# Documentation for a Digital Computer Model of Nutrient and Dissolved-Oxygen Transport In the Truckee River and Truckee Canal Downstream from Reno, Nevada

By Jon O. Nowlin

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DEPARTMENT OF THE INTERIOR

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ILLUSTRATION

## METRIC CONVERSION TABLE

| Multiply inch-pound unit | by | to obtain metric unit |
|---|---|---|
| **Length** | | |
| foot (ft) | 0.3048 | meter (m) |
| inch (in.) | 25.40 | millimeter (mm) |
| mile (mi) | 1.609 | kilometer (km) |
| **Area** | | |
| acre | 4047 | square meter ($m^2$) |
| acre | 0.4047 | hectare |
| square foot ($ft^2$) | 0.09294 | square meter ($m^2$) |
| square mile ($mi^2$) | 2.590 | square kilometer ($km^2$) |
| **Volume** | | |
| acre-foot (acre-ft) | 1,233 | cubic meter ($m^3$) |
| | 0.001233 | cubic kilometers ($km^3$) |
| **Velocity** | | |
| foot per second (ft/s) | 0.3048 | meter per second (m/s) |
| **Flow** | | |
| cubic foot per second ($ft^3/s$) | 0.02832 | cubic meter per second ($m^3/s$) |
| million gallons per day (Mgal/d) | 0.04381 | cubic meters per second ($m^3/s$) |
| pound per day (lb/day) | 0.4556 | kilograms per day |
| **Mass** | | |
| pound, avoirdupois (lb) | 28.35 | gram (g) |
| tons | 0.9072 | metric tons (t) |
| **Specific Conductance** | | |
| micromhos per centimeter at 25 °C (micromhos) | 1.000 | microsiemens per centimeter at 25 °C (microsiemens; µS) |

For temperature, degrees Celsius (°C) can be converted to degrees Fahrenheit (°F) by using the formula °F = [(1.8)(°C)] + 32.

Sea level: In this report, "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929), which is derived from a general adjustment of the first-order leveling networks of both the United States and Canada.

# DOCUMENTATION FOR A DIGITAL COMPUTER MODEL OF NUTRIENT AND DISSOLVED-OXYGEN TRANSPORT IN THE TRUCKEE RIVER AND TRUCKEE CANAL DOWNSTREAM FROM RENO, NEVADA

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## ABSTRACT

A digital water-quality model was constructed as part of a water-quality assessment of the Truckee River downstream from Reno. This report provides documentation on the computer code and the principal data sets used in model calibration, validation, and simulations.

## INTRODUCTION

As part of a water-quality assessment of the Truckee River in Nevada (Nowlin and others, 1980; Brown and others, 1985; Nowlin, 1987), a digital water-quality model was constructed for the Truckee River downstream of Reno to Marble Bluff Dam, and the length of the Truckee Canal from Derby Dam to Lahontan Reservoir (figure 1). The model was calibrated against four independent data sets compiled from intensive field investigations conducted in 1979-81 (LaCamera and others, 1985). A detailed description of the construction and calibration of the computer model has been published, along with the results of selected simulations of river and canal quality in response to alternative levels of waste treatment at the Reno-Sparks sewage treatment plant (Nowlin, 1987). This report documents the computer code used for those simulations and presents eight calibrated data sets used as the basis for published model simulations. This report is not designed to be a self-contained user quide to application of the TRWQ Model; such applications will require reference to appropriate sections and data tables of the previous report (Nowlin, 1987) in addition to the information in this report.

The Truckee River Water-Quality Model (TRWQ Model) is a one-dimensional, steady-state, digital model capable of simulating concentrations of dissolved solids, ultimate carbonaceous biochemical oxygen demand, dissolved oxygen, nitrogen species (organic-, ammonia-, nitrite-, nitrate nitrogen), orthophosphorus, and total phosphorus. The model also simulates specific electrical conductance as a surrogate for measured dissolved solids.

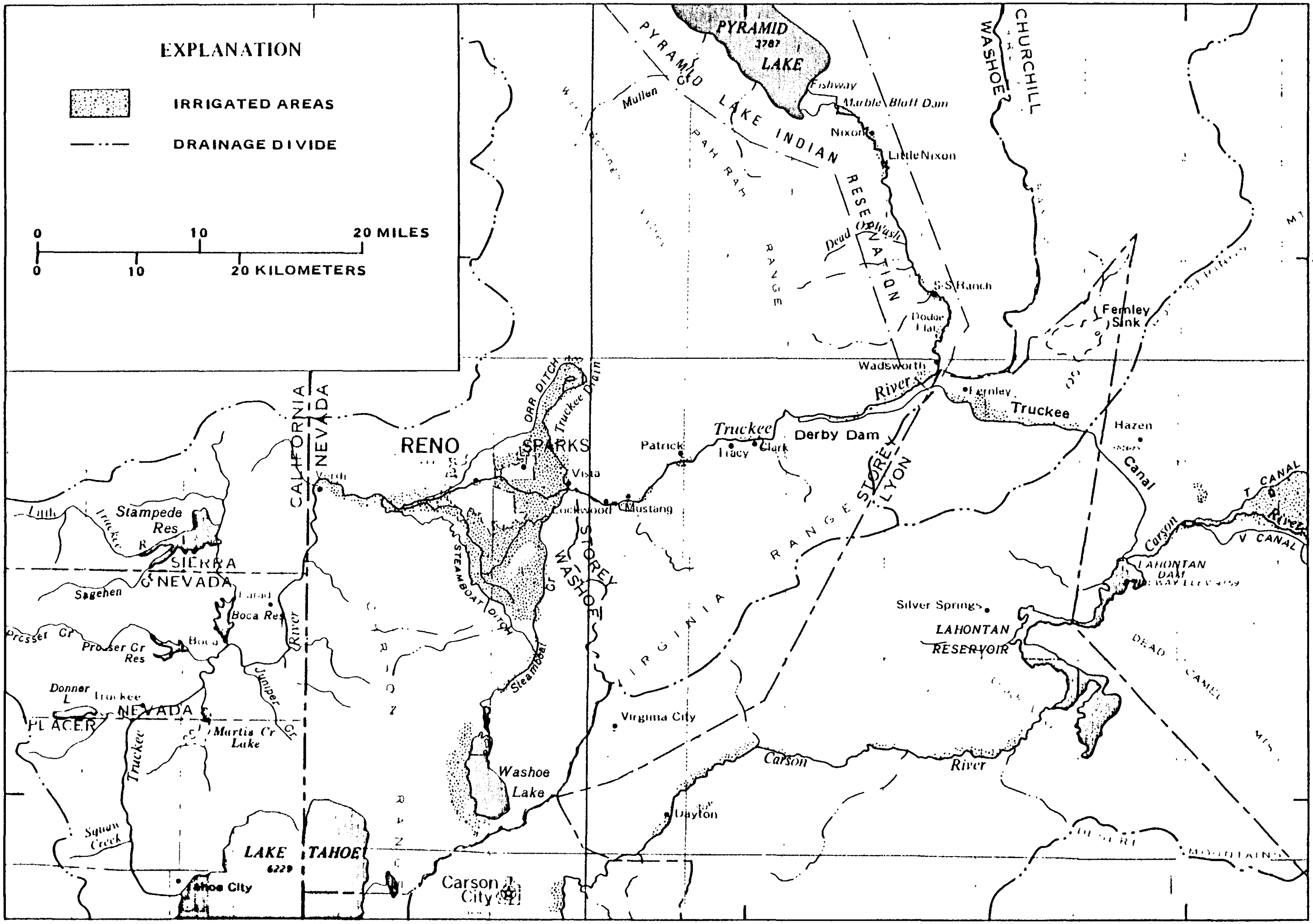


FIGURE 1.--Location and general features of the modeled reach of the Truckee River and Canal.

Model results are computed in terms of mean daily values for the predicted variables. Results may be obtained in both tabular and graphic form. The model was configured to simulate water quality in a 56-mile reach of the Truckee River from McCarran Bridge on the east side of Reno to Marble Bluff Dam, just above the mouth of the river at Pyramid Lake, and in the 34-mile reach of the Truckee Canal from the diversion of water from the Truckee River to the drop structure at the end of the canal into Lahontan Reservoir. Configuration of the mainstem Truckee River model includes short submodels of North Truckee Drain and Steamboat Creek, the two perennial tributaries to the river downstream from Reno.

The model includes consideration of diversions from the river and canal, tributary inflows, and separate nonpoint agricultural returns and ground-water inflows along the modeled reaches. Running the model requires specification of stream-flow and water-quality data for the start of the modeled reaches, for any contributing tributaries, and for nonpoint return flows. At modeled points of diversions, mean daily diverted flows must be specified. Channel seepage losses may be linearly distributed over a modeled reach.

The TRWQ Model simulates mean daily concentrations of constituents at specified increments along the length of the modeled river reach. Simulated parameters include:

Conservative variables (mass balance of all inputs and losses):

- Water discharge
- Dissolved solids
- Specific conductance (used as an easily-measured surrogate of dissolved solids)

Nonconservative variables (mass balance of all inputs and losses coupled with first-order transformation and decay algorithms):

- Ultimate carbonaceous biochemical oxygen-demand (CBODu)
- Organic nitrogen
- Ammonia nitrogen
- Nitrite nitrogen
- Nitrate nitrogen
- Orthophosphorus (two values, see Appendix II)
- Total phosphorus
- Ratio of inorganic nitrogen to orthophosphorus
- Reaeration rate
- Dissolved oxygen

Discharges from point sources and results from tributary submodels are mass-balanced at the start of model subreaches. Diversions are treated as negative point sources. Nonpoint surface returns (agricultural return flows) and ground-water inflows are modeled independently and are linearly distributed along the length of receiving subreaches. Concentrations of nonpoint returns are specified, or may be calculated as a percentage of the river instream concentrations at the point of diversion for a specific return.

## COMPUTER PROGRAM

The computer code used in the TRWQ Model simulations is listed in Appendix I. The code is an adaptation of a model previously described by Bauer and others (1979). The basic equations and assumptions used in development of the computer program are discussed both by Bauer and others and in Nowlin (1987). Modifications made to the original computer code are discussed in Nowlin and are referenced within the program listing in Appendix I.

The program is written in FORTRAN-77 computer language. Model calibration, validation, and simulations were performed with the program compiled on a PRIME model 9955-II minicomputer under the PRIMOS operating system. [1]

## DATA REQUIREMENTS

Model calculations are performed on data read from an input data set formatted as 80-column "card images". Running the model requires an appropriate data set specifying all the input parameters to be read by the compiled FORTRAN program; the version listed in Appendix I assumes the input data sets in files on a PRIME computer. Output is controlled in volume and format by the user-specified options in the input data set.

The listing in Appendix I is designed to write 132-column lines of information to output files, in both tabular and graphic form, suitable for printing on a standard line printer. Full outputs include documentation of all input data, simulated water-quality constituents, and other pertinent model parameters including traveltimes, reaction coefficients at ambient temperatures, channel-geometry , and observed water-quality data.

Input data-set requirements are given in table 1. Annotations in the table indicate various model options and coding for execution or suppression of those options. More importantly, notes in the table indicate those data input parameters with values specific to the calibrated and validated version of the TRWQ Model. Deviation from those values may produce results that cannot be directly compared to those previously published.

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[1] The use of brand names within this report is for indentification purposes only and does not imply endorsement by the U.S. Geological Survey.

## EXAMPLE DATA SETS

Listings of example data sets used as the basis for published TRWQ Model simulations are presented in Appendix II. These eight data sets include final calibrated and validated model parameters and input data reflecting conditions observed in the Truckee River and Truckee Canal during extensive field investigations in June 1979, August 1979, June 1980, and August 1980.

Details on configuration of the TRWQ Model to the modeled reach of the Truckee River and Canal, data reduction for modeling, assumptions used in model calibration and validation, the results of simulations, and discussions on limitations of model applications have been published in great detail (Nowlin, 1987) and should be referenced before attempting to run the model. Deviations from the published configuration of the model to represent the physical river and canal systems, the published rate constants derived from model calibration and validation, and the published assumptions used in formulating simulations may produce results not directy comparable to those previously published.

## EXAMPLE MODEL OUTPUT

An example of printed output from a model run is presented in Appendix III. The tables and graphs are the result of running the river data set for the August 1979 conditions presented in Appendix II-B. Included in the example are varying format controls as explained in Appendix III.

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TABLE 1.--Specifications for input data.

[The following material gives instructions for coding input data required to run the TRWQ Model. For a complete discussion of model variables and prodedures used for model calibration and validation, refer to Nowlin (1987).

Model input is in the form of 80-column card images. Card input consists of three groups for each run:

(1) "A" cards specifying basic options for the entire run,
(2) "1" through "9" cards, as required, for North Truckee Drain and Steamboat Creek submodels, and
(3) "1" through "9" cards, as required for the mainstem.

Unless otherwise stated below, all cards and fields on a card are required. Several parameters have alternative options for units of entry or methods of calculation. Alternatives NOT USED in the calibrated Truckee River data sets presented in Appendix 1 are so indicated.]

| Card | Column | Format | FORTRAN variable name | Description | Units |
|---|---|---|---|---|---|
| "A1" Card-- | | | | Primary model options (required, 1 card at beginning of each data set) | |
| A1 | 1-2 | 2A1 | -- | Card type = A1 | -- |
| A1 | 3-9 | -- | -- | leave blank | -- |
| A1 | 10 | I1 | KPLOT | Scaling for line-printer plots<br><br>0 (or blank)= autoscale to multiples of 1, 2, or 5;<br>1= autoscale to maximum and minimum values;<br>3= use internal fixed scales. | -- |
| A1 | 11 | I1 | IPNET | Photosynthesis and respiration effects on mean daily DO (see Nowlin, 1987, and "51" cards below)--<br><br>1= model coded P as net P&R (normal option),<br>2= model coded R only (use to calibrate minimum daily DO (see Appendix II and Nowlin, 1987) | -- |
| A1 | 13 | I1 | ITEST | Print input cards-- 9= yes. (used to check input data deck, normally left blank). | -- |

TABLE 1.--Specifications for input data--Continued.

"1" Cards-- Output titles to appear at head of tables and figures (optional).

| | | | | | |
|---|---|---|---|---|---|
| 11 | 1-2 | I2 | -- | Card type = 11 | -- |
| 11 | 3 | ---- | -- | leave blank | -- |
| 11 | 4-79 | 19A4 | TITLE1(19) | Title for output pages, 1st line. User-defined title to appear at top of all printed output. | -- |
| 12 | 1-2 | I2 | -- | Card type = 12 | -- |
| 12 | 3 | ---- | -- | leave blank | -- |
| 12 | 4-79 | 19A4 | TITLE2(19) | Title for output pages, 2nd line. Second user-defined line. | -- |

"21" Cards-- Output format controls (required). The following cards provide control of format and volume of tables and plots.

| | | | | | |
|---|---|---|---|---|---|
| 21 | 1-2 | I2 | -- | Card type = 21 | -- |
| 21 | 3 | -- | -- | leave blank | -- |
| 21 | 4 | I1 | ITAB1 | Option 1: Control on printing of tables 3-7: The following values determine what is to be included in the printed output:<br><br>0 (or blank)= all tables, or<br>3= table 3, segment environmental controls,<br>4= table 4, water-quality inputs,<br>5= table 5, segment hyraulics data,<br>6= table 6, segment reaction rates,<br>7= table 7, observed water-quality data,<br>8= all tables except table 5,<br>9= no tabular output | -- |
| 21 | 5 | I1 | ITAB2 | Option 2 for printing tables 8 and 9, model results (full table has predicted concentrations for each calculation interval and predicted loads at segment ends, short | -- |

| | | | | | |
|---|---|---|---|---|---|
| | | | | table prints predicted concentrations and loads at segment ends only.)<br><br>0 (or blank)= print full summary tables (8 & 9)<br>1= full table 8<br>2= full table 9<br>5= short table 8 & 9<br>6= short table 8<br>7= short table 9<br>9= no tables 8 or 9 | |
| 21 | 6 | -- | -- | leave blank | -- |
| 21 | 7-8 | I2 | IPLOT | Option for controlling output of plots on line printer--<br><br>0 (or blank)= all plots<br>1= reaeration rate and channel geometry,<br>2= CBODu,<br>3= Nitrogen cycle,<br>4= DO concentrations, deficits, & saturation,<br>5= orthophosphorus,<br>6= conservatives,<br>7= nonconservatives. | |
| 21 | 9 | -- | -- | leave blank | -- |
| 21 | 10-11 | I2 | NSEG | Number of segments for modeled reach:<br>Submodel 1 (N. Truckee Drain) = 02<br>Submodel 2 (Steamboat Creek) = 02<br>Mainstem model for river = 43<br>Truckee Canal = 09 | -- |
| 21 | 12 | -- | -- | leave blank | -- |
| 21 | 13-14 | I2 | JSEG | FOR SUBMODELS ONLY, leave blank for mainstem model: mainstem segment to receive results of tributary submodel:<br>Submodel 1 (N. Truckee Drain) = 02<br>Submodel 2 (Steamboat Creek) = 03<br>Mainstem model for river and canal = 00 | -- |
| 21 | 15-19 | -- | -- | leave blank | -- |
| 21 | 20-27 | F8.0 | XSTRT | Starting river miles from mouth.<br>Submodel 1 (N. Truckee Drain) = 00.26<br>Submodel 2 (Steamboat Creek) = 00.75<br>Mainstem model for river = 56.12<br>Truckee Canal = 31.42 | mi |

TABLE 1.--Specifications for input data--Continued.

| | | | | | |
|---|---|---|---|---|---|
| 21 | 28 | -- | -- | leave blank | -- |
| 21 | 29-36 | F8.0 | XEND | Ending river mile modeled. value for all = .00 | mi |
| 21 | 37-39 | -- | -- | leave blank | -- |
| 21 | 40 | I1 | IGRAPH | Option for outputing file for graphics-- 0 (or blank)= no output file, 1= outputs a file for plotting results (file name will be PO.[data set name]). | -- |

"22, 23" Cards-- (Required) Upstream boundary conditions at start of modeled reach. Code starting data for simulation for North Truckee Drain and Steamboat Creek submodels, and mainstem river. Data used in model calibration and published simulations are given in Nowlin (1987) and the data sets in Appendix 2.

| | | | | | |
|---|---|---|---|---|---|
| 22 | 1-2 | I2 | -- | Card type= 22 | -- |
| 22 | 3 | -- | -- | leave blank | -- |
| 22 | 4-11 | F8.0 | STARTC(1) | Starting discharge | $ft^3/s$ |
| 22 | 12-19 | F8.0 | STARTC(2) | Starting temperature | o C |
| 22 | 20-27 | F8.0 | STARTC(3) | Starting barometric pressure | mm Hg |
| 22 | 28-35 | F8.0 | STARTC(4) | Starting specific conductance | umhos |
| 22 | 36-43 | F8.0 | STARTC(5) | Starting dissolved oxygen | mg/L |
| 22 | 44-51 | F8.0 | STARTC(9) | Starting CBODu | mg/L |
| 22 | 52-59 | -- | -- | leave blank | -- |
| 22 | 60-67 | F8.0 | STARTC(11) | Starting organic-N | mg/L |
| 22 | 68-75 | F8.0 | STARTC(12) | Starting ammonia-N | mg/L |
| 23 | 1-2 | I2 | -- | Card type= 23 | -- |
| 23 | 3 | -- | -- | leave blank | -- |
| 23 | 4-11 | F8.0 | STARTC(13) | Starting nitrite-N | mg/L |
| 23 | 12-19 | F8.0 | STARTC(14) | Starting nitrate-N | mg/L |

TABLE 1.--Specifications for input data--Continued.

| | | | | | |
|---|---|---|---|---|---|
| 23 | 20-27 | F8.0 | STARTC(16) | Starting orthophosphorus-A | mg/L |
| 23 | 28-35 | F8.0 | STARTC(17) | Starting specific conductance | umhos |
| 23 | 36-43 | F8.0 | STARTC(18) | Starting dissolved solids | mg/L |
| 23 | 44-51 | -- | STARTC(19) | leave blank | |
| 23 | 52-59 | F8.0 | STARTC(20) | Starting orthophosphorus-B | mg/L |
| 23 | 60-67 | F8.0 | STARTC(21) | Starting phosphorus (total) | mg/L |

"31" Cards-- Segment descriptions, one card required for each modeled segment. Cards must be coded exactly as shown in Appendix II to replicate published simulations in Nowlin (1987).

| | | | | | |
|---|---|---|---|---|---|
| 31 | 1-2 | I2 | -- | Card type= 31 | -- |
| 31 | 3-4 | I2 | N | Segment number, starting with 1 | -- |
| 31 | 5 | -- | -- | leave blank | -- |
| 31 | 6-29 | 6(A4) | SNAME(N) | Segment name (optional)-- names to identify segments on tabular outputs. | -- |
| 31 | 30-35 | F6.0 | BSEG(N) | Segment starting river mile | mi |
| 31 | 36 | -- | -- | leave blank | -- |
| 31 | 37-80 | 11A4 | SDESC(N) | Segment description (optional)-- pertinent descriptive material to be printed in output table 2. | -- |

TABLE 1.--Specifications for input data--Continued.

"41" Cards-- Channel geometry data (required). In order to duplicate calibrated TRWQ Model results (Nowlin, 1987), the following cards should be coded exactly as indicated in Appendix II.

Channel geometry data (mean values for segments) may be specified, or calculated by the program as a function of discharge by providing coefficients for the relationship $X = XA\ Q^{XB}$, where XA and XB are coefficients for the exponential relationship between X and Q (discharge). Whichever method is used, input must be made for exactly two parameters in combinations of either:

(a) (velocity or traveltime or area) and (depth or width)

or

(b) width and depth.

From these two parameters and the specified segment discharge, all other channel-geometry parameters will be calculated and printed in table 5.

| | | | | | |
|---|---|---|---|---|---|
| 41 | 1-2 | I2 | -- | Card type= 41 | -- |
| 41 | 3-4 | I2 | N | Segment number | -- |
| 41 | 5 | -- | -- | leave blank | |

Options used in calibrated TRWQ Model (all others blank):

| | | | | | |
|---|---|---|---|---|---|
| 41 | 31-35 | F5.0 | VA(N) | Velocity coefficient | -- |
| 41 | 36-40 | F5.0 | VB(N) | Velocity exponent | -- |
| 41 | 71-76 | F5.0 | WA(N) | Width coefficient | -- |
| 41 | 76-80 | F5.0 | WAB(N) | Width exponent | -- |

Options not used in the calibrated TRWQ Model (directions above must be followed explicitly, results may not agree with calibrated model:

| | | | | | |
|---|---|---|---|---|---|
| 41 | 6-10 | F5.0 | IGEOM(N,1) | Velocity | ft/s |
| 41 | 11-15 | F5.0 | IGEOM(N,2) | Traveltime | hrs |

| | | | | | |
|---|---|---|---|---|---|
| 41 | 16-20 | F5.0 | IGEOM(N,3) | Cross-sectional area | ft**2 |
| 41 | 21-25 | F5.0 | IGEOM(N,4) | Mean depth | ft |
| 41 | 26-30 | F5.0 | IGEOM(N,5) | Mean cross-sectional width | ft |
| 41 | 41-45 | F5.0 | TA(N) | Traveltime coefficient | -- |
| 41 | 46-50 | F5.0 | TB(N) | Traveltime exponent | -- |
| 41 | 51-55 | F5.0 | AA(N) | Area coefficient | -- |
| 41 | 56-60 | F5.0 | AB(N) | Area exponent | -- |
| 41 | 61-65 | F5.0 | DA(N) | Channel depth coefficient | -- |
| 41 | 65-70 | F5.0 | DB(N) | Channel depth exponent | -- |

"51" Cards-- (Required). Segment environmental controls for dissolved-oxygen saturation and un-ionized ammonia (1 card required for each modeled segment, specify average values for the segment).

| | | | | | |
|---|---|---|---|---|---|
| 51 | 1-2 | I2 | -- | Card type= 51 | -- |
| 51 | 3-4 | I2 | N | Segment number | -- |

The following values are to be varied according to the specific environmental conditions modeled; changes from those documented for the TRWQ Model calibration and applications (Nowlin, 1987) will affect the resultant simulations

| | | | | | |
|---|---|---|---|---|---|
| 51 | 5-9 | F5.0 | TEMP(N) | Temperature | o C |
| 51 | 10-14 | F5.0 | BP(N) | Barometric pressure | mm Hg |
| 51 | 15-19 | F5.0 | SCOND(N) | Approximate specific conductance (used for salinity corrections for DO calculations) | umhos |
| 51 | 20-25 | F6.0 | BN(N) | Benthic DO demand at 20 deg C (not used to calibrate TRWQ Model) | $g/m^2/day$ |
| 51 | 26-31 | F6.0 | PNET(N) | Photosynthetic DO production [enter net (P-R) if R is to be used to calibrate daily DO (see text)] | mg/L/day |

TABLE 1.--Specifications for input data--Continued.

| | | | | | |
|---|---|---|---|---|---|
| 51 | 32-37 | F6.0 | RESP(N) | Respiratory (plant) DO demand (used as factor for minimum daily DO, see Appendix II and Nowlin, 1987) | mg/L/day |
| 51 | 38-43 | -- | -- | leave blank | -- |
| 51 | 44-49 | | K2(N) | Reaeration coefficient at 20 deg C; leave blank if reaeration coefficient to be calculated from channel geometry. NOT USED for the calibrated TRWQ Model. | 1/day |
| 51 | 50-51 | I2 | IK2(N) | Reaeration equation applied to segment; leave blank if reaeration coefficeint specified above. Equation 12 was used in TRWQ Model calibration, use of other equations will affect the resultant simulations. | -- |

| Equation | | K2 calculated as function of: |
|---|---|---|
| 1 | Bennett-Rathbun | V, D, S |
| 2 | Velz | D |
| 3 | Langbein-Durum | V, D |
| 4 | Padden-Gloyna | V, D |
| 5 | Bansal | V, D |
| 6 | Parkhurst-Pomeroy | V, D, S |
| 7 | Tsivoglou | V, S |
| 12 | Tsivoglou calibrated for Truckee River tracer data | V, S |

| | | | | | |
|---|---|---|---|---|---|
| 51 | 52-56 | | SFPM(N) | Channel slope (required as indicated above) | ft/mi |
| 51 | 57-64 | | SLOPE(N) | Channel slope | ft/ft |
| 51 | 65 | -- | -- | leave blank | -- |
| 51 | 66-68 | F3.0 | PH(N) | mean reach pH (used for un-ionized ammonia computations | -- |
| 51 | 69 | -- | -- | leave blank | -- |
| 51 | 70-75 | F6.0 | CTSVIG(N) | Optional escape coefficient for equation 7 above (K2= CxVxS). Default coefficient is C= 4100 for velocity in ft/s and slope in ft/ft, as published by Tsivoglou and Wallace, 1972 (NOT USED in calibrated TRWQ Model). | -- |

TABLE 1.--Specifications for input data--Continued.

"61" Cards--(Required). Reactions rates for segments (1 card required per
---------- segment, all rates specified to base e, at 20 oC). CALIBRATED RATES for the TRWQ Model are shown in Appendix II, any other values will not replicate calibrated simulations (Nowlin, 1987).

| | | | | | |
|---|---|---|---|---|---|
| 61 | 1-2 | I2 | -- | Card type= 61 | -- |
| 61 | 3-4 | I2 | N | Segment number | -- |
| 61 | 5 | -- | -- | leave blank | -- |
| 61 | 6-9 | F4.0 | KCR(N) | CBOD instream decay rate | 1/day |
| 61 | 10-13 | F4.0 | KC(N) | CBOD oxidation rate | 1/day |
| 61 | 14-29 | | -- | leave blank | -- |
| 61 | 30-33 | F4.0 | KORNR(N) | Organic-N instream decay rate | 1/day |
| 61 | 34-37 | F4.0 | KORNF(N) | Organic- to ammonia-N hydrolysis rate | 1/day |
| 61 | 38-41 | F4.0 | KNH4R(N) | Ammonia-N instream decay rate | 1/day |
| 61 | 42-45 | F4.0 | KNH4F(N) | Ammonia to nitrite oxidation rate | 1/day |
| 61 | 46-49 | F4.0 | KNO2R(N) | Nitrite-N instream decay rate | 1/day |
| 61 | 50-53 | F4.0 | KNO2F(N) | Nitrite to nitrate oxidation rate | 1/day |
| 61 | 54-57 | F4.0 | KNO3R(N) | Nitrate-N instream decay rate | 1/day |
| 61 | 58-61 | -- | -- | leave blank | -- |
| 61 | 62-66 | F5.0 | KPO4B(N) | Orthophosphorus-A instream decay rate | 1/day |
| 61 | 67-71 | -- | -- | leave blank | -- |
| 61 | 72-75 | F4.0 | KNCR1(N) | Orthophosphorus-B instream decay rate | 1/day |
| 61 | 76-79 | F4.0 | KNCR2(N) | Phosphorus instream decay rate | 1/day |

TABLE 1.--Specifications for input data--Continued.

"71, 72" Cards-- Point-source inputs or diversions (required only for segments receiving inputs or having diversions). Diversions are indicated by negative flows; corresponding water-quality concentrations are left blank.

| | | | | | |
|---|---|---|---|---|---|
| 71 | 1-2 | I2 | -- | Card type= 71 | -- |
| 71 | 3-4 | I2 | N | Segment number | -- |
| 71 | 5 | -- | -- | leave blank | -- |
| 71 | 6-11 | F6.0 | TRINC(N,1) | Discharge (negative for diversions) | $ft^3/s$ |
| 71 | 12-17 | F6.0 | TRINC(N,2) | Temperature | o C |
| 71 | 18-23 | F6.0 | TRINC(N,3) | Barometric pressure | mm Hg |
| 71 | 24-29 | F6.0 | TRINC(N,4) | Specific conductance | umhos |
| 71 | 30-35 | F6.0 | TRINC(N,5) | Dissolved oxygen | mg/L |
| 71 | 36-41 | F6.0 | TRINC(N,9) | CBODu | mg/L |
| 71 | 42-47 | -- | -- | leave blank | -- |
| 71 | 48-53 | F6.0 | TRINC(N,11) | Organic-N | mg/L |
| 71 | 54-59 | F6.0 | TRINC(N,12) | Ammonia-N | mg/L |
| 71 | 60-65 | F6.0 | TRINC(N,13) | Nitrite-N | mg/L |
| 71 | 66-71 | F6.0 | TRINC(N,14) | Nitrate-N | mg/L |
| 71 | 72-77 | F6.0 | TRINC(N,16) | Orthophosphorus-A | mg/L |
| ---- | | | | | |
| 72 | 1-2 | I2 | -- | Card type= 72 | -- |
| 72 | 3-4 | I2 | N | Segment number | -- |
| 72 | 5 | -- | -- | leave blank | -- |
| 72 | 6-11 | F6.0 | TRINC(N,17) | Specific conductance | umhos |
| 72 | 12-17 | F6.0 | TRINC(N,18) | Dissolved solids | mg/L |

TABLE 1.--Specifications for input data--Continued.

| | | | | | |
|---|---|---|---|---|---|
| 72 | 18-23 | -- | -- | leave blank | -- |
| 72 | 24-29 | F6.0 | TRINC(N,20) | Orthophosphorus-B | mg/L |
| 72 | 30-35 | F6.0 | TRINC(N,21) | Phosphorus (total) | mg/L |

The following variables offer the option to specify inputs as loads. If coded, concentrations will be calculated from discharge and load. This option was not used for the calibrated TRWQ model.

| | | | | | |
|---|---|---|---|---|---|
| 72 | 36-41 | F6.0 | TRINL(N,9) | CBODu load | lb/day |
| 72 | 42-47 | -- | -- | leave blank | -- |
| 72 | 48-53 | F6.0 | TRINL(N,11) | Organic-N load | lb/day |
| 72 | 54-59 | F6.0 | TRINL(N,12) | Ammonia-N load | lb/day |
| 72 | 60-65 | F6.0 | TRINL(N,13) | Nitrite-N load | lb/day |
| 72 | 66-71 | F6.0 | TRINL(N,14) | Nitrate-N load | lb/day |
| 72 | 72-77 | F6.0 | TRINL(N,16) | Orthophosphorus-A load | lb/day |

"81, 82" Cards--Nonpoint surface inflows (code only for receiving segments).
-------------- If concentrations are coded as negative numbers, those values will be used to calculate the surface return concentration as a percentage of the instream concentration at the point of diversion specified by the segment number coded in column 78-79 on the 81 card.

| | | | | | |
|---|---|---|---|---|---|
| 81 | 1-2 | I2 | -- | Card type= 81 | -- |
| 81 | 3-4 | I2 | N | Segment number | -- |
| 81 | 5 | -- | -- | leave blank | -- |
| 81 | 6-11 | F6.0 | RLINC(N,1) | Discharge | $ft^3/s$ |
| 81 | 12-17 | F6.0 | RLINC(N,2) | Water temperature | o C |
| 81 | 18-23 | F6.0 | RLINC(N,3) | Specific conductance | umhos |
| 81 | 24-29 | F6.0 | RLINC(N,5) | Dissolved oxygen | mg/L |
| 81 | 30-35 | F6.0 | RLINC(N,9) | CBODu | mg/L |
| 81 | 36-41 | -- | -- | leave blank | -- |

TABLE 1.--Specifications for input data--Continued.

| | | | | | |
|---|---|---|---|---|---|
| 81 | 42-47 | F6.0 | RLINC(N,11) | Organic-N | mg/L |
| 81 | 48-53 | F6.0 | RLINC(N,12) | Ammonia-N | mg/L |
| 81 | 54-59 | F6.0 | RLINC(N,13) | Nitrite-N | mg/L |
| 81 | 60-65 | F6.0 | RLINC(N,14) | Nitrate-N | mg/L |
| 81 | 66-71 | F6.0 | RLINC(N,16) | Orthophosphorus-A | mg/L |
| 81 | 72-77 | F6.0 | RLINC(N,17) | Specific conductance | umhos |
| 82 | 78-79 | I2 | | Segment number of originating diversion, use if any surface return concentrations are to be calculated as a percentage of diverted concentrations. Code a 0 or blank if returns originated from the same segment as the return. | -- |
| 82 | 1-2 | I2 | -- | Card type= 82 | -- |
| 82 | 3-4 | I2 | -- | Segment number | -- |
| 82 | 5 | -- | -- | leave blank | -- |
| 82 | 6-11 | F6.0 | RLINC(N,18) | Dissolved solids | mg/L |
| 82 | 12-17 | -- | -- | Leave blank | -- |
| 82 | 18-23 | F6.0 | RLINC(N,20) | Orthophosphorus-B | mg/L |
| 82 | 24-29 | F6.0 | RLINC(N,21) | Phosphorus (total) | mg/L |

"83, 84" Cards--Quality of ground-water inflows (code only for receiving reaches.

| | | | | | |
|---|---|---|---|---|---|
| 83 | 1-2 | I2 | -- | Card type= 83 | -- |
| 83 | 3-4 | I2 | -- | Segment number | -- |
| 83 | 5 | -- | -- | leave blank | -- |
| 83 | 6-11 | F6.0 | GLINC(N,1) | Discharge | $ft^3/s$ |
| 83 | 12-17 | F6.0 | GLINC(N,2) | Water temperature | o C |
| 83 | 18-23 | F6.0 | GLINC(N,4) | Specific conductance | umhos |

TABLE 1.--Specifications for input data--Continued.

| | | | | | |
|---|---|---|---|---|---|
| 83 | 24-29 | F6.0 | GLINC(N,5) | Dissolved oxygen | mg/L |
| 83 | 30-35 | F6.0 | GLINC(N,9) | CBODu | mg/L |
| 83 | 36-41 | -- | -- | leave blank | -- |
| 83 | 42-47 | F6.0 | GLINC(N,11) | Organic-N | mg/L |
| 83 | 48-53 | F6.0 | GLINC(N,12) | Ammonia-N | mg/L |
| 83 | 54-59 | F6.0 | GLINC(N,13) | Nitrite-N | mg/L |
| 83 | 60-65 | F6.0 | GLINC(N,14) | Nitrate-N | mg/L |
| 83 | 66-71 | F6.0 | GLINC(N,16) | Orthophosphorus-A | mg/L |
| 83 | 72-77 | F6.0 | GLINC(N,17) | Specific conductance | umhos |
| 84 | 1-2 | I2 | -- | Card type= 84 | -- |
| 84 | 3-4 | I2 | -- | Segment number | -- |
| 84 | 5 | -- | -- | leave blank | -- |
| 84 | 6-11 | F6.0 | GLINC(N,18) | Dissolved solids | mg/L |
| 84 | 12-17 | -- | -- | leave blank | -- |
| 84 | 18-23 | F6.0 | GLINC(N,20) | Orthophoshorus-B (see Appendix II) | mg/L |
| 84 | 24-29 | F6.0 | GLINC(N,21) | Phosphorus (total) (see Appendix II) | mg/L |

"9" Cards-- Observed water quality (optional): values coded will be tabulated and plotted with results of simulations.

| | | | | | |
|---|---|---|---|---|---|
| 91 | 1-2 | I2 | -- | Card type= 91 | -- |
| 91 | 6-9 | F7.0 | OBSMI(N) | River mile of sampling point | mi |
| 91 | 10-16 | F7.0 | OBS(N,5) | Dissolved oxygen | mg/L |
| 91 | 17-23 | F7.0 | OBS(N,7) | DO percent saturation | % |
| 91 | 24-30 | F7.0 | OBS(N,9) | CBODu | mg/L |
| 91 | 31-37 | -- | -- | leave blank | -- |

TABLE 1.--Specifications for input data--Continued.

| | | | | | |
|---|---|---|---|---|---|
| 91 | 38-44 | F7.0 | OBS(N,11) | Organic-N | mg/L |
| 91 | 45-51 | F7.0 | OBS(N,12) | Ammonia-N | mg/L |
| 91 | 52-58 | F7.0 | OBS(N,13) | Nitrite-N | mg/L |
| 91 | 59-65 | F7.0 | OBS(N,14) | Nitrate-N | mg/L |
| 91 | 66-72 | F7.0 | OBS(N,15) | Orthophosphorus-A | mg/L |
| 91 | 73-79 | F7.0 | OBS(N,16) | Specific conductance | umhos |
| 92 | 1-2 | I2 | -- | Card type= 92 | -- |
| 92 | 3-9 | F7.0 | OBS(N,17) | Dissolved solids | mg/L |
| 92 | 10-16 | F7.0 | OBS(N,18) | Ratio of inorganic (ammonia + nitrite + nitrate) nitrogen to orthophosphorus | moles/ mole |
| 92 | 17-23 | F7.0 | OBS(N,19) | Orthophosphorus-B | mg/L |
| 92 | 24-30 | F7.0 | OBS(N,20) | Phosphorus (total) | mg/L |
| 92 | 31-37 | F7.0 | OBS(N,21) | Discharge | $ft^3/s$ |
| 92 | 38-44 | F7.0 | OBUNH3(N) | Un-ionized ammonia-N | mg/L |

```
C#############MODELA.F77 #### REV S87.9 ######## 9/29 ##### ##########   MAIN..
C                                                                          MAIN..
C     SUBROUTINE   BY            CHANGES FROM BAUER, JENNINGS, MILLER      MAIN..
C     **********   ************  ***********  ***********************     MAIN..
C     MAIN         ORIGINAL      8/15/84  JON   ADDED OBSV. UN-ION NH4     MAIN..
C     ROUTE        JON, 12/81    8/15/84  JON   DITTO                      MAIN..
C     NITRIF       ORIGINAL      12/24/83 JON                              MAIN..
C     ANEROB       ORIGINAL      12/24/83 JON   DROPPED                    MAIN..
C     DOSATR       JON, 8/81                                               MAIN..
C     GEOM         JON, 12/81    12/24/82 JON                              MAIN..
C     K2           LS, 6/81      9/81     JON                              MAIN..
C     PPLOT        JON, 1/82                                               MAIN..
C     PRPLOT       ORIGINAL                                                MAIN..
C     PMM          ORIGINAL                                                MAIN..
C     READCD       ORIGINAL      8/15/84  JON   ADