSM = MNTH
      KSD = KDAY
      STIME = TIME
C
      DUR = HRDIFF(KDATE,TIME,LDATE,ETIME)
      OLDDUR = ETIME - TIME + 24. * DFLOAT(LDAY-KDAY)
      IF ( KYEAR .LT. LYEAR .OR. MNTH .LT. LMNTH ) THEN
         J = MNTH
         K = LMNTH + ( LYEAR - KYEAR ) * 12
         DO I = MNTH,K-1
            OLDDUR = OLDDUR + 24. * MC(J)
            J = MOD(J,12) + 1
         END DO
      END IF
C
      DDUR = DUR / 24.
C---------------TIME AT SECOND LINE-------------------------------------
      TDUR = DDT
C
```

```
      IF ( PRINT .GT. 0.001 ) THEN
         MAXOUT = DUR * 60 / PRINT + 2
         WRITE(6,300) MNTH,KDAY,KCENT,KYEAR,TIME,LMNTH,LDAY,LCENT,LYEAR,
     1                ETIME,IMNTH,IDAY,ICENT,IYEAR,HTIME,DT,PRINT,DDUR
      ELSE
         MAXOUT = 2
         WRITE(6,310) MNTH,KDAY,KCENT,KYEAR,TIME,LMNTH,LDAY,LCENT,LYEAR,
     1                ETIME,IMNTH,IDAY,ICENT,IYEAR,HTIME,DT,DDUR
      END IF
  300 FORMAT(
     1   ' -------------------------------------------------------'//
     2   ' THIS RUN STARTS ON',I3,'-',I2.2,'-',2I2.2,' AT TIME',F7.3//
     3   '          IT ENDS ON',I3,'-',I2.2,'-',2I2.2,' AT TIME',F7.3//
     4   ' ALL THE HYDROGRAPHS'/
     5   '            START ON',I3,'-',I2.2,'-',2I2.2,' AT TIME',F7.3//
     6   '    THE COMPUTATION TIME STEP IS',F5.0,' SECONDS'/
     7   '           THE PRINT INTERVAL IS',F5.0,' MINUTES'/
     8   '          THE COMPLETE RUN LASTS',F5.1,' DAY(S)'///)
  310 FORMAT(
     1   ' -------------------------------------------------------'//
     2   ' THIS RUN STARTS ON',I3,'-',I2.2,'-',2I2.2,' AT TIME',F7.3//
     3   '          IT ENDS ON',I3,'-',I2.2,'-',2I2.2,' AT TIME',F7.3//
     4   ' ALL THE HYDROGRAPHS'/
     5   '            START ON',I3,'-',I2.2,'-',2I2.2,' AT TIME',F7.3//
     6   '    THE COMPUTATION TIME STEP IS',F5.0,' SECONDS'/
     7   '       RESULTS PRINTED FOR EVERY COMPUTATION'/
     8   '          THE COMPLETE RUN LASTS',F5.1,' DAY(S)'///)
C
      IF ( ZNBL .LT. 0. ) WRITE(6,320)
  320 FORMAT('+      THE NON-BOUNDARY LINE POINTS ARE NOT PRINTED'///)
      IF ( ZLOC .LT. 0. ) WRITE(6,330)
  330 FORMAT(' ALL LOCAL INFLOWS ARE ZERO'///)
      WRITE(6,400) DATFIL
  400 FORMAT(' SOCH INPUT DATA ARE READ FROM FILE ',A/)
      WRITE(6,410) OUTFIL
  410 FORMAT(' SOCH OUTPUT LISTING IS WRITTEN TO FILE ',A/)
      IF ( ZLOC .EQ. 8. ) THEN
         WRITE(6,420) LOCFIL
  420    FORMAT(' ALL LOCAL INFLOWS ARE READ FROM FILE ',A/)
         OPEN(UNIT=8,FILE=LOCFIL,STATUS='OLD')
      END IF
C
      IF ( ZBOUND .NE. 0 ) THEN
         WRITE(6,430) BNDFIL
  430    FORMAT(' ALL U.S. BOUNDARY HYDROGRAPHS ARE READ FROM FILE ',
     1          A/)
         INBND = 9
         OPEN(UNIT=9,FILE=BNDFIL,STATUS='OLD')
      END IF
      WRITE(6,440) STOFIL
  440 FORMAT(' THE MOST D.S. HYDROGRAPH IS SAVED TO FILE ',A/)
      IF ( ZMAX .GT. 0. ) WRITE(6,450) MAXFIL
  450 FORMAT(' THE MAX. NODE POINT VALUES ARE SAVED TO FILE ',A/)
      WRITE(6,460) GEOFIL
  460 FORMAT(' THE GEOMETRY IS READ FROM FILE ',A///)
```

```
C
C-----------------------------------------------------------------------
      READ(5,500) NCHAN,NJUNCT,NXCROS,NSTM,IDUM,NSTEP,KDUM,KDUM,
     1            KDUM,KDUM,KSPL,LSPL
  500 FORMAT(24I3)
C
      WRITE(6,510) NCHAN,NJUNCT,NXCROS,NSTEP,NSTM
  510 FORMAT
     1(' NUMBER OF CHANNEL(S):',I3,'   NUMBER OF JUNCTION(S):',I3/
     2 '+_____________________ ',3X,'   _______________________ '//
     3 I4,' CROSS SECTIONS IN GEOMETRY FILE, EACH WITH',I3,' ENTRIES'/
     4 4X,' THE COMPUTED ELEVATION FIRST ESTIMATED ABOVE ENTRY',I3//)
C
C**** NEW FEATURE *** NEW FEATURE *** NEW FEATURE *** NEW FEATURE ***
C
C     IF BOTH KSPL & LSPL POINT TO THE SAME CHANNEL CHANGE DEFINITIONS
C     OF PARAMETERS HSPL, QSPL, HLSPL, QLSPL, AS FOLLOWS:
C
C     HSPL --> SWCHNL -- USE TRANSITIONAL RAMPED QS WHEN CHANNEL SWCHNL
C                        SWITCHES TO & FROM FREE SPILLWAY GUIDE TABLE NO. 3
C     QSPL --> RAMPTM -- TRANSITIONAL TIME PERIOD IN HOURS BOTH FOR THE
C                        RAMP UP AND RAMP DOWN PERIODS
C     HLSPL --> RAMPQ -- THE RAMPED UP Q AFTER RAMPTM HOURS OF "RAMPING"
C     QLSPL --> SWTABL - THE RATING TABLE TO BE USED FOR CHANNEL KSPL
C                        WHILE CHANNEL SWCHNL IS USING TABLE NO. 3
C
      IF ( KSPL .EQ. LSPL .AND. KSPL .GT. 0 ) THEN
         RMPCHN = KSPL
         KSPL = 0
         LSPL = 0
      ELSE
         RMPCHN = 0
      END IF
      TBLTIM = DUR + 1.0
C*********************************************************************
C
      IF ( KSPL .NE. 0 ) WRITE(6,520) KSPL
  520 FORMAT(' CHANNEL',I2,' HAS SPECIAL OPERATION KSPL'/)
C
      IF ( LSPL .NE. 0 ) WRITE(6,530) LSPL
  530 FORMAT(' CHANNEL',I2,' HAS SPECIAL OPERATION LSPL'/)
C
C     ALLOCATE ARRAYS DEPENDENT ONLY ON NO. OF CHANNELS, NCHAN
C
      ALLOCATE (AL(NCHAN),AR(NCHAN),BL(NCHAN),BR(NCHAN),HL(NCHAN),
     1          HR(NCHAN),QL(NCHAN),QR(NCHAN),RL(NCHAN),RR(NCHAN),
     2          VL(NCHAN),VR(NCHAN),ALJ(NCHAN),ARJ(NCHAN),BLJ(NCHAN),
     3          BRJ(NCHAN),HLJ(NCHAN),HRJ(NCHAN),QLJ(NCHAN),QRJ(NCHAN),
     4          RLJ(NCHAN),RRJ(NCHAN),VLJ(NCHAN),VRJ(NCHAN),
     5          ENEXTL(NCHAN),ENEXTR(NCHAN),EPREVL(NCHAN),EPREVR(NCHAN),
     6          QNEXTL(NCHAN),QNEXTR(NCHAN),QPREVL(NCHAN),QPREVR(NCHAN),
     7           TMILE(NCHAN),G(NCHAN),H(NCHAN),V(NCHAN),W(NCHAN),
     8          S(NCHAN),T(NCHAN),XK(NCHAN),XL(NCHAN),REFDX(NCHAN),
     9          SURCH(NCHAN),FLRH(NCHAN),FLRQ(NCHAN),FLRDAY(NCHAN),
     A          FLRTIM(NCHAN),PEAKH(NCHAN),PEAKQ(NCHAN),USBO(NCHAN),
```

```
     B           QLL(NCHAN),QRL(NCHAN),QLG(NCHAN),QRG(NCHAN))
      ALLOCATE (IECKL(NCHAN),IECKR(NCHAN),IEL(NCHAN),IER(NCHAN),
     1           IQCKL(NCHAN),IQCKR(NCHAN),IQL(NCHAN),IQR(NCHAN),
     2           MSTACK(NCHAN),JNCTDS(NCHAN),JNCTUS(NCHAN),
     3           MFRSRF(NCHAN),MORDER(NCHAN),NDTP(NCHAN),NUTP(NCHAN),
     4           KTAB(NCHAN),NREACH(NCHAN),KKU(NCHAN),KTOTFL(NCHAN),
     5           KSTRT(NCHAN),KEND(NCHAN),NDTP2(NCHAN),NDTP3(NCHAN),
     6           NDTP4(NCHAN),KODEN(NCHAN),KRULE(NCHAN),KUFAX(NCHAN),
     7           KDFAX(NCHAN),NUBP(NCHAN),NDBP(NCHAN),IUS(NCHAN),
     8           IDS(NCHAN),KDBC(NCHAN))
      ALLOCATE (IFL(NCHAN),STU(NCHAN),STD(NCHAN))
      ALLOCATE (LN(NCHAN+1),NODES(NCHAN+1),L(NCHAN+1),N(NCHAN+1),
     1           KUBC(NCHAN+1))
      ALLOCATE (REFTW(NCHAN+1))
      ALLOCATE (REFH(6,NCHAN),REFQ(6,NCHAN))
      JNCTDS = 0
      JNCTUS = 0
      MFRSRF = 0
      NUBP = 0
      NDBP = 0
      IFL = .FALSE.
      STU = .TRUE.
      STD = .TRUE.
C
C     ALLOCATE ARRAYS DEPENDENT ONLY ON NO. OF JUNCTIONS, NJUNCT
C
      ALLOCATE (NDSBR(NJUNCT),NSIBR(NJUNCT),NUSBR(NJUNCT),JSIDE(NJUNCT),
     1           ITRIB(NJUNCT),NNU(NJUNCT),NND(NJUNCT),NNS(NJUNCT))
      NNS = 0
C
C-----------------------------------------------------------------------
C             IF ONE OR MORE JUNCTIONS PRESENT,DEFINE EACH ONE
C-----------------------------------------------------------------------
C
      DO I = 1,NJUNCT
         READ(5,500) NUSBR(I),NDSBR(I),NSIBR(I),JSIDE(I),ITRIB(I)
         JNCTDS(NDSBR(I)) = I
         JNCTUS(NUSBR(I)) = I
         ISIDE = NSIBR(I)
         IF ( ISIDE .NE. 0 .AND. JSIDE(I) .EQ. 0 ) JNCTUS(ISIDE) = I
         IF ( ISIDE .NE. 0 .AND. JSIDE(I) .EQ. 1 ) JNCTDS(ISIDE) = I
      END DO
C
C-----------------------------------------------------------------------
C        DEFINE EACH CHANNEL BY THE NUMBER OF NODES,THE BOUNDARY
C        OPERATION TYPES,SPECIAL OPERATION TABLES OF RATING CURVES,
C        FAX SHEET INPUT,RESTART OF RUN AND SAVING OF STARTING LINES
C-----------------------------------------------------------------------
      NODTOT = 0
      MAXNU = 0
      MAXND = 0
      MAXND2 = 1
      MAXND3 = 1
      MAXND4 = 1
C
```

```
      DO M = 1,NCHAN
         READ(5,500) NODES(M),KUBC(M),KDBC(M),KTAB(M),KRULE(M),
     1               KTOTFL(M),KODEN(M),NUTP(M),NDTP(M),NDTP2(M),
     2               NDTP3(M),NDTP4(M),KUFAX(M),KDFAX(M),KSTRT(M),
     3               KEND(M)

         IF ( NUTP(M) .GT. MAXNU ) MAXNU = NUTP(M)
         IF ( NDTP(M) .GT. MAXND ) MAXND = NDTP(M)
         IF ( NDTP2(M) .GT. MAXND2 ) MAXND2 = NDTP2(M)
         IF ( NDTP3(M) .GT. MAXND3 ) MAXND3 = NDTP3(M)
         IF ( NDTP4(M) .GT. MAXND4 ) MAXND4 = NDTP4(M)
C
         WRITE(6,600) M,NODES(M),KUBC(M),KDBC(M),KTAB(M),KRULE(M),
     1                KTOTFL(M)
         WRITE(6,610) KODEN(M),NUTP(M),NDTP(M),NDTP2(M),NDTP3(M),
     1                NDTP4(M),KUFAX(M),KDFAX(M),
     2                KSTRT(M),SLNFIL,KEND(M),SAVFIL
C
         NODTOT = NODTOT + NODES(M)
      END DO
C
C     ALLOCATE ARRAYS DEPENDENT ON NO. OF CHANNELS & MAX RATING TABLE SIZE
C
      MAXND = MAX(MAXND,MAXND2,MAXND3,MAXND4)
      IF ( MAXNU .GT. 0 )
      1   ALLOCATE (UELTAB(MAXNU,NCHAN),UQTAB(MAXNU,NCHAN))
      IF ( MAXND .GT. 0 )
      1   ALLOCATE (DELTAB(MAXND,NCHAN),DQTAB(MAXND,NCHAN))
      IF ( MAXND2 .GT. 0 )
      1   ALLOCATE (DELTB2(MAXND2,NCHAN),DQTAB2(MAXND2,NCHAN))
      IF ( MAXND3 .GT. 0 )
      1   ALLOCATE (DELTB3(MAXND3,NCHAN),DQTAB3(MAXND3,NCHAN))
      IF ( MAXND4 .GT. 0 )
      1   ALLOCATE (DELTB4(MAXND4,NCHAN),DQTAB4(MAXND4,NCHAN))
C
      WRITE(6,620) NODTOT
C
  600 FORMAT
     1(' CHANNEL',I2,' HAS',I4,' NODES,     IT IS CHARACTERIZED BY:'/
     2 '+_________'//
     3 ' BOUNDARY CONDITIONS PRESCRIBED (AT THE BEGINNING OF RUN):'/
     4 '     UPSTREAM: KUBC=',I2,' (0:ELEVATION; 1:DISCHARGE;',
     5                          ' 2:RATING TABLE; 3:JUNCTION)'/
     6 '     DOWNSTRM: KDBC=',I2,' (IF A TABLE IS USED, IT IS TABLE NO.'
     7,I2,')'/
     8 '               KRULE=',I2,' (0:NO FIXED RULE OPERATION; 1:FIXED',
     9 ' RULE REGULAR; 2:FIXED RULE PMF)'//
     1 ' IF A FAILURE OCCURS ,IT IS OF TYPE KTOTFL=',
     2    I2,' (0:FOR PARTIAL FAILURE THEN USE TABLE 4,',
     3       ' IF NOT PRESENT, THE RUN WILL STOP;'/
     4   47X, '1:FOR TOTAL FAILURE, DOWNSTREAM CHANNEL NEEDED)'//)
  610 FORMAT(
     1'   KODEN=',I3,' (0:MANNING N.CONSTANT; 1:VARY WITH ELEVATION;',
     2                                     ' 2:VARY WITH DISCHARGE)'//
     3'    NUTP=',I3,' (NUMBER OF POINTS IN THE UPSTREAM RATING TABLE)'/
```

```
     4'    NDTP=',I3,' (NUMBER OF POINTS IN THE DOWNSTRM RATING TABLE)'/
     5'   NDTP2=',I3,' (NO. OF PTS IN THE 2 ND DOWNSTRM  RATING TABLE)'/
     6'   NDTP3=',I3,' (NO. OF PTS IN THE 3 RD DOWNSTRM  RATING TABLE)'/
     7'   NDTP4=',I3,' (NO. OF PTS IN THE 4 TH DOWNSTRM  RATING TABLE)'/
     8  /
     9'   KUFAX=',I3,' KDFAX=',I2,' (HOURLY FAX SHEETS DISCHARGES USED',
     1               ' RESPECTIVELY US & DS IF KUFAX=1 & KDFAX=1)'/
     2'   KSTRT=',I3,' (0:STARTING LINES READ WITH DATA;',
     3               '  1:READ FROM FILE ',A,')'/
     4'    KEND=',I3,' (0:ENDING LINE NOT SAVED;',
     5               '  1:SAVED IN FILE ',A,')'////)
  620 FORMAT(' THE MODEL HAS A TOTAL NUMBER OF',I4,' COMPUTATION NODES'/
     1'+_____________________________________________________'//)
C
C---------------COMPUTE NODE NUMBERS FOR BOUNDARIES AT JUNCTIONS--------
C
      L(1) = 0
      KNODU = 1
      KNODD = NODES(1)
C
      DO M = 1,NCHAN
C
         DO I = 1,NJUNCT
C
            IF ( NUSBR(I) .EQ. M ) NNU(I) = KNODD
            IF ( NDSBR(I) .EQ. M ) NND(I) = KNODU
            IF ( NSIBR(I) .EQ. M .AND. JSIDE(I) .EQ. 0 ) NNS(I) = KNODD
            IF ( NSIBR(I) .EQ. M .AND. JSIDE(I) .EQ. 1 ) NNS(I) = KNODU
C
         END DO
C
         KKU(M) = KNODU
         L(M+1) = KNODD
         KNODU = KNODD + 1
         KNODD = KNODD + NODES(M+1)
         IDS(M) = 0
C
      END DO
C
C---------FIND MOST DOWNSTREAM CHANNEL--------------------------------
C
      NMDS = 1
      IF ( NJUNCT .EQ. 0 ) THEN
         MDS(NMDS) = 1
      ELSE
         DO I = 1,NJUNCT
            IF ( JSIDE(I) .EQ. 1 ) THEN
               IF ( JNCTUS(NSIBR(I)) .EQ. 0 ) THEN
                  MDS(NMDS) = NSIBR(I)
                  NMDS = NMDS + 1
               END IF
            END IF
            M = NDSBR(I)
            DO K = 1,NJUNCT
               IF ( M .EQ. NUSBR(K) .OR. M .EQ. NSIBR(K) ) GO TO 630
```

```
            END DO
            MDS(NMDS) = M
            NMDS = NMDS + 1
  630       CONTINUE
         END DO
         NMDS = NMDS - 1
      END IF
C
C-----PLACE CHANNELS IN UPSTREAM TO DOWNSTREAM ORDER -------------------
C
      MORDER(NCHAN) = MDS(NMDS)
      MPTR = NCHAN - 1
      IPTR = 1
      NPTR = NMDS - 1
      I = JNCTDS(MDS(NMDS))
C
      DO WHILE ( MPTR .GT. 0 )
C
         IPTR = IPTR - 1
         IUP = NUSBR(I)
         MORDER(MPTR) = IUP
         MPTR = MPTR - 1
         JDS = JNCTDS(IUP)
         IF ( JDS .NE. 0 ) THEN
            IPTR = IPTR + 1
            MSTACK(IPTR) = JDS
         END IF
         ISIDE = NSIBR(I)
         IF ( ISIDE .NE. 0 .AND. JSIDE(I) .EQ. 0 ) THEN
            MORDER(MPTR) = ISIDE
            MPTR = MPTR - 1
            JDS = JNCTDS(ISIDE)
            IF ( JDS .NE. 0 .AND. JSIDE(JDS) .EQ. 0 ) THEN
               IPTR = IPTR + 1
               MSTACK(IPTR) = JDS
            END IF
         END IF
         IF ( IPTR .EQ. 0 .AND. NPTR .GT. 0 ) THEN
            MORDER(MPTR) = MDS(NPTR)
            MPTR = MPTR - 1
            I = JNCTDS(MDS(NPTR))
            NPTR = NPTR - 1
            IPTR = 1
         ELSE IF ( IPTR .GT. 0 ) THEN
            I = MSTACK(IPTR)
         END IF
C
      END DO
C
C---------PRINT JUNCTION CHARACTERISTICS-------------------------------
C
      IF ( NJUNCT .NE. 0 )
     1   WRITE(6,650) (I,NUSBR(I),NNU(I),NDSBR(I),NND(I),NSIBR(I),
     2                NNS(I),JSIDE(I),ITRIB(I), I=1,NJUNCT)
  650 FORMAT(' FOR JUNCTION',I2/
```

```
     1' UPSTREAM BRANCH IS CHANNEL',I2,' AND JUNCTION NODE IS NO.',I4/
     2' DOWNSTRM BRANCH IS CHANNEL',I2,' AND JUNCTION NODE IS NO.',I4/
     3'     SIDE BRANCH IS CHANNEL',I2,' AND JUNCTION NODE IS NO.',I4,
     4' CONSIDERED AS',I2,' (0:DOWNSTRM END; 1:UPSTREAM END)'/
     5' THE SIDE BRANCH IS OF TYPE',I2,' (1:NO SECTION; 2:ONLY ONE',
     6' SECTION; 3:FULL SIDE BRANCH)'//)
C
C-----------------------------------------------------------------------
C       GIVE FOR EACH CHANNEL UPSTREAM MILE, DX IF UNIFORM,AND SPECIAL
C       PARAMETERS
C-----------------------------------------------------------------------
C
      JJJ = 0
      N(1) = 0
C
      DO M = 1,NCHAN
C
         READ(5,700) TMILE(M),REFDX(M),REFTW(M),SURCH(M),FLRH(M),
     1               FLRQ(M),FLRDAY(M),FLRTIM(M)
  700    FORMAT(8F9.0)
C
         IFLRDA = FLRDAY(M)
         IF ( REFTW(M) .GT. 0. ) WRITE(6,800) M,REFTW(M)
         IF ( REFTW(M) .LT. 1. ) REFTW(M) = 10000.
         IF ( FLRH(M) .GT. 0. ) WRITE(6,810) M,FLRH(M)
         IF ( FLRQ(M) .GT. 0. ) WRITE(6,820) M,FLRQ(M)
         IF ( FLRH(M) .LT. 1. ) FLRH(M) = 100000.
         IF ( FLRQ(M) .LT. 1. ) FLRQ(M) = 100000000.
         IF ( FLRDAY(M) .GT. 0. ) WRITE(6,830) M,IFLRDA,FLRTIM(M)
C
  800    FORMAT(' THE SUBMERGENCE EFFECT AT THE UPSTREAM END OF',
     1          ' CHANNEL',I2,' STARTS AT TW ELEVATION',F10.2//)
  810    FORMAT(' AT THE DOWNSTREAM END OF CHANNEL',I2,
     1          ' THE DAM WILL FAIL IF HW EXCEEDS',F8.2,' FEET'/)
  820    FORMAT(' AT THE DOWNSTREAM END OF CHANNEL',I2,
     1          ' THE DAM WILL FAIL IF DISCHARGE EXCEEDS',F9.0,' CFS'/)
  830    FORMAT(' AT THE DOWNSTREAM END OF CHANNEL',I2,' ON DAY',I3,
     1          ' AT TIME',F6.2,' THE DAM WILL FAIL'/)
C-----------------------------------------------------------------------
C        COMPUTE NO. OF REACHES FOR ALL CHANNELS.
C
         NREACH(M) = NODES(M) - 1
C-----------------------------------------------------------------------
C        COMPUTE NO. OF BOUNDARY LINE NET POINTS FOR ALL CHANNELS, LN.
C
         LN(M) = ( NODES(M) + 1 ) / 2
         N(M+1) = N(M) + LN(M)
C
C-----------------------------------------------------------------------
C        COMPUTE TOTAL NO. OF NET POINTS FOR ALL CHANNELS, JJJ.
C
         IF ( LN(M) .GT. 0 ) JJJ = JJJ + 2 * LN(M) - 1
C
      END DO
C
```

```
      LN(NCHAN+1) = 1
      NBLNP = N(NCHAN+1)
C
C     ALLOCATE ARRAYS DEPENDENT ONLY ON NO. OF XSECTS, NXCROS
C
      ALLOCATE (ICROSS(NXCROS),IOM(NXCROS),IDU(NXCROS))
C
C     ALLOCATE ARRAYS DEPENDENT ONLY ON NO. OF REACHES, JJJ - NCHAN
C
      ALLOCATE (DXM(JJJ-NCHAN+2))
      ALLOCATE (XINFL(JJJ-NCHAN),PXINFL(JJJ-NCHAN),RXINFL(JJJ-NCHAN))
     1
C
C     ALLOCATE ARRAYS DEPENDENT ONLY ON NO. OF NODES, JJJ
C
      ALLOCATE (DX(JJJ),U(JJJ),PRMILE(JJJ),PTCHTM(JJJ))
      PTCHTM = -9999.
      XINFL = 0.
      PXINFL = 0.
      RXINFL = 0.
C
C     ALLOCATE ARRAYS DEPENDENT ONLY ON NO. OF NODES, JJJ & XSECT POINTS,
NSTEP
C
      ALLOCATE (AREA(NSTEP,JJJ),ELEV(NSTEP,JJJ),R23(NSTEP,JJJ),
     1          WIDTH(NSTEP,JJJ))
C
C     ALLOCATE ARRAYS DEPENDENT ONLY ON NO. OF BOUNDARY LINE NET POINTS,
NBLNP
C
      ALLOCATE (MEXDAY(NBLNP),MQXDAY(NBLNP),MVXDAY(NBLNP))
      ALLOCATE (ELMAX(NBLNP),QMAX(NBLNP),EMXTIM(NBLNP),VMAX(NBLNP),
     1          QMXTIM(NBLNP),VMXTIM(NBLNP),A1(NBLNP),A2(NBLNP),
     2          A3(NBLNP),B1(NBLNP),B2(NBLNP),B3(NBLNP),H1(NBLNP),
     3          H2(NBLNP),H3(NBLNP),Q1(NBLNP),Q2(NBLNP),Q3(NBLNP),
     4          R1(NBLNP),R2(NBLNP),R3(NBLNP),V1(NBLNP),V2(NBLNP),
     5          V3(NBLNP),D3(NBLNP),FF3(NBLNP),QDG(NBLNP),XNU(NBLNP))
      ALLOCATE (HQBMT(NBLNP,2,3),XNBMT(NBLNP,2,3))
      ELMAX = 0
      QMAX = -1000000.
      VMAX = -100.
      QDG = 0
C
C     ALLOCATE ARRAYS DEPENDENT ONLY ON NO. OF "MOST" DOWNSTREAM BOUNDARIES
C
      ALLOCATE (BNDRM(NMDS))
C-----------------------------------------------------------------------
C     COMPUTE OR READ REACH LENGTHS FOR ALL CHANNELS DX AND DXM
C
      NR = 1
      DO M = 1,NCHAN
         IF ( REFDX(M) .EQ. 0 .AND. NREACH(M) .NE. 0 ) THEN
            READ(5,700) (DX(I),I=L(M)+1,L(M)+NREACH(M))
            DO I = L(M)+1,L(M)+NREACH(M)
               DXM(NR) = DX(I) / 5280.
```

```
               NR = NR + 1
            END DO
         ELSE
            WRITE(6,900) M,TMILE(M),REFDX(M)
  900       FORMAT(/' CHANNEL   UPSTREAM MILE   DELTA X IN FEET'/
     1             I5,2F16.2/)
C
            DO I = L(M)+1,L(M)+NREACH(M)
               DX(I) = REFDX(M)
               DXM(NR) = DX(I) / 5280.
               NR = NR + 1
            END DO
         END IF
      END DO
C-----------------------------------------------------------------------
C     WRITE REACH LENGTHS FOR ALL CHANNELS WITH VARIABLE DX
C
      DO M = 1,NCHAN
         IF ( REFDX(M) .EQ. 0 .AND. NREACH(M) .NE. 0 ) THEN
            WRITE(6,910) M,TMILE(M)
  910       FORMAT(/' CHANNEL',I2,'   UPSTREAM MILE:',F7.2/'  REACH',
     1             ' LENGTH US TO DS IN FEET'/'       REACH      DX'/)
            DO I = L(M)+1,L(M)+NREACH(M)
               WRITE(6,920) I-L(M),DX(I)
  920          FORMAT(I10,F13.2)
            END DO
         END IF
      END DO
C
C-----------------------------------------------------------------------
C   READ FOR EACH CHANNEL WHERE KRULE=1 OR=2, THE FIXED RULE PARAMETERS
C
C       OMIT THIS IF NO RULE OPERATION FOR THAT CHANNEL
C-----------------------------------------------------------------------
C
C
      DO M = 1,NCHAN
C
         IF ( KRULE(M) .NE. 0 ) THEN
C
            READ(5,700) (REFH(I,M),I=1,6),PEAKH(M)
            READ(5,700) (REFQ(I,M),I=1,6),PEAKQ(M)
            WRITE(6,1000) M,(REFH(I,M),I=1,6),PEAKH(M),
     1                    (REFQ(I,M),I=1,6),PEAKQ(M)
C
 1000       FORMAT(/' CHANNEL',I2,' FOLLOWS FIXED RULE',
     1              ' DS OPERATION WITH CHANGES AT THE FOLLOWING:'//19X,
     2              'ABS MIN  NORM MIN   REG FIL   PMF FIL  GATE TOP  '
     3              ' FAILURE'/'     ELEVATIONS:',6F10.2,5X,
     4              'INITIAL PEAK HW:',F8.2/'     DISCHARGES:',6F10.0,
     5              5X,'INITIAL PEAK Q: ',F8.0/ 19X,'TURBINE',12X,
     6              ' FILLING  EMPTYING  SPIL CAP   FAILURE'//)
C
         END IF
C
```

```
      END DO
C
      IF ( KSPL .NE. 0 .OR. LSPL .NE. 0 ) THEN
C
         READ(5,700) HSPL,QSPL,HLSPL,QLSPL
C
         IF ( KSPL .NE. 0 ) THEN
            WRITE(6,1100) KSPL,HSPL,QSPL
 1100       FORMAT(' CHANNEL',I2,' MAINTAINS DS HW AT',
     1              F8.2,' UNTIL Q EXCEEDS',F8.0,
     2              ' THEN SWITCH TO RATING CURVE T3'//)
C--------TRANSFER HSPL & QSPL INTO REFH5 & REFQ5-------
C
            REFH(5,KSPL) = HSPL
            REFQ(5,KSPL) = QSPL
         END IF
C
         IF ( LSPL .NE. 0 ) WRITE(6,1150) LSPL,QLSPL,HLSPL
 1150       FORMAT(' CHANNEL',I2,' MAINTAINS DS Q AT',
     1              F8.0,' UNTIL HW EXCEEDS',F8.2,
     2              ' THEN SWITCH TO RATING CURVE T3'//)
C
C**** NEW FEATURE *** NEW FEATURE *** NEW FEATURE *** NEW FEATURE ***
C
      ELSE IF ( RMPCHN .GT. 0 ) THEN
C
         READ(5,1170) SWCHNL,RAMPTM,RAMPQ,SWTABL
 1170    FORMAT (I9,2F9.0,I9)
         WRITE(6,1180) RMPCHN,SWCHNL,RAMPQ,RAMPTM,SWTABL
 1180    FORMAT(' CHANNEL',I2,' FOLLOWS DS BOUDARY CONDITION'/
     1          ' UNTIL CHANNEL',I2,' SWITCHES TO RATING CURVE T3',
     2          ' THEN RAMPS UP TO DISHARGE OF',F7.0,'WITHIN',F5.1,
     3          ' HOURS, THEN FOLLOWS RATING TABLE NO.',I2//)
C*********************************************************************
C
      END IF
C
      DO M = 1,NCHAN
C-----------------------------------------------------------------------
C     READ AND WRITE ALL RATING TABLES USED AT BOUNDARIES.
C
         IF ( NUTP(M) .NE. 0 ) THEN
            READ(5,700) (UELTAB(I,M),UQTAB(I,M),I=1,NUTP(M))
            WRITE(6,1200) M,(UELTAB(I,M),UQTAB(I,M),I=1,NUTP(M))
 1200       FORMAT('0TABLE FOR UPSTREAM BOUNDARY,CHANNEL',I2,//
     1              '    ELEVATION  DISCHARGE'//(F12.2,F12.0))
C
         ELSE
C
            IF ( NDTP(M) .NE. 0 ) THEN
               KT = 1
               READ(5,700) (DELTAB(I,M),DQTAB(I,M),I=1,NDTP(M))
               WRITE(6,1250) KT,M,(DELTAB(I,M),DQTAB(I,M),I=1,NDTP(M))
 1250          FORMAT('0TABLE',I2,' FOR DOWNSTREAM BOUNDARY,CHANNEL',
     1                I2,//'    ELEVATION  DISCHARGE'//(F12.2,F12.0))
```

```
            END IF
C
            IF ( NDTP2(M) .NE. 0 ) THEN
               KT = 2
               READ(5,700) (DELTB2(I,M),DQTAB2(I,M),I=1,NDTP2(M))
               WRITE(6,1250) KT,M,(DELTB2(I,M),DQTAB2(I,M),I=1,NDTP2(M))
            END IF
C
            IF ( NDTP3(M) .NE. 0 ) THEN
               KT = 3
               READ(5,700) (DELTB3(I,M),DQTAB3(I,M),I=1,NDTP3(M))
               WRITE(6,1250) KT,M,(DELTB3(I,M),DQTAB3(I,M),I=1,NDTP3(M))
            END IF
C
            IF ( NDTP4(M) .NE. 0 ) THEN
               KT = 4
               READ(5,700) (DELTB4(I,M),DQTAB4(I,M),I=1,NDTP4(M))
               WRITE(6,1250) KT,M,(DELTB4(I,M),DQTAB4(I,M),I=1,NDTP4(M))
            END IF
C
         END IF
C
      END DO
C
C
C-----------------------------------------------------------------------
C     READ OR SKIP,DUPLICATE OR INTERPOLATE CROSS SECTION IN GEOMETRY
C-----------------------------------------------------------------------
C       0:SKIP, 1:READ, 2 TO 8:INTERPOLATE 1 TO 7 SECT., 9:DUPLICATE
C-----------------------------------------------------------------------
      READ(5,1300) (ICROSS(I),I=1,NXCROS)
 1300 FORMAT(72I1)
      WRITE(6,1400)
 1400 FORMAT(//)
C
      NXPTR = 0
      NDU = 0
      NOM = 0
C
      DO I = 1,NXCROS
C
         IF ( ICROSS(I) .NE. 1 ) THEN
C
            IF ( ICROSS(I) .EQ. 0 ) THEN
               NOM = NOM + 1
               IOM(NOM) = I
            ELSE IF ( ICROSS(I) .EQ. 9 ) THEN
               NDU = NDU + 1
               IDU(NDU) = I
            ELSE
               WRITE(6,1500) ICROSS(I)-1,I,I+1
 1500          FORMAT(I4,' INTERPOLATED SECTIONS INSERTED BETWEEN',
     1                ' GEOMETRY SECTIONS',I4,' &',I4)
               NXPTR = NXPTR + ICROSS(I) - 1
            END IF
```

```
C
         END IF
C
      END DO
C
      IF ( NXPTR .EQ. 0 .AND. NDU .EQ. 0 .AND. NOM .EQ. 0 )
     1   WRITE(6,1600) NXCROS
 1600 FORMAT(/' THE GEOMETRY IS USED AS PRESENT IN THE FILE:',I4,
     1        ' NODES, ONE AT EACH SECTION'//)
C
      IF ( NXPTR .NE. 0 ) WRITE(6,1610) NXPTR,NODTOT
      IF ( NDU .NE. 0 )  WRITE(6,1620) NDU,(IDU(K),K=1,NDU)
      IF ( NOM .NE. 0 )  WRITE(6,1630) NOM,(IOM(K),K=1,NOM)
C
 1610 FORMAT(/' A TOTAL OF',I4,' INTERPOLATED SECTIONS ARE ADDED AS',
     1        ' SHOWN ABOVE AND ARE PART OF',I4,' NODES')
 1620 FORMAT(/I4,' SECTIONS DUPLICATED, SECTIONS:'/(20I5))
 1630 FORMAT(/I4,' SECTIONS OMITTED,    SECTIONS:'/(20I5))
C
C--------CHECK THAT THE TOTAL NUMBER OF NODES IS CONSISTENT WITH
C--------------THE NUMBER OF SECTIONS USED
C
      KNOD = 0
      DO K = 1,NXCROS
         IF ( ICROSS(K) .NE. 0 ) THEN
            KNOD = KNOD + ICROSS(K)
C------------IF DUPLICATE ICROSS(K)=9,BUT THERE ARE ONLY TWO SECTIONS
            IF ( ICROSS(K) .EQ. 9 ) KNOD = KNOD - 7
         END IF
      END DO
C
      IF ( KNOD .NE. NODTOT ) GO TO 9900
C
      IREAD = .TRUE.
      MM = 1
      OPEN(UNIT=3,FILE=GEOFIL,STATUS='OLD')
C----------------------START READING ON UNIT 3--------------------------
      DO M = 1,NXCROS
C-----------------------------------READ SELECTED SECTIONS ONLY----------
         IF ( IREAD .AND. ICROSS(M) .NE. 0 ) READ(3,1700)
     1      (ELEV(I,MM),AREA(I,MM),R23(I,MM),WIDTH(I,MM),I=1,NSTEP)
 1700    FORMAT(4F10.0)
C
         IF ( ICROSS(M) .NE. 0 ) THEN
            IREAD = .TRUE.
            MM = MM + 1
            IF ( ICROSS(M) .NE. 1 ) THEN
C
               IF ( ICROSS(M) .GE. 9 ) THEN
C
C-------------------------DUPLICATE THE LAST SECTION READ--------------
C
                  DO I = 1,NSTEP
                     ELEV(I,MM) = ELEV(I,MM-1)
                     AREA(I,MM) = AREA(I,MM-1)
```

```
                     R23(I,MM) = R23(I,MM-1)
                     WIDTH(I,MM) = WIDTH(I,MM-1)
                  END DO
                  MM = MM + 1
C
               ELSE
C-------------------------INTERPOLATE ICROSS-1 SECTIONS ----------------
C-------------------------BETWEEN LAST SECTION READ & NEXT IN GEOMETRY--
C
                  JCROSS = ICROSS(M) - 1
                  SCROSS = JCROSS + 1
C
C                 READ NEXT SECTION OF GEOM, CALL IT MM+JCROSS
C
                  READ(3,1700) (ELEV(I,MM+JCROSS),AREA(I,MM+JCROSS),
     1                  R23(I,MM+JCROSS),WIDTH(I,MM+JCROSS),I=1,NSTEP)
C
C                 INTERPOLATE BETWEEN MM-1 & MM+JCROSS
C
                  DO JC = 1,JCROSS
                     SC = JC
                     DO I = 1,NSTEP
                        ELEV(I,MM+JC-1) = ELEV(I,MM-1) + SC *
     1                     ( ELEV(I,MM+JCROSS) - ELEV(I,MM-1) ) / SCROSS
                        AREA(I,MM+JC-1) = AREA(I,MM-1) + SC *
     1                     ( AREA(I,MM+JCROSS) - AREA(I,MM-1) ) / SCROSS
                        R23(I,MM+JC-1) = R23(I,MM-1) + SC *
     1                     ( R23(I,MM+JCROSS) - R23(I,MM-1) ) / SCROSS
                        WIDTH(I,MM+JC-1) = WIDTH(I,MM-1) + SC * (
     1                    WIDTH(I,MM+JCROSS) - WIDTH(I,MM-1) ) / SCROSS
                     END DO
                  END DO
C
                  MM = MM + JCROSS
                  IREAD = .FALSE.
C
               END IF
C
            END IF
C
         ELSE
C---------------------------SKIP THAT SECTION----------------
            DO I = 1,NSTEP
               READ(3,1700)
            END DO
C
         END IF
C
      END DO
      CLOSE (3)
C----------------------FROM THERE ON THE NODES USED IN COMPUTATIONS-----
C-----------------ARE IN MEMORY AND THE GEOMETRY FILE NOT USED ANYMORE--
C-----------------------------------------------------------------------
C               SELECT OPTION TO PRINT OR NOT AT EACH NODE
C-----------------------------------------------------------------------
```

```
      READ(5,1750) (PRMILE(I),I=1,JJJ)
 1750 FORMAT(72F1.0)
C
      KK = 0
      MILPRT = .FALSE.
      NUMOUT = 0
C
      DO M = 1,NCHAN
C
         XMIL = TMILE(M)
C
         DO I = 1,2*LN(M)-1
C
            KK = KK + 1
            IF ( PRMILE(KK) .EQ. 1. ) THEN
               PRMILE(KK) = XMIL + 1.E-8
               MILPRT = .TRUE.
            ELSE IF ( PRMILE(KK) .EQ. 2. ) THEN
               PRMILE(KK) = - XMIL - 1.E-8
               NUMOUT = NUMOUT + 1
c               QRM(NUMOUT) = XMIL
            END IF
            IF ( I .NE. 2*LN(M)-1 ) XMIL = MAX(XMIL-DXM(KK-M+1),0.)
C
         END DO
         DO K = 1,NMDS
            IF ( M .EQ. MDS(K) ) BNDRM(K) = XMIL
         END DO
C
      END DO
C
C     ALLOCATE ARRAYS DEPENDENT ON NO. OF OUTPUT ORDINATES
C
      ALLOCATE (BNDOUT(MAXOUT,NMDS))
C
C     ALLOCATE ARRAYS DEPENDENT ON NO. OF OUTPUT ORDINATES / LOCATIONS
C
      ALLOCATE (OTITLE(NUMOUT),QOUT(MAXOUT,NUMOUT),HOUT(MAXOUT,NUMOUT))

      DO I = 1,NUMOUT
         READ (5,100) OTITLE(I)
      END DO

      IF ( NUMOUT .GT. 0. ) WRITE(6,1800) PRTFIL
 1800 FORMAT(//' SELECTED HYDROGRAPH FILES ARE SAVED TO FILE ',A///)
C
C-----------------------------------------------------------------------
C     READ STARTING LINES FOR ALL CHANNELS (H AND Q AT EACH NET POINT),
C     FROM INPUT OR FROM UNIT 1 OR TO BE COMPUTED
C-----------------------------------------------------------------------
      OPE = .FALSE.
      DO M = 1,NCHAN
C
         IF ( KSTRT(M) .EQ. 1 ) THEN
            IF ( .NOT. OPE ) THEN
```

```
               OPE = .TRUE.
               OPEN(UNIT=1,FILE=SLNFIL,STATUS='OLD')
            END IF
            READ(1,700) (H1(I),Q1(I),H2(I),Q2(I),I=N(M)+1,N(M)+LN(M))
         ELSE
            READ(5,700) (H1(I),Q1(I),H2(I),Q2(I),I=N(M)+1,N(M)+LN(M))
         END IF
C
      END DO
      CLOSE (1)
C
C-----------------------------------------------------------------------
C     INITIALIZATION OF PRINT CONTROL CYCLE COUNTER, JK.
C
      JK = 1
C-----------------------------------------------------------------------
C     COMPUTE MESH RATIO U FOR ALL CHANNELS AND REACHES.
C
      DO M = 1,NCHAN
         DO I = L(M)+1,L(M)+NREACH(M)-1
            IF ( DX(I) .NE. 0. .OR. DX(I+1) .NE. 0. )
     1         U(I) = 2.0 * DT / ( DX(I) + DX(I+1) )
         END DO
      END DO
C-----------------------------------------------------------------------
C     INITIALIZATION OF BOUNDARY LINE-NON-BOUNDARY LINE COUNTER J.
C     J=2, COMPUTATIONS FOR BOUNDARY LINES.
C
      J = 2
C-----------------------------------------------------------------------
C     INITIALIZATION OF VELOCITY AND JUNCTION DELTA H CONSTRAINTS.
C
      EPS = 0.00001
      ZZ = 0.0001
C-----------------------------------------------------------------------
C                 REVIEW EACH CHANNEL BOUNDARIES
C-----------------------------------------------------------------------
      MAXUFX = 0
      MAXDFX = 0
      IUSCRD = 0
      IDSCRD = 0
C-----------------------------------------------------------------------
C     DETERMINE BOUNDARY HYDROGRAPH SIZES
C-----------------------------------------------------------------------
      DO M = 1,NCHAN
         IF ( KUBC(M) .LE. 1 ) THEN
            READ(INBND,2000) IDUM,KUBP,BNDINT,BPEAK,PEAKTM
 2000       FORMAT(2I9,3F9.0)
            NUBP(M) = KUBP
            IF ( M .GT. 1 ) NUBP(M) = NUBP(M-1) + KUBP
            READ(INBND,700) (UPBND,I=1,KUBP)
            IUSCRD = IUSCRD + ( KUBP + 7 ) / 8 + 1
            IF ( KUFAX(M) .EQ. 1 ) THEN
               IF ( KUBP .GT. MAXUFX ) MAXUFX = KUBP
               NUBP(M) = NUBP(M) + KUBP + 1
```

```
            UPTIM = KUBP
         ELSE IF ( KUBP .NE. 0 ) THEN
            IF ( BNDINT .EQ. 0 ) THEN
               READ(INBND,700) (UPTIM,I=1,KUBP)
               IUSCRD = IUSCRD + ( KUBP + 7 ) / 8
            ELSE
               UPTIM = ( KUBP - 1 ) * BNDINT
               IF ( BPEAK .GT. 0. .AND.
     1              DABS(PEAKTM/BNDINT-NINT(PEAKTM/BNDINT)) .GE.
     2              DDT/BNDINT ) NUBP(M) = NUBP(M) + 1
            END IF
         END IF
         IF ( SKIP+DUR .GT. UPTIM ) NUBP(M) = NUBP(M) + 1
      ELSE IF ( M .GT. 1 ) THEN
         NUBP(M) = NUBP(M-1)
      END IF
      IF ( KDBC(M) .LE. 1 ) THEN
         IF ( M .EQ. KSPL .OR. M .EQ. LSPL .OR. KRULE(M) .GT. 0 )
     1      THEN
            NDBP(M) = 2
            IF ( M .GT. 1 ) NDBP(M) = NDBP(M-1) + 2
         ELSE
            READ(5,2000) MCHAN,KDBP
            NDBP(M) = KDBP
            IF ( M .GT. 1 ) NDBP(M) = NDBP(M-1) + KDBP
            READ(5,700) (DWNBND,I=1,KDBP)
            IDSCRD = IDSCRD + ( KDBP + 7 ) / 8 + 1
            IF ( KDFAX(M) .EQ. 1 ) THEN
                     IF ( KDBP .GT. MAXDFX ) MAXDFX = KDBP
               NDBP(M) = NDBP(M) + KDBP + 1
               DWNTIM = KDBP
            ELSE IF ( KDBP .NE. 0 ) THEN
               READ(5,700) (DWNTIM,I=1,KDBP)
               IDSCRD = IDSCRD + ( KDBP + 7 ) / 8
            END IF
            IF ( SKIP+DUR .GT. UPTIM ) NUBP(M) = NUBP(M) + 1
         END IF
      ELSE IF ( M .GT. 1 ) THEN
         NDBP(M) = NDBP(M-1)
      END IF
   END DO
   DO I = 1,IUSCRD
      BACKSPACE (INBND)
   END DO
   DO I = 1,IDSCRD
      BACKSPACE (5)
   END DO
C
C     ALLOCATE ARRAYS DEPENDENT ON MAX. NO. OF "FAX" ORDINATES
C
      IF ( MAXUFX .GT. 0 ) ALLOCATE (UQFAX(MAXUFX),DQFAX(MAXDFX))
C
C     ALLOCATE ARRAYS DEPENDENT ON TOTAL NO. OF BOUNDARY ORDINATES
C
      ALLOCATE (USB(NUBP(NCHAN)+1),UST(NUBP(NCHAN)+1),
```

```
     1          DSB(NDBP(NCHAN)+5),DST(NDBP(NCHAN)+5))
      DSB = 0
      DST = 0

      WRITE(6,2100) IMNTH,IDAY,ICENT,IYEAR,HTIME,SKIP
 2100 FORMAT(//' ALL THE HYDROGRAPHS START ON ',I3,'-',I2.2,'-',
     1       2I2.2,' AT TIME',F7.3,10X,'SKIP',F6.1,' HOURS'/
     2       '+_____________________________'/)

      KUPTR = 0
      DO M = 1,NCHAN
C
         IF ( KUBC(M) .LE. 1 ) THEN
C-----------------------------------------------------------------------
C     READ U.S. BOUNDARY HYDROGRAPHS BREAK POINTS & TIMES OR FAX Q'S.
C-----------------------------------------------------------------------
            READ(INBND,2000) MCHAN,KUBP,BNDINT,BPEAK,PEAKTM
C
            IF ( KUFAX(M) .EQ. 1 ) THEN
C
               READ(INBND,700) (UQFAX(I),I=1,KUBP)
C
C----------------PRINT UPSTREAM FAX SHEET VALUES-------------------
               NLIN = KUBP / 24
               WRITE(6,2200) M,NLIN
 2200          FORMAT(/' UPSTREAM BOUNDARY DISCHARGES OF CHANNEL',I3,5X,
     1                 'GIVEN AS HOURLY AVERAGES FOR',I3,' DAYS:'//
     2                 '  DAY     HOUR1    HOUR2    HOUR3    HOUR4    ',
     3                          'HOUR5    HOUR6    HOUR7    HOUR8    ',
     4                          'HOUR9   HOUR10   HOUR11   HOUR12')
               LF = 1
               DO II = 1,NLIN
                  MF = LF + 23
                  WRITE(6,2210) II,(UQFAX(I),I=LF,MF)
 2210             FORMAT(/I4,3X,12F9.0/7X,12F9.0)
                  LF = LF + 24
               END DO
C
C-----------------------------------------------------------------------
C              COMPUTE US BOUNDARY HYDROGRAPH BREAK POINTS & TIMES FROM FAX
DATA.
C
               JJ = KUPTR + 2 * KUBP + 1
               UST(JJ) = KUBP
               DO I = KUBP,1,-1
                  JJ = JJ - 2
                  USB(JJ+1) = UQFAX(I)
                  USB(JJ+2) = UQFAX(I)
C--------------------------------HOURLY AVERAGE REACHED IN 4 DT---------
                  UST(JJ) = UST(JJ+2) - 1.0
                  UST(JJ+1) = UST(JJ) + DDT * 4.
               END DO
               USB(JJ) = UQFAX(1)
C
            ELSE IF ( KUBP .NE. 0 ) THEN
```

```
C
                READ(INBND,700) (USB(I),I=KUPTR+1,KUPTR+KUBP)
                IF ( BNDINT .EQ. 0 ) THEN
                   READ(INBND,700) (UST(I),I=KUPTR+1,KUPTR+KUBP)
                ELSE
                   DO I = 1,KUBP
                      UST(I) = ( I - 1 ) * BNDINT
                   END DO
C
C                  SEE IF PEAK FLOW IS TO BE INSERTED
C
                   IF ( BPEAK .GT. 0. ) THEN
                      IF ( DABS(PEAKTM/BNDINT-NINT(PEAKTM/BNDINT))
     1                     .GE. DDT/BNDINT ) THEN
                         INDXPK = KUPTR + PEAKTM / BNDINT + 2
                         DO I = NUBP(M)-1,INDXPK,-1
                            USB(I+1) = USB(I)
                            UST(I+1) = UST(I)
                         END DO
                         USB(INDXPK) = BPEAK
                         UST(INDXPK) = PEAKTM
                         KUBP = KUBP + 1
                      END IF
                   END IF
                END IF
C
C               SEE IF LAST FLOWS NEED TO BE EXTENDED
C
                IF ( SKIP+DUR .GT. UST(KUPTR+KUBP) ) THEN
                   USB(NUBP(M)) = USB(NUBP(M)-1)
                   UST(NUBP(M)) = SKIP + DUR
                   KUBP = KUBP + 1
                END IF
C
                WRITE(6,2220) M
 2220           FORMAT(/' PRESCRIBED UPSTREAM BOUNDARY, CHANNEL',I3/)
                CALL HYDR(USB(NUBP(M)-KUBP+1),UST(NUBP(M)-KUBP+1),
     1                  KUBP,KUBC(M),0.D0)
C
            END IF

            KUPTR = KUPTR + KUBP
C
         END IF
C
         IF ( KDBC(M) .LE. 1 ) THEN
            IF ( M .EQ. KSPL .OR. M .EQ. LSPL .OR. KRULE(M) .GT. 0 )
     1      THEN
C
C--------------------SPECIAL OPERATION FOR KSPL,LSPL & FIXED RULE-------
C
                NDBP(M) = 2
                IF ( M .GT. 1 ) NDBP(M) = NDBP(M-1) + 2
                DST(NDBP(M)-1) = 0.
                DST(NDBP(M)) = DUR + SKIP
```

```
C
            ELSE
C
C-----------------------------------------------------------------------
C     READ D.S. BOUNDARY HYDROGRAPHS BREAK POINTS & TIMES OR FAX Q'S.
C-----------------------------------------------------------------------
C
               READ(5,2000) MCHAN,NDBP(M)
C
               KDBP = NDBP(M)
               IF ( M .GT. 1 ) NDBP(M) = NDBP(M-1) + KDBP
               IF ( KDFAX(M) .EQ. 1 ) THEN
C
                  READ(5,700) (DQFAX(I),I=1,KDBP)
C
C-----------------PRINT DOWNSTREAM FAX SHEET VALUES--------------------
                  NLIN = KDBP / 24
                  WRITE(6,2230) M,NLIN
 2230             FORMAT(/' DOWNSTREAM BOUNDARY DISCHARGES OF CHANNEL',
     1              I3,5X,'GIVEN AS HOURLY AVERAGES FOR',I3,' DAYS:'//
     2              '  DAY     HOUR1    HOUR2    HOUR3    HOUR4    ',
     3                        'HOUR5    HOUR6    HOUR7    HOUR8    ',
     4                        'HOUR9   HOUR10   HOUR11   HOUR12')
C
                  LF = NDBP(M) - KDBP + 1
                  DO II = 1,NLIN
                     MF = LF + 23
                     WRITE(6,2210) II,(DQFAX(I),I=LF,MF)
                     LF = LF + 24
                  END DO
                  NDBP(M) = NDBP(M) + KDBP + 1
                  JJ = NDBP(M)
                  DST(JJ) = KDBP
                  DO I = KDBP,1,-1
                     JJ = JJ - 2
                     DSB(JJ+1) = DQFAX(I)
                     DSB(JJ+2) = DQFAX(I)
C--------------------------------HOURLY AVERAGE REACHED IN 4 DT---------
                     DST(JJ) = DST(JJ+2) - 1.0
                     DST(JJ+1) = DST(JJ) + DDT * 4.
                  END DO
                  DSB(JJ) = DQFAX(1)
C
               ELSE IF ( KDBP .NE. 0 ) THEN
C
                  READ(5,700) (DSB(I),I=NDBP(M)-KDBP+1,NDBP(M))
                  READ(5,700) (DST(I),I=NDBP(M)-KDBP+1,NDBP(M))
C
                  IF ( DSB(NDBP(M)-KDBP+2) .LT. 0. ) THEN
                     KDBC(M) = 0
                     DO I = NDBP(M)-KDBP+2,NDBP(M)
                        DSB(I) = ABS(DSB(I))
                     END DO
                     DSB(NDBP(M)-KDBP+1) = H1(N(M+1))
                  END IF
```

```
C
                  IF ( KDBC(M) .EQ. 1 .AND. SKIP .EQ. 0. )
     1                    Q1(N(M+1)) = DSB(NDBP(M)-KDBP+1)
C
C                 SEE IF LAST FLOWS NEED TO BE EXTENDED
C
                  IF ( SKIP+DUR .GT. DST(NDBP(M)) ) THEN
                     DSB(NDBP(M)+1) = DSB(NDBP(M))
                     DST(NDBP(M)+1) = SKIP + DUR
                     KDBP = KDBP + 1
                     NDBP(M) = NDBP(M) + 1
                  END IF
C
                  WRITE(6,2240) M
 2240             FORMAT(/' PRESCRIBED DOWNSTREAM BOUNDARY, CHANNEL',
     1                 I3/)
                  CALL HYDR(DSB(NDBP(M)-KDBP+1),DST(NDBP(M)-KDBP+1),
     1                     KDBP,KDBC(M),0.D0)
C
               END IF
C
            END IF
C
         ELSE IF ( M .GT. 1 ) THEN
C
            NDBP(M) = NDBP(M-1)
C
         END IF
C
      END DO
      IF ( INBND .NE. 5 ) CLOSE (INBND)
C-----------------------------------------------------------------------
      IF ( SKIP .LE. 0. ) THEN
C
         USBO(1) = USB(1)
         IUS(1) = 2
         IDS(1) = 2
         DO M = 2,NCHAN
            IUS(M) = 2
            IDS(M) = 2
            USBO(M) = USB(NUBP(M-1)+1)
         END DO
C
      ELSE
C-----------------------------------------------------------------------
C   WHEN HYDROGRAPHS START EARLIER THAN THE RUN,IDENTIFY FOR EACH
C   BOUNDARY HYDROGRAPH, BETWEEN WHICH POINTS THE START TIME IS LOCATED
C-----------------------------------------------------------------------
         KUBP = 0
         KDBP = 0
         DO M = 1,NCHAN
C-----------------------------------------------------------------------
C                  UPSTREAM BOUNDARIES
C-----------------------------------------------------------------------
            IF ( KUBC(M) .LE. 1 ) THEN
```

```
               DO I = KUBP+2,NUBP(M)
                  IF ( UST(I)-UST(KUBP+1) .GT. SKIP ) GO TO 2300
               END DO
C
C----------------------INTERPOLATE TO OBTAIN STARTING POINT-------------
C
 2300          CONTINUE
               FR = ( UST(I) - UST(KUBP+1) - SKIP ) /
     1              ( UST(I) - UST(I-1) )
               USBO(M) = USB(I) - FR * ( USB(I) - USB(I-1) )
               IUS(M) = I - KUBP
               USB(I-1) = USBO(M)
               UST(I-1) = SKIP + UST(KUBP+1)
            END IF
            KUBP = NUBP(M)
C-----------------------------------------------------------------------
C                DOWNSTREAM BOUNDARIES
C-----------------------------------------------------------------------
            IF ( KDBC(M) .LE. 1 ) THEN
               DO I = KDBP+2,NDBP(M)
                  IF ( DST(I)-DST(KDBP+1) .GT. SKIP ) GO TO 2400
               END DO
C-----------------------------------------------------------------------
C       IN CASE OF SKIP,THE FIRST TIME OF THE HYDROGRAPHS DOESN'T NEED
C       BE ZERO.
C----------------------INTERPOLATE TO OBTAIN STARTING POINT-------------
C
 2400          CONTINUE
               FR = ( DST(I) - DST(KDBP+1) - SKIP ) /
     1              ( DST(I) - DST(I-1) )
               DSBO = DSB(I) - FR * ( DSB(I) - DSB(I-1) )
               IDS(M) = I     - KDBP
               DSB(I-1) = DSBO
               DST(I-1) = SKIP + DST(KDBP+1)
            END IF
            KDBP = NDBP(M)
C
         END DO
C
      END IF
C-----------------------------------------------------------------------
C     READ AND WRITE MANNING N'S FOR ALL CHANNELS.
C-----------------------------------------------------------------------
      DO M = 1,NCHAN
C
         NCR = LN(M)
         NM = N(M)
         READ(5,700) (XNBMT(I+NM,1,1),XNBMT(I+NM,2,1),I=1,NCR)
         WRITE(6,2500) M
 2500    FORMAT(//' ROUGHNESS FACTORS IN CHANNEL',I2)
         WRITE(6,2510) (XNBMT(I+NM,1,1),XNBMT(I+NM,2,1),I=1,NCR)
 2510    FORMAT(/(8F11.4))
C
         IF ( KODEN(M) .NE. 0 ) THEN
C
```

```
            READ(5,700)  (XNBMT(I+NM,1,2),XNBMT(I+NM,2,2),I=1,NCR)
            READ(5,700)  (XNBMT(I+NM,1,3),XNBMT(I+NM,2,3),I=1,NCR)
C-----------------------------------------------------------------------
C
            WRITE(6,2510)  (XNBMT(I+NM,1,2),XNBMT(I+NM,2,2),I=1,NCR)
            WRITE(6,2510)  (XNBMT(I+NM,1,3),XNBMT(I+NM,2,3),I=1,NCR)
C
C-----------------------------------------------------------------------
C     READ ROUGHNESS REFERENCE DISCHARGES/ELEVATIONS
C
            READ(5,700)  (HQBMT(I+NM,1,1),HQBMT(I+NM,2,1),I=1,NCR)
            READ(5,700)  (HQBMT(I+NM,1,2),HQBMT(I+NM,2,2),I=1,NCR)
            READ(5,700)  (HQBMT(I+NM,1,3),HQBMT(I+NM,2,3),I=1,NCR)
C
            IF ( KODEN(M) .EQ. 2 ) THEN
C
C     WRITE ROUGHNESS REFERENCE DISCHARGES
C
               WRITE(6,2520)
 2520          FORMAT(/' AT CORRESPONDING DISCHARGES')
               WRITE(6,2530)  (HQBMT(I+NM,1,1),HQBMT(I+NM,2,1),I=1,NCR)
               WRITE(6,2530)  (HQBMT(I+NM,1,2),HQBMT(I+NM,2,2),I=1,NCR)
               WRITE(6,2530)  (HQBMT(I+NM,1,3),HQBMT(I+NM,2,3),I=1,NCR)
 2530          FORMAT(/(8F11.0))
C
            ELSE
C
C     WRITE ROUGHNESS REFERENCE ELEVATIONS
C
               WRITE(6,2540)
 2540          FORMAT(/' AT CORRESPONDING ELEVATIONS')
               WRITE(6,2550)  (HQBMT(I+NM,1,1),HQBMT(I+NM,2,1),I=1,NCR)
               WRITE(6,2550)  (HQBMT(I+NM,1,2),HQBMT(I+NM,2,2),I=1,NCR)
               WRITE(6,2550)  (HQBMT(I+NM,1,3),HQBMT(I+NM,2,3),I=1,NCR)
 2550          FORMAT(/(8F11.2))
C
            END IF
C
         END IF
C
      END DO
C-----------------------------------------------------------------------
C     ENTER SUBROUTINE LOCALS, READ (FIRST CALL),
C     AND COMPUTE LOCAL INFLOWS, ALL CHANNELS.
C
      IF ( ZLOC .GE. 0. )
     1   CALL LOCALS(DDT,SKIP,DUR,XINFL,DXM,TMILE,NREACH,ZLOC,QDG,
     2               NCHAN,PXINFL,RXINFL,N,J,JJJ,NBLNP)
      IF ( ZLOC .EQ. 8. ) CLOSE (8)
C
C     IF REQUESTED COMPUTE STARTING LINE
C
      DO I = 1,NCHAN
C
         M = MORDER(I)
```

```
         NM = N(M)+1
C
         IF ( H1(NM) .LE. 0.0 ) THEN
C
            IF ( KUBC(M) .EQ. 0 ) THEN
               H1(NM) = USBO(M)
            ELSE IF ( KUBC(M) .EQ. 1 ) THEN
               Q1(NM) = USBO(M)
            ELSE
               JDS = JNCTDS(M)
               IF ( JDS .GT. 0 ) THEN
                  IUP = NUSBR(JDS)
                  ISIDE = NSIBR(JDS)
                  IF ( M .EQ. NSIBR(JDS) .AND. JNCTUS(M) .EQ. 0 ) THEN
                     Q1(NM) = USBO(M)
                  ELSE
                     Q1(NM) = Q1(N(IUP+1))
                     IF ( ISIDE .GT. 0 )
     1                  Q1(NM) = Q1(NM) + Q1(N(ISIDE+1))
                  END IF
               END IF
            END IF
C
            NN = KKU(M)
            IF ( KUBC(M) .EQ. 0 .AND. Q1(NM) .LE. 0. ) THEN
               CALL GEOM(H1(NM),A1(NM),BL(M),RL(M),DB,NN,PRTFLG,
     1                   AREA,ELEV,R23,WIDTH,NSTEP,*9000)
               V1(NM) = 3.
               Q1(NM) = A1(NM) * V1(NM)
            END IF
C
            DO K = NM+1,N(M+1)
               NN = NN + 1
               IF ( H2(K-1) .LE. 0. )
     1            Q2(K-1) = Q1(K-1) + XINFL(NN-M)
               NN = NN + 1
               IF ( H1(K) .LE. 0. )
     1            Q1(K) = Q2(K-1) + XINFL(NN-M)
            END DO
C
            NCR = N(M+1)
C
            IF ( Q1(NCR) .LE. 0. .AND.
     1         ( M .EQ. KSPL .OR. KDBC(M) .EQ. 0 ) )
     2         Q1(NCR) = Q2(NCR-1) + XINFL(NN-M)
C
         END IF
C
      END DO
C
      DO MM = NCHAN,1,-1
C
         M = MORDER(MM)
         NCR = N(M+1)
C
```

```
      NNT = KKU(M)
      NNB = NNT + 2 * LN(M) - 2
      NN = NNB
C
      IF ( H1(NCR) .LT. 0.01 ) THEN
         IF ( JNCTUS(M) .EQ. 0 ) THEN
            IF ( KDBC(M) .EQ. 2 ) THEN
               CALL RATNGH(Q1(NCR),NDTP(M),M,DQTAB(1,M),
     1                     DELTAB(1,M),H1(NCR),*9000)
            ELSE IF ( KDBC(M) .EQ. 0 ) THEN
               KDBP = 0
               IF ( M .GT. 1 ) KDBP = NDBP(M-1)
               H1(NCR) = DSB(1+KDBP)
            ELSE IF ( M .EQ. NSIBR(JNCTDS(M)) ) THEN
               H1(NCR) = H1(N(NDSBR(JNCTDS(M)))+1)
            ELSE
               V1(NCR) = 3.
               A1(NCR) = Q1(NCR) / V1(NCR)
               CALL RVGEOM(A1(NCR),H1(NCR),NN,AREA,ELEV,R23,WIDTH,
     1                     NSTEP,*9000)
            END IF
         ELSE
            JUS = JNCTUS(M)
            IDOWN = NDSBR(JUS)
            H1(NCR) = H1(1+N(IDOWN))
         END IF
      END IF
C
      IF ( M .EQ. KSPL .OR. M .EQ. LSPL .OR.
     1     KRULE(M) .GT. 0 ) THEN
         KDBP = 0
         IF ( M .GT. 1 ) KDBP = NDBP(M-1)
         IF ( KDBC(M) .EQ. 0 ) THEN
            DSB(1+KDBP) = H1(NCR)
            DSB(2+KDBP) = H1(NCR)
         ELSE IF ( KDBC(M) .EQ. 1 ) THEN
            DSB(1+KDBP) = Q1(NCR)
            DSB(2+KDBP) = Q1(NCR)
         END IF
      END IF
C
      YLL = H1(NCR)
      YDI = YLL
      QDI = Q1(NCR)
      IDX = NCR
      JS = 1
C
      DO K = L(M)+NREACH(M),L(M)+1,-1
C
         YDSDS = YDS
         YDS = YDI
         QDS = QDI
         JS = 3 - JS
         IF ( JS .EQ. 2 ) THEN
              IDX = IDX - 1
```

```
                YDI = H2(IDX)
             QDI = Q2(IDX)
          ELSE
             YDI = H1(IDX)
             QDI = Q1(IDX)
          END IF
C
          NN = NN - 1
          KTR = 0
          KK = 10
C
          IF ( YDI .LT. 0.1 ) THEN
C
             DO WHILE ( KTR .LE. 2 .AND. KK .GE. 10 )
C
                QA = QDI + QDS
                QB = QA / 2.
                CALL GEOM(YDS,AD,BD,RD,DB,NN+1,PRTFLG,AREA,ELEV,R23,
     1                    WIDTH,NSTEP,*9000)
                IF ( ZNATRN .EQ. 0. ) THEN
                   IF ( BD .GT. 0. ) THEN
                      RD = ( AD / BD ) ** (2./3.)
                   ELSE
                      BD = AD / RD ** 1.5
                   END IF
                ELSE
                   IF ( RD .GT. 0. ) THEN
                      BD = AD / RD ** 1.5
                   ELSE
                      RD = ( AD / BD ) ** (2./3.)
                   END IF
                END IF
                DEP = YDS - ELEV(1,NN+1)
                IF ( KODEN(M) .EQ. 1 ) THEN
                   YQ = QB
                ELSE
                   YQ = 0.5 * ( YDS + YLL )
                END IF
C
                CALL FRICT(IDX,IDX,JS,KODEN(M),HQBMT,YQ,XNBMT,NBLNP,
     1                     CMM)
                CONST = CMM * CMM * DX(K) * QA * DABS(QA) / 2.21
C
                IF ( K .EQ. L(M)+NREACH(M) ) THEN
                   Y = ELEV(1,NN) + DEP
                ELSE
                   Y = ELEV(1,NN) + 0.5 *
     1                 ( DEP + YDSDS - ELEV(1,NN+2) )
                   IF ( KTR .EQ. 2 ) THEN
                      DELY = YDS - YDSDS
                      Y = YDS + DX(K) / DX(K+1) * DELY
                   END IF
                END IF
                YLL = Y
                ARZERO = .FALSE.
```

```
C
                IF ( KTR .EQ. 1 ) THEN
C
                   YSAVE = Y
                   IF ( KODEN(M) .NE. 1 ) YQ = YDS
                   IDXOLD = IDX
                   IF ( JS .EQ. 2 ) IDXOLD = IDX + 1
                   CALL FRICT(IDXOLD,IDXOLD,3-JS,KODEN(M),HQBMT,YQ,
     1                     XNBMT,NBLNP,CMR)
                   VD = QDS / AD
                   AEO = 100.
                   SFD = CMR * CMR * VD * VD /
     1                   ( 2.21 * RD * RD )
                   HGIRI = YDS + VD * VD / 64.4
                   Y = ELEV(1,NN) + 0.10
                   DH = ELEV(1,NN) - ELEV(1,NN+1)
                   DELX = DX(K)
C
                   IF ( DH .LT. 0.0001 ) THEN
                      DO I = L(M)+1,K-1
                         DELX = DELX + DX(I)
                      END DO
                      DH = ELEV(1,NNT) - ELEV(1,NNB)
                   END IF
C
                   IF ( DH .GE. 0.0001 ) THEN
C
                      S0 = SQRT(DH/DELX)
                      IF ( YDS .GT. ELEV(1,NN)+0.10 ) Y = YDS - 0.50
                      QQ = - 1.E+9
C
                      DO WHILE ( QQ .LT. QDI )
C
                         Y = Y + 0.5
                         CALL GEOM(Y,A,B,R,DB,NN,PRTFLG,AREA,ELEV,R23,
     1                            WIDTH,NSTEP,*9000)
                         IF ( ZNATRN .EQ. 0. ) THEN
                            IF ( B .GT. 0. ) THEN
                               R = ( A / B ) ** (2./3.)
                            ELSE
                               B = A / R ** 1.5
                            END IF
                         END IF
                         IF ( KODEN(M) .NE. 1 ) YQ = 0.5 * ( YDS + Y )
                         CALL FRICT(IDX,IDX,JS,KODEN(M),HQBMT,YQ,
     1                            XNBMT,NBLNP,CMM)
                         QQ = 1.486 * S0 / CMM * A * R
                         IF ( ZNBL .GE. 0. ) WRITE(6,2600) Y,QQ,QDI
 2600                    FORMAT(30X,2HY=,F8.2,5X,3HQQ=,F10.2,5X,
     1                            4HQDI=,F10.2)
                      END DO
C
                      Y = MAX(Y,YLL)
C
                   ELSE
```

```
                  Y = YLL
               END IF
C
               DONE = Y .LE. ELEV(1,NN)
               DO WHILE ( .NOT. DONE )
                  ARZERO = .TRUE.
                  CALL GEOM(Y,A,B,R,DB,NN,PRTFLG,AREA,ELEV,R23,
     1                    WIDTH,NSTEP,*2620)
                  ARZERO = A .LE. 0. .OR.
     1                  ( R .LE. 0. .AND. B .LE. 0. )
 2620             CONTINUE
                  DONE = ARZERO
                  IF ( .NOT. ARZERO ) THEN
                     IF ( ZNATRN .EQ. 0. ) THEN
                        IF ( B .GT. 0. ) THEN
                           R = ( A / B ) ** (2./3.)
                        ELSE
                           B = A / R ** 1.5
                        END IF
                     ELSE
                        IF ( R .GT. 0. ) THEN
                           B = A / R ** 1.5
                        ELSE
                           R = ( A / B ) ** (2./3.)
                        END IF
                     END IF
                     AA = 0.5 * ( A + AD )
                     BA = 0.5 * ( B + BD )
                     RA = ( AA / BA ) ** (2./3.)
                     VU = QDI / A
                     VH = VU * VU / 64.4
                     HGI = Y + VH
                     IF ( KODEN(M) .NE. 1 ) YQ = Y
                     CALL FRICT(IDX,IDX,JS,KODEN(M),HQBMT,YQ,
     1                     XNBMT,NBLNP,CMU)
                     SFU = CMU * CMU * VU * VU / ( 2.21 * R * R )
                     SFH = DX(K) * CMU * CMU * QB * DABS(QB) /
     1                  ( 2.21 * RA * RA * AA * AA )
                     HGIR = HGIRI + SFH
                     AE = DABS(HGIR-HGI)
                     DONE = AE .GT. AEO .OR. AE .LE. 0.01
                     IF ( AE .GT. AEO ) Y = YLL
                     IF ( .NOT. DONE ) THEN
                        DY = ( HGIR - HGI ) / ( 1. - VU * VU *
     1                     B / 32.2 / A + 1.5 * SFU * DX(K) *
     2                     B / A )
                        YLL = Y + DY
                        IF ( ZNBL .GE. 0. )
     1                     WRITE(6,2630) Y,A,VH,HGI,SFU,YDS,SFD,
     2                                   SFH,HGIRI,HGIR,AE,DY
 2630                   FORMAT(3X,2HY=,F10.2,3X,2HA=,F10.2,3X,
     1                         3HVH=,F10.2,3X,4HHGI=,F10.2,3X,
     2                         4HSFU=,F10.6/3X,4HYDS=,F10.2,3X,
     3                         4HSFD=,F10.6,3X,4HSFH=,F10.2,3X,
     4                         6HHGIRI=,F10.2,3X,5HHGIR=,F10.2,
```

```
     5                                  3X,3HAE=,F10.2,3X,3HDY=,F10.2)
                              AEO = AE
                              Y = Y + DY
                              DONE = Y .LE. ELEV(1,NN) .OR.
     1                               DABS(DY) .LT. 0.01
                           END IF
                        END IF
                     END DO
C
                  END IF
C
                  IF ( .NOT. ARZERO ) THEN
C
                     YLL = MAX(Y,ELEV(1,NN))
                     YDI = YLL
                     KK = 0
                     DONE = .FALSE.
                     DO WHILE ( .NOT. DONE )
                        IF ( KODEN(M) .NE. 1 )
     1                     YQ = 0.5 * ( YDS + YLL )
                        CALL FRICT(IDX,IDX,JS,KODEN(M),HQBMT,YQ,XNBMT,
     1                          NBLNP,CMM)
                        CONST = CMM * CMM * DX(K) * QA * DABS(QA) /
     1                          2.21
                        KK = KK + 1
                        ARZERO = .TRUE.
                        CALL GEOM(YLL,A,B,R,DB,NN,PRTFLG,AREA,ELEV,R23,
     1                         WIDTH,NSTEP,*2660)
                        ARZERO = A .LE. 0. .OR.
     1                         ( R .LE. 0. .AND. B .LE. 0. )
 2660                   CONTINUE
                        DONE = ARZERO
                        IF ( .NOT. ARZERO ) THEN
                           IF ( ZNATRN .NE. 0. ) THEN
                              IF ( R .GT. 0. ) B = A / R ** 1.5
                           ELSE
                              IF ( B .GT. 0. ) THEN
                                 R = ( A / B ) ** (2./3.)
                              ELSE
                                 B = A / R ** 1.5
                              END IF
                           END IF
                           AB = 0.5 * ( AD + A )
                           BB = 0.5 * ( BD + B )
                           RB = ( AB / BB ) ** (2./3.)
                           SFB = CMM * CMM / 2.21 * QB * DABS(QB) /
     1                         ( RB * RB * AB * AB )
                           GSFX = 32.2 * DX(K) * AB * SFB
                           F = QDS * QDS / AD - QDI * QDI / A +
     1                         32.2 * AB * ( YDS - YLL ) + GSFX
                           FP = QDI * QDI * B / ( A * A ) + 32.2 *
     1                          ( -AB + B / 2. * ( YDS - YLL ) ) +
     2                          GSFX * ( 4. / 6. * DB / BB -
     3                          10. / 6. * B / AB )
                           YLLN = YLL - F / FP
```

```
                        IF ( ZNBL .GE. 0. )
     1                     WRITE(6,2670) KK,QB,YLLN,YLL,A,B,CMM,SFB
 2670                      FORMAT(3X,3HKK=,I5,2X,3HQB=,F9.1,2X,
     1                            5HYLLN=,F9.1,2X,4HYLL=,F9.1,2X,
     2                            2HA=,F9.1,2X,2HB=,F9.1,2X,4HCMM=,
     3                            F9.3,2X,4HSFB=,F9.6)
                        DONE = DABS(YLL-YLLN) .LE. 0.05 .OR.
     1                         KK .EQ. 10
                        IF ( DABS(YLL-YLLN) .LE. 0.05 ) KK = 0
                        YLL = YLLN
                     END IF
                  END DO
C
                  IF ( 10.*A .LT. QDI .AND. KTR .EQ. 0 ) KK = 10
                  IF ( .NOT. ARZERO ) YDI = YLLN
C
               END IF
C
               IF ( ARZERO .OR. KK .EQ. 10 ) THEN
                  KK = 10
                  IF ( KTR .EQ. 2 ) YDI = YSAVE
                  KTR = KTR + 1
                  WRITE(6,2680) NN
 2680             FORMAT(5X,'STEP-BACKWATER ALGORITHM DID NOT ',
     1                     'CONVERGE AT CROSS-SECTION NO.',I5)
               END IF
C
            END DO
C
C           IF CURRENT VELOCITY HAS > 10 FT/SEC DIFFERENCE FROM PREVIOUS
C           D.S. VELOCITY, SET VELOCITY TO D.S. VELOCITY
C
            CALL GEOM(YDI,A,B,R,DB,NN,PRTFLG,AREA,ELEV,R23,WIDTH,
     1                NSTEP,*9000)
            IF ( DABS(QDI/A-QDS/AD) .GT. 10. ) THEN
               OLDA = A
               OLDY = YDI
               A = QDI * AD / QDS
               CALL RVGEOM(A,YDI,NN,AREA,ELEV,R23,WIDTH,NSTEP,*9000)
               WRITE (6,2685) NN,OLDY,YDI,QDI/OLDA,QDI/A
 2685          FORMAT (' *** WARNING -- THE FOLLOWING "PATCH" WAS',
     1                 ' APPLIED TO X-SECT',I4,' TO STAY ALIVE'/4X,
     2                 ' ELEVATION FROM ',F7.2,' TO ',F7.2/5X,
     3                 ' VELOCITY FROM ',F7.2,' TO ',F7.2//)
            END IF
C
            DEPI = YDI - ELEV(1,NN)
            IF ( ZNBL .GE. 0. )
     1         WRITE(6,2690) IDX,KK,KTR,QDI,YDI,Y,DEPI,A
 2690          FORMAT(3X,4HIDX=,I3,5X,3HKK=,I2,5X,4HKTR=,I1,5X,4HQDI=,
     1                F10.2,5X,4HYDI=,F10.2,5X,5HYLLI=,F10.2,5X,
     2                6HDEPTH=,F6.2,5X,2HA=,F10.2)
C
            IF ( JS .EQ. 1 ) THEN
                  H1(IDX) = YDI
```

```
                ELSE
                       H2(IDX) = YDI
                END IF
C
             END IF
C
          END DO
C
       END DO
C
C-----------------------------------------------------------------------
C      INTERPOLATE STARTING AREA,R23 AND WIDTH
C      AT ALL BOUNDARIES AND JUNCTIONS, AND COMPUTE STARTING VELOCITIES
C      AT ALL BOUNDARIES AND JUNCTIONS.  NN IS THE RANK OF THE BOUNDARY
C      POINTS IS THE SEQUENCE OF NODES.
C-----------------------------------------------------------------------
       NN = 1
       NM = 1
       DO M = 1,NCHAN
C
          NCR = N(M+1)
          IOUT = 1
          DO MM = 1,NMDS
             IF ( M .EQ. MDS(MM) ) BNDOUT(1,MM) = Q1(NCR)
          END DO
C
          HLL = H1(NM)
          CALL GEOM(H1(NM),AL(M),BL(M),RL(M),DB,NN,PRTFLG,AREA,ELEV,R23,
     1              WIDTH,NSTEP,*9000)
          HL(M) = H1(NM)
          QL(M) = Q1(NM)
          VL(M) = QL(M) / AL(M)
C
          ARJ(M) = AL(M)
          BRJ(M) = BL(M)
          HRJ(M) = HL(M)
          QRJ(M) = QL(M)
          RRJ(M) = RL(M)
          VRJ(M) = VL(M)
C
          NN = L(M+1)
          CALL GEOM(H1(NCR),AR(M),BR(M),RR(M),DB,NN,PRTFLG,AREA,ELEV,R23,
     1              WIDTH,NSTEP,*9000)
          HR(M) = H1(NCR)
          QR(M) = Q1(NCR)
          VR(M) = QR(M) / AR(M)
C
          ALJ(M) = AR(M)
          BLJ(M) = BR(M)
          HLJ(M) = HR(M)
          QLJ(M) = QR(M)
          RLJ(M) = RR(M)
          VLJ(M) = VR(M)
          NN = NN + 1
C-----------------------------------------------------------------------
```

```
C         INITIALIZATION OF H AND Q FOR ALL BOUNDARIES.
C
          ENEXTL(M) = H1(NM)
          ENEXTR(M) = H1(NCR)
          QNEXTL(M) = Q1(NM)
          QNEXTR(M) = Q1(NCR)
C-----------------------------------------------------------------------
C         INITIALIZATION OF H AND Q CYCLES,ALL BOUNDARIES.
C
          IECKL(M) = 1
          IQCKL(M) = 1
          IECKR(M) = 1
          IQCKR(M) = 1
C-----------------------------------------------------------------------
C         INITIALIZATION OF H AND Q CYCLE COUNTERS,ALL BOUNDARIES.
C
          IEL(M) = 1
          IQL(M) = 1
          IER(M) = 1
          IQR(M) = 1
C
          NM = NCR + 1
       END DO
C
C-----------------------------------------------------------------------
C      INTERPOLATE STARTING LINES AREA,R23 AND WIDTH FROM GEOMETRY FOR
C      BOUNDARY LINE AND NON-BOUNDARY LINE NET POINTS,ALL CHANNELS.
C-----------------------------------------------------------------------
       NN = 1
       KK = 2 * LN(1) - 1
       DO M = 1,NCHAN
          KL = N(M) + 1
C      IF(NN.EQ.KK) CALL GEOM(H1(1,M),A1(1,M),B1(1,M),R1(1,M),NN,*9000)
C
          CALL TGEOM(H1,A1,B1,R1,NN,KK,KL,TDUR,PTCHTM,AREA,ELEV,R23,
     1                WIDTH,NSTEP,*9000)
          NN = NN + 1
          KK = KK - 1
          IF ( NN .LE. KK ) THEN
             KL = N(M) + 1
             CALL TGEOM(H2,A2,B2,R2,NN,KK,KL,TDUR,PTCHTM,AREA,ELEV,R23,
     1                   WIDTH,NSTEP,*9000)
          END IF
          NN = KK + 2
          KK = KK + 2 * LN(M+1)
       END DO
C
C      FIND FREE SURFACES BETWEEN CHANNELS WITH NO SIDE CHANNEL
C      & IDENTICAL GEOMETRIES AT JUNCTION
C
       DO I = 1,NJUNCT
          IF ( NSIBR(I) .EQ. 0 ) THEN
             NUS = NUSBR(I)
             NDS = NDSBR(I)
             NODEUS = N(NUS+1)
```

```
            NODEDS = N(NDS)+1
CCCCCCCCCCCCIF ( R1(NODEUS) .EQ. R1(NODEDS) ) MFRSRF(NUS) = NDS
         END IF
      END DO
      If ( NJUNCT .EQ. 0 ) MFRSRF(1) = 0
C
C-----------------------------------------------------------------------
C     COMPUTE STARTING VELOCITIES FOR BOUNDARY AND NON-BOUNDARY LINE
C     NET POINTS,ALL CHANNELS.
C
      DO M = 1,NCHAN
         NCR = N(M+1)
         DO I = N(M)+1,NCR
            IF ( I .EQ. NCR ) A2(I) = 1.0
            V1(I) = Q1(I) / A1(I)
            IF ( NCR .NE. N(M)+1 ) V2(I) = Q2(I) / A2(I)
         END DO
      END DO
C-----------------------------------------------------------------------
C                PRINT THE STARTING LINES
C-----------------------------------------------------------------------
      WRITE(6,2700)
 2700 FORMAT(///' THE INITIAL CONDITIONS ARE:'/
     1          '+_________________________')
C-----------------------------------------------------------------------
      WRITE(6,2710) MNTH,KDAY,KYEAR,TITLE
 2710 FORMAT(/'0DATE',1X,I3,'-',I2.2,'-',I2.2,5X,A80//)
C
C-----------------------------------------------------------------------
C     COMPUTE TIME IN HOURS FOR BOUNDARY STARTING LINES,XTIME.
C
      XTIME = TIME
C-----------------------------------------------------------------------
C     WRITE STARTING BOUNDARY LINES,ALL CHANNELS.
C
      WRITE(6,2720) XTIME
 2720 FORMAT(5X,       'TIME',F8.4,4X,'ELEVATION   DISCHARGE  VELOCITY
     1  AREA       WIDTH    R(2/3)'/)
C
      KK = 0
      DO M = 1,NCHAN
C-----------------------------------------------------------------------
C     INITIALIZATION OF RIVER MILE PARAMETERS FOR WRITING BOUNDARY LINES
C-----------------------------------------------------------------------
         XMIL = TMILE(M)
         DO I = N(M)+1,N(M+1)
            WRITE(6,2730) XMIL,H1(I),Q1(I),V1(I),A1(I),B1(I),R1(I)
 2730       FORMAT('     MILE',F8.2,F12.2,F12.0,F9.2,F12.0,F11.0,F9.2,
     1                        F9.4,F12.0,F10.0,F8.2)
            KK = KK + 2
            XMIL = XMIL - ( DXM(KK-1) + DXM(KK) )
         END DO
         KK = KK - 2
         WRITE(6,2800)
 2800    FORMAT(/)
```

```
      END DO
C-----------------------------------------------------------------------
C     COMPUTE TIME IN HOURS FOR NON-BOUNDARY STARTING LINES,XTIME.
C
      XTIME = TIME + DDT
C     WRITE STARTING NON-BOUNDARY LINES,ALL CHANNELS.
C
      WRITE(6,2720) XTIME
C
      KK = 1
      DO M = 1,NCHAN
C
C-----------------------------------------------------------------------
C     INITIAL. OF RIVER MILE PARAMETERS FOR WRITING NON-BOUNDARY LINES.
C-----------------------------------------------------------------------
         XMIL = TMILE(M) - DXM(KK)
         DO I = N(M)+1,N(M+1)-1
            WRITE(6,2730) XMIL,H2(I),Q2(I),V2(I),A2(I),B2(I),R2(I)
            KK = KK + 2
            XMIL = XMIL - ( DXM(KK-1) + DXM(KK) )
         END DO
         IF ( LN(M) .GT. 1 ) WRITE(6,2800)
      END DO
C
C-----------------------------------------------------------------------
C     EXTRACT INITIAL HYDROGRAPH OUTPUT ORDINATES
C-----------------------------------------------------------------------
      IF ( NUMOUT .GT. 0 ) THEN
C
         KK = 1
         IPTR = 0
C
         DO M = 1,NCHAN
C
            DO I = N(M)+1,N(M+1)
C
               IF ( PRMILE(KK) .LT. 0. ) THEN
                  IPTR = IPTR + 1
                  QOUT(IOUT,IPTR) = Q1(I)
                  HOUT(IOUT,IPTR) = H1(I)
               END IF
C
               KK = KK + 2
C
            END DO
C
            KK = KK - 1
C
         END DO
C
      END IF
C
C-----------------------------------------------------------------------
C
c     OPEN(101,FILE='SOCHDUMP')
```

```
      DO WHILE ( TDUR .LE. DUR+DDT/2. )
C
C     MAIN PROGRAM COMPUTATION LOOP STARTS HERE.
C
C-----------------------------------------------------------------------
C
C        COMPUTE MANNING N'S FOR ALL CHANNELS.
C
         DO M = 1,NCHAN
            NCR = N(M+1) + J - 2
            NM = N(M) + 1
            IF ( KODEN(M) .EQ. 1 ) THEN
               IF ( J .EQ. 1 ) THEN
                  CALL FRICT(NM,NCR,3-J,KODEN(M),HQBMT,H2(NM),XNBMT,
     1                       NBLNP,XNU(NM))
               ELSE
                  CALL FRICT(NM,NCR,3-J,KODEN(M),HQBMT,H1(NM),XNBMT,
     1                       NBLNP,XNU(NM))
               END IF
            ELSE
               IF ( J .EQ. 1 ) THEN
                  CALL FRICT(NM,NCR,3-J,KODEN(M),HQBMT,Q2(NM),XNBMT,
     1                       NBLNP,XNU(NM))
               ELSE
                  CALL FRICT(NM,NCR,3-J,KODEN(M),HQBMT,Q1(NM),XNBMT,
     1                       NBLNP,XNU(NM))
               END IF
            END IF
         END DO
C
         IF ( J .EQ. 1 ) THEN
            DO M = 1,NCHAN
               KCR = N(M+1) - 1
               IF ( KCR .EQ. N(M) ) KCR = KCR + 1
               QLG(M) = QDG(N(M)+1)
               QRG(M) = QDG(KCR)
            END DO
         END IF
C-----------------------------------------------------------------------
C     INCREMENT PRINT CONTROL CYCLE COUNTER,JK.
C
         JK = JK + 1
C
         IF ( J .EQ. 2 ) THEN
C-----------------------------------------------------------------------
C     COMPUTE H & V FOR NEXT BOUNDARY LINE INTERIOR PTS, ALL CHANNELS.
C
            DO M = 1,NCHAN
               IM = 2 * N(M) - M + 1
               DO I = N(M)+2,N(M+1)-1
                  IM = IM + 2
                  H3(I) = H1(I) + 1.0 / B1(I) * ( U(IM) * ( A2(I-1) *
     1                    V2(I-1) - A2(I) * V2(I) ) + U(IM) * QDG(I) )
                  GM = 32.2 * XNU(I) * XNU(I) / ( 2.208196 *
     1                 R1(I) * R1(I) ) * 2.0 * DT
```

```
                 DELV = U(IM) * ( ( V2(I-1) * V2(I-1) -
     1                  V2(I) * V2(I) ) / 2.0 + 32.2 * ( H2(I-1) -
     2                  H2(I) ) ) - U(IM) * QDG(I) * V1(I) / A1(I) -
     3                  GM * V1(I) * DABS(V1(I))
                 IF ( ZNATRN .NE. 0. .AND.
     1                DABS(DELV) .GT. 0.2*DABS(V1(I)) )
     2                   DELV = SIGN(.2,DELV) * MAX(1.D0,DABS(V1(I)))
                 V3(I) = V1(I) + DELV
                 IF ( DABS(V3(I)) .LT. ZZ ) V3(I) = 0.0
              END DO
              IF ( MFRSRF(M) .GT. 0 ) THEN
                 NDS = MFRSRF(M)
                 UIM = 2.0 * DT / ( DX(L(M)+NREACH(M)) + DX(L(NDS)+1) )
                 QDGI =  XINFL(L(M+1)-M) + XINFL(L(NDS)+2-NDS)
                 I = N(NDS) + 1
                 IM1 = N(M+1) - 1
                 H3(I) = H1(I) + 1.0 / B1(I) * ( UIM * ( A2(IM1) *
     1                   V2(IM1) - A2(I) * V2(I) ) + UIM * QDGI )
                 GM = 32.2 * XNU(I) * XNU(I) / ( 2.208196 *
     1                R1(I) * R1(I) ) * 2.0 * DT
                 DELV = UIM * ( ( V2(IM1) * V2(IM1) -
     1                  V2(I) * V2(I) ) / 2.0 + 32.2 * ( H2(IM1) -
     2                  H2(I) ) ) - UIM * QDGI * V1(I) / A1(I) -
     3                  GM * V1(I) * DABS(V1(I))
                 IF ( ZNATRN .NE. 0. .AND.
     1                DABS(DELV) .GT. 0.2*DABS(V1(I)) )
     2                   DELV = SIGN(.2,DELV) * MAX(1.D0,DABS(V1(I)))
                 V3(I) = V1(I) + DELV
                 IF ( DABS(V3(I)) .LT. ZZ ) V3(I) = 0.0
                 H3(IM1+1) = H3(I)
                 V3(IM1+1) = V3(I)
              END IF
           END DO
C
        ELSE
C-----------------------------------------------------------------------
C     COMPUTE H & V FOR NEXT NON-BOUNDARY LINE INTERIOR PTS,ALL CHANNELS
C
           DO M = 1,NCHAN
              IM = 2 * N(M) - M
              DO I = N(M)+1,N(M+1)-1
                 IM = IM + 2
                 H3(I) = H1(I) + 1.0 / B1(I) * ( U(IM) * ( A2(I) *
     1                   V2(I) - A2(I+1) * V2(I+1) ) + U(IM) * QDG(I) )
                 GM = 32.2 * XNU(I) * XNU(I) / ( 2.208196 *
     1                R1(I) * R1(I) ) * 2.0 * DT
                 DELV = U(IM) * ( ( V2(I) * V2(I) - V2(I+1) *
     1                  V2(I+1) ) / 2.0 + 32.2 * ( H2(I) - H2(I+1) ) )
     2                  - U(IM) * QDG(I) * V1(I) / A1(I) - GM *
     3                  V1(I) * DABS(V1(I))
                 IF ( ZNATRN .NE. 0. .AND.
     1                DABS(DELV) .GT. 0.2*DABS(V1(I)) )
     2                   DELV = SIGN(.2,DELV) * MAX(1.D0,DABS(V1(I)))
                 V3(I) = V1(I) + DELV
                 IF ( DABS(V3(I)) .LT. ZZ ) V3(I) = 0.0
```

```
               END DO
            END DO
C
         END IF
C
C-----------------------------------------------------------------------
C     INTERPOLATE AREA,R23 AND WIDTH FOR BOUNDARY OR NON-BOUNDARY LINE,
C     ALL CHANNELS.
C
         NN = J + 1
         KK = 2 * LN(1) - NN
         DO M = 1,NCHAN
            IF ( NODES(M) .NE. 1 ) THEN
               DONE = .FALSE.
               DO WHILE ( .NOT. DONE )
                  KL = N(M) + J
                  CALL TGEOM(H3,A3,B3,R3,NN,KK,KL,TDUR,PTCHTM,AREA,ELEV,
     1                       R23,WIDTH,NSTEP,*2900)
                  DONE = .TRUE.
 2900             CONTINUE
                  IF ( .NOT. DONE ) THEN
                     JUS = KL - J + 1
                     JDS = JUS + 1
                     NNL = NN + 2 * ( KL - N(M) - J )
                     PRTFLG = TDUR-PTCHTM(NNL) .GT. PRINT/60.
                     IF ( PRTFLG ) PTCHTM(NNL) = TDUR
                     CALL PATCH(NNL,Q2(JUS),Q2(JDS),A2(JUS),A2(JDS),
     1                          H3(KL),V3(KL),PRTFLG,AREA,ELEV,
     2                          R23,WIDTH,NSTEP,*9000)
                  END IF
               END DO
               DO I = N(M)+J,N(M+1)-1
                  Q3(I) = A3(I) * V3(I)
               END DO
            END IF
            NN = KK + 2 * J + 1
            KK = KK + 2 * LN(M+1) - 1
         END DO
C
C-----------------------------------------------------------------------
C         COMPUTE LOCAL INFLOWS FOR MOST UPSTREAM NET POINTS
C         ALL CHANNELS.
C
         K = 1
         DO M = 1,NCHAN
            IF ( LN(M) .EQ. 1 ) THEN
               QLL(M) = 0.0
            ELSE
               QLL(M) = XINFL(K)
               IF ( J .EQ. 2 ) QLL(M) = XINFL(K) + XINFL(K+1)
               K = K + 2 * LN(M) - 2
            END IF
         END DO
C
C-----------------------------------------------------------------------
```

```
C          COMPUTE LOCAL INFLOWS FOR MOST DOWNSTREAM NET POINTS
C          ALL CHANNELS.
C
         K = 2 * ( LN(1) - 1 )
         DO M = 1,NCHAN
            IF ( LN(M) .EQ. 1 ) THEN
               QRL(M) = 0.0
            ELSE
               QRL(M) = XINFL(K)
               IF ( J .EQ. 2 ) QRL(M) = XINFL(K) + XINFL(K-1)
               K = K + 2 * ( LN(M+1) - 1 )
            END IF
         END DO
C-----------------------------------------------------------------------
C     COMPUTATIONS FOR ALL UPSTREAM BOUNDARIES AND DOWNSTREAM JUNCTIONS,
C     ALL CHANNELS.
C-----------------------------------------------------------------------
         NN = 1
         KUBP = 0
C
         DO M = 1,NCHAN
C
            IF ( LN(M) .NE. 1 ) THEN
C
               NM = N(M) + 1
               LM = L(M) + 1
               L1 = N(M+1) - 1
               N1 = N(M+1)
               JUS = IUS(M) + KUBP
C
C-------------------------------TYPE OF OPERATION----U.S.---------------
C
               IF ( KUBC(M) .EQ. 0 ) THEN
C
C-----------------------------------------------------------------------
C     ELEVATION PRESCRIBED AT UPSTREAM BOUNDARY OF CHANNEL.
C-----------------------------------------------------------------------
C     INTERPOLATE OR READ UPSTREAM BOUNDARY ELEVATION FOR CHANNEL.
C
C-----------------------MOVE AHEAD ONE CYCLE---------------------------
C
                  IEL(M) = MIN(IEL(M)+1,IECKL(M))
C
                  IF ( TDUR .GT. UST(JUS-1)-SKIP .AND. NUBP(M) .GT. 0 )
     1            THEN
                     EPREVL(M) = ENEXTL(M)
                     ENEXTL(M) = USB(JUS)
                     IECKL(M) = ( UST(JUS) - UST(JUS-1) ) / DDT + .1
                     IUS(M) = IUS(M) + 1
C
C------------THE ELEVATION AT BOUNDARY IS DEFINED EVERY CYCLE-----------
C------------------BUT THE FIRST POINT IS THE THIRD LINE----------------
                     IEL(M) = 1
                     IF ( STU(M) ) IEL(M) = 2
                     STU(M) = .FALSE.
```

```
                    IECKL(M) = MAX(IECKL(M),IEL(M))
                 END IF
C
                 PRCNT = DFLOAT(IEL(M)) / DFLOAT(IECKL(M))
                 HP = PRCNT * ( ENEXTL(M) - EPREVL(M) ) + EPREVL(M)
C
C-----------------------------------------------------------------------
C     COMPUTE UPSTREAM BOUNDARY VELOCITY AND DISCHARGE FOR CHANNEL.
C-----------------------------------------------------------------------
C
                 BETAL = DSQRT(32.2/(AL(M)*BL(M)))
C
                 IF ( J .EQ. 1 ) THEN
                    UMULT = U(LM)
C-------------------------MOVE AHEAD ONE CYCLE---------------------------
                    IQL(M) = IQL(M) + 1
                 ELSE
                    UMULT = 2.0 * DT / DX(LM)
                 END IF
C
                 NMJ3 = N(M) - J + 3
                 VP = VL(M) - BETAL * BL(M) * ( HL(M) - HP ) - 0.5 *
     1                ( ( ( V2(NMJ3) * V2(NMJ3) - VL(M) * VL(M) ) /
     2                2.0 + 32.2 * ( H2(NMJ3) - HL(M) ) - BETAL *
     3                ( Q2(NMJ3) - QL(M) ) ) * UMULT + ( 64.4 * DT *
     4                VL(M) * DABS(VL(M)) * XNU(NM) * XNU(NM) ) /
     5                ( 2.208196 * RL(M) * RL(M) ) + UMULT *
     6                QLL(M) * ( BETAL + VL(M) / AL(M) ) )
                 IF ( DABS(VP) .LT. ZZ ) VP = 0.0
C
                 CALL GEOM(HP,AL(M),BL(M),RL(M),DB,NN,PRTFLG,AREA,ELEV,
     1                     R23,WIDTH,NSTEP,*9000)
                 QL(M) = AL(M) * VP
                 HL(M) = HP
                 VL(M) = VP
C
                 IF ( J .EQ. 2 ) THEN
                    V3(NM) = VP
                    A3(NM) = AL(M)
                    B3(NM) = BL(M)
                    H3(NM) = HP
                    Q3(NM) = QL(M)
                    R3(NM) = RL(M)
                 END IF
C
              ELSE IF ( KUBC(M) .EQ. 1 ) THEN
C
C-----------------------------------------------------------------------
C     DISCHARGE PRESCRIBED AT UPSTREAM BOUNDARY OF CHANNEL.
C-----------------------------------------------------------------------
C
C-------------------------MOVE AHEAD ONE CYCLE---------------------------
C
                 IQL(M) = MIN(IQL(M)+1,IQCKL(M))
C
```

```
                  IF ( J .EQ. 2 ) THEN
C
C-----------------------------------------------------------------------
C     INTERPOLATE OR READ UPSTREAM BOUNDARY DISCHARGE,ALL CHANNELS.
C
                     IF ( TDUR .GT. UST(JUS-1)-SKIP .AND.
     1                    NUBP(M) .GT. 0 ) THEN
                        QPREVL(M) = QNEXTL(M)
                        QNEXTL(M) = USB(JUS)
                        IQCKL(M) = ( UST(JUS) - UST(JUS-1) ) / DDT + 0.1
                        IQCKL(M) = MAX(IQCKL(M),2)
                        IUS(M) = IUS(M) + 1
C
C---------DISCHARGE AT BOUNDARY IS DEFINED EVERY 2 CYCLES---------------
C-----------------THE FIRST POINT IS THE THIRD LINE--------------------
                        IQL(M) = 2
                     END IF
C
                     PRCNT = DFLOAT(IQL(M)) / DFLOAT(IQCKL(M))
                     Q3(NM) = PRCNT * ( QNEXTL(M) - QPREVL(M) ) +
     1                         QPREVL(M)
C
C-----------------------------------------------------------------------
C     COMPUTE UPSTREAM BOUNDARY ELEVATIONS AND VELOCITIES,ALL CHANNELS.
C
                     H3(NM) = H1(NM) + H1(NM+1) - H3(NM+1) +
     1                         ( 2.0 * U(LM) * QLL(M) - U(LM) *
     2                         ( A3(NM+1) * V3(NM+1) + A1(NM+1) *
     3                         V1(NM+1) - Q3(NM) - Q1(NM) ) ) / B2(NM)
C
                     DONE = .FALSE.
                     PRTFLG = TDUR-PTCHTM(NN) .GT. PRINT/60.
                     CALL GEOM(H3(NM),A3(NM),B3(NM),R3(NM),DB,NN,
     1                         PRTFLG,AREA,ELEV,R23,WIDTH,NSTEP,*2950)
                     DONE = .TRUE.
 2950                CONTINUE
                     IF ( .NOT. DONE ) THEN
                        IF ( PRTFLG ) PTCHTM(NN) = TDUR
                        CALL PATCH(NN,Q2(NM),Q2(NM),A2(NM),A2(NM),
     1                            H3(NM),V3(NM),PRTFLG,AREA,ELEV,
     2                            R23,WIDTH,NSTEP,*9000)
                        PRTFLG = .TRUE.
                        CALL GEOM(H3(NM),A3(NM),B3(NM),R3(NM),DB,NN,
     1                           PRTFLG,AREA,ELEV,R23,WIDTH,NSTEP,*9000)
                     END IF
                     IF ( ZNATRN .NE. 0. .OR. DONE ) THEN
                        V3(NM) = Q3(NM) / A3(NM)
                     ELSE
                        Q3(NM) = V3(NM) * A3(NM)
                     END IF
C
                  END IF
C
               ELSE IF ( KUBC(M) .EQ. 2 ) THEN
C
```

```
                  IF ( J .EQ. 1 ) THEN
C
C-----------------------MOVE AHEAD ONE CYCLE--------------------------
                     IQL(M) = MIN(IQL(M)+1,IQCKL(M))
C
                  ELSE
C
C-----------------------------------------------------------------------
C     COMPUTE U.S. BOUNDARY ELEVATION & DISCHARGE FROM RATING TABLE FOR
C     UPSTREAM END OF CHANNEL.
C-----------------------------------------------------------------------
C
                     H3(NM) = H1(NM)
                     DONE = .FALSE.
C
                     DO WHILE ( .NOT. DONE )
C
                        CALL RATNGQ(H3(NM),NUTP(M),M,UELTAB(1,M),
     1                              UQTAB(1,M),Q3(NM),*9000)
C
                        HBB = H1(NM) + H1(NM+1) - H3(NM+1) + U(LM) *
     1                        ( 2.0 * QLL(M) - A3(NM+1) * V3(NM+1) -
     2                        A1(NM+1) * V1(NM+1) + Q3(NM) + Q1(NM) ) /
     3                        B2(NM)
C
                        DONE = DABS(H3(NM)-HBB) .LE. 0.0004
                        H3(NM) = 0.5 * ( H3(NM) + HBB )
C
                     END DO
C
                     PRTFLG = .TRUE.
                     CALL GEOM(H3(NM),A3(NM),B3(NM),R3(NM),DB,NN,
     1                       PRTFLG,AREA,ELEV,R23,WIDTH,NSTEP,*9000)
                     V3(NM) = Q3(NM) / A3(NM)
C
                  END IF
C
               END IF
C
               IF ( KDBC(M) .EQ. 3 ) THEN
C
                  IF ( J .EQ. 1 ) THEN
                     LN1 = L1
                     UMULT = U(L(M)+2*LN(M)-3)
                  ELSE
                     LN1 = N1
                     UMULT = 2.0 * DT / DX(L(M)+2*LN(M)-2)
                  END IF
C
C-----------------------------------------------------------------------
C     COMPUTE JUNCTION PARAMETERS G & H OR O & P FOR THE D.S. END OF THE
C     CHANNEL, NON-BOUNDARY OR BOUNDARY LINE COMPUTATIONS, RESPECTIVELY.
C
                  BETALJ = DSQRT(32.2/(ALJ(M)*BLJ(M)))
                  GVM = VLJ(M) + BETALJ * BLJ(M) * HLJ(M) + 0.5 *
```

```
     1                  ( ( ( V2(L1) * V2(L1) - VLJ(M) * VLJ(M) ) / 2.0
     2                  + 32.2 * ( H2(L1) - HLJ(M) ) + BETALJ *
     3                  ( Q2(L1) - QLJ(M) ) ) * UMULT - ( 64.4 * DT *
     4                  VLJ(M) * DABS(VLJ(M)) * XNU(LN1) * XNU(LN1) ) /
     5                  ( 2.208196 * RLJ(M) * RLJ(M) ) + UMULT *
     6                  QRL(M) * ( BETALJ - VLJ(M) / ALJ(M) ) )
                  HWM = - BETALJ * BLJ(M)
C
                  IF ( J .EQ. 1 ) THEN
                     G(M) = GVM
                     H(M) = HWM
                  ELSE
                     V(M) = GVM
                     W(M) = HWM
                  END IF
C
               END IF
C
            END IF
C
            NN = NN + 2 * LN(M) - 1
            KUBP = NUBP(M)
C
         END DO
C
C-----------------------------------------------------------------------
C     COMPUTATIONS FOR ALL DOWNSTREAM BOUNDARIES AND UPSTREAM JUNCTIONS,
C     ALL CHANNELS.
C-----------------------------------------------------------------------
         NN = 2 * LN(1) - 1
         PRTFLG = .TRUE.
C
         KDBP = 0
         DO M = 1,NCHAN
C
            RULES = .FALSE.
            RATBL = .FALSE.
C
            NM = N(M) + 1
            LM = L(M) + 1
            L2 = N(M+1) - 1
            N2 = N(M+1)
            JDS = IDS(M) + KDBP
C---------------PARTIAL DAM FAILURE AT FLRH OR FLRQ OR FLRTIM ON FLRDAY-
C
            IF ( KTOTFL(M) .EQ. 0 ) THEN
               IF ( ( .NOT. IFL(M) .AND. ( H3(N2) .GT. FLRH(M) .OR.
     1                                     Q3(N2) .GT. FLRQ(M) ) )
     2              .OR.
     3              ( DFLOAT(KDAY) .EQ. FLRDAY(M) .AND.
     4                DABS(XTIME+3.0*DDT-FLRTIM(M)) .LE. 0.0001 ) ) THEN
C
                  IFL(M) = .TRUE.
                  KDBC(M) = 2
                  KTAB(M) = 4
```

```
                  BTIME = XTIME + DDT
                  WRITE(6,3000) KDAY,BTIME,M
 3000             FORMAT(/' DAY',I3,' TIME',F8.4,' A PARTIAL FLR',
     1                   ' OCCURS AT THE DS END OF CHANNEL',I2,
     2                   '--SWITCH TO AFTER FAILURE GUIDE TABLE NO. 4')
               END IF
            END IF
C
C--------------------------------TYPE OF OPERATION---D.S.---------------
C
            IF ( KDBC(M) .EQ. 0 ) THEN
C-----------------------------------------------------------------------
C     ELEVATION PRESCRIBED AT DOWNSTREAM BOUNDARY OF CHANNEL.
C
C     INTERPOLATE OR READ DOWNSTREAM BOUNDARY ELEVATION FOR CHANNEL.
C-----------------------------------------------------------------------
C-----------------------MOVE AHEAD ONE CYCLE---------------------------
C
               IER(M) = MIN(IER(M)+1,IECKR(M))
               IF ( NDBP(M) .GT. 0 ) THEN
                  IF ( TDUR .GT. DST(JDS-1)-SKIP ) THEN
                     EPREVR(M) = ENEXTR(M)
                     ENEXTR(M) = DSB(JDS)
                     IECKR(M) = ( DST(JDS) - DST(JDS-1) ) / DDT + 0.1
                     IDS(M) = IDS(M) + 1
C------------THE ELEVATION AT BOUNDARY IS DEFINED EVERY CYCLE-----------
C------------------BUT THE FIRST POINT IS THE THIRD LINE----------------
                     IER(M) = 1
                     IF ( STD(M) ) IER(M) = 2
                     STD(M) = .FALSE.
                     IECKR(M) = MAX(IECKR(M),IER(M))
                  END IF
               END IF
               PRCNT=DFLOAT(IER(M))/DFLOAT(IECKR(M))
               HP=PRCNT*(ENEXTR(M)-EPREVR(M))+EPREVR(M)
C
C-----------------------------------------------------------------------
C     COMPUTE DOWNSTREAM BOUNDARY VELOCITY AND DISCHARGE,ALL CHANNELS.
C
               BETAR = DSQRT(32.2/(AR(M)*BR(M)))
C
               IF ( J .EQ. 1 ) THEN
                  UMULT = U(L(M)+2*LN(M)-3)
                  LN2 = L2
               ELSE
                  UMULT = 2.0 * DT / DX(L(M)+2*LN(M)-2)
                  LN2 = N2
               END IF
C
               IF ( N2 .EQ. 1 ) THEN
                  VP = VLJ(M)
               ELSE
                  VP = VR(M) + BETAR * BR(M) * ( HR(M) - HP ) + 0.5 *
     1                 ( ( ( V2(L2) * V2(L2) - VR(M) * VR(M) ) / 2.0 +
     2                 32.2 * ( H2(L2) - HR(M) ) + BETAR * ( Q2(L2)
```

```
     3                 - QR(M) ) ) * UMULT - ( 64.4 * DT * VR(M) *
     4                 DABS(VR(M)) * XNU(LN2) * XNU(LN2) ) /
     5                 ( 2.208196 * RR(M) * RR(M) ) + UMULT *
     6                 QRL(M) * ( BETAR - VR(M) / AR(M) ) )
               END IF
C
               IF ( DABS(VP) .LT. ZZ ) VP = 0.
C
               CALL GEOM(HP,AR(M),BR(M),RR(M),DB,NN,PRTFLG,AREA,ELEV,
     1                  R23,WIDTH,NSTEP,*9000)
               HR(M) = HP
               QR(M) = AR(M) * VP
               VR(M) = VP
C
               IF ( J .EQ. 2 ) THEN
C
                  V3(N2) = VP
                  A3(N2) = AR(M)
                  B3(N2) = BR(M)
                  H3(N2) = HP
                  Q3(N2) = QR(M)
                  R3(N2) = RR(M)
C
C--------------USE T3 FOR KSPL  IF Q > QSPL----------------------------
C
                  IF ( M .NE. KSPL .OR. Q3(N2) .LE. QSPL ) THEN
                     IF ( KRULE(M) .NE. 0 ) THEN
C
C-----------------------FIXED RULE OPERATION---------------------------
C                       H PRESCRIBED
C----------------------------------------------------------------------
C
C---------------------PMF FLOODS-------------------------------------
C---WHILE HOLDING H < REFH4, Q INCREASES > REFQ4, HOLD Q=REFQ4-------
C
                        IF ( KRULE(M) .EQ. 2 .AND.
     1                       H3(N2) .LT. REFH(4,M) .AND.
     2                       Q1(N2) .LT. REFQ(4,M) .AND.
     3                       Q3(N2) .GE. REFQ(4,M) ) THEN
C
                           QPREVR(M) = REFQ(4,M)
                           QNEXTR(M) = REFQ(4,M)
                           IQCKR(M) = DUR / DDT + 0.1
                           BTIME = XTIME + DDT
                           WRITE(6,3100) KDAY,BTIME,M,REFQ(4,M),
     1                                   H3(N2),REFQ(4,M)
 3100                      FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',
     1                            I2,' Q INCR TO',F8.0,' WITH HW EL AT',
     2                            F8.2,'--HOLD Q AT',F8.0)
                           IQR(M) = 0
                           KDBC(M) = 1
C
                        ELSE IF ( H3(N2) .LT. REFH(3,M) .AND.
     1                            H3(N2) .GT. REFH(2,M) .AND.
     2                            Q3(N2) .LT. REFQ(1,M) ) THEN
```

```
C
C---------WHILE HOLDING H > REFH2, Q DECR < REFQ1, HOLD Q=REFQ1---------
C
                          QPREVR(M) = REFQ(1,M)
                          QNEXTR(M) = REFQ(1,M)
                          IQCKR(M) = DUR / DDT + 0.1
                          BTIME = XTIME + DDT
                          WRITE(6,3200) KDAY,BTIME,M,REFQ(1,M),
     1                                  H1(N2),REFQ(1,M)
 3200                     FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',
     1                           I2,' Q DECR TO LESS THAN',F8.0,
     2                           ' WHILE HOLDING HW AT',F8.2,
     3                           '--HOLD Q AT',F8.0)
                          IQR(M) = 0
                          KDBC(M) = 1
C
                       ELSE IF ( KRULE(M) .EQ. 1 .AND.
     1                           H1(N2) .LE. REFH(3,M) .AND.
     2                           Q1(N2) .LE. REFQ(3,M) .AND.
     3                           Q3(N2) .GT. REFQ(3,M) ) THEN
C
C------WHILE HOLDING H  < REFH3 , Q INCR > REFQ3 WHILE IN REQ FIXED RULE
C
C-----------------------------------HOLD Q=REFQ3------------------------
C
                          QPREVR(M) = REFQ(3,M)
                          QNEXTR(M) = REFQ(3,M)
                          IQCKR(M) = DUR / DDT + 0.1
                          BTIME = XTIME + DDT
                          WRITE(6,3100) KDAY,BTIME,M,REFQ(3,M),
     1                                  H1(N2),REFQ(3,M)
                          IQR(M) = 0
                          KDBC(M) = 1
C
                       ELSE IF ( H3(N2) .EQ. REFH(5,M) .AND.
     1                           Q1(N2) .GE. REFQ(4,M) .AND.
     2                           Q3(N2) .LT. REFQ(4,M) ) THEN
C
C-----------------WHILE HOLDING H AT GATE TOP Q DECR < REFQ4------------
C
C---------------------------HOLD Q=REFQ4--------------------------------
C
                          QPREVR(M) = REFQ(4,M)
                          QNEXTR(M) = REFQ(4,M)
                          IQCKR(M) = DUR / DDT + 0.1
                          BTIME = XTIME + DDT
                          WRITE(6,3300) KDAY,BTIME,M,REFQ(4,M),
     1                                  REFH(5,M),REFQ(4,M)
 3300                     FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',
     1                           I2,' Q DECR TO',F8.0,' WITH HW EL AT',
     2                           F8.2,'--HOLD Q AT',F8.0)
                          IQR(M) = 0
                          KDBC(M) = 1
C
                       ELSE IF ( H3(N2) .EQ. REFH(5,M) .AND.
```

```
     1                            Q3(N2) .GT. REFQ(5,M) ) THEN
C
C----------------WHILE HOLDING H @ GATE TOP Q INCR > REFQ5-------------
C
C------------------------USE T3----------------------------------------
C
                            NDTP(M) = NDTP3(M)
                            DO I = 1,NDTP(M)
                               DELTAB(I,M) = DELTB3(I,M)
                               DQTAB(I,M)=DQTAB3(I,M)
                            END DO
                            IF ( KTAB(M) .EQ. 3 ) THEN
                               RATBL = .TRUE.
                            ELSE
                               KDBC(M) = 2
                               BTIME = XTIME + DDT
                               WRITE(6,3400) KDAY,BTIME,M,REFQ(5,M),
     1                                       REFH(5,M)
 3400                          FORMAT(/' DAY',I3,' TIME',F8.4,' THE',
     1                                ' CHAN',I2,' Q INCR TO',F8.0,1X,
     2                                'WITH HW EL AT',F8.2,'--SWITCH TO',
     3                                ' FREE SPILLWAY GUIDE TABLE NO. 3')
                            END IF
C
                         ELSE
C
C-----AFTER RECESS FROM FLOOD TO MIN HW Q INCR > REFQ4 - HOLD Q=REFQ4---
C
                            IF ( KRULE(M) .EQ. 1 ) REFHH = REFH(2,M)
                            IF ( KRULE(M) .EQ. 2 ) REFHH = REFH(1,M)
C
                            IF ( H3(N2) .EQ. REFHH .AND.
     1                           Q1(N2) .LE. REFQ(4,M) .AND.
     2                           Q3(N2) .GT. REFQ(4,M) ) THEN
C
                               QPREVR(M) = REFQ(4,M)
                               QNEXTR(M) = REFQ(4,M)
                               IQCKR(M) = DUR / DDT + 0.1
                               BTIME = XTIME + DDT
                               WRITE(6,3100) KDAY,BTIME,M,REFQ(4,M),
     1                                       H3(N2),REFQ(4,M)
                               IQR(M) = 0
                               KDBC(M) = 1
C
                            END IF
C
                         END IF
C
                      END IF
C
                   ELSE
C
C----------------WHILE HOLDING H @ GATE TOP Q INCR > REFQ5-------------
C
C------------------------USE T3----------------------------------------
```

```
C
                     NDTP(M) = NDTP3(M)
                     DO I = 1,NDTP(M)
                        DELTAB(I,M) = DELTB3(I,M)
                        DQTAB(I,M)=DQTAB3(I,M)
                     END DO
                     IF ( KTAB(M) .EQ. 3 ) THEN
                        RATBL = .TRUE.
                     ELSE
                        KDBC(M) = 2
                        BTIME = XTIME + DDT
                        WRITE(6,3400) KDAY,BTIME,M,REFQ(5,M),REFH(5,M)
                     END IF
C
                  END IF
C
               END IF
C
            ELSE IF ( KDBC(M) .EQ. 1 ) THEN
C
C-----------------------------------------------------------------------
C     DISCHARGE PRESCRIBED AT DOWNSTREAM BOUNDARY OF CHANNEL.
C-----------------------------------------------------------------------
C-----------------------MOVE AHEAD ONE CYCLE---------------------------
C
               IQR(M) = MIN(IQR(M)+1,IQCKR(M))
C
               IF ( J .EQ. 2 ) THEN
C
                  RULES = .TRUE.
C
C-----------------------------------------------------------------------
C     INTERPOLATE OR READ DOWNSTREAM DISCHARGE FOR BRANCH.
C-----------------------------------------------------------------------
                  IF ( NDBP(M) .GT. 0 ) THEN
                     IF ( TDUR .GT. DST(JDS-1)-SKIP ) THEN
                        QPREVR(M) = QNEXTR(M)
                        QNEXTR(M) = DSB(JDS)
                        IQCKR(M) = ( DST(JDS) - DST(JDS-1) ) / DDT + .1
                        IQCKR(M) = MAX(IQCKR(M),2)
                        IDS(M) = IDS(M) + 1
C---------DISCHARGE AT BOUNDARY IS DEFINED EVERY 2 CYCLES---------------
C-----------------THE FIRST POINT IS THE THIRD LINE--------------------
                        IQR(M) = 2
                     END IF
C
C**** NEW FEATURE *** NEW FEATURE *** NEW FEATURE *** NEW FEATURE ***
C
                     IF ( M .EQ. RMPCHN .AND. TDUR + DDT .GT. TBLTIM )
     1               THEN
C
C                       RAMPING COMPLETED AFTER THIS TIMESTEP
C
                        KDBC(M) = 2
                        KTAB(M) = SWTABL
```

```
                        RULES = .FALSE.
                        TBLTIM = DUR + 1.0
                     END IF
C*********************************************************************
                  END IF
                  PRCNT = DFLOAT(IQR(M)) / DFLOAT(IQCKR(M))
                  Q3(N2) = PRCNT * ( QNEXTR(M) - QPREVR(M) ) + QPREVR(M)
C
C---------------------------------------------------------------------
C     COMPUTE DOWNSTREAM BOUNDARY ELEVATION AND VELOCITY FOR CHANNEL.
C
                  IF ( N2 .EQ. 1 ) THEN
                     H3(N2) = HRJ(M-1)
                  ELSE
                     H3(N2) = H1(N2) + H1(L2) - H3(L2) +
     1                          ( 2.0 * U(L(M)+2*LN(M)-3) * QRL(M) +
     2                          U(L(M)+2*LN(M)-3) * ( A3(L2) * V3(L2) +
     3                          A1(L2) * V1(L2) - Q3(N2) - Q1(N2) ) )
     4                          / B2(L2)
                  END IF
C
               END IF
C
            ELSE IF ( KDBC(M) .EQ. 2 ) THEN
C
C---------------------------------------------------------------------
C          DOWNSTREAM BOUNDARY FROM RATING TABLE,DOWNSTREAM END
C---------------------------------------------------------------------
C
               IF ( J .EQ. 2 ) RATBL = .TRUE.
C
               IF ( KTAB(M) .EQ. 2 ) THEN
C
                  NDTP(M) = NDTP2(M)
                  DO I = 1,NDTP(M)
                     DELTAB(I,M) = DELTB2(I,M)
                     DQTAB(I,M) = DQTAB2(I,M)
                  END DO
C
               ELSE IF ( KTAB(M) .EQ. 3 ) THEN
C
                  NDTP(M) = NDTP3(M)
                  DO I = 1,NDTP(M)
                     DELTAB(I,M) = DELTB3(I,M)
                     DQTAB(I,M) = DQTAB3(I,M)
                  END DO
C
               ELSE IF ( KTAB(M) .EQ. 4 ) THEN
C
                  NDTP(M) = NDTP4(M)
                  DO I = 1,NDTP(M)
                     DELTAB(I,M) = DELTB4(I,M)
                     DQTAB(I,M) = DQTAB4(I,M)
                  END DO
C
```

```
            END IF
C
            END IF
C
            DO WHILE ( RULES .OR. RATBL )
C
               IF ( RULES ) THEN
C
                  RULES = .FALSE.
C
                  KWRITE = 1
                  CALL GEOM(H3(N2),A3(N2),B3(N2),R3(N2),DB,NN,
     1                     PRTFLG,AREA,ELEV,R23,WIDTH,NSTEP,*9000)
                  V3(N2) = Q3(N2) / A3(N2)
C
                  IF ( KDBC(M) .NE. 2 ) THEN
C
                     IF ( M .EQ. LSPL .AND. H3(N2) .GT. HLSPL ) THEN
C
C----------------------------------SPECIAL OPERATION FOR LSPL-----------
C
C----------------------------------SWITCH TO T3-------------------------
C
                        KDBC(M) = 2
                        NDTP(M) = NDTP3(M)
                        DO I = 1,NDTP(M)
                           DELTAB(I,M) = DELTB3(I,M)
                           DQTAB(I,M) = DQTAB3(I,M)
                        END DO
                        BTIME = XTIME + DDT
                        WRITE(6,4000) KDAY,BTIME,M,HLSPL,QLSPL
 4000                   FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',I2,
     1                         ' HW INCREASES TO',F8.2,
     2                         ' WHILE HOLDING Q AT',F8.0,
     3                         '---SWITCH TO FREE SPILLWAY T3')
C
                     ELSE IF ( KRULE(M) .NE. 0 ) THEN
C
C-------------------------------------FIXED RULE OPERATION--------------
C
                        IF ( KRULE(M) .EQ. 1 ) REFHH = REFH(2,M)
                        IF ( KRULE(M) .EQ. 2 ) REFHH = REFH(1,M)
C
                        IF ( H1(N2) .GE. REFHH .AND.
     1                       H3(N2) .LT. REFHH ) THEN
C
C----------------------INITIAL HW > REFHH, H DECR < REFHH--HOLD HW------
C
                           EPREVR(M) = REFHH
                           ENEXTR(M) = REFHH
                           IECKR(M) = DUR / DDT + 0.1
                           BTIME = XTIME + DDT
                           WRITE(6,4100) KDAY,BTIME,M,REFHH,REFHH
 4100                      FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',
     1                            I3,' HW EL DECR TO',F8.2,
```

```
     2                          '--HOLD HW EL AT',F8.2)
                          IER(M) = 0
                          KDBC(M) = 0
C
                          CALL GEOM(REFHH,AR(M),BR(M),RR(M),DB,NN,
     1                          PRTFLG,AREA,ELEV,R23,WIDTH,NSTEP,
     2                          *9000)
                          HR(M) = REFHH
                          QR(M) = Q3(N2)
                          VR(M) = QR(M) / AR(M)
                          KWRITE = 1
C
                       ELSE IF ( Q3(N2) .EQ. REFQ(1,M) .AND.
     1                          H3(N2) .GT. H1(N2) ) THEN
C
C-----------------WHILE HOLDING Q=REFQ1 , HW INCREASES, HOLD HW---------
C
                          EPREVR(M) = H1(N2)
                          ENEXTR(M) = H1(N2)
                          IECKR(M) = DUR / DDT + 0.1
                          BTIME = XTIME + DDT
                          WRITE(6,4200) KDAY,BTIME,M,REFQ(1,M),H1(N2)
 4200                     FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',
     1                          I2,' HW INCREASES WHILE HOLDING Q=',
     2                          F8.0,' ----HOLD THE HW AT',F8.2)
                          IER(M) = 0
                          KDBC(M) = 0
C
                          CALL GEOM(H1(N2),AR(M),BR(M),RR(M),DB,NN,
     1                          PRTFLG,AREA,ELEV,R23,WIDTH,NSTEP,
     2                          *9000)
                          HR(M) = H1(N2)
                          QR(M) = Q3(N2)
                          VR(M) = QR(M) / AR(M)
C
                       ELSE IF ( Q3(N2) .EQ. REFQ(3,M) .AND.
     1                          H1(N2) .LE. REFH(3,M) .AND.
     2                          H3(N2) .GT. REFH(3,M) ) THEN
C
C-----------------------------------Q=REFQ3, H > REFH3, USE T1----------
C
                          KDBC(M) = 2
                          KSWT1 = .TRUE.
                          BTIME = XTIME + DDT
                          WRITE(6,4300) KDAY,BTIME,M,REFH(3,M)
 4300                     FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',
     1                          I2,' HW EL INCR TO',F8.2,'---SWITCH',
     2                          ' TO GUIDE CURVE TABLE NO. 1')
C
                       ELSE IF ( Q3(N2) .EQ. PEAKQ(M) .AND.
     1                          H3(N2) .GT. PEAKH(M) ) THEN
C
C-----------------------------------Q=PEAKQ, H > PEAKH, USE T1----------
C
                          KDBC(M) = 2
```

```
                        KSWT1 = .TRUE.
                        BTIME = XTIME + DDT
                        WRITE(6,4300) KDAY,BTIME,M,PEAKH(M)
C
                     ELSE IF ( Q3(N2) .EQ. PEAKQ(M) .AND.
     1                        H1(N2) .GE. REFHH .AND.
     2                        H3(N2) .LT. REFHH ) THEN
C
C-----------------------------------RECESS HOLDING Q=PEAKQ--------------
C
                        EPREVR(M) = REFHH
                        ENEXTR(M) = REFHH
                        IECKR(M) = DUR / DDT + 0.1
                        BTIME = XTIME + DDT
                        WRITE(6,4400) KDAY,BTIME,M,REFHH,PEAKQ(M),
     1                                REFHH
 4400                   FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',
     1                         I2,' HW EL DECR TO',F8.2,' WITH Q=',
     2                         'PEAKQ=',F8.0,'--HOLD HW EL AT',F8.2)
                        IER(M) = 0
                        KDBC(M) = 0
C
                        CALL GEOM(REFHH,AR(M),BR(M),RR(M),DB,NN,
     1                           PRTFLG,AREA,ELEV,R23,WIDTH,NSTEP,
     2                           *9000)
                        HR(M) = REFHH
                        QR(M) = Q3(N2)
                        VR(M) = QR(M) / AR(M)
C
                     ELSE IF ( Q3(N2) .EQ. REFQ(4,M) .AND.
     1                        H1(N2) .GE. REFHH .AND.
     2                        H3(N2) .LT. REFHH ) THEN
C
C-----------------------------------RECESS HOLDING Q=REFQ4--------------
C
                        EPREVR(M) = REFHH
                        ENEXTR(M) = REFHH
                        IECKR(M) = DUR / DDT + 0.1
                        BTIME = XTIME + DDT
                        WRITE(6,4500) KDAY,BTIME,M,REFHH,REFQ(4,M),
     1                                REFHH
 4500                   FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',
     1                         I2,' HW EL DECR TO',F8.2,' WITH Q=',
     2                         F8.0,'--HOLD HW EL AT',F8.2)
                        IER(M) = 0
                        KDBC(M) = 0
C
                        CALL GEOM(REFHH,AR(M),BR(M),RR(M),DB,NN,
     1                           PRTFLG,AREA,ELEV,R23,WIDTH,NSTEP,
     2                           *9000)
                        HR(M) = REFHH
                        QR(M) = Q3(N2)
                        VR(M) = QR(M) / AR(M)
C
                     ELSE IF ( Q3(N2) .EQ. REFQ(4,M) .AND.
```

```
     1                          H3(N2) .GT. REFH(5,M) .AND.
     2                          H1(N2) .LE. REFH(5,M) ) THEN
C
C-----------------------HOLDING Q=REFQ4 INCREASE H > GATE TOP-----------
C
                           EPREVR(M) = REFH(5,M)
                           ENEXTR(M) = REFH(5,M)
                           IECKR(M) = DUR / DDT + 0.1
                           BTIME = XTIME + DDT
                           WRITE(6,4600) KDAY,BTIME,M,REFH(5,M),
     1                                   REFQ(4,M),REFH(5,M)
 4600                      FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',
     1                          I2,' HW EL INCR TO',F8.2,' WITH Q=',
     2                          F8.0,'--HOLD HW EL AT',F8.2)
                           IER(M) = 0
                           KDBC(M) = 0
C
                           CALL GEOM(REFH(5,M),AR(M),BR(M),RR(M),DB,NN,
     1                             PRTFLG,AREA,ELEV,R23,WIDTH,NSTEP,
     2                             *9000)
                           HR(M) = REFH(5,M)
                           QR(M) = Q3(N2)
                           VR(M) = QR(M) / AR(M)
C
                        ELSE IF ( Q3(N2) .EQ. REFQ(4,M) .AND.
     1                          H3(N2) .GT. REFH(4,M) .AND.
     2                          H1(N2) .LE. REFH(4,M) .AND.
     3                          KRULE(M) .EQ. 2 ) THEN
C
C------------ PMF-------HOLDING Q=REFQ4 INCREASE H > REFH4--------------
C
                           KDBC(M) = 2
                           BTIME = XTIME + DDT
                           WRITE(6,4700) KDAY,BTIME,M,REFH(4,M)
 4700                      FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',
     1                          I2,' HW EL INCR TO',F8.2,'---SWITCH',
     2                          ' TO PMF FILLING CURVE------')
                           NDTP(M) = NDTP2(M)
                           DO I = 1,NDTP(M)
                              DELTAB(I,M) = DELTB2(I,M)
                              DQTAB(I,M) = DQTAB2(I,M)
                           END DO
C
                           IF ( KTAB(M) .EQ. 2 ) RATBL = .TRUE.
C
                        END IF
C
                     END IF
C
                  END IF
C
               END IF
C
               IF ( RATBL ) THEN
C
```

```
                  RATBL = .FALSE.
                  RULES = .TRUE.
C
                  KTAB(M) = 1
                  H3(N2) = H1(N2)
                  DONE = .FALSE.
                  NIT = 0
C
                  DO WHILE ( .NOT. DONE .AND. NIT .LT. 20 )
C
                     CALL RATNGQ(H3(N2),NDTP(M),M,DELTAB(1,M),
     1                           DQTAB(1,M),Q3(N2),*9000)
C
C---------------------SUBMERGENCE EFFECT--------------------------------
C
                     IF ( M .NE. NCHAN .AND. KUBC(M+1) .EQ. 3 .AND.
     1                    H1(1+N(M+1)) .GT. REFTW(M+1) )
     2                Q3(N2) = ( 1.0 - ( ( H1(1+N(M+1)) - REFTW(M+1) )
     3                           / ( H3(N2) - REFTW(M+1) ) ) ** 1.5
     4                           ) ** 0.385 * Q3(N2)
C
                     IF ( N2 .EQ. 1 ) THEN
                        HBB = HRJ(M-1)
                     ELSE
                        HBB = H1(N2) + H1(L2) - H3(L2) +
     1                    U(L(M)+2*LN(M)-3) * ( 2.0 * QRL(M) +
     2                    A3(L2) * V3(L2) + A1(L2) * V1(L2) -
     3                    Q3(N2) - Q1(N2) ) / B2(L2)
                     END IF
C
                     DONE = DABS(H3(N2)-HBB) .LE. 0.0004
                     NIT = NIT + 1
                     H3(N2) = 0.5 * ( H3(N2) + HBB )
C
                  END DO
C
                  IF ( .NOT. DONE ) THEN
                     WRITE(6,5200) M
 5200                FORMAT(' AFTER 20 ITERATIONS, THE HW HAS NOT',
     1                     ' CONVERGED ON THE D.S. RATING CURVE OF',
     2                     ' CHANNEL',I3/'       STOP COMPUTATION')
                     GO TO 9000
                  END IF
C
                  IF ( M .EQ. KSPL ) THEN
C
C--------------------------------SPECIAL OPERATION FOR KSPL-------------
C
C----------------------RECESS FROM T3 TO GATE TOP-----------------------
C
                     IF ( H1(N2) .GE. REFH(5,M) .AND.
     1                    H3(N2) .LT. REFH(5,M) .AND.
     2                    DELTAB(1,M) .EQ. DELTB3(1,M) ) THEN
C
C---------------------HOLD H=REFH5----------------------------------------
```

```
C
                        EPREVR(M) = REFH(5,M)
                        ENEXTR(M) = REFH(5,M)
                        IECKR(M) = DUR / DDT + 0.1
                        BTIME = XTIME + DDT
                        WRITE(6,5300) KDAY,BTIME,M,REFH(5,M),REFH(5,M)
 5300                   FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',I2,
     1                         ' HW EL DECR TO',F8.2,' WHILE IN FREE',
     2                         ' SP GT 3--HOLD HW EL AT',F8.2)
                        IER(M) = 0
                        KDBC(M) = 0
                        CALL GEOM(REFH(5,M),AR(M),BR(M),RR(M),DB,NN,
     1                           PRTFLG,AREA,ELEV,R23,WIDTH,NSTEP,*9000)
                        HR(M) = REFH(5,M)
                        QR(M) = Q3(N2)
                        VR(M) = QR(M) / AR(M)
C
                     END IF
C
                  ELSE IF ( M .EQ. LSPL ) THEN
C
C--------------------------------SPECIAL OPERATION FOR LSPL-------------
C
                     IF ( H3(N2) .LT. HLSPL ) THEN
C
C-----------------RECESS FROM T3 TO FIXED DISCHARGE QLSPL---------------
C
                        KDBC(M) = 1
                        QNEXTR(M) = QLSPL
                        QPREVR(M) = QLSPL
                        IQCKR(M) = DUR / DDT + 0.1
                        IQR(M) = 0
                        BTIME = XTIME + DDT
                        WRITE(6,5400) KDAY,BTIME,M,HLSPL,QLSPL
 5400                   FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',I2,
     1                         ' HW DECREASES TO',F8.2,' WHILE IN',
     2                         ' TABLE 3 --- HOLD Q AT',F8.0)
C
                     END IF
C
                  ELSE IF ( KRULE(M) .NE. 0 ) THEN
C
C----------------------------------FIXED RULE--------------------------
C
                     IF ( KRULE(M) .NE. 2 ) THEN
C
                        PMFCHK = .FALSE.
C
                        IF ( H3(N2) .GT. REFH(3,M) .AND.
     1                       H3(N2) .LT. REFH(5,M) .AND.
     2                       H3(N2) .LT. H1(N2) .AND.
     3                       .NOT. KSWT1 .AND.
     4                       DELTAB(1,M) .NE. DELTB3(1,M) .AND.
     5                       DELTAB(1,M) .NE. DELTB4(1,M) ) THEN
C
```

```
C--------------------RECESS FROM T1 AT FIXED Q-------------------------
C
                         QPREVR(M) = Q1(N2)
                         QNEXTR(M) = Q1(N2)
                         PEAKH(M) = H1(N2)
                         PEAKQ(M) = Q1(N2)
                         IQCKR(M) = DUR / DDT + 0.1
                         BTIME = XTIME + DDT
                         WRITE(6,5500) KDAY,BTIME,M,PEAKH(M),PEAKQ(M)
 5500                    FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',
     1                          I2,' HW REACHES PEAKH=',F8.2,' WHILE',
     2                          ' TABLE 1--HOLD PEAKQ AT',F8.0)
                         IQR(M) = 0
                         KDBC(M) = 1
C
                      ELSE
C
                         KSWT1 = .FALSE.
C
                         IF ( H1(N2) .LE. REFH(5,M) .AND.
     1                       H3(N2) .GT. REFH(5,M) .AND.
     2                       DELTAB(1,M) .NE. DELTB3(1,M) .AND.
     3                       DELTAB(1,M) .NE. DELTB4(1,M) ) THEN
C
C----------------------H INCR > REFH5 WHILE ON T1----------------------
C
C--------------------HOLD H=REFH5-------------------------------------
C
                            EPREVR(M) = REFH(5,M)
                            ENEXTR(M) = REFH(5,M)
                            IECKR(M) = DUR / DDT + 0.1
                            BTIME = XTIME + DDT
                            IF ( KWRITE .EQ. 1 ) THEN
                               WRITE(6,5600) KDAY,BTIME,M,REFH(5,M),
     1                                       REFH(5,M)
 5600                          FORMAT(/' DAY',I3,' TIME',F8.4,' THE',
     1                                ' CHAN',I2,' HW EL INCR TO',
     2                                F8.2,' WHILE IN TABLE 1',
     3                                '--HOLD HW EL AT',F8.2)
                            ELSE
                               WRITE(6,5300) KDAY,BTIME,M,REFH(5,M),
     1                                       REFH(5,M)
                            END IF
                            IER(M) = 0
                            KDBC(M) = 0
                            CALL GEOM(REFH(5,M),AR(M),BR(M),RR(M),DB,
     1                                NN,PRTFLG,AREA,ELEV,R23,WIDTH,
     2                                NSTEP,*9000)
                            HR(M) = REFH(5,M)
                            QR(M) = Q3(N2)
                            VR(M) = QR(M) / AR(M)
                            KWRITE = 1
C
                         ELSE
C
```

```
                              PMFCHK = .TRUE.
C
                           END IF
C
                        END IF
C
                     END IF
C
                     IF ( KRULE(M) .EQ. 2 .OR. PMFCHK ) THEN
C
C----------------------------PMF FLOODS ONLY----------------------------
C
                        IF ( H1(N2) .LE. REFH(5,M) .AND.
     1                       H3(N2) .GT. REFH(5,M) .AND.
     2                       DELTAB(1,M) .EQ. DELTB2(1,M) ) THEN
C
                           RULES = .FALSE.
C
C------------------------USE T3----------------------------------------
C
                           KWRITE = 2
                           NDTP(M) = NDTP3(M)
                           DO I = 1,NDTP(M)
                              DELTAB(I,M) = DELTB3(I,M)
                              DQTAB(I,M)=DQTAB3(I,M)
                           END DO
                           KDBC(M) = 2
                           BTIME = XTIME + DDT
                           WRITE(6,5700) KDAY,BTIME,M,REFH(5,M),
     1                                   REFQ(5,M)
 5700                      FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',
     1                            I2,' HW EL INCR TO',F8.2,' WITH Q=',
     2                            F8.0,'--SWITCH TO FREE',
     3                            ' SPILLWAY GUIDE TABLE NO. 3')
C
C**** NEW FEATURE *** NEW FEATURE *** NEW FEATURE *** NEW FEATURE ***
C
                           IF ( M .EQ. SWCHNL .AND. RMPCHN .GT. 0 ) THEN
C
C                             RAMP UP DISCHARGE (BY MODIFYING) DS BOUNDARY
C                             VALUES FOR CHANNEL RMPCHN DUE TO START OF
C                             SPILL OPERATIONS AT CHANNEL M
C
                              IPTR = IDS(RMPCHN) - 1
                              IF ( RMPCHN .GT. 1 )
     1                           IPTR = IPTR + NDBP(RMPCHN-1)
                              DO I = NDBP(NCHAN),IPTR,-1
                                 DST(I+2) = DST(I)
                                 DSB(I+2) = DSB(I)
                              END DO
                              DSB(IPTR) = Q3(N(RMPCHN+1))
                              QNEXTR(RMPCHN) = DSB(IPTR)
                              DSB(IPTR+1) = RAMPQ
                              DST(IPTR) = TDUR + DDT/2.D0
                              TBLTIM = DST(IPTR) + RAMPTM
```

```
                              DST(IPTR+1) = TBLTIM
                              DO I = RMPCHN,NCHAN
                                 NDBP(I) = NDBP(I) + 2
                              END DO
                           END IF
C*****************************************************************
C
                        ELSE IF ( H3(N2) .LT. REFH(5,M) .AND.
     1                            H3(N2) .LT. H1(N2) .AND.
     2                            Q3(N2) .LE. REFQ(4,M) .AND.
     3                            DELTAB(1,M) .EQ. DELTB2(1,M) ) THEN
C
                           QPREVR(M) = REFQ(4,M)
                           QNEXTR(M) = REFQ(4,M)
                           IQCKR(M) = DUR / DDT + 0.1
                           BTIME = XTIME + DDT
                           WRITE(6,5800) KDAY,BTIME,M,REFH(4,M),
     1                                   REFQ(4,M),REFQ(4,M)
 5800                      FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',
     1                            I3,' HW EL DECR TO',F8.2,' AND Q',
     2                            ' DECR TO',F8.0,' WHILE IN PMF FILL',
     3                            ' T2,--HOLD Q AT',F8.0)
                           IQR(M) = 0
                           KDBC(M) = 1
C
                        ELSE IF ( H1(N2) .LE. REFH(6,M) .AND.
     1                            H3(N2) .GT. REFH(6,M) .AND.
     2                            DELTAB(1,M) .EQ. DELTB3(1,M) ) THEN
C
C---------------------PARTIAL DAM FAILURE ABOVE REFH6------------------
C
                           NDTP(M) = NDTP4(M)
                           DO I = 1,NDTP(M)
                              DELTAB(I,M) = DELTB4(I,M)
                              DQTAB(I,M) = DQTAB4(I,M)
                           END DO
                           KDBC(M) = 2
                           BTIME = XTIME + DDT
                           WRITE(6,5900) KDAY,BTIME,M,REFH(6,M)
 5900                      FORMAT(/' DAY',I3,' TIME',F8.4,' THE CHAN',
     1                            I3,' HW EL INCR TO',F8.2,' WHILE IN',
     2                            ' FREE SP GT 3--SWITCH TO AFTER',
     3                            ' FAILURE GUIDE TABLE NO. 4')
C
                        ELSE IF ( H1(N2) .GE. REFH(5,M) .AND.
     1                            H3(N2) .LT. REFH(5,M) .AND.
     2                            DELTAB(1,M) .EQ. DELTB3(1,M) ) THEN
C
C----------------------RECESS FROM T3 TO GATE TOP----------------------
C
C---------------------HOLD H=REFH5-------------------------------------
C
                           EPREVR(M) = REFH(5,M)
                           ENEXTR(M) = REFH(5,M)
                           IECKR(M) = DUR / DDT + 0.1
```

```
                         BTIME = XTIME + DDT
                         WRITE(6,5300) KDAY,BTIME,M,REFH(5,M),
     1                                 REFH(5,M)
                         IER(M) = 0
                         KDBC(M) = 0
                         CALL GEOM(REFH(5,M),AR(M),BR(M),RR(M),DB,NN,
     1                             PRTFLG,AREA,ELEV,R23,WIDTH,NSTEP,
     2                             *9000)
                         HR(M) = REFH(5,M)
                         QR(M) = Q3(N2)
                         VR(M) = QR(M) / AR(M)
                         KWRITE = 1
C
C**** NEW FEATURE *** NEW FEATURE *** NEW FEATURE *** NEW FEATURE ***
C
C
                         IF ( M .EQ. SWCHNL .AND. RMPCHN .GT. 0 ) THEN
C
C                           RAMP DOWN DISCHARGE (BY MODIFYING) DS BOUNDARY
C                           VALUES FOR CHANNEL RMPCHN DUE TO END OF
C                           SPILL OPERATIONS AT CHANNEL M
C
                            IPTR = IDS(RMPCHN) - 1
                            IF ( RMPCHN .GT. 1 )
     1                         IPTR = IPTR + NDBP(RMPCHN-1)
                            DO WHILE ( DST(IPTR) .LT. TDUR+DDT )
                               IPTR = IPTR + 1
                            END DO
                            IDS(RMPCHN) = IPTR + 1
                            IF ( RMPCHN .GT. 1 )
     1                         IDS(RMPCHN) = IPTR + 1 - NDBP(RMPCHN-1)
                            DO I = NDBP(NCHAN),IPTR,-1
                               DST(I+2) = DST(I)
                               DSB(I+2) = DSB(I)
                            END DO
                            DSB(IPTR) = Q3(N(RMPCHN+1))
                            QNEXTR(RMPCHN) = DSB(IPTR)
                            DSB(IPTR+1) = DSB(IPTR+2)
                            DST(IPTR) = TDUR + DDT
                            DST(IPTR+1) = DST(IPTR) + RAMPTM
                            DO I = RMPCHN,NCHAN
                               NDBP(I) = NDBP(I) + 2
                            END DO
                            KDBC(RMPCHN) = 1
                         END IF
C*****************************************************************
C
                      END IF
C
                   END IF
C
                END IF
C
             END IF
C
```

```
            END DO
C
            IF ( KUBC(M) .EQ. 3 ) THEN
C
               IF ( J .EQ. 2 ) THEN
C
C     COMPUTE JUNCTION PARAMETERS S AND T FOR THE UPSTREAM END OF THE
C     CHANNEL,BOUNDARY LINE COMPUTATIONS.
C
                  BETARJ = DSQRT(32.2/(ARJ(M)*BRJ(M)))
                  S(M) = VRJ(M) - BETARJ * BRJ(M) * HRJ(M) - 0.5 * (
     1                   ( ( V2(NM) * V2(NM) - VRJ(M) * VRJ(M) ) /
     2                   2.0 + 32.2 * ( H2(NM) - HRJ(M) ) - BETARJ *
     3                   ( Q2(NM) - QRJ(M) ) ) * ( 2.0 * DT / DX(LM) )
     4                   + ( 64.4 * DT * VRJ(M) * DABS(VRJ(M)) *
     5                   XNU(NM) * XNU(NM) ) / ( 2.208196 * RRJ(M) *
     6                   RRJ(M) ) + 2.0 * DT / DX(LM) * QLL(M) *
     7                   ( BETARJ + VRJ(M) / ARJ(M) ) )
                  T(M) = BETARJ * BRJ(M)
C
               ELSE IF ( N2 .NE. 1 ) THEN
C
C     COMPUTE JUNCTION PARAMETERS XK & XL AT U.S. END OF THE CHANNEL,
C     NON-BOUNDARY LINE COMPUTATIONS.
C
                  BETARJ = DSQRT(32.2/(ARJ(M)*BRJ(M)))
                  XK(M) = VRJ(M) - BETARJ * BRJ(M) * HRJ(M) - 0.5 * (
     1                    ( ( V2(NM+1) * V2(NM+1) - VRJ(M) * VRJ(M) ) /
     2                    2.0 + 32.2 * ( H2(NM+1) - HRJ(M) ) - BETARJ *
     3                    ( Q2(NM+1) - QRJ(M) ) ) * U(LM) + ( 64.4 *
     4                    DT * VRJ(M) * DABS(VRJ(M)) * XNU(NM) *
     5                    XNU(NM) ) / ( 2.208196 * RRJ(M) * RRJ(M) ) +
     6                    U(LM) * QLL(M) * ( BETARJ + VRJ(M) / ARJ(M) )
     7                    )
                  XL(M) = BETARJ * BRJ(M)
C
               END IF
C
            END IF
C
C-----------------------PREPARE FOR NEXT CHANNEL-----------------------
C
            NN = NN + 2 * LN(M+1) - 1
            KDBP = NDBP(M)
C
         END DO
C
C-----------------------------------------------------------------------
C     COMPUTATIONS FOR ALL JUNCTIONS-BOUNDARY AND NON-BOUNDARY LINES
C-----------------------------------------------------------------------
         DO I = 1,NJUNCT
C
            I1 = NUSBR(I)
            I2 = NDSBR(I)
            I3 = NSIBR(I)
```

```
            NI2 = N(I2) + 1
            LI2 = L(I2) + 1
            L1 = N(I1+1) - 1
            N1 = N(I1+1)
C-----------------------------------------------------------------------
C     COMPUTATIONS FOR ALL INTERNAL BOUNDARY CONDITIONS--BOUNDARY LINES.
C
C----------------TOTAL FAILURE AT FLRH OR FLRQ OR FLRTIM ON FLRDAY----
            IF ( KTOTFL(I1) .EQ. 1 ) THEN
               IF ( ( .NOT. IFL(I1) .AND. ( H3(N1) .GT. FLRH(I1)
     1                                  .OR. Q3(N1) .GT. FLRQ(I1) ) )
     2         .OR. ( DFLOAT(KDAY) .EQ. FLRDAY(I1) .AND.
     3                DABS(XTIME+DDT-FLRTIM(I1)) .LE. 0.0001 ) ) THEN
C
                  KDBC(I1) = 3
                  IFL(I1) = .TRUE.
                  BTIME = XTIME + DDT
C
                  BETALJ = DSQRT(32.2/(ALJ(I1)*BLJ(I1)))
                  V(I1) = VLJ(I1) + BETALJ * BLJ(I1) * HLJ(I1) + 0.5 * (
     1                  ( ( V2(L1) * V2(L1) - VLJ(I1) * VLJ(I1) ) /
     2                  2.0 + 32.2 * ( H2(L1) - HLJ(I1) ) + BETALJ *
     3                  ( Q2(L1) - QLJ(I1) ) ) * 2.0 * DT /
     4                  DX(L(I1)+2*LN(I1)-2) - ( 64.4 * DT * VLJ(I1)
     5                  * DABS(VLJ(I1)) * XNU(N1) * XNU(N1) ) /
     6                  ( 2.208196 * RLJ(I1) * RLJ(I1) ) + 2.0 * DT /
     7                  DX(L(I1)+2*LN(I1)-2) * QRL(I1) * ( BETALJ -
     8                  VLJ(I1) / ALJ(I1) ) )
                  W(I1) = - BETALJ * BLJ(I1)
                  WRITE(6,6000) KDAY,BTIME,I1
 6000             FORMAT(/' DAY',I3,' TIME',F8.4,' A TOTAL FLR OCCURS',
     1                 ' AT THE DS END OF CHANNEL',I2,'--SWITCH TO'
     2                 ' DOUBLE NODE JUNCTION COMPUTATIONS')
C
               END IF
            END IF
C
            IF ( KDBC(I1) .NE. 3 ) THEN
C
               IF ( J .NE. 1 ) THEN
C
C----------------------------CASCADE:COMPUTE TW---H3(1,I2)-------------
                  Q3(NI2) = Q3(N1)
                  H3(NI2) = H1(NI2) + H1(NI2+1) - H3(NI2+1) + ( 2.0 *
     1                     U(LI2) * QLL(I2) - U(LI2) * ( A3(NI2+1) *
     2                     V3(NI2+1) + A1(NI2+1) * V1(NI2+1) - Q3(NI2)
     3                     - Q1(NI2) ) ) / B2(NI2)
C
                  DONE = .FALSE.
                  CALL GEOM(H3(NI2),A3(NI2),B3(NI2),R3(NI2),DB,NND(I),
     1                 PRTFLG,AREA,ELEV,R23,WIDTH,NSTEP,*9000)
                  V3(NI2) = Q3(NI2) / A3(NI2)
               END IF
C
            ELSE IF ( MFRSRF(I1) .GT. 0 ) THEN
```

```
C
C--------------FREE SURFACE W/ NO SIDE CHANNEL & IDENT XSECTS-----------
C
               IF ( J .NE. 1 ) THEN
                  CALL GEOM(H3(N1),A3(N1),B3(N1),R3(N1),DB,NND(I),
     1                     PRTFLG,AREA,ELEV,R23,WIDTH,NSTEP,*9000)
                  Q3(N1) = V3(N1) * A3(N1)
                  Q3(NI2) = Q3(N1)
                  A3(NI2) = A3(N1)
                  B3(NI2) = B3(N1)
                  R3(NI2) = R3(N1)
               END IF
C
            ELSE
C-----------------------------------------------------------------------
C           IF KDBC(I3)=0, SIDE CHANNEL HAS 1 XSECT AND H IS PRESCRIBED.
C-----------------------------------------------------------------------
               IF ( I3 .NE. 0 ) THEN
                  IF ( KDBC(I3) .EQ. 0 ) HLJ(I3) = HRJ(I2)
                  IF ( KDBC(I3) .EQ. 0 ) HLJ(I1) = HLJ(I3)
               END IF
C
               KK = 0
               DONE = .FALSE.
               DO WHILE ( .NOT. DONE )
C
                  KK = KK + 1
                        HRJ(I2) = HLJ(I1)
                  CALL GEOM(HLJ(I1),ALJJ,BLJJ,RLJJ,DB,NNU(I),PRTFLG,
     1                     AREA,ELEV,R23,WIDTH,NSTEP,*9000)
                  ALJ(I1) = ALJJ
                  BLJ(I1) = BLJJ
                  RLJ(I1) = RLJJ
C
                  HRJJ = HRJ(I2)
                  CALL GEOM(HRJJ,ARJJ,BRJJ,RRJJ,DB,NND(I),PRTFLG,AREA,
     1                     ELEV,R23,WIDTH,NSTEP,*9000)
                  ARJ(I2) = ARJJ
                  BRJ(I2) = BRJJ
                  RRJ(I2) = RRJJ
                  XN = ALJJ / ARJJ
C
                  IF ( ITRIB(I) .GE. 2 ) THEN
C-----------------------------------------------------------------------
C     ITRIB(I) IS GREATER THAN 1--SIDE CHANNEL HAS 1 OR MORE XSECTS.
C-----------------------------------------------------------------------
                     IF ( KDBC(I3) .NE. 0 ) THEN
                        IF ( JSIDE(I) .EQ. 0 ) THEN
                           HLJ(I3) = HLJ(I1)
                        ELSE
                           HRJ(I3) = HLJ(I1)
                        END IF
                     END IF
C
                     IF ( JSIDE(I) .EQ. 0 ) THEN
```

```
                        HSJJ = HLJ(I3)
                     ELSE
                        HSJJ = HRJ(I3)
                     END IF
                     CALL GEOM(HSJJ,ASJJ,BSJJ,RSJJ,DB,NNS(I),PRTFLG,
     1                        AREA,ELEV,R23,WIDTH,NSTEP,*9000)
C
                     IF ( JSIDE(I) .EQ. 0 ) THEN
                        ALJ(I3) = ASJJ
                        BLJ(I3) = BSJJ
                        RLJ(I3) = RSJJ
                     ELSE
                        ARJ(I3) = ASJJ
                        BRJ(I3) = BSJJ
                        RRJ(I3) = RSJJ
                     END IF
                     XM = ASJJ / ARJJ
C
                  END IF
C
                  IF ( J .EQ. 1 ) THEN
C-----------------------------------------------------------------------
C              JUNCTION COMPUTATIONS FOR NON-BOUNDARY LINES.
C-----------------------------------------------------------------------
C
                     IF ( ITRIB(I) .EQ. 1 ) THEN
C
C                       NO SIDE CHANNEL BUT DOUBLE NODE
C
                        HLJ(I1) = ( - G(I1) * XN + XK(I2) ) /
     1                            ( H(I1) * XN - XL(I2) )
C
                     ELSE IF ( ITRIB(I) .EQ. 3 ) THEN
C
C                       COMPLETE SIDE CHANNEL
C
                        IF ( JSIDE(I) .EQ. 1 ) THEN
                           HLJ(I1) = ( - G(I1) * XN + XK(I3) * XM +
     1                                XK(I2) ) / ( H(I1) * XN -
     2                                XL(I3) * XM - XL(I2) )
                        ELSE
                           HLJ(I1) = ( - G(I1) * XN - G(I3) * XM +
     1                              XK(I2) ) / ( H(I1) * XN +
     2                              H(I3) * XM - XL(I2) )
                        END IF
C
                     ELSE
C
C                       THE SIDE CHANNEL HAS ONE SECTION ONLY
C
                        IF ( KDBC(I3) .EQ. 0 ) THEN
C
C-----------------------------------------------------------------------
C     KDBC(I3)=0. SIDE CHANNEL HAS 1 CROSS-SECTION AND H IS PRESCRIBED.
C-----------------------------------------------------------------------
```

```
                         QLJ(I3) = ARJJ * ( - G(I1) * XN - ( H(I1) *
     1                             XN - XL(I2) ) * HLJ(I3) + XK(I2) )
                         VLJ(I3) = QLJ(I3) / ASJJ
                         DONE = .TRUE.
C
                      ELSE
C-----------------------------------------------------------------------
C     KDBC(I3)=1 OR 2. SIDE CHANNEL HAS 1 XSECT AND Q OR T IS PRESCRIBED
C-----------------------------------------------------------------------
                         N3 = N(I3+1)
                         HLJ(I1) = ( - G(I1) * XN - Q3(N3) / ARJJ +
     1                             XK(I2) ) / ( H(I1) * XN - XL(I2) )
                         QLJ(I3) = Q3(N3)
                         VLJ(I3) = Q3(N3) / ASJJ
C
                      END IF
                   END IF
C
                ELSE
C-----------------------------------------------------------------------
C     JUNCTION COMPUTATIONS FOR BOUNDARY LINES.
C-----------------------------------------------------------------------
                   IF ( ITRIB(I) .EQ. 1 ) THEN
C
C                     NO SIDE CHANNEL BUT DOUBLE NODE
C
                      HLJ(I1) = ( - V(I1) * XN + S(I2) ) /
     1                          ( W(I1) * XN - T(I2) )
C
                   ELSE IF ( ITRIB(I) .EQ. 3 ) THEN
C
C                     COMPLETE SIDE CHANNEL
C
                      IF ( JSIDE(I) .EQ. 1 ) THEN
                         HLJ(I1) = ( - V(I1) * XN + S(I3) * XM +
     1                               S(I2) ) / ( W(I1) * XN -
     2                               T(I3) * XM - T(I2) )
                      ELSE
                         HLJ(I1) = ( - V(I1) * XN - V(I3) * XM +
     1                             S(I2) ) / ( W(I1) * XN +
     2                             W(I3) * XM - T(I2) )
                      END IF
C
                   ELSE
C
C                     THE SIDE CHANNEL HAS ONE SECTION ONLY
C
                      IF ( KDBC(I3) .EQ. 0 ) THEN
C
C-----------------------------------------------------------------------
C     KDBC(I3)=0. SIDE CHANNEL HAS 1 CROSS-SECTION AND H IS PRESCRIBED.
C-----------------------------------------------------------------------
                         QLJ(I3) = ARJJ * ( V(I1) * XN - ( W(I1) *
     1                             XN - T(I2) ) * HLJ(I3) + S(I2) )
                         VLJ(I3) = QLJ(I3) / ASJJ
```

```
                              DONE = .TRUE.
C
                           ELSE
C-----------------------------------------------------------------------
C     KDBC(I3)=1 OR 2. SIDE CHANNEL HAS 1 XSECT AND Q OR T IS PRESCRIBED
C-----------------------------------------------------------------------
                              N3 = N(I3+1)
                              HLJ(I1) = ( - V(I1) * XN - Q3(N3) / ARJJ +
     1                                  S(I2) ) / ( W(I1) * XN - T(I2) )
                              QLJ(I3) = Q3(N3)
                              VLJ(I3) = Q3(N3) / ASJJ
C
                           END IF
                        END IF
C
                     END IF
C
                     DONE = DONE .OR. DABS(HLJ(I1)-HRJJ) .LT. EPS .OR.
     1                       KK .GE. 100
C
                  END DO
c                       WRITE(101,777) TDUR,KK
  777             FORMAT (F8.4,I8)
C
                  IF ( J .EQ. 1 ) THEN
C
                     VLJ(I1) = G(I1) + H(I1) * HLJ(I1)
                     VRJ(I2) = XK(I2) + XL(I2) * HRJJ
                     QLJ(I1) = ALJJ * VLJ(I1)
                     QRJ(I2) = ARJJ * VRJ(I2)
C
                     IF ( ITRIB(I) .EQ. 3 ) THEN
                        IF ( JSIDE(I) .EQ. 0 ) THEN
                           VLJ(I3) = G(I3) + H(I3) * HSJJ
                           QLJ(I3) = ASJJ * VLJ(I3)
                        ELSE
                           VRJ(I3) = XK(I3) + XL(I3) * HSJJ
                           QRJ(I3) = ASJJ * VRJ(I3)
                        END IF
                     END IF
C
                  ELSE
C
                     VLJ(I1) = V(I1) + W(I1) * HLJ(I1)
                     VRJ(I2) = S(I2) + T(I2) * HRJJ
                     QLJ(I1) = ALJJ * VLJ(I1)
                     QRJ(I2) = ARJJ * VRJ(I2)
C
                     IF ( ITRIB(I) .EQ. 3 ) THEN
                        IF ( JSIDE(I) .EQ. 0 ) THEN
                           VLJ(I3) = V(I3) + W(I3) * HSJJ
                           QLJ(I3) = ASJJ * VLJ(I3)
                        ELSE
                           VRJ(I3) = S(I3) + T(I3) * HSJJ
                           QRJ(I3) = ASJJ * VRJ(I3)
```

```
                  END IF
               END IF
C
               A3(N1) = ALJJ
               B3(N1) = BLJJ
               H3(N1) = HLJ(I1)
               Q3(N1) = QLJ(I1)
               R3(N1) = RLJJ
               V3(N1) = VLJ(I1)
               A3(NI2) = ARJJ
               B3(NI2) = BRJJ
               H3(NI2) = HRJJ
               Q3(NI2) = QRJ(I2)
               R3(NI2) = RRJJ
               V3(NI2) = VRJ(I2)
C
               IF ( ITRIB(I) .GE. 2 ) THEN
C
                  IF ( JSIDE(I) .EQ. 0 ) THEN
C
                     N3 = N(I3+1)
                     A3(N3) = ASJJ
                     B3(N3) = BSJJ
                     H3(N3) = HSJJ
                     Q3(N3) = QLJ(I3)
                     R3(N3) = RSJJ
                     V3(N3) = VLJ(I3)
C
                  ELSE
C
                     NI3 = N(I3) + 1
                     A3(NI3) = ASJJ
                     B3(NI3) = BSJJ
                     H3(NI3) = HSJJ
                     Q3(NI3) = QRJ(I3)
                     R3(NI3) = RSJJ
                     V3(NI3) = VRJ(I3)
C
                  END IF
C
               END IF
C
            END IF
C
         END IF
C
      END DO
C
      IF ( PTCHUP .GT. 0. ) THEN
C-----------------------------------------------------------------------
C     CHECK FOR UNSTABILITIES POPPING UP AND ATTEMPT TO "PATCH" THEM
C-----------------------------------------------------------------------
C
         DO M = 1,NCHAN
C
```

```
                I1 = L(M) + 1 - J
                IBEG = N(M) + 1
                IF ( KUBC(M) .EQ. 3 ) THEN
                   IBEG = IBEG + J - 1
                   I1 = I1 + 2 * ( J - 1 )
                END IF
                IEND = N(M+1) + J - 2
                IF ( MFRSRF(M) .EQ. 0 ) IEND = IEND + 1 - J
C
                DO I = IBEG,IEND
C
                   I1 = I1 + 2
                   JUS = MAX(N(M)+1,I-J+1)
                   JDS = I - J + 2
                   IF ( I .EQ. N(M+1) ) JDS = N(MFRSRF(M)) + 1
C
                   IF ( ( DABS((V3(I)-V2(JUS))*(V3(I)-V2(JDS))) .GT. 100.
     1                    .OR. ( ZNATRN .NE. 0. .AND.
     2                           V3(I) .LT. 0. .AND. JUS .NE. JDS .AND.
     3                           V2(JUS) .GT. 0. .AND. V2(JDS) .GT. 0. )
c    1 In Neither Model  .OR. ( Q3(I) .GT. 2.*Q2(JUS) .AND.
c    2                           Q3(I) .GT. 2.*Q2(JDS) )
     3                    ) .AND. .NOT. IFL(M) ) THEN
C
                      PRTFLG = TDUR-PTCHTM(I1) .GT. PRINT/60.
                      IF ( PRTFLG ) THEN
                         BTIME = XTIME + DDT
                         WRITE (6,6500) KDAY,BTIME,I1-L(M),M
                         PTCHTM(I1) = TDUR
                      END IF
 6500                 FORMAT (//' DAY',I3,' TIME',F8.4,' -- INSTABILITY',
     1                       ' DETECTED AT X-SECT ',I2,' OF CHANNEL ',I2)
C
                      IF ( I .NE. N(M)+J-1 .OR. KUBC(M) .EQ. 3 ) THEN
                         CALL PATCH(I1,Q2(JUS),Q2(JDS),A2(JUS),A2(JDS),
     1                              H3(I),V3(I),PRTFLG,AREA,ELEV,
     2                              R23,WIDTH,NSTEP,*9000)
                      ELSE
                         A3(I) = Q3(I) / V2(JDS)
                         IF ( ( ZNATRN .NE. 0. .AND.
     1                       DABS(V2(JDS)) .LT. 1. ) .OR. A3(I) .LT. 0. )
     2                     A3(I) = DABS(Q3(I))
                         CALL PATCH(I1,Q3(I),Q3(I),A3(I),A3(I),
     1                              H3(I),V3(I),PRTFLG,AREA,ELEV,
     2                              R23,WIDTH,NSTEP,*9000)
                      END IF
                      PRTFLG = .TRUE.
                      CALL GEOM(H3(I),A3(I),B3(I),R3(I),DB,I1,PRTFLG,
     1                          AREA,ELEV,R23,WIDTH,NSTEP,*9000)
                      Q3(I) = A3(I) * V3(I)
                      IF ( I .EQ. N(M+1) .AND. MFRSRF(M) .GT. 0 ) THEN
                         A3(JDS) = A3(I)
                         B3(JDS) = B3(I)
                         H3(JDS) = H3(I)
                         Q3(JDS) = Q3(I)
```

```
                        R3(JDS) = R3(I)
                        V3(JDS) = V3(I)
                     END IF
C
                  END IF
C
               END DO
C
            END DO
C
         END IF
C
C-----------------------------------------------------------------------
C     INCREMENT TIME STEP DDT AND XTIME FOR NEXT ROUND OF COMPUTATIONS.
C             STOP RUN IF TDUR EXCEEDS DURATION DUR
C-----------------------------------------------------------------------
C
         TDUR = TDUR + DDT
C
         IF ( TDUR .LE. DUR+DDT/2. ) THEN
C
            XTIME = XTIME + DDT
            CALL CLOCK(MNTH,KDAY,KYEAR,XTIME)
C
            IF ( JK .GT. LMTE ) THEN
C-----------------------------------------------------------------------
C     RESET PRINT CONTROL COUNTER JK TO 1.
C
               JK = 1
               IF ( ZNBL .GE. 0. ) THEN
                  IF ( MILPRT ) WRITE(6,7000)
 7000             FORMAT(//5X,'NON-BOUNDARY LINE POINTS (DO NOT USE)'/)
                  KK = 2
               END IF
C
            ELSE IF ( JK .EQ. LMTE ) THEN
C
C-----------------------------------------------------------------------
C     WRITE BOUNDARY OR NON-BOUNDARY LINES,ALL CHANNELS.
C           WHEN AND WHERE REQUESTED
C-----------------------------------------------------------------------
               IF ( MILPRT ) THEN
                  WRITE(6,2710) MNTH,KDAY,KYEAR,TITLE
                  WRITE(6,7100) XTIME
               END IF
 7100          FORMAT(5X,      'TIME',F8.4,4X,'ELEVATION   DISCHARGE ',
     1                ' VELOCITY     AREA       WIDTH    R(2/3) ',
     2                ' MANN N   LOCAL INFLOW  DEPTH   FROUDE'/)
C
               KK = 1
               IF ( PRINT .GT. 0.001 ) IOUT = IOUT + 1
               IPTR = 0
C
            END IF
C
```

```
            IF ( ( JK .EQ. 1 .AND. ZNBL .GE. 0. ) .OR. JK .EQ. LMTE )
     1      THEN
C
               DO M = 1,NCHAN
C
                  NM = N(M) + 1
                  KCR = N(M+1) + J - 2
                  IF ( J .EQ. 1 ) THEN
C-----------------------------------------NON BOUNDARY LINE---------------
                     IF ( KCR .GE. NM ) THEN
                        QDG(NM) = QLG(M)
                        QDG(KCR) = QRG(M)
                     END IF
C
                  ELSE
C--------------------------------BOUNDARY LINE------------------------
                     QDG(NM) = QLL(M)
                     QDG(KCR) = QRL(M)
C
                  END IF
C
                  DO I = NM,KCR
C
                     IF ( PRMILE(KK) .NE. 0. .AND. MILPRT ) THEN
                        D3(I) = H3(I) - ELEV(1,KK)
                        FF3(I) = V3(I) / DSQRT(32.2*A3(I)/B3(I))
                        WRITE(6,2730) DABS(PRMILE(KK)),H3(I),Q3(I),
     1                                V3(I),A3(I),B3(I),R3(I),
     2                                XNU(I),QDG(I),D3(I),FF3(I)
                     END IF
C
                     IF ( PRMILE(KK) .LT. 0. .AND. JK .EQ. LMTE ) THEN
                        IPTR = IPTR + 1
                        QOUT(IOUT,IPTR) = Q3(I)
                        HOUT(IOUT,IPTR) = H3(I)
                     END IF
C
                     KK = KK + 2
C
                  END DO
C
                  IF ( JK .EQ. LMTE .AND. JK .GT. 2 ) THEN
                     DO MM = 1,NMDS
                        IF ( M .EQ. MDS(MM) )
     1                     BNDOUT(IOUT,MM) = Q3(KCR)
                     END DO
                  END IF
C
                  IF ( KCR .GE. NM .AND. MILPRT ) WRITE(6,2800)
C
                  IF ( J .EQ. 1 ) THEN
                     KK = KK + 1
                     IF ( M .LT. NCHAN .AND. L(M+1) .EQ. 0 )
     1                  KK = KK + 1
                  ELSE
```

```
                  KK = KK - 1
               END IF
C
            END DO
C
         END IF
C
         IF ( J .EQ. 1 ) THEN
C-----------------------------------------------------------------------
C        START COMPUTATIONS FOR NEXT BOUNDARY LINES.
C
            J = 2
C
         ELSE
C
            DO M = 1,NCHAN
C
C
C-------------SAVE MAX ELEV,DISCH,& VELOCITY WITH TIMES OF OCCURRENCE
C-------------------IN BOUNDARY LINE POINTS OF LAST COMPUTATION
C
               DO I = N(M)+1,N(M+1)
                  IF ( H3(I) .GT. ELMAX(I) ) THEN
                     ELMAX(I) = H3(I)
                     MEXDAY(I) = KDAY
                     EMXTIM(I) = XTIME
                  END IF
                  IF ( Q3(I) .GT. QMAX(I) ) THEN
                     QMAX(I) = Q3(I)
                     MQXDAY(I) = KDAY
                     QMXTIM(I) = XTIME
                  END IF
                  IF ( V3(I) .GT. VMAX(I) ) THEN
                     VMAX(I) = V3(I)
                     MVXDAY(I) = KDAY
                     VMXTIM(I) = XTIME
                  END IF
               END DO
C
            END DO
C
C-----------------------------------------------------------------------
C       START COMPUTATIONS FOR NEXT NON-BOUNDARY LINE.
C
            J = 1
C
         END IF
C
C
C-----------------------------------------------------------------------
C
C     STORE LINE 2 VALUES OF AREA, WIDTH, ELEV, DISCHARGE, R23 AND
C     VELOCITY IN LINE 1, AND STORE LINE 3 VALUES IN LINE 2.
C
         DO M = 1,NCHAN
```

```
                DO I = N(M)+1,N(M+1)
                   A1(I) = A2(I)
                   A2(I) = A3(I)
                   B1(I) = B2(I)
                   B2(I) = B3(I)
                   H1(I) = H2(I)
                   H2(I) = H3(I)
                   Q1(I) = Q2(I)
                   Q2(I) = Q3(I)
                   R1(I) = R2(I)
                   R2(I) = R3(I)
                   V1(I) = V2(I)
                   V2(I) = V3(I)
                END DO
             END DO
C-----------------------------------------------------------------------
C            ENTER SUBROUTINE LOCALS,
C            AND COMPUTE LOCAL INFLOWS, ALL CHANNELS.
C
             IF ( ZLOC .GE. 0. )
     1          CALL LOCALS(DDT,SKIP,DUR,XINFL,DXM,TMILE,NREACH,
     2                      ZLOC,QDG,NCHAN,PXINFL,RXINFL,N,J,JJJ,NBLNP)
C
          END IF
C-----------------------------------------------------------------------
C     MAIN COMPUTATION LOOP ENDS HERE.
C-----------------------------------------------------------------------
C
      END DO
 9000 CONTINUE
C
C-----------------------------------------------------------------------
C                PRINT THE SUMMARY OF MAX H,Q,V WITH THEIR TIMES
C-----------------------------------------------------------------------
      WRITE(6,9100) TITLE,KSM,KSD,KSY,STIME,MNTH,KDAY,KYEAR,XTIME
 9100 FORMAT('1',32X,A80//5X,'THE COMPUTATION STARTED ON',
     1        I3,'-',I2.2,'-',I2.2,' AT TIME',F6.2,
     2        ' AND TERMINATED ON',I3,'-',I2.2,'-',I2.2,' AT TIME',F6.2//
     3        32X,' THE MAXIMUM ELEVATIONS, DISCHARGES, VELOCITIES ARE:'
     4        //23X,'EL(FT)     DAY   TIME',11X,'Q(CFS)     DAY   TIME',
     5        11X,'V(FPS)     DAY   TIME'//)
C
      NLCN = 0
      LL = 0
      OPE = .FALSE.
      IF ( ZMAX .GT. 0. ) OPEN(UNIT=3,FILE=MAXFIL,STATUS='UNKNOWN')
C
      DO M = 1,NCHAN
         NCR = N(M+1)
         XMIL = TMILE(M)
C
         DO I = N(M)+1,NCR
            WRITE(6,9200) XMIL,ELMAX(I),MEXDAY(I),EMXTIM(I),QMAX(I),
     1                    MQXDAY(I),QMXTIM(I),VMAX(I),MVXDAY(I),VMXTIM(I)
 9200       FORMAT('     MILE',F8.2,F12.2,I6,F8.2,F17.0,I6,F8.2,
```

```
     1                          F17.2,I6,F8.2)
            IF ( ZMAX .GT. 0. )
     1         WRITE (3,9250) XMIL,ELMAX(I),MEXDAY(I),EMXTIM(I),
     2                              QMAX(I),MQXDAY(I),QMXTIM(I),
     3                              VMAX(I),MVXDAY(I),VMXTIM(I)
 9250          FORMAT (2F8.2,I8,F8.2,F8.0,I8,2F8.2,I8,F8.2)
            IF ( I .LT. NCR ) THEN
               LL = LL + 2
               XMIL = XMIL - ( DXM(LL-1) + DXM(LL) )
            END IF
         END DO
C
         WRITE(6,2800)
C
C        SAVE LAST COMPUTATION ON UNIT 2 FOR RESTARTING IF KEND=1
C
         IF ( KEND(M) .EQ. 1 ) THEN
            IF ( .NOT. OPE ) THEN
               OPE = .TRUE.
               OPEN(UNIT=2,FILE=SAVFIL,STATUS='UNKNOWN')
            END IF
            IF ( TDUR .GT. DDT ) THEN
               WRITE(2,9300) (H2(I),Q2(I),H1(I),Q1(I),I=N(M)+1,NCR)
            ELSE
               WRITE(2,9300) (H1(I),Q1(I),H2(I),Q2(I),I=N(M)+1,NCR)
            END IF
 9300       FORMAT(4(F9.2,F9.0))
         END IF
C
      END DO
      IF ( ZMAX .GT. 0 ) CLOSE (3)
      IF ( OPE ) CLOSE (2)
C
      WRITE(6,9400) N(NCHAN+1)
 9400 FORMAT(//I8,' LOCATIONS LISTED')
C-----------------------------------------------------------------------
C              SAVE & PRINT MOST DOWNSTREAM DISCHARGES
C-----------------------------------------------------------------------
C
      OPEN(UNIT=4,FILE=STOFIL,STATUS='UNKNOWN')
      HRINC = PRINT / 60.
C
      MONTH = KSM
      IDAY = KSD
      IYR = KSY
      HOUR = STIME
      OHOUR = 25
C
      IF ( NMDS .EQ. 1 ) THEN
C
         M = MDS(1)
         NUMMDS = N(M+1)
         IPEAK = MQXDAY(NUMMDS)
         PEAKTM = QMXTIM(NUMMDS) - STIME + 24 * ( IPEAK - KSD )
         IF ( KSD .GT. IPEAK ) PEAKTM = PEAKTM + 24 * MC(KSM)
```

```
C
         WRITE (4,9500) M,IOUT,HRINC,QMAX(NUMMDS),PEAKTM
 9500    FORMAT (2I9,F9.2,F9.0,F9.4)
         WRITE (4,700) (BNDOUT(I,1),I=1,IOUT)
C
         WRITE (6,9600) M,BNDRM(1)
 9600    FORMAT ('1 DISCHARGES AT DOWNSTREAM END OF CHANNEL',I2,
     1           '; RM = ',F6.2//5X,'DATE',11X,'TIME',10X,'DISCHARGE'/)
C
         DO I = 1,IOUT
            IF ( HOUR .GT. OHOUR ) THEN
               WRITE (6,9620) HOUR,BNDOUT(I,1)
 9620          FORMAT (18X,F5.1,11X,F9.0,2(9X,F9.0))
            ELSE
               WRITE (6,9640) MONTH,IDAY,IYR,HOUR,BNDOUT(I,1)
 9640          FORMAT (2X,I3,'-',I2.2,'-',I2.2,7X,F5.1,11X,F9.0,
     1                 2(9X,F9.0))
            END IF
            OHOUR = HOUR
            HOUR = HOUR + HRINC
            CALL CLOCK(MONTH,IDAY,IYR,HOUR)
         END DO
C
      ELSE
C
         WRITE (4,9500) MDS(1),IOUT,HRINC
         WRITE (4,700) (BNDOUT(I,1)+BNDOUT(I,2),I=1,IOUT)
C
         WRITE (6,9660) MDS(1),MDS(2)
 9660    FORMAT ('1 DISCHARGES AT DOWNSTREAM END OF CHANNEL',I2,3X,'AND'
     1           ,3X,'CHANNEL',I2//5X,'DATE',11X,'TIME',10X,'DISCHARGE',
     2           4X,'+',4X,'DISCHARGE',4X,'=',5X,'COMBINED'/)
C
         DO I = 1,IOUT
            IF ( HOUR .GT. OHOUR ) THEN
               WRITE (6,9620) HOUR,BNDOUT(I,1),BNDOUT(I,2),
     1                        BNDOUT(I,1)+BNDOUT(I,2)
            ELSE
               WRITE (6,9640) MONTH,IDAY,IYR,HOUR,BNDOUT(I,1),
     1                        BNDOUT(I,2),BNDOUT(I,1)+BNDOUT(I,2)
            END IF
            OHOUR = HOUR
            HOUR = HOUR + HRINC
            CALL CLOCK(MONTH,IDAY,IYR,HOUR)
         END DO
C
      END IF
      CLOSE (4)
C-----------------------------------------------------------------------
C              PRINT HYDROGRAPHS AT REQUESTED NODE POINTS
C-----------------------------------------------------------------------
C
      IF ( NUMOUT .GT. 0 ) OPEN (UNIT=4,FILE=PRTFIL,STATUS='UNKNOWN')
C
      DO I = 1,NUMOUT
```

```
          WRITE (4,9700) OTITLE(I),IOUT,IOUT
 9700     FORMAT (A/2I8)
          WRITE (4,9720) (HOUT(K,I),K=1,IOUT)
 9720     FORMAT (10F8.2)
          WRITE (4,9740) (QOUT(K,I),K=1,IOUT)
 9740     FORMAT (10F8.0)
c         WRITE (4,9700) OTITLE(I),QRM(I)
c9700     FORMAT ('1',A80/5X,'RM = ',F6.2//5X,'DATE',11X,'TIME',10X,
c    1            'DISCHARGE',10X,'ELEVATION'/)
C
c         MONTH = KSM
c         IDAY = KSD
c         IYR = KSY
c         HOUR = STIME
c         OHOUR = 25.
C
c         DO K = 1,IOUT
c            CALL CLOCK(MONTH,IDAY,IYR,HOUR)
c            IF ( HOUR .GT. OHOUR ) THEN
c               WRITE (4,9720) HOUR,QOUT(K,I),HOUT(K,I)
c9720           FORMAT (18X,F5.1,11X,F9.0,11X,F7.2)
c            ELSE
c               WRITE (4,9740) MONTH,IDAY,IYR,HOUR,QOUT(K,I),HOUT(K,I)
c9740           FORMAT (2X,I3,'-',I2.2,'-',I2.2,7X,F5.1,11X,F9.0,11X,F7.2)
c            END IF
c            OHOUR = HOUR
c            HOUR = HOUR + HRINC
c         END DO
      END DO
C
      CALL DATELINE(EDATE)
      WRITE(6,9800) SDATE,EDATE
 9800 FORMAT(//' RUN BEGINS ON ',A/'   RUN ENDS ON ',A)
C
      STOP
C
 9900 CONTINUE
      WRITE(6,9950) KNOD,NODTOT
 9950 FORMAT(//I5,' THE NO. OF CROSS SECTIONS SELECTED DOES NOT AGREE',
     1       ' WITH',I4,' THE SUM OF NODES IN ALL CHANNELS'//)
      WRITE(6,9400) NLCN
C
 9990 CONTINUE
C
      STOP
      END
C-----------------------------------------------------------------------
C-------------------------------------FOR BOUNDARIES ONLY--------------
C-------------------------------------COMPUTES A,W,R, FOR GIVEN H-------
C-----------------------------------------------------------------------
      SUBROUTINE GEOM(H,A,W,R,DB,NN,PRTFLG,AREA,ELEV,R23,WIDTH,NSTEP,*)
C-----------------------------------------------------------------------
C----------------------------NN IS THE RANK OF SECTION IN ENTIRE NET----
C-----------------------------------------------------------------------
C-----------------------------------------------------------------------
```

```
      IMPLICIT REAL*8 (A-H,O-Z)
C-----------------------------------------------------------------------
      DIMENSION AREA(NSTEP,*),ELEV(NSTEP,*),R23(NSTEP,*),WIDTH(NSTEP,*)
      LOGICAL PRTFLG
C-----------------------------------------------------------------------
      INTEGER HI
C
C-----LOCATE H IN ENTRIES OF TABLE USING BINARY SEARCH------------------
C
      LO = 1
      HI = NSTEP + 1
C
      DO WHILE ( LO .LT. HI-1 )
         MID = ( LO + HI ) / 2
         IF ( H .LT. ELEV(MID,NN) ) THEN
            HI = MID
         ELSE
            LO = MID
         END IF
      END DO
C
      IF ( H .EQ. ELEV(LO,NN) ) THEN
C
         A = AREA(LO,NN)
         W = WIDTH(LO,NN)
         R = R23(LO,NN)
         IF ( W .LE. 0. .AND. R .GT. 0. ) W = A / R ** 1.5
C
      ELSE IF ( LO .EQ. NSTEP ) THEN
C
         GO TO 900
C
      ELSE IF ( H .LT. ELEV(LO,NN) .OR. R23(LO+1,NN) .LE. 0. ) THEN
C
         GO TO 910
C
      ELSE
C
C--------------------INTERPOLATE BETWEEN ENTRIES LO & LO+1--------------
C
         PHI = AREA(LO+1,NN) / R23(LO+1,NN) ** 1.5
         DELTAA = AREA(LO+1,NN) - AREA(LO,NN)
         DELTAH = ELEV(LO+1,NN) - ELEV(LO,NN)
C
         IF ( R23(LO,NN) .GT. 0. ) THEN
C
            PLO = AREA(LO,NN) / R23(LO,NN) ** 1.5
            DELTAP = PHI - PLO
            BLO = DELTAA / DELTAH
            IF ( DELTAP/2. .GT. DELTAH )
     1         BLO = BLO - SQRT(DELTAP*DELTAP/4.-DELTAH*DELTAH)
C
         ELSE
C
            IF ( PHI-DELTAA/DELTAH .GT. 2.*DELTAH ) THEN
```

```
                BLO = ( 4. * DELTAA / DELTAH - PHI - 2. *
     1                 SQRT((PHI-DELTAA/DELTAH)*(PHI-DELTAA/DELTAH)-
     2                      3.*DELTAH*DELTAH) ) / 3.
                IF ( BLO .LT. 0. ) THEN
                   BLO = ( 4. * DELTAA / DELTAH - PHI + 2. *
     1                   SQRT((PHI-DELTAA/DELTAH)*(PHI-DELTAA/DELTAH)-
     2                        3.*DELTAH*DELTAH) ) / 3.
                   IF ( BLO .GT. DELTAA/DELTAH )
     1                BLO = 2. * DELTAA / DELTAH - BLO
                   IF ( BLO .LT. 0. ) BLO = DELTAA / DELTAH
                END IF
             ELSE
                BLO = DELTAA / DELTAH
             END IF
             PLO = BLO
             DELTAP = PHI - PLO
C
          END IF
C
          BHI = 2. * DELTAA / DELTAH - BLO
          XINT = ( H - ELEV(LO,NN) ) / DELTAH
          B = BLO + XINT * ( BHI - BLO )
          P = PLO + XINT * DELTAP
          A = AREA(LO,NN) + 0.5 * ( BLO + B ) * ( H - ELEV(LO,NN) )
          R = ( A / P ) ** ( 2. / 3. )
          W = WIDTH(LO,NN) + ( WIDTH(LO+1,NN) - WIDTH(LO,NN) ) * XINT
          DB = ( WIDTH(LO+1,NN) - WIDTH(LO,NN) ) / DELTAH
          IF ( W .LE. 0. ) W = B
          IF ( DB .LE. 0. ) DB = DELTAP / DELTAH
C
       END IF
C
       RETURN
C
  900 IF ( PRTFLG ) WRITE(6,905) H,NN
  905 FORMAT(/' ELEVATION',D15.6,' ABOVE GEOMETRY RANGE, TABLE',I4)
      RETURN 1
C
  910 IF ( PRTFLG ) WRITE(6,915) H,NN
  915 FORMAT(/' ELEVATION',D15.6,' BELOW GEOMETRY RANGE, TABLE',I4)
      RETURN 1
C-----------------------------------------------------------------------
      END
C-----------------------------------------------------------------------
C------------------------------FOR ANY POINT RANK KL IN CHANNEL M ------
C------------------------------COMPUTES A,W,R FOR GIVEN H---------------
C-----------------------------------------------------------------------
      SUBROUTINE TGEOM(H,A,W,R,NN,KK,KL,TDUR,PTCHTM,AREA,ELEV,R23,WIDTH,
     1                 NSTEP,*)
C-----------------------------------------------------------------------
C---------------------------JJ IS THE RANK OF SECTION USED -------------
C---------------------------VARIES BETWEEN NN AND KK -------------------
C-----------------------------------------------------------------------
      IMPLICIT REAL*8 (A-H,O-Z)
C-----------------------------------------------------------------------
```

```
      DIMENSION AREA(NSTEP,*),ELEV(NSTEP,*),R23(NSTEP,*),WIDTH(NSTEP,*)
      DIMENSION A(*),W(*),H(*),R(*)
      DIMENSION PTCHTM(*)
C-----------------------------------------------------------------------
      INTEGER HI
      LOGICAL PRTFLG
C-----------------------------------------------------------------------
      DO JJ = NN,KK,2
C
C-----LOCATE H IN ENTRIES OF TABLE USING BINARY SEARCH------------------
C
         LO = 1
         HI = NSTEP + 1
         HGT = H(KL)
C
         DO WHILE ( LO .LT. HI-1 )
            MID = ( LO + HI ) / 2
            IF ( HGT .LT. ELEV(MID,JJ) ) THEN
               HI = MID
            ELSE
               LO = MID
            END IF
         END DO
C
         IF ( HGT .EQ. ELEV(LO,JJ) ) THEN
C
            A(KL) = AREA(LO,JJ)
            W(KL) = WIDTH(LO,JJ)
            R(KL) = R23(LO,JJ)
            IF ( W(KL) .LE. 0. .AND. R(KL) .GT. 0. )
     1         W(KL) = A(KL) / R(KL) ** 1.5
C
         ELSE IF ( LO .EQ. NSTEP ) THEN
C
            PRTFLG = TDUR-PTCHTM(JJ) .GT. 1.
            GO TO 900
C
         ELSE IF ( HGT .LT. ELEV(LO,JJ) .OR. R23(LO+1,JJ) .LE. 0. ) THEN
C
            PRTFLG = TDUR-PTCHTM(JJ) .GT. 1.
            GO TO 910
C
         ELSE
C
C--------------------INTERPOLATE BETWEEN ENTRIES LO & LO+1--------------
C
            PHI = AREA(LO+1,JJ) / R23(LO+1,JJ) ** 1.5
            DELTAA = AREA(LO+1,JJ) - AREA(LO,JJ)
            DELTAH = ELEV(LO+1,JJ) - ELEV(LO,JJ)
C
            IF ( R23(LO,JJ) .GT. 0. ) THEN
C
               PLO = AREA(LO,JJ) / R23(LO,JJ) ** 1.5
               DELTAP = PHI - PLO
               BLO = DELTAA / DELTAH
```

```
                IF ( DELTAP/2. .GT. DELTAH )
     1             BLO = BLO - SQRT(DELTAP*DELTAP/4.-DELTAH*DELTAH)
C
             ELSE
C
                IF ( PHI-DELTAA/DELTAH .GT. 2.*DELTAH ) THEN
                   BLO = ( 4. * DELTAA / DELTAH - PHI - 2. *
     1                     SQRT((PHI-DELTAA/DELTAH)*(PHI-DELTAA/DELTAH)-
     2                          3.*DELTAH*DELTAH) ) / 3.
                   IF ( BLO .LT. 0. ) THEN
                      BLO = ( 4. * DELTAA / DELTAH - PHI + 2. *
     1                        SQRT((PHI-DELTAA/DELTAH)*
     2                             (PHI-DELTAA/DELTAH)-
     3                             3.*DELTAH*DELTAH) ) / 3.
                      IF ( BLO .GT. DELTAA/DELTAH )
     1                   BLO = 2. * DELTAA / DELTAH - BLO
                      IF ( BLO .LT. 0. ) BLO = DELTAA / DELTAH
                   END IF
                ELSE
                   BLO = DELTAA/DELTAH
                END IF
                PLO = BLO
                DELTAP = PHI - PLO
C
             END IF
C
             BHI = 2. * DELTAA / DELTAH - BLO
             XINT = ( HGT - ELEV(LO,JJ) ) / DELTAH
             B = BLO + XINT * ( BHI - BLO )
             P = PLO + XINT * DELTAP
             A(KL) = AREA(LO,JJ) + 0.5 * ( BLO + B ) *
     1                              ( HGT - ELEV(LO,JJ) )
             R(KL) = ( A(KL) / P ) ** ( 2. / 3. )
             W(KL) = WIDTH(LO,JJ) + ( WIDTH(LO+1,JJ) - WIDTH(LO,JJ) ) *
     1                               XINT
             IF ( W(KL) .LE. 0. ) W(KL) = B
C
          END IF
C
          KL = KL + 1
C
       END DO
C-----------------------------------------------------------------------
       RETURN
C
  900 IF ( PRTFLG ) WRITE(6,905) H(KL),JJ
  905 FORMAT(/' ELEVATION',D15.6,' ABOVE GEOMETRY RANGE, TABLE',I4)
       RETURN 1
C
  910 IF ( PRTFLG ) WRITE(6,915) H(KL),JJ
  915 FORMAT(/' ELEVATION',D15.6,' BELOW GEOMETRY RANGE, TABLE',I4)
       RETURN 1
       END
C-----------------------------------------------------------------------
C-------------------------------------COMPUTES H FOR GIVEN A------------
```

```
C-----------------------------------------------------------------------
      SUBROUTINE RVGEOM(A,H,NN,AREA,ELEV,R23,WIDTH,NSTEP,*)
C-----------------------------------------------------------------------
C---------------------------NN IS THE RANK OF SECTION IN ENTIRE NET----
C-----------------------------------------------------------------------
C-----------------------------------------------------------------------
      IMPLICIT REAL*8 (A-H,O-Z)
C-----------------------------------------------------------------------
      DIMENSION AREA(NSTEP,*),ELEV(NSTEP,*),R23(NSTEP,*),WIDTH(NSTEP,*)
C-----------------------------------------------------------------------
      INTEGER HI
C
C-----LOCATE A IN ENTRIES OF TABLE USING BINARY SEARCH------------------
C
      LO = 1
      HI = NSTEP + 1
C
      DO WHILE ( LO .LT. HI-1 )
         MID = ( LO + HI ) / 2
         IF ( A .LT. AREA(MID,NN) ) THEN
            HI = MID
         ELSE
            LO = MID
         END IF
      END DO
C
      IF ( A .EQ. AREA(LO,NN) ) THEN
C
         A = AREA(LO,NN)
         W = WIDTH(LO,NN)
         R = R23(LO,NN)
C
      ELSE IF ( LO .EQ. NSTEP ) THEN
C
         GO TO 900
C
      ELSE IF ( A .LT. AREA(LO,NN) .OR. R23(LO+1,NN) .LE. 0. ) THEN
C
         GO TO 910
C
      ELSE
C
C--------------------INTERPOLATE BETWEEN ENTRIES LO & LO+1--------------
C
         PHI = AREA(LO+1,NN) / R23(LO+1,NN) ** 1.5
         DELTAA = AREA(LO+1,NN) - AREA(LO,NN)
         DELTAH = ELEV(LO+1,NN) - ELEV(LO,NN)
C
         IF ( R23(LO,NN) .GT. 0. ) THEN
C
            PLO = AREA(LO,NN) / R23(LO,NN) ** 1.5
            DELTAP = PHI - PLO
            BLO = DELTAA / DELTAH
            IF ( DELTAP/2. .GT. DELTAH )
     1         BLO = BLO - SQRT(DELTAP*DELTAP/4.-DELTAH*DELTAH)
```

```
C
         ELSE
C
            IF ( PHI-DELTAA/DELTAH .GT. 2.*DELTAH ) THEN
               BLO = ( 4. * DELTAA / DELTAH - PHI - 2. *
     1                 SQRT((PHI-DELTAA/DELTAH)*(PHI-DELTAA/DELTAH)-
     2                      3.*DELTAH*DELTAH) ) / 3.
               IF ( BLO .LT. 0. ) THEN
                  BLO = ( 4. * DELTAA / DELTAH - PHI + 2. *
     1                    SQRT((PHI-DELTAA/DELTAH)*(PHI-DELTAA/DELTAH)-
     2                         3.*DELTAH*DELTAH) ) / 3.
                  IF ( BLO .GT. DELTAA/DELTAH )
     1               BLO = 2. * DELTAA / DELTAH - BLO
                  IF ( BLO .LT. 0. ) BLO = DELTAA / DELTAH
               END IF
            ELSE
               BLO = DELTAA / DELTAH
            END IF
C
            PLO = BLO
            DELTAP = PHI - PLO
C
         END IF
C
         BHI = 2. * DELTAA / DELTAH - BLO
         XINT = ( A - AREA(LO,NN) ) / DELTAA
         B = BLO + XINT * ( BHI - BLO )
         H = ELEV(LO,NN) + 2. * ( A - AREA(LO,NN) ) / ( BLO + B )
C
      END IF
C
      RETURN
C
  900 WRITE(6,905) A,NN
  905 FORMAT(' AREA',D15.6,' ABOVE GEOMETRY RANGE, TABLE',I4/)
      RETURN 1
C
  910 WRITE(6,915) A,NN
  915 FORMAT(' AREA',D15.6,' BELOW GEOMETRY RANGE, TABLE',I4/)
      RETURN 1
C-----------------------------------------------------------------------
      END
C-----------------------------------------------------------------------
C-----------------------------COMPUTES LOCAL INFLOW QDG IN 2 REACHES----
C-----------------------------ADJACENT TO COMPUTATION POINT ------------
C-----------------------------RANK N IN CHANNEL NCHAN, J=1 OR 2 --------
C-----------------------------------------------------------------------
      SUBROUTINE LOCALS (DDT,SKIP,DUR,XINFL,DXM,TMILE,NREACH,
     1                   ZLOC,QDG,NCHAN,PXINFL,RXINFL,N,J,JJJ,NBLNP)
C-----------------------------------------------------------------------
C-----------------------------ON FIRST CALL READ LOCAL DISTRIBUTION-----
C-----------------------------------------------------------------------
      IMPLICIT REAL*8 (A-H,O-Z)
C-----------------------------------------------------------------------
      DIMENSION XINFL(JJJ-NCHAN),DXM(JJJ-NCHAN),TMILE(NCHAN)
```

```
      DIMENSION NREACH(NCHAN),QDG(NBLNP),N(NCHAN+1),PXINFL(JJJ-NCHAN)
      DIMENSION RXINFL(JJJ-NCHAN)
C-----------------------------------------------------------------------
      INTEGER NRU(NCHAN)
C-----------------------------------------------------------------------
      INTEGER, SAVE, ALLOCATABLE, DIMENSION (:) :: LC,LDU,LDD,NLCLBP
      INTEGER, ALLOCATABLE, DIMENSION (:) :: MCHU,MCHD,MCH
      REAL(8), SAVE, ALLOCATABLE, DIMENSION (:) :: DIS,FU,FD
      REAL(8), ALLOCATABLE, DIMENSION (:) :: XUMID,XDMID,TBPINT,XMICL
      REAL(8), SAVE, ALLOCATABLE, DIMENSION (:) :: TLOC
      REAL(8), SAVE, ALLOCATABLE, DIMENSION (:,:) :: CONL,DISL
C-----------------------------------------------------------------------
      COMMON /HYD/ IYEAR,IDAY,HTIME,IMNTH,MC(12)
C-----------------------------------------------------------------------
      LOGICAL, SAVE:: FPASS
      LOGICAL WHLCHN,PRTCHN
      DATA NU/5/,FPASS/.TRUE./
C-----------------------------------------------------------------------
      IF ( FPASS ) THEN
         FPASS = .FALSE.
C-----------------------------------------------------------------------
C       READ NCL: NUMBER OF CONCENTRATED LOCALS
C       READ NDL: NUMBER OF DISTRIBUTED  LOCALS
C       READ NLBP: NUMBER OF POINTS USED TO DESCRIBE LOCAL HYDROGRAPHS
C-----------------------------------------------------------------------
         READ(5,100) NCL,NDL,NLBP,TINTV
  100    FORMAT(3I3,F9.0)
C
         IF ( ZLOC .EQ. 0. ) THEN
C
            IF ( NLBP .EQ. 0 ) RETURN
            TINTV = 0.
            ALLOCATE (TLOC(NLBP+1))
            READ(5,200) (TLOC(K),K=1,NLBP)
  200       FORMAT(8F9.0)
            IOFLAG = 0
            MAXDUR = TLOC(NLBP)
            MAXBP = NLBP
C
         ELSE
C
            IF ( TINTV .EQ. 0. ) TINTV = 6.
            NLBP = MAX(INT((DUR+SKIP)/TINTV)+1,2)
            WRITE(6,250) TINTV
  250       FORMAT(//6X,' ALL LOCAL HYDROGRAPHS START AT TIME 0. WITH',
     1              ' DEFAULT INTERVAL OF',F5.1,' HOUR(S) FROM FILE',
     2              ' "loc.tmp"'/)
            NU = 8
            IOFLAG = 1
            MAXDUR = 0
            MAXBP = 0
C
         END IF
C
         WRITE(6,270) NCL,NDL,NLBP
```

```
  270    FORMAT(' NUMBER OF CONCENTRATED LOCALS:',I3,
     1           ';  NUMBER OF DISTRIBUTED LOCALS:',I3,
     2           ';  NUMBER OF POINTS ON LOCAL HYDROGRAPHS:',I4/
     3           '+_____________________________',7X,
     4           '_____________________________')
C
C           ALLOCATE ARRAYS DEPENDENT ONLY ON NO. OF LOCALS
C
        ALLOCATE (LC(NCL),LDU(NDL),LDD(NDL),DIS(NDL),FU(NDL),FD(NDL),
     1            XUMID(NDL),XDMID(NDL),MCHU(NDL),MCHD(NDL),XMICL(NCL))
        ALLOCATE (MCH(NCL+NDL),NLCLBP(NCL+NDL),TBPINT(NCL+NDL))
C
C-----------------------------------------------------------------------
C-------COMPUTE NO. OF (NBP) AND INTERVAL OF (TINT) LOCAL HYDROGRAPHS---
C-----------------------------------------------------------------------
C
         TINT = TINTV
         DO I = 1,NCL+NDL
C
            IF ( I .LE. NCL ) THEN
C
               READ(5,300) MCH(I),XMICL(I),TBPINT(I)
  300          FORMAT(I9,2F9.0)
               WRITE(6,350) I,MCH(I),XMICL(I)
  350          FORMAT(/6X,' CONCENTRATED LOCAL NO.',I2,
     1                    ' COMES IN CHANNEL',I2,' AT MILE',F8.3)
C
            ELSE
C
               READ(5,400) MCH(I),XUMID(I-NCL),XDMID(I-NCL),MCHU(I-NCL),
     1                     MCHD(I-NCL),TBPINT(I)
  400          FORMAT(I9,2F9.0,2I9,F9.0)
C
            END IF
C
            IF ( TBPINT(I) .LE. 0. ) TBPINT(I) = TINTV
C
            IF ( ZLOC .EQ. 0. ) THEN
               NLCLBP(I) = NLBP
            ELSE
               READ(NU,300) NLCLBP(I),TINTRV
               IF ( TINTRV .GT. 0. ) TBPINT(I) = TINTRV
               IF ( NLCLBP(I) .GT. MAXBP ) MAXBP = NLCLBP(I)
               IF ( (NLCLBP(I)-1)*TBPINT(I) .GT. MAXDUR )
     1            MAXDUR = ( NLCLBP(I) - 1 ) * TBPINT(I)
            END IF
C
            TINT = GCD(TINT,TBPINT(I))
            READ(NU,200) (DUM,K=1,NLCLBP(I))
C
         END DO
C
         IF ( TINT .GT. 0 ) THEN
            IF ( MAXDUR .GE. DUR+SKIP ) THEN
               NBP = MAX((DUR+SKIP)/TINT+1,2.D0)
```

```
            ELSE
               NBP = MAXDUR / TINT + 2
            END IF
         END IF
C
C        ALLOCATE ARRAYS DEPENDENT ON NO. OF LOCALS / ORDINATES
C
         MAXBP = MAX(MAXBP,NBP)
         ALLOCATE (CONL(MAXBP+1,NCL),DISL(MAXBP+1,NDL))

         DO I = 1,NCL+NDL
            DO K = 1,NLCLBP(I),8
               BACKSPACE (NU)
            END DO
            BACKSPACE (NU)
         END DO
C
         DO I = 1,NCL+NDL
C
            READ(NU,300) IDUM
            IF ( I .LE. NCL ) THEN
               READ(NU,200) (CONL(K,I),K=1,NLCLBP(I))
            ELSE
               READ(NU,200) (DISL(K,I-NCL),K=1,NLCLBP(I))
            END IF
C
         END DO
C
         IF ( TINTV .GT. 0. ) THEN
            NBP = ( NLBP - 1 ) * NINT(TINTV/TINT) + 1
c           IF ( NBP .GT. MXBPTS ) THEN
c              TINT = ( NBP - 1 ) / MXBPTS + 1
c              NBP = ( NLBP - 1 ) * NINT(TINTV/TINT) + 1
c           END IF
                 ALLOCATE (TLOC(NBP+1))
            TLOC(1) = 0.
            DO K = 1,NBP
               TLOC(K+1) = TLOC(K) + TINT
            END DO
         ELSE
            NBP = NLBP
            IF ( TLOC(NBP) .LT. SKIP+DUR ) NBP = NBP + 1
         END IF
C
C        SEE IF LAST FLOWS NEED TO BE EXTENDED
C
         IF ( SKIP+DUR .GT. MAXDUR ) TLOC(NBP) = SKIP + DUR
C
C-----------------------------------------------------------------------
C     COMPUTE TOTAL NO. OF REACHES AND RANK OF FIRST REACH IN ALL CH.
C
         DO M = 1,NCHAN
            NRU(M) = 2 * ( N(M) - M + 1 ) + 1
         END DO
C
```

```
         JJJJ = 2 * ( N(NCHAN+1) - NCHAN )
c         DO L = 1,JJJJ
c            PXINFL(L) = 0.0
c            RXINFL(L) = 0.0
c            XINFL(L) = 0.0
c         END DO
C-----------------------------------------------------------------------
C        IF NO SKIP USE ALL LOCAL POINTS. OTHERWISE FIND OUT BETWEEN
C        WHICH POINTS THE RUN STARTS AND COMPUTE INTERPOLATION FACTOR
C        TO OBTAIN NEW STARTING POINT.
C-----------------------------------------------------------------------
         IF ( SKIP .LE. 0. ) THEN
            ILI = 2
         ELSE
C
            DO K = 2,NBP
               IF ( TLOC(K)-TLOC(1) .GT. SKIP ) GO TO 500
            END DO
C
C----------INTERPOLATE STARTING POINT-----------------------------------
C
  500       CONTINUE
            FR = ( TLOC(K) - TLOC(1) - SKIP ) / ( TLOC(K) - TLOC(K-1) )
            ILI = K
         END IF
C-----------------------------------------------------------------------
C-----------PROCESS CONCENTRATED LOCALS-----------------------------
C
         DO I = 1,NCL
C
            IF ( TINT .GT. 0. ) THEN
               IF ( TBPINT(I) .NE. TINT ) THEN
                  NUMIN = MIN(NLCLBP(I),INT(MAXDUR/TBPINT(I))+1,
     1                                  INT((SKIP+DUR)/TBPINT(I))+1)
                  CALL CHGHI(CONL(1,I),TBPINT(I),TINT,NUMIN,NUMOUT)
               ELSE
                  NUMOUT = NLCLBP(I)
               END IF
               DO L = NUMOUT+1,NBP
                  CONL(L,I) = CONL(NUMOUT,I)
               END DO
            END IF
C
            CONLO = CONL(1,I)
            IF ( SKIP .GT. 0. ) CONLO = CONL(ILI,I) - FR *
     1                                  ( CONL(ILI,I) - CONL(ILI-1,I) )
C
            M = MCH(I)
            L = NRU(M)
            IF ( M .EQ. NCHAN ) THEN
               LMAX = JJJJ
            ELSE
               LMAX = NRU(M+1) - 1
            END IF
            XM = TMILE(M) - DXM(L)
```

```
C
            DO WHILE ( XMICL(I) .LT. XM .AND. L .LT. LMAX )
               L = L + 1
               XM = XM - DXM(L)
            END DO
C
            LC(I) = L
C
            PXINFL(L) = PXINFL(L) + CONLO
            RXINFL(L) = RXINFL(L) + CONL(ILI,I)
C
         END DO
C-----------------------------------------------------------------------
C-------PROCESS DISTRIBUTED LOCALS-------------------------------------
C
         DO I = 1,NDL
C
            IF ( TINTV .GE. 0. ) THEN
               IF ( TBPINT(NCL+I) .NE. TINT ) THEN
                  CALL CHGHI(DISL(1,I),TBPINT(NCL+I),TINT,NLCLBP(NCL+I),
     1                       NUM)
               ELSE
                  NUM = NLCLBP(NCL+I)
               END IF
               DO L = NUM+1,NBP
                  DISL(L,I) = DISL(NUM,I)
               END DO
            END IF
C
            DISLO = DISL(1,I)
            IF ( SKIP .GT. 0. ) DISLO = DISL(ILI,I) - FR *
     1                                  ( DISL(ILI,I) - DISL(ILI-1,I) )
            M = MCH(NCL+I)
C
            WHLCHN = .FALSE.
            PRTCHN = .FALSE.
            IF ( M .EQ. 0 ) THEN
               IF ( XDMID(I) .EQ. 0. ) THEN
                  IF ( I .EQ. 1 ) THEN
                     WHLCHN = .TRUE.
                  ELSE IF ( XDMID(I-1) .EQ. XUMID(I) .AND.
     1                    MCHU(I) .NE. MCHD(I) ) THEN
                     PRTCHN = .TRUE.
                  ELSE
                     WHLCHN = .TRUE.
                  END IF
               ELSE
                  PRTCHN = .TRUE.
               END IF
            END IF

            IF ( WHLCHN ) THEN
C
C-----------------------------------------------------------------------
C------IF MCH=0 , & XDMID IS 0 ----------------------------------------
```

```
C-----------------THIS DISTRIBUTED LOCAL IS SPREAD OVER SEVERAL --------
C-----------------CONSECUTIVE CHANNELS: XUMID IS DIST (TOTAL DISTANCE)--
C----------MCHU IS THE FIRST CHANNEL IN SEQUENCE, MCHD IS THE LAST------
C-----------------------------------------------------------------------
               MU = MCHU(I)
               MD = MCHD(I)
               DIST = XUMID(I)
               WRITE(6,600) I,MU,MD,DIST
  600          FORMAT(/7X,'DISTRIBUTED LOCAL  NO.',I2,' COMES IN',
     1                ' CHANNELS',I2,' THRU',I2,' OVER',F8.3,' MILES')
C
               LDU(I) = NRU(MU)
               LDD(I) = NRU(MD) + NREACH(MD) - 1
               FU(I) = 1.
               FD(I) = 1.
               DIS(I) = DIST
               IBEG = LDU(I)
               IEND = LDD(I)
               DO L = IBEG,IEND
                  PXINFL(L) = PXINFL(L) + DISLO * DXM(L) / DIST
                  RXINFL(L) = RXINFL(L) + DISL(ILI,I) * DXM(L) / DIST
               END DO
C
            ELSE IF ( PRTCHN ) THEN
C
C-----------------------------------------------------------------------
C------IF MCH=0 , & XDMID IS > 0. -------------------------------------
C-----------------THIS DISTRIBUTED LOCAL IS SPREAD OVER SEVERAL --------
C-----------------CONSECUTIVE CHANNELS: XUMID IS THE U.S. MILE OF U.S---
C-----------------CHANNEL MCHU & XDMID IS THE D.S. MILE OF D.S. CHANNEL-
C---------------- MCHD, WITH ENTIRE INTERMEDIATE CHANNELS---------------
C-----------------------------------------------------------------------
               MU = MCHU(I)
               MD = MCHD(I)
               XU = XUMID(I)
               XD = XDMID(I)
               WRITE(6,650) I,MU,XU,MD,XD,(L,L=MU+1,MD-1)
  650          FORMAT(/7X,'DISTRIBUTED LOCAL  NO.',I2,' COMES IN',
     1                ' CHANNEL',I2,' AT MILE',F8.3,' THRU CHANNEL',
     2                I2,' AT MILE',F8.3/7X,'AND OVER ALL OF THE',
     3                ' FOLLOWING CHANNEL(S):',10I3)
C
               L = NRU(MU)
               XM = TMILE(MU) - DXM(L)
C
               DO WHILE ( XM .GT. XU )
                  L = L + 1
                  XM = XM - DXM(L)
               END DO
               LDU(I) = L
               FU(I) = ( XU - XM ) / DXM(L)
C
               DIST = XU - XM
C
               DO LL = L+1,NRU(MD)-1
```

```
                 DIST = DIST + DXM(LL)
              END DO
              DIST = DIST + TMILE(MD) - XD
              DIS(I) = DIST
C
C------COMPUTE LOCAL IN FIRST REACH WHERE IT APPLIES PARTLY--------------
C
              PXINFL(L) = PXINFL(L) + DISLO * FU(I) * DXM(L) / DIST
              RXINFL(L) = RXINFL(L) + DISL(ILI,I) * FU(I) * DXM(L) /
     1                    DIST
C
C------COMPUTE LOCAL IN ALL BUT LAST CHANNEL ----------------------------
C
              DO L = LDU(I)+1,NRU(MD)-1
                 PXINFL(L) = PXINFL(L) + DISLO * DXM(L) / DIST
                 RXINFL(L) = RXINFL(L) + DISL(ILI,I) * DXM(L) / DIST
              END DO
C
              L = NRU(MD)
              IF ( MD .EQ. NCHAN ) THEN
                 LMAX = JJJJ
              ELSE
                 LMAX = NRU(MD+1) - 1
              END IF
              XM = TMILE(MD) - DXM(L)
C
              DO WHILE ( XM .GE. XD .AND. L .LT. LMAX )
C
C--------APPLY LOCAL TO ENTIRE D.S. CHANNEL PROPORTIONALLY TO DX--------
C
                 PXINFL(L) = PXINFL(L) + DISLO * DXM(L) / DIST
                 RXINFL(L) = RXINFL(L) + DISL(ILI,I) * DXM(L) / DIST
                 L = L + 1
                 XM = XM - DXM(L)
              END DO
C
C------COMPUTE LOCAL IN LAST REACH WHERE IT APPLIES PARTLY--------------
C
              LDD(I) = L
              FD(I) = 1 - ( XD - XM ) / DXM(L)
              PXINFL(L) = PXINFL(L) + DISLO * FD(I) * DXM(L) / DIST
              RXINFL(L) = RXINFL(L) + DISL(ILI,I) * FD(I) * DXM(L) /
     1                    DIST
C
C
           ELSE
C
              XU = XUMID(I)
              XD = XDMID(I)
              WRITE(6,700) I,M,XU,XD
  700         FORMAT(/6X,' DISTRIBUTED LOCAL  NO.',I2,' COMES IN',
     1                ' CHANNEL',I2,' BETWEEN MILES',F8.3,'  &',F8.3)
C
              DIST = XU - XD
              DIS(I) = DIST
```

```
               L = NRU(M)
               XM = TMILE(M) - DXM(L)
C
               DO WHILE ( XU .LE. XM )
                  L = L + 1
                  XM = XM - DXM(L)
               END DO
C
C-----COMPUTE LOCAL IN FIRST REACH WHERE IT APPLIES PARTLY--------------
C
               LDU(I) = L
C
               IF ( XD .GE. XM ) THEN
C------THE DISTRIBUTED LOCAL COMES IN A FRACTION OF ONE REACH-----------
C
                  LDD(I) = L
                  FU(I) = DIST / DXM(L)
                  PXINFL(L) = PXINFL(L) + DISLO
                  RXINFL(L) = RXINFL(L) + DISL(ILI,I)
C
               ELSE
C
                  FU(I) = ( XU - XM ) / DXM(L)
                  PXINFL(L) = PXINFL(L) + DISLO * FU(I) * DXM(L) / DIST
                  RXINFL(L) = RXINFL(L) + DISL(ILI,I) * FU(I) * DXM(L) /
     1                        DIST
C
C----------------------------EXAMINE NEXT REACH------------------------
C
                  L = L + 1
                  XM = XM - DXM(L)
                  IF ( M .EQ. NCHAN ) THEN
                     LMAX = JJJJ
                  ELSE
                     LMAX = NRU(M+1) - 1
                  END IF
C
                  DO WHILE ( XD .LT. XM .AND. L .LT. LMAX )
C
C----------------APPLY LOCAL TO ENTIRE REACH PROPORTIONALLY TO DX-------
C
                     PXINFL(L) = PXINFL(L) + DISLO * DXM(L) / DIST
                     RXINFL(L) = RXINFL(L) + DISL(ILI,I) * DXM(L) / DIST
                     L = L + 1
                     XM = XM - DXM(L)
                  END DO
C
C------COMPUTE LOCAL IN LAST REACH WHERE IT APPLIES PARTLY--------------
C
                  LDD(I) = L
                  FD(I) = 1 - ( XD - XM ) / DXM(L)
                  PXINFL(L) = PXINFL(L) + DISLO * FD(I) * DXM(L) / DIST
                  RXINFL(L) = RXINFL(L) + DISL(ILI,I) * FD(I) * DXM(L) /
     1                        DIST
C
```

```
               END IF
C
            END IF
C
c     GO TO 999
         END DO
c      GO TO 999
C
         WRITE(6,750)
  750    FORMAT(/)
C-----------------------------------------------------------------------
C        WRITE OUT THE LOCAL DISTRIBUTION
C-----------------------------------------------------------------------
         DO I = 1,NCL
            WRITE(6,800) I,LC(I)
  800       FORMAT(/' CONCENTRATED LOCAL INFLOW NO.',I3,5X,
     1              ' THIS LOCAL INFLOW OCCURS IN REACH',I4/)
            OUTINT = IOFLAG * TBPINT(I)
            CALL HYDR(CONL(1,I),TLOC,NBP,1,OUTINT)
         END DO
C
         DO I = 1,NDL
            ID = LDD(I) - LDU(I) + 1
            WRITE(6,820) I,ID,LDU(I),LDD(I),DIS(I)
  820       FORMAT(/' DISTRIBUTED LOCAL INFLOW NO.',I3,5X,' THIS LOCAL',
     1              ' INFLOW OCCURS IN',I3,' REACHES:',I4,' THRU',I4,
     2              ',',F8.2,' MILES'/)
            OUTINT = IOFLAG * TBPINT(NCL+I)
            CALL HYDR(DISL(1,I),TLOC,NBP,1,OUTINT)
         END DO
C
         LMTE = ( TLOC(ILI) - TLOC(1) - SKIP ) / DDT - 2.0 + 0.1
         LMTE = MAX(2,LMTE)
         ILI = ILI + 1
C
C-----------------------------------------------------------------------
C        WRITE THIRD LINE LOCAL INFLOWS
C
         WRITE(6,900) (PXINFL(I),I=1,JJJJ)
  900    FORMAT('0THIRD LINE LOCAL INFLOWS'/(8F11.2))
C-----------------------------------------------------------------------
C     INITIALIZATION OF LOCAL INFLOW CYCLE COUNTER,INFL.
         INFL = 0
C-----------------------------------------------------------------------
C     STORE THIRD LINE LOCAL INFLOWS PXINFL(I) IN XINFL(I).
C
         DO I = 1,JJJJ
            XINFL(I) = PXINFL(I)
         END DO
C-----------------------------------------------------------------------
      ELSE
C-----------------------------------------------------------------------
C     COMPUTE TOTAL NO. OF REACHES IN ALL CHANNELS,JJJJ.
C
         IF ( NLBP .EQ. 0 ) RETURN
```

```
C
C-----------------------------------------------------------------------
C        INTERPOLATE NEXT LOCAL INFLOWS,ALL CHANNELS.
C
         IF ( INFL .NE. LMTE ) THEN
C
            PRCNT = DFLOAT(INFL) / DFLOAT(LMTE)
            DO L = 1,JJJJ
               XINFL(L) = PRCNT * ( RXINFL(L) - PXINFL(L) ) + PXINFL(L)
            END DO
C
         ELSE
C
            DO L = 1,JJJJ
               PXINFL(L) = RXINFL(L)
               XINFL(L) = PXINFL(L)
               RXINFL(L) = 0.0
            END DO
C
C-----------------------------------------------------------------------
            DO I = 1,NCL
C
C-----------CONCENTRATED LOCAL I COMES IN REACH LC----------------------
C
               L = LC(I)
               RXINFL(L) = RXINFL(L) + CONL(ILI,I)
            END DO
C
C-----------------------------------------------------------------------
            DO I = 1,NDL
C
C----------DISTRIBUTED LOCAL I COMES IN REACHES LDU THRU LDD------------
C---------------WITH FRACTIONS FU AND FD IN FIRST AND LAST--------------
               L = LDU(I)
               RXINFL(L) = RXINFL(L) + DISL(ILI,I) * FU(I) * DXM(L) /
     1                                 DIS(I)
               IF (LDU(I) .NE. LDD(I) ) THEN
                  L = L + 1
                  DO WHILE ( L .NE. LDD(I) )
                     RXINFL(L) = RXINFL(L) + DISL(ILI,I) * DXM(L) /
     1                                       DIS(I)
                     L = L + 1
                  END DO
                  RXINFL(L) = RXINFL(L) + DISL(ILI,I) * FD(I) * DXM(L)
     1                                    / DIS(I)
               END IF
C
            END DO
C-----------------------------------------------------------------------
            LMTE = ( TLOC(ILI) - TLOC(ILI-1) ) / DDT + 0.1
            LMTE = MAX(2,LMTE)
C-------------------MOVE TO NEXT POINT ON HYDROGRAPH--------------------
            ILI = ILI + 1
C
C-----------------------------------------------------------------------
```

```
C     RESET LOCAL INFLOW CYCLE COUNTER TO 0.
C
            INFL = 0
C
         END IF
      END IF
C-----------------------------------------------------------------------
C     INCREMENT LOCAL INFLOW CYCLE COUNTER,INFL.
C
      INFL = INFL + 1
C
C-----------------------------------------------------------------------
C------------COMPUTE LOCAL INFLOWS ALL CHANNELS.
C
      K = J
C
      DO M = 1,NCHAN
         IF ( N(M+1)-N(M) .LE. 2 ) THEN
            QDG(J+N(M)) = 0.0
         ELSE
            DO I = N(M)+J,N(M+1)-1
               QDG(I) = XINFL(K) + XINFL(K+1)
               K = K + 2
            END DO
C-------------------SKIP BOUNDARY POINTS FOR ALL CHANNELS---------------
            IF ( J .EQ. 2 ) K = K + 2
         END IF
      END DO
C
999   CONTINUE
      RETURN
C
      END
C-----------------------------------------------------------------------
      SUBROUTINE PATCH(NN,QUS,QDS,AUS,ADS,HNEW,VNEW,PRTFLG,AREA,ELEV,
     1                 R23,WIDTH,NSTEP,*)
      IMPLICIT REAL*8 (A-H,O-Z)
      DIMENSION AREA(NSTEP,*),ELEV(NSTEP,*),R23(NSTEP,*),WIDTH(NSTEP,*)
      LOGICAL PRTFLG
C
      HOLD = HNEW
      VOLD = VNEW
      QNEW = ( QUS + QDS ) / 2.
      ANEW = ( AUS + ADS ) / 2.
      VNEW = QNEW / ANEW
      CALL RVGEOM(ANEW,HNEW,NN,AREA,ELEV,R23,WIDTH,NSTEP,*9000)
C
      IF ( PRTFLG ) WRITE (6,1000) HOLD,HNEW,VOLD,VNEW
 1000 FORMAT (' *** WARNING -- THE FOLLOWING "PATCH" WAS APPLIED TO',
     1          ' THIS X-SECT TO STAY ALIVE'/5X,'ELEVATION FROM ',F7.2,
     2          ' TO ',F7.2/5X,' VELOCITY FROM ',F7.2,' TO ',F7.2//)
C
      RETURN
C
 9000 RETURN 1
```

```
      END
C-----------------------------------------------------------------------
C--------------------------------EDIT HYDROGRAPH DISTRIBUTION----------
C-----------------------------------------------------------------------
      SUBROUTINE HYDR(HY,T,MX,KK,OUTINT)
C-----------------------------------------------------------------------
C--------------------------------MX POINT FOR HY AT TIMES T------------
C--------------------------------KK=0 FOR ELEVATION, KK=1 FOR DISCHARGE-
C-----------------------------------------------------------------------
      IMPLICIT REAL*8 (A-H,O-Z)
C-----------------------------------------------------------------------
      DIMENSION HY(MX),T(MX)
C-----------------------------------------------------------------------
      COMMON /HYD/ IYEAR,IDAY,HTIME,IMNTH,MC(12)
C-----------------------------------------------------------------------
C-----------------------------------------------------------------------
C        WRITE OUT THE BOUNDARY DISTRIBUTION
C-----------------------------------------------------------------------
C      FIRST DAY AND HOUR ARE THE START OF THE HYDROGRAPH
C-----------------------------------------------------------------------
      IF ( KK .EQ. 0 ) THEN
         WRITE (6,100) HY(1),T(1),IDAY,HTIME
  100    FORMAT('     ELEVATION   HOURS',6X,'DAY',4X,'TIME'//
     1          F13.2,F9.2,I8,F9.2)
      ELSE
         WRITE (6,110) HY(1),T(1),IDAY,HTIME
  110    FORMAT('     DISCHARGE   HOURS',6X,'DAY',4X,'TIME'//
     1          F13.0,F9.2,I8,F9.2)
      END IF
C
      HOUR = HTIME
      ICDAY = IDAY
      MON = IMNTH
      ICYEAR = IYEAR
      IF ( OUTINT .GT. 0. ) THEN
         INTRVL = NINT(OUTINT/(T(2)-T(1)))
         INTRVL = MAX(INTRVL,1)
      ELSE
         INTRVL = 1
      END IF
C
      DO K = 1+INTRVL,MX,INTRVL
C
         HOUR = HOUR + T(K) - T(K-INTRVL)
         CALL CLOCK(MON,ICDAY,ICYEAR,HOUR)
C
         IF ( KK .EQ. 0 ) THEN
            WRITE(6,200) HY(K),T(K),ICDAY,HOUR
  200       FORMAT (F13.2,F9.2,I8,F9.2)
         ELSE
            WRITE(6,210) HY(K),T(K),ICDAY,HOUR
  210       FORMAT (F13.0,F9.2,I8,F9.2)
         END IF
C
      END DO
```

```
C
      RETURN
      END
C-----------------------------------------------------------------------
      SUBROUTINE FRICT(IBEG,IEND,JS,KODEN,HQBMT,HQ,XNBMT,NBLNP,CM)
      IMPLICIT REAL*8 (A-H,O-Z)
      DIMENSION HQBMT(NBLNP,2,3),HQ(*),XNBMT(NBLNP,2,3),CM(*)
C
      J = 0
      IF ( KODEN .GT. 0 ) THEN
C
C---------------------------------N VARY WITH H OR Q--------------------
         DO I = IBEG,IEND
            J = J + 1
            IF ( HQ(J) .GT. HQBMT(I,JS,3) ) THEN
               CM(J) = XNBMT(I,JS,3)
            ELSE IF ( HQ(J) .GT. HQBMT(I,JS,2) ) THEN
               CM(J) = XNBMT(I,JS,2) + ( HQ(J) - HQBMT(I,JS,2) ) /
     1                 ( HQBMT(I,JS,3) - HQBMT(I,JS,2) ) *
     2                 ( XNBMT(I,JS,3) - XNBMT(I,JS,2) )
            ELSE IF ( HQ(J) .GT. HQBMT(I,JS,1) ) THEN
               CM(J) = XNBMT(I,JS,1) + ( HQ(J) - HQBMT(I,JS,1) ) /
     1                 ( HQBMT(I,JS,2) - HQBMT(I,JS,1) ) *
     2                 ( XNBMT(I,JS,2) - XNBMT(I,JS,1) )
            ELSE
               CM(J) = XNBMT(I,JS,1)
            END IF
         END DO
C
      ELSE
C
         DO I = IBEG,IEND
            J = J + 1
            CM(J) = XNBMT(I,JS,1)
         END DO
C
      END IF
C
      RETURN
      END
C-----------------------------------------------------------------------
      SUBROUTINE RATNGH(Q,N,M,QTAB,ELTAB,H,*)
      IMPLICIT REAL*8 (A-H,O-Z)
      DIMENSION QTAB(33),ELTAB(33)
C
      IF ( Q .GE. QTAB(1) ) THEN
         DO I = 1,N
            IF ( Q .LT. QTAB(I) ) THEN
               QINT = QTAB(I) - QTAB(I-1)
               H = ELTAB(I-1) + ( ( Q - QTAB(I-1) ) / QINT ) *
     1             ( ELTAB(I) - ELTAB(I-1) )
               GO TO 5100
            ELSE IF ( Q .EQ. QTAB(I) ) THEN
               H = ELTAB(I)
               GO TO 5100
```

```
            END IF
         END DO
C
         IF ( Q-QTAB(N) .GT. QTAB(N)-QTAB(N-1) ) THEN
            WRITE(6,5000) Q,M
 5000       FORMAT( //' DISCHARGE=',D20.8,'  OUTSIDE ',
     1                'CHANNEL',I2,' RATING TABLE')
            RETURN 1
         ELSE
            WRITE(6,5050) Q,M
 5050       FORMAT( //' DISCHARGE=',D20.8,'  REQUIRES EXTRAPOLATION ',
     1                'FROM CHANNEL',I2,' RATING TABLE')
            QINT = QTAB(N) - QTAB(N-1)
            H = ELTAB(N-1) + ( ( Q - QTAB(N-1) ) / QINT ) *
     1          ( ELTAB(N) - ELTAB(N-1) )
         END IF
C
      ELSE
C
         IF ( Q .LT. 0. .OR. QTAB(1)-Q .GT. QTAB(2)-QTAB(1) ) THEN
            WRITE(6,5000) Q,M
            RETURN 1
         ELSE
            WRITE(6,5050) Q,M
            QINT = QTAB(2) - QTAB(1)
            H = ELTAB(1) - ( ( QTAB(1) - Q ) / QINT ) *
     1          ( ELTAB(2) - ELTAB(1) )
         END IF
C
      END IF
C
 5100 CONTINUE
      RETURN
      END
C-----------------------------------------------------------------------
      SUBROUTINE RATNGQ(H,N,M,ELTAB,QTAB,Q,*)
      IMPLICIT REAL*8 (A-H,O-Z)
      DIMENSION ELTAB(33),QTAB(33)
C
      IF ( H .GE. ELTAB(1) ) THEN
         DO I = 1,N
            IF ( H .LT. ELTAB(I) ) THEN
               XINT = ELTAB(I) - ELTAB(I-1)
               Q = QTAB(I-1) + ( ( H - ELTAB(I-1) ) / XINT ) *
     1             ( QTAB(I) - QTAB(I-1) )
               GO TO 5100
            ELSE IF ( H .EQ. ELTAB(I) ) THEN
               Q = QTAB(I)
               GO TO 5100
            END IF
         END DO
C
         IF ( H-ELTAB(N) .GT. ELTAB(N)-ELTAB(N-1) ) THEN
            WRITE(6,5000) H,M
 5000       FORMAT( //' ELEVATION=',D20.8,'  OUTSIDE ',
```

```
     1                 'CHANNEL',I2,' RATING TABLE')
            RETURN 1
         ELSE
            WRITE(6,5050) H,M
 5050       FORMAT( //' ELEVATION=',D20.8,'  REQUIRES EXTRAPOLATION ',
     1                 'FROM CHANNEL',I2,' RATING TABLE')
            XINT = ELTAB(N) - ELTAB(N-1)
            Q = QTAB(N-1) + ( ( H - ELTAB(N-1) ) / XINT ) *
     1          ( QTAB(N) - QTAB(N-1) )
         END IF
C
      ELSE
C
         IF ( H .LT. 0. .OR. ELTAB(1)-H .GT. ELTAB(2)-ELTAB(1) ) THEN
            WRITE(6,5000) H,M
            RETURN 1
         ELSE
            WRITE(6,5050) H,M
            XINT = ELTAB(2) - ELTAB(1)
            Q = QTAB(1) - ( ( ELTAB(1) - H ) / XINT ) *
     1          ( QTAB(2) - QTAB(1) )
         END IF
C
      END IF
C
 5100 CONTINUE
      RETURN
      END
C-----------------------------------------------------------------------
      SUBROUTINE CLOCK(MONTH,DAY,YEAR,TIME)
      INTEGER MONTH,DAY,YEAR
      REAL*8 TIME,HTIME
C-----------------------------------------------------------------------
      COMMON /HYD/ IYEAR,IDAY,HTIME,IMNTH,MC(12)
C-----------------------------------------------------------------------
C
      DO WHILE ( TIME .GT. 24. )
         TIME = TIME - 24.
         DAY = DAY + 1
         IF ( DAY .GT. MC(MONTH) ) THEN
            DAY = 1
            MONTH = MOD(MONTH,12) + 1
            IF ( MONTH .EQ. 1 ) YEAR = MOD(YEAR+1,100)
         END IF
      END DO
C
      RETURN
      END
C-----------------------------------------------------------------------
      DOUBLE PRECISION FUNCTION GCD(NUM1,NUM2)
      REAL*8 NUM1,NUM2
C
C     FUNCTION RETURNS THE LARGEST REAL NUMBER THAT DIVIDES BOTH
C     NUM1 & NUM2
C
```

```
      I = 0
      MULT = 0
      GCD = 0.
      DO WHILE ( DABS(MULT*GCD-NUM2) .GT. 1.E-4 )
         I = I + 1
         GCD = NUM1 / I
         MULT = NINT(NUM2/GCD)
      END DO
      IF ( MULT .EQ. 1 ) GCD = NUM2
      RETURN
      END
C-----------------------------------------------------------------------
      SUBROUTINE CHGHI(FLOWS,OLDHI,NEWHI,NUMORD,NUM)
      REAL*8 FLOWS(*),OLDHI,NEWHI
      INTEGER NUMORD,NUM
C
C     THIS ROUTINE CHANGES THE HYDROGRAPH ORDINATE INTERVAL FROM
C     OLDHI TO NEWHI.  PROCEDURE DEPENDS ON WHETHER NEWHI IS
C     LESS THAN OLDHI.
C
      INTEGER IPTR,OPTR,START,END,INC
      REAL*8 INHR,OUTHR,LSTFLO
C
      IF ( NEWHI .LE. OLDHI ) THEN
         START = NUMORD
         END = 1
         INC = -1
      ELSE
         START = 1
         END = NUMORD
         INC = 1
      END IF
C
      LSTFLO = FLOWS(NUMORD)
      INHR = OLDHI * ( START - 1 )
      OPTR = INHR / NEWHI + 1
      OUTHR = ( OPTR - 1 ) * NEWHI
      NUM = 0
C
      DO IPTR = START,END,INC
         DO WHILE ( INC*OUTHR .LE. INC*INHR )
            FLOWS(OPTR) = FLOWS(IPTR) - INC * ( OUTHR - INHR ) / OLDHI *
     1                    ( FLOWS(IPTR-INC) - FLOWS(IPTR) )
            OPTR = OPTR + INC
            OUTHR = OUTHR + INC * NEWHI
            NUM = NUM + 1
         END DO
         INHR = INHR + INC * OLDHI
      END DO
C
      IF ( (NUM-1)*NEWHI .LT. (NUMORD-1)*OLDHI ) THEN
         NUM = NUM + 1
         FLOWS(NUM) = LSTFLO
      END IF
C
```

```
      RETURN
      END
C-----------------------------------------------------------------------
C
C   Returns no. of hours between beginning and ending date & time
C
C  INPUT    (All dates in MMDDYY format; all times in hours)
C
C     INTEGER*4    BEGDAT       ! Beginning date
C     REAL         BEGTIM       ! Beginning time
C     INTEGER*4    ENDDAT       ! Ending date
C     REAL         ENDTIM       ! Ending time
C
      REAL FUNCTION HRDIFF(BEGDAT,BEGTIM,ENDDAT,ENDTIM)
      INTEGER BEGDAT,ENDDAT
      REAL*8 BEGTIM,ENDTIM
C
      INTEGER DAYDIF,BEGDAY,ENDDAY,BEGYR,ENDYR
      REAL TIMDIF
      INTEGER NDAYS,IDUM
C
      BEGDAY = NDAYS(BEGDAT,BEGYR,IDUM,IDUM)
      ENDDAY = NDAYS(ENDDAT,ENDYR,IDUM,IDUM)
C
      DAYDIF = ENDDAY - BEGDAY
      IF ( ENDYR .EQ. 0 .AND. BEGYR .EQ. 99 )
     1   DAYDIF = DAYDIF + NDAYS(123199,IDUM,IDUM,IDUM) + 1
      IF ( ENDYR .EQ. 99 .AND. BEGYR .EQ. 0 )
     1   DAYDIF = DAYDIF - NDAYS(123199,IDUM,IDUM,IDUM) - 1
C
      TIMDIF = ENDTIM - BEGTIM
C
      IF ( TIMDIF .LT. 0. ) THEN
         DAYDIF = DAYDIF - 1
         TIMDIF = TIMDIF + 24.
      END IF
C
      HRDIFF = 24 * DAYDIF + TIMDIF
C
      RETURN
      END
C=======================================================================
C
C   Converts MMDDYY to no. of days since 01/01/00 & extracts MM, DD, and YY
C
C  INPUT
C
C     INTEGER*4    DATE         ! Date in MMDDYY format
C
C  OUTPUT
C
C     INTEGER*4    YEAR         ! The YY of MMDDYY
C     INTEGER*4    MONTH        ! The MM of MMDDYY
C     INTEGER*4    DAY          ! The DD of MMDDYY
C     INTEGER*4    NDAYS        ! No. of days between 010100 and MMDDYY
```

```
C
      INTEGER FUNCTION NDAYS(DATE,YEAR,MONTH,DAY)
      INTEGER DATE,YEAR,MONTH,DAY
C
      INTEGER YR,MO,DY
C
      INTEGER MODAYS(12)
      DATA MODAYS/31,28,31,30,31,30,31,31,30,31,30,31/
C
      YR = MOD(DATE,100)
      MO = DATE / 10000
      DY = DATE / 100 - MO * 100
      NDAYS = DY
      DO I = 1,MO-1
         NDAYS = NDAYS + MODAYS(I)
      END DO
      NDAYS = NDAYS + YR * 365 + YR / 4
      IF ( MOD(YR,4) .EQ. 0 .AND. MO .LE. 2 ) NDAYS = NDAYS - 1
      YEAR = YR
      MONTH = MO
      DAY = DY
      RETURN
      END
C-----------------------------------------------------------------------
      SUBROUTINE DATELINE(DATE)
      CHARACTER*28 DATE
C
      INTEGER*2 IYR,IMON,IDAY
      INTEGER*2 IHR,IMIN,ISEC,I100TH
      CHARACTER*3 MONTHS(12)
      CHARACTER*2 AMPM
      DATA MONTHS/'JAN','FEB','MAR','APR','MAY','JUN',
     1            'JUL','AUG','SEP','OCT','NOV','DEC'/
C
      CALL GETDAT(IYR,IMON,IDAY)
      CALL GETTIM(IHR,IMIN,ISEC,I100TH)
      IF ( IHR .GE. 12 ) THEN
         AMPM = 'PM'
         IHR = IHR - 12
      ELSE
         AMPM = 'AM'
      ENDIF
      IF ( IHR .EQ. 0 ) IHR = 12
      WRITE (DATE,10) MONTHS(IMON),IDAY,IYR,IHR,IMIN,ISEC,I100TH,AMPM
   10 FORMAT (A,I3,',',I5,',',I3,2(':',I2.2),'.',I2.2,1X,A)
      RETURN
      END
C-----------------------------------------------------------------------

      SUBROUTINE DoDialog()
      USE DIALOGM
      IMPLICIT NONE
      INCLUDE 'SOCH.fd'

      CHARACTER*160 DATFIL,OUTFIL,GEOFIL,STOFIL,SLNFIL,SAVFIL
```

```
      CHARACTER*160 BNDFIL,LOCFIL,PRTFIL,MAXFIL
        COMMON /FILES/DATFIL,OUTFIL,GEOFIL,STOFIL,SLNFIL,SAVFIL,
      1              BNDFIL,LOCFIL,PRTFIL,MAXFIL
C
      INTEGER retint
      LOGICAL retlog, enable
      TYPE (dialog) dlg
      CHARACTER*160 dirname,runfil
      integer istat
      EXTERNAL UpdateFiles, UpdateButton
      INTEGER GETCWD
!     Initialize
      RUNFIL = "*.run"
      DATFIL = "*.dat"
      OUTFIL = "*.out"
      GEOFIL = "*.geo"
      STOFIL = "*.sto"
      SLNFIL = "*.sln"
      SAVFIL = "*.sav"
      BNDFIL = "*.bnd"
      LOCFIL = "*.loc"
      PRTFIL = "*.prt"
      MAXFIL = "*.max"
      IF ( .not. DlgInit( IDD_SOCH, dlg ) ) THEN
            WRITE (*,*) "Error: dialog not found"
      ELSE
!     variable dirname must be long enough to hold entire string
            enable = .false.
            retlog = DlgSet( dlg, IDOK, .false., dlg_enable )
            retlog = DlgSet( dlg, IDC_BUTTON_PWD, enable, dlg_enable )
            retlog = DlgSet( dlg, IDC_BUTTON_OUT, enable, dlg_enable )
            retlog = DlgSet( dlg, IDC_BUTTON_GEO, enable, dlg_enable )
            retlog = DlgSet( dlg, IDC_BUTTON_STO, enable, dlg_enable )
            retlog = DlgSet( dlg, IDC_BUTTON_SLN, enable, dlg_enable )
            retlog = DlgSet( dlg, IDC_BUTTON_SAV, enable, dlg_enable )
            retlog = DlgSet( dlg, IDC_BUTTON_BND, enable, dlg_enable )
            retlog = DlgSet( dlg, IDC_BUTTON_LOC, enable, dlg_enable )
            retlog = DlgSet( dlg, IDC_BUTTON_PRT, enable, dlg_enable )
            retlog = DlgSet( dlg, IDC_BUTTON_MAX, enable, dlg_enable )
            ISTAT = GETCWD (dirname)
            IF (ISTAT == 0)
     1            retlog = DlgSet( dlg, IDC_SOCH_PWD, dirname )
c           retlog = DlgSet( dlg, IDC_SOCH_RUN, 1 )
            retlog = DlgSet( dlg, IDC_SOCH_RUN, RUNFIL, 1 )
c           retlog = DlgSet( dlg, IDC_SOCH_DAT, 1 )
            retlog = DlgSet( dlg, IDC_SOCH_DAT, DATFIL, 1 )
c           retlog = DlgSet( dlg, IDC_SOCH_OUT, 1 )
            retlog = DlgSet( dlg, IDC_SOCH_OUT, OUTFIL, 1 )
c           retlog = DlgSet( dlg, IDC_SOCH_GEO, 1 )
            retlog = DlgSet( dlg, IDC_SOCH_GEO, GEOFIL, 1 )
c           retlog = DlgSet( dlg, IDC_SOCH_STO, 1 )
            retlog = DlgSet( dlg, IDC_SOCH_STO, STOFIL, 1 )
c           retlog = DlgSet( dlg, IDC_SOCH_SLN, 1 )
            retlog = DlgSet( dlg, IDC_SOCH_SLN, SLNFIL, 1 )
c           retlog = DlgSet( dlg, IDC_SOCH_SAV, 1 )
```

```
            retlog = DlgSet( dlg, IDC_SOCH_SAV, SAVFIL, 1 )
c           retlog = DlgSet( dlg, IDC_SOCH_BND, 1 )
            retlog = DlgSet( dlg, IDC_SOCH_BND, BNDFIL, 1 )
c           retlog = DlgSet( dlg, IDC_SOCH_LOC, 1 )
            retlog = DlgSet( dlg, IDC_SOCH_LOC, LOCFIL, 1 )
c           retlog = DlgSet( dlg, IDC_SOCH_PRT, 1 )
            retlog = DlgSet( dlg, IDC_SOCH_PRT, PRTFIL, 1 )
c           retlog = DlgSet( dlg, IDC_SOCH_MAX, 1 )
            retlog = DlgSet( dlg, IDC_SOCH_MAX, MAXFIL, 1 )
            retlog = DlgSetSub( dlg, IDC_SOCH_RUN, UpdateButton,
     1                                  dlg_selchange )
            retlog = DlgSetSub( dlg, IDC_SOCH_RUN, UpdateButton,
     1                                  dlg_update )
            retlog = DlgSetSub( dlg, IDC_SOCH_DAT, UpdateButton,
     1                                  dlg_selchange )
            retlog = DlgSetSub( dlg, IDC_SOCH_DAT, UpdateButton,
     1                                  dlg_update )
            call UpdateButton( dlg, IDC_SOCH_RUN, dlg_update )
            call UpdateButton( dlg, IDC_SOCH_DAT, dlg_update )
            retlog = DlgSetSub( dlg, IDC_BUTTON_RUN, UpdateFiles )
            retlog = DlgSetSub( dlg, IDC_BUTTON_DAT, UpdateFiles )
            retlog = DlgSetSub( dlg, IDC_BUTTON_OUT, UpdateFiles )
            retlog = DlgSetSub( dlg, IDC_BUTTON_GEO, UpdateFiles )
            retlog = DlgSetSub( dlg, IDC_BUTTON_STO, UpdateFiles )
            retlog = DlgSetSub( dlg, IDC_BUTTON_SLN, UpdateFiles )
            retlog = DlgSetSub( dlg, IDC_BUTTON_SAV, UpdateFiles )
            retlog = DlgSetSub( dlg, IDC_BUTTON_BND, UpdateFiles )
            retlog = DlgSetSub( dlg, IDC_BUTTON_LOC, UpdateFiles )
            retlog = DlgSetSub( dlg, IDC_BUTTON_PRT, UpdateFiles )
            retlog = DlgSetSub( dlg, IDC_BUTTON_MAX, UpdateFiles )
            call UpdateFiles( dlg, IDC_BUTTON_PWD, dlg_clicked )
            call UpdateFiles( dlg, IDC_BUTTON_RUN, dlg_clicked )
            call UpdateFiles( dlg, IDC_BUTTON_DAT, dlg_clicked )
            call UpdateFiles( dlg, IDC_BUTTON_OUT, dlg_clicked )
            call UpdateFiles( dlg, IDC_BUTTON_GEO, dlg_clicked )
            call UpdateFiles( dlg, IDC_BUTTON_STO, dlg_clicked )
            call UpdateFiles( dlg, IDC_BUTTON_SLN, dlg_clicked )
            call UpdateFiles( dlg, IDC_BUTTON_BND, dlg_clicked )
            call UpdateFiles( dlg, IDC_BUTTON_LOC, dlg_clicked )
            call UpdateFiles( dlg, IDC_BUTTON_PRT, dlg_clicked )
            call UpdateFiles( dlg, IDC_BUTTON_MAX, dlg_clicked )
!           Activate the dialog.
            retint = DlgModal( dlg )
            IF ( retint .eq. IDOK ) THEN
                  retlog = DlgGet( dlg, IDC_STATIC_RUN, RUNFIL )
                  retlog = DlgGet( dlg, IDC_STATIC_DAT, DATFIL )
                  retlog = DlgGet( dlg, IDC_STATIC_OUT, OUTFIL )
                  retlog = DlgGet( dlg, IDC_STATIC_GEO, GEOFIL )
                  retlog = DlgGet( dlg, IDC_STATIC_STO, STOFIL )
                  retlog = DlgGet( dlg, IDC_STATIC_SLN, SLNFIL )
                  retlog = DlgGet( dlg, IDC_STATIC_SAV, SAVFIL )
                  retlog = DlgGet( dlg, IDC_STATIC_BND, BNDFIL )
                  retlog = DlgGet( dlg, IDC_STATIC_LOC, LOCFIL )
                  retlog = DlgGet( dlg, IDC_STATIC_PRT, PRTFIL )
                  retlog = DlgGet( dlg, IDC_STATIC_MAX, MAXFIL )
```

```
                OPEN(UNIT=3,FILE=RUNFIL,STATUS='UNKNOWN')
                WRITE (3,'(A)') DATFIL
                WRITE (3,'(A)') OUTFIL
                WRITE (3,'(A)') GEOFIL
                WRITE (3,'(A)') STOFIL
                WRITE (3,'(A)') SLNFIL
                WRITE (3,'(A)') SAVFIL
                WRITE (3,'(A)') BNDFIL
                WRITE (3,'(A)') LOCFIL
                WRITE (3,'(A)') PRTFIL
                WRITE (3,'(A)') MAXFIL
                CLOSE (3)
            ELSE
                STOP
            END IF
!           Release dialog resources.
            CALL DlgUninit( dlg )
        END IF
        END SUBROUTINE DoDialog

        SUBROUTINE UpdateFiles( dlg, control_name, callbacktype )
        USE DIALOGM
        IMPLICIT NONE
        INCLUDE 'SOCH.fd'
        TYPE (dialog) dlg
        INTEGER control_name
        INTEGER callbacktype
        INTEGER local_callbacktype, numcalls
        CHARACTER*160 dirname
        LOGICAL retlog
        LOGICAL input,output
        LOGICAL UpdateDir
        DATA numcalls/0/
        DATA input/.false./,output/.true./
        numcalls = numcalls + 1
        local_callbacktype = callbacktype
        IF ( numcalls .gt. 10 ) THEN
           retlog = DlgSet( dlg, IDC_STATIC_MSG, "Status Message" )
           IF ( UpdateDir( dlg, IDC_SOCH_PWD, dirname ) ) THEN
              IF ( control_name .eq. IDC_BUTTON_PWD ) THEN
                 CALL UpdateDat( dlg, IDC_SOCH_RUN, IDC_STATIC_RUN,
     1                           IDC_BUTTON_RUN, dirname, input )
                 CALL UpdateDat( dlg, IDC_SOCH_DAT, IDC_STATIC_DAT,
     1                           IDC_BUTTON_DAT, dirname, input )
                 CALL UpdateDat( dlg, IDC_SOCH_OUT, IDC_STATIC_OUT,
     1                           IDC_BUTTON_DAT, dirname, output )
                 CALL UpdateDat( dlg, IDC_SOCH_GEO, IDC_STATIC_GEO,
     1                           IDC_BUTTON_DAT, dirname, input )
                 CALL UpdateDat( dlg, IDC_SOCH_STO, IDC_STATIC_STO,
     1                           IDC_BUTTON_DAT, dirname, output )
                 CALL UpdateDat( dlg, IDC_SOCH_SLN, IDC_STATIC_SLN,
     1                           IDC_BUTTON_DAT, dirname, input )
                 CALL UpdateDat( dlg, IDC_SOCH_SAV, IDC_STATIC_SAV,
     1                           IDC_BUTTON_DAT, dirname, output )
                 CALL UpdateDat( dlg, IDC_SOCH_BND, IDC_STATIC_BND,
```

```
1                          IDC_BUTTON_DAT, dirname, input )
          CALL UpdateDat( dlg, IDC_SOCH_LOC, IDC_STATIC_LOC,
1                          IDC_BUTTON_DAT, dirname, input )
          CALL UpdateDat( dlg, IDC_SOCH_PRT, IDC_STATIC_PRT,
1                          IDC_BUTTON_DAT, dirname, output )
          CALL UpdateDat( dlg, IDC_SOCH_MAX, IDC_STATIC_MAX,
1                          IDC_BUTTON_DAT, dirname, output )
       ELSE
          SELECT CASE ( control_name )
             CASE ( IDC_BUTTON_RUN )
                CALL UpdateDat( dlg, IDC_SOCH_RUN, IDC_STATIC_RUN,
 1                                IDC_BUTTON_RUN, dirname, input )
             CASE ( IDC_BUTTON_DAT )
                CALL UpdateDat( dlg, IDC_SOCH_DAT, IDC_STATIC_DAT,
 1                                IDC_BUTTON_DAT, dirname, input )
             CASE ( IDC_BUTTON_OUT )
                CALL UpdateDat( dlg, IDC_SOCH_OUT, IDC_STATIC_OUT,
 1                                IDC_BUTTON_OUT, dirname, output )
             CASE ( IDC_BUTTON_GEO )
                CALL UpdateDat( dlg, IDC_SOCH_GEO, IDC_STATIC_GEO,
 1                                IDC_BUTTON_GEO, dirname, input )
             CASE ( IDC_BUTTON_STO )
                CALL UpdateDat( dlg, IDC_SOCH_STO, IDC_STATIC_STO,
 1                                IDC_BUTTON_STO, dirname, output )
             CASE ( IDC_BUTTON_SLN )
                CALL UpdateDat( dlg, IDC_SOCH_SLN, IDC_STATIC_SLN,
 1                                IDC_BUTTON_SLN, dirname, input )
             CASE ( IDC_BUTTON_SAV )
                CALL UpdateDat( dlg, IDC_SOCH_SAV, IDC_STATIC_SAV,
 1                                IDC_BUTTON_SAV, dirname, output )
             CASE ( IDC_BUTTON_BND )
                CALL UpdateDat( dlg, IDC_SOCH_BND, IDC_STATIC_BND,
 1                                IDC_BUTTON_BND, dirname, input )
             CASE ( IDC_BUTTON_LOC )
                CALL UpdateDat( dlg, IDC_SOCH_LOC, IDC_STATIC_LOC,
 1                                IDC_BUTTON_LOC, dirname, input )
             CASE ( IDC_BUTTON_PRT )
                CALL UpdateDat( dlg, IDC_SOCH_PRT, IDC_STATIC_PRT,
 1                                IDC_BUTTON_PRT, dirname, output )
             CASE ( IDC_BUTTON_MAX )
                CALL UpdateDat( dlg, IDC_SOCH_MAX, IDC_STATIC_MAX,
 1                                IDC_BUTTON_MAX, dirname, output )
          END SELECT
       END IF
    END IF
 END IF
 RETURN
 END SUBROUTINE UpdateFiles

 SUBROUTINE UpdateButton( dlg, control_name, callbacktype )
 USE DIALOGM
 IMPLICIT NONE
 INCLUDE 'SOCH.fd'
 TYPE (dialog) dlg
 INTEGER control_name
```

```
INTEGER callbacktype
INTEGER local_callbacktype, button_control
LOGICAL retlog
CHARACTER*160 filename,blank
character*11 button_title
INTEGER SCAN
CHARACTER star
DATA star/"*"/,blank/" "/
local_callbacktype = callbacktype
retlog = DlgGet( dlg, control_name, filename, 1 )
IF ( SCAN(filename,star) .ne. 0 .or. filename .eq. blank ) THEN
   button_title = "Update List"
ELSE
   button_title = "Select File"
END IF
SELECT CASE ( control_name )
   CASE ( IDC_SOCH_RUN )
      button_control = IDC_BUTTON_RUN
   CASE ( IDC_SOCH_DAT )
      button_control = IDC_BUTTON_DAT
   CASE ( IDC_SOCH_OUT )
      button_control = IDC_BUTTON_OUT
   CASE ( IDC_SOCH_GEO )
      button_control = IDC_BUTTON_GEO
   CASE ( IDC_SOCH_STO )
      button_control = IDC_BUTTON_STO
   CASE ( IDC_SOCH_SLN )
      button_control = IDC_BUTTON_SLN
   CASE ( IDC_SOCH_SAV )
      button_control = IDC_BUTTON_SAV
   CASE ( IDC_SOCH_BND )
      button_control = IDC_BUTTON_BND
   CASE ( IDC_SOCH_LOC )
      button_control = IDC_BUTTON_LOC
   CASE ( IDC_SOCH_PRT )
      button_control = IDC_BUTTON_PRT
   CASE ( IDC_SOCH_MAX )
      button_control = IDC_BUTTON_MAX
END SELECT
retlog = DlgSet( dlg, button_control, button_title, dlg_title )
RETURN
END SUBROUTINE UpdateButton

LOGICAL FUNCTION UpdateDir( dlg, control_name, curname )
USE DIALOGM
USE MSFLIB
IMPLICIT NONE
TYPE (dialog) dlg
INTEGER control_name
CHARACTER*160 curname
INTEGER istat
CHARACTER*160 dirname
LOGICAL retlog
INTEGER GETCWD
INTEGER CHDIR
```

```
      retlog = DlgGet( dlg, control_name, dirname )
      IF ( CHDIR(dirname) .eq. 0 ) THEN
c      IF ( CHANGEDIRQQ(dirname) ) THEN
         UpdateDir = .TRUE.
         curname = dirname
      ELSE
         UpdateDir = .FALSE.
         ISTAT = GETCWD (curname)
         UpdateDir = dirname .eq. curname
         IF (ISTAT == 0 .and. .not. UpdateDir )
     1      retlog = DlgSet( dlg, control_name, curname )
      END IF
      RETURN
      END FUNCTION UpdateDir

      SUBROUTINE UpdateDat( dlg, control_name, static_file,
      1                     button_control, dirname, ofile )
      USE DIALOGM
      USE MSFLIB
      IMPLICIT NONE
      INCLUDE 'SOCH.fd'
      INTEGER MXCHAN,MXXSCT
      PARAMETER ( MXCHAN=20, MXXSCT=550 )
      TYPE (dialog) dlg
      INTEGER control_name, static_file, button_control
      CHARACTER*160 dirname

      CHARACTER*160 DATFIL,OUTFIL,GEOFIL,STOFIL,SLNFIL,SAVFIL
      CHARACTER*160 BNDFIL,LOCFIL,PRTFIL,MAXFIL
      COMMON       /FILES/DATFIL,OUTFIL,GEOFIL,STOFIL,SLNFIL,SAVFIL,
      1              BNDFIL,LOCFIL,PRTFIL,MAXFIL
      LOGICAL ofile
      INTEGER index,numfiles
      CHARACTER*160 datname,blank,required,stardot,na
      CHARACTER*11 update,select
      CHARACTER*160 datlist(100)
      CHARACTER*4 xtension
      CHARACTER*80 CARD
      REAL ZLOC,ZBOUND,ZMAX,REFDX
      LOGICAL ZSTRT,ZEND,ZPRT
      INTEGER I,JJJ,M,SKIP,NCHAN,NJUNCT,NXCROS,KSPL,LSPL
      INTEGER NODES(MXCHAN),KRULE,NUTP,NDTP,NDTP2,NDTP3,NDTP4,KSTRT,KEND
      INTEGER*2 PRMILE(MXXSCT)
      LOGICAL retlog
      LOGICAL input,output,enable,disable
      INTEGER  handle, length
      TYPE  (FILE$INFO)  info
      DATA blank/" "/,stardot/"*.*"/,required/"Required"/,na/"NA"/
      DATA update/"Update List"/,select/"Select File"/
      DATA input/.false./,output/.true./,enable/.true./,disable/.false./

      retlog = DlgGet( dlg, control_name, datname )
      IF ( datname .eq. blank ) datname = stardot
      handle = FILE$FIRST
      numfiles = 1
```

```
      DO WHILE (.TRUE.)
         length = GETFILEINFOQQ(datname, info, handle)
         IF ((handle .EQ. FILE$LAST) .OR.
     1       (handle .EQ. FILE$ERROR)) THEN
            IF ( numfiles .gt. 1 ) THEN
                 numfiles = numfiles - 1
            ELSE
               IF ( ofile ) THEN
                  OPEN (6,FILE=datname,ERR=100,STATUS='NEW')
                  CLOSE(6,STATUS='DELETE')
                  numfiles = 1
                  datlist(1) = datname
                  GO TO 200
100               CONTINUE
                  retlog = DlgSet( dlg, IDC_STATIC_MSG,
     1                             "Invalid filename" )
                  datlist(1) = stardot
                  retlog = DlgSet( dlg, button_control, update,
     1                              dlg_title )
200               CONTINUE
               ELSE
                  retlog = DlgSet( dlg, IDC_STATIC_MSG,
     1                              "File does not exist" )
                  datlist(1) = stardot
                  retlog = DlgSet( dlg, button_control, update,
     1                              dlg_title )
               END IF
            END IF
            EXIT
         ELSE
            IF ( info.permit .eq. 32 ) THEN
               datlist(numfiles) = info.name
               numfiles = min(numfiles + 1, 100)
            END IF
         END IF
      END DO
      IF ( datlist(1) .ne. stardot )
      1   retlog = DlgSet( dlg, button_control, select, dlg_title )
      retlog = DlgSet( dlg, control_name, numfiles )
      DO index = 1,numfiles
         retlog = DlgSet( dlg, control_name, datlist(index), index )
      END DO
      IF ( numfiles .eq. 1 .and. datlist(1) .ne. stardot ) THEN
         datname = TRIM(dirname)//"\"//datlist(1)
         IF ( control_name .eq. IDC_SOCH_RUN ) THEN
            OPEN (5,FILE=datname,ERR=900)
            CALL SETFIL( dlg, IDC_STATIC_RUN, datname, input, Blank  )

            READ(5,250) datname
250         FORMAT(A)
            CALL SETFIL( dlg, IDC_STATIC_DAT, datname, input, Blank  )

            READ(5,250) datname
            retlog = DlgSet( dlg, IDC_BUTTON_OUT, enable, dlg_enable )
            CALL SETFIL( dlg, IDC_STATIC_OUT, datname, output, Blank  )
```

```
READ(5,250) datname
retlog = DlgSet( dlg, IDC_BUTTON_GEO, enable, dlg_enable )
CALL SETFIL( dlg, IDC_STATIC_GEO, datname, input, Blank  )

READ(5,250) datname
retlog = DlgSet( dlg, IDC_BUTTON_STO, enable, dlg_enable )
CALL SETFIL( dlg, IDC_STATIC_STO, datname, output, Blank  )

READ(5,250) datname
IF ( datname .ne. na ) THEN
   retlog = DlgSet( dlg, IDC_BUTTON_SLN, enable, dlg_enable)
   CALL SETFIL( dlg, IDC_STATIC_SLN, datname, input, Blank )
ELSE
  retlog = DlgSet( dlg, IDC_BUTTON_SLN, disable, dlg_enable)
   CALL SETFIL( dlg, IDC_STATIC_SLN, na, input, Blank )
END IF

READ(5,250) datname
IF ( datname .ne. na ) THEN
   retlog = DlgSet( dlg, IDC_BUTTON_SAV, enable, dlg_enable)
   CALL SETFIL( dlg, IDC_STATIC_SAV, datname, output, Blank)
ELSE
  retlog = DlgSet( dlg, IDC_BUTTON_SAV, disable, dlg_enable)
   CALL SETFIL( dlg, IDC_STATIC_SAV, na, output, Blank )
END IF

READ(5,250) datname
IF ( datname .ne. na ) THEN
   retlog = DlgSet( dlg, IDC_BUTTON_BND, enable, dlg_enable)
   CALL SETFIL( dlg, IDC_STATIC_BND, datname, input, Blank )
ELSE
  retlog = DlgSet( dlg, IDC_BUTTON_BND, disable, dlg_enable)
   CALL SETFIL( dlg, IDC_STATIC_BND, na, input, Blank )
END IF

READ(5,250) datname
IF ( datname .ne. na ) THEN
   retlog = DlgSet( dlg, IDC_BUTTON_LOC, enable, dlg_enable)
   CALL SETFIL( dlg, IDC_STATIC_LOC, datname, input, Blank )
ELSE
  retlog = DlgSet( dlg, IDC_BUTTON_LOC, disable, dlg_enable)
   CALL SETFIL( dlg, IDC_STATIC_LOC, na, input, Blank )
END IF

READ(5,250) datname
IF ( datname .ne. na ) THEN
   retlog = DlgSet( dlg, IDC_BUTTON_PRT, enable, dlg_enable)
   CALL SETFIL( dlg, IDC_STATIC_PRT, datname, output, Blank)
ELSE
  retlog = DlgSet( dlg, IDC_BUTTON_PRT, disable, dlg_enable)
   CALL SETFIL( dlg, IDC_STATIC_PRT, na, output, Blank )
END IF

READ(5,250) datname
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          IF ( datname .ne. na ) THEN
             retlog = DlgSet( dlg, IDC_BUTTON_MAX, enable, dlg_enable)
             CALL SETFIL( dlg, IDC_STATIC_MAX, datname, output, Blank)
          ELSE
            retlog = DlgSet( dlg, IDC_BUTTON_MAX, disable, dlg_enable)
             CALL SETFIL( dlg, IDC_STATIC_MAX, na, output, Blank )
          END IF
          CLOSE(5)
       ELSE IF ( control_name .eq. IDC_SOCH_DAT ) THEN
          OPEN (5,FILE=datname,ERR=900)
          READ(5,250) CARD
          READ(5,250) CARD
          READ(5,250) CARD
          READ(5,300,ERR=900,END=900) ZLOC,ZBOUND,ZMAX
300       FORMAT(18X,F9.0,9X,2F9.0)
          READ(5,500,ERR=900,END=900) NCHAN,NJUNCT,NXCROS,KSPL,LSPL
500       FORMAT(3I3,21X,2I3)
          DO I = 1,NJUNCT
             READ(5,250) CARD
          END DO
          JJJ = 0
            SKIP = 0
          IF ( KSPL .NE. 0 .OR. LSPL .NE. 0 ) SKIP = 1
            ZSTRT = .FALSE.
            ZEND = .FALSE.
          DO M = 1,NCHAN
             READ(5,600,ERR=900,END=900) NODES(M),KRULE,NUTP,NDTP,
   1                                     NDTP2,NDTP3,NDTP4,KSTRT,KEND
600          FORMAT(I3,9X,I3,6X,5I3,6X,2I3)
             IF ( NODES(M) .GT. 0 ) JJJ = JJJ + NODES(M) -
   1                                   MOD(NODES(M)+1,2)
             IF ( KRULE .GT. 0 ) SKIP = SKIP + 2
             SKIP = SKIP + ( NUTP + 3 ) / 4 +
    1                      ( NDTP + 3 ) / 4 +
    2                      ( NDTP2 + 3 ) / 4 +
    3                      ( NDTP3 + 3 ) / 4 +
    4                      ( NDTP4 + 3 ) / 4
             ZSTRT = ZSTRT .OR. KSTRT .EQ. 1
             ZEND = ZEND .OR. KEND .EQ. 1
          END DO
          DO M = 1,NCHAN
             READ(5,700,ERR=900,END=900) REFDX
700          FORMAT(9X,F9.0)
             IF ( REFDX .EQ. 0. ) SKIP = SKIP + ( NODES(M)+6 ) / 8
          END DO
          SKIP = SKIP + ( NXCROS+71 ) / 72
          DO I = 1,SKIP
             READ(5,250) CARD
          END DO
          READ(5,800,ERR=900,END=900) (PRMILE(I),I=1,JJJ)
800       FORMAT(72I1)
          CLOSE(5)
          ZPRT = .FALSE.
          DO I = 1,JJJ
             IF ( PRMILE(I) .EQ. 2 ) THEN
```

```
            ZPRT = .TRUE.
                EXIT
         END IF
      END DO

      CALL SETFIL( dlg, IDC_STATIC_DAT, datname, input, Blank  )

      retlog = DlgSet( dlg, IDC_BUTTON_RUN, enable, dlg_enable )
      xtension = ".run"
      CALL SETFIL( dlg, IDC_STATIC_RUN, required, output,
1                  xtension )

      retlog = DlgSet( dlg, IDC_BUTTON_OUT, enable, dlg_enable )
      xtension = OUTFIL(2:5)
      CALL SETFIL( dlg, IDC_STATIC_OUT, required, output,
1                  xtension )

      retlog = DlgSet( dlg, IDC_BUTTON_GEO, enable, dlg_enable )
      xtension = GEOFIL(2:5)
      CALL SETFIL( dlg, IDC_STATIC_GEO, required, input,
1                  xtension )

      retlog = DlgSet( dlg, IDC_BUTTON_STO, enable, dlg_enable )
      xtension = STOFIL(2:5)
      CALL SETFIL( dlg, IDC_STATIC_STO, required, output,
1                  xtension )

      IF ( ZSTRT ) THEN
         retlog = DlgSet( dlg, IDC_BUTTON_SLN, enable, dlg_enable)
         xtension = SLNFIL(2:5)
         CALL SETFIL( dlg, IDC_STATIC_SLN, required, input,
1                     xtension )
      ELSE
        retlog = DlgSet( dlg, IDC_BUTTON_SLN, disable, dlg_enable)
         CALL SETFIL( dlg, IDC_STATIC_SLN, na, input, Blank )
      END IF

      IF ( ZEND ) THEN
         retlog = DlgSet( dlg, IDC_BUTTON_SAV, enable, dlg_enable)
         xtension = SAVFIL(2:5)
         CALL SETFIL( dlg, IDC_STATIC_SAV, required, output,
1                     xtension )
      ELSE
        retlog = DlgSet( dlg, IDC_BUTTON_SAV, disable, dlg_enable)
         CALL SETFIL( dlg, IDC_STATIC_SAV, na, output, Blank )
      END IF

      IF ( ZBOUND .NE. 0. ) THEN
         retlog = DlgSet( dlg, IDC_BUTTON_BND, enable, dlg_enable)
         xtension = BNDFIL(2:5)
         CALL SETFIL( dlg, IDC_STATIC_BND, required, input,
1                     xtension )
      ELSE
        retlog = DlgSet( dlg, IDC_BUTTON_BND, disable, dlg_enable)
         CALL SETFIL( dlg, IDC_STATIC_BND, na, input, Blank )
```

```
          END IF

          IF ( ZLOC .EQ. 8. ) THEN
             retlog = DlgSet( dlg, IDC_BUTTON_LOC, enable, dlg_enable)
             xtension = LOCFIL(2:5)
             CALL SETFIL( dlg, IDC_STATIC_LOC, required, input,
     1                    xtension )
          ELSE
            retlog = DlgSet( dlg, IDC_BUTTON_LOC, disable, dlg_enable)
             CALL SETFIL( dlg, IDC_STATIC_LOC, na, input, Blank )
          END IF

          IF ( ZPRT ) THEN
             retlog = DlgSet( dlg, IDC_BUTTON_PRT, enable, dlg_enable)
             xtension = PRTFIL(2:5)
             CALL SETFIL( dlg, IDC_STATIC_PRT, required, output,
     1                    xtension )
          ELSE
            retlog = DlgSet( dlg, IDC_BUTTON_PRT, disable, dlg_enable)
             CALL SETFIL( dlg, IDC_STATIC_PRT, na, output, Blank )
          END IF

          IF ( ZMAX .GT. 0. ) THEN
             retlog = DlgSet( dlg, IDC_BUTTON_MAX, enable, dlg_enable)
             xtension = MAXFIL(2:5)
             CALL SETFIL( dlg, IDC_STATIC_MAX, required, output,
     1                    xtension )
          ELSE
            retlog = DlgSet( dlg, IDC_BUTTON_MAX, disable, dlg_enable)
             CALL SETFIL( dlg, IDC_STATIC_MAX, na, output, Blank )
          END IF

       ELSE
          CALL SETFIL( dlg, static_file, datname, ofile, Blank )
       END IF
    END IF
    RETURN
900 CONTINUE
    retlog = DlgSet( dlg, IDC_STATIC_MSG,
    1                "Error in Input File; not updated" )

    END SUBROUTINE UpdateDat

    SUBROUTINE SETFIL( dlg, static_file, datname, Output, xtension )
    USE DIALOGM
    USE MSFLIB
    IMPLICIT NONE
    INCLUDE 'SOCH.fd'
    TYPE (dialog) dlg
    INTEGER static_file
    CHARACTER*160 datname
    LOGICAL Output
    CHARACTER*4 xtension
    CHARACTER*160 oldname,newname,required,na,qmark
    INTEGER numreq,oldnum
```

```
      LOGICAL retlog
      INTEGER  handle, length, i
      CHARACTER dot
      LOGICAL back, enable, disable
      TYPE  (FILE$INFO)  info
      INTEGER SCAN,LEN
      DATA numreq/4/,dot/'.'/
      DATA back/.true./,enable/.true./,disable/.false./
      DATA required/'Required'/,na/'NA'/,qmark/'?'/

      newname = datname
      retlog = DlgGet( dlg, static_file, oldname )
      IF ( newname .eq. required ) THEN
         IF ( oldname .eq. na .or.
     1        oldname .eq. qmark .or. oldname .eq. required ) THEN
            retlog = DlgGet( dlg, IDC_STATIC_DAT, newname, dlg_title )
            i = SCAN(newname, dot, back) - 1
            if ( i .lt. 1 ) i = LEN(TRIM(newname))
            newname = newname(1:i)//xtension
            handle = FILE$FIRST
            length = GETFILEINFOQQ(newname, info, handle)
            IF ( handle .EQ. FILE$LAST ) THEN
               IF ( output ) THEN
                  OPEN (6,FILE=datname,ERR=100,STATUS='NEW')
                  CLOSE(6,STATUS='DELETE')
                  GO TO 200
100               CONTINUE
                  newname = required
200               CONTINUE
               ELSE
                  newname = required
               END IF
            END IF
         ELSE
            newname = oldname
         END IF
      END IF
      retlog = DlgSet( dlg, static_file, newname )
      oldnum = numreq
      IF ( oldname .eq. required ) numreq = numreq - 1
      IF ( newname .eq. required ) numreq = numreq + 1
      IF ( oldnum .eq. 0 .and. numreq .gt. 0 )
     1   retlog = DlgSet( dlg, IDOK, disable, dlg_enable )
      IF ( oldnum .gt. 0 .and. numreq .eq. 0 )
     1   retlog = DlgSet( dlg, IDOK, enable, dlg_enable )
      RETURN
      END SUBROUTINE SETFIL
```


NOTE: There is no page 319 of 319 provided to the staff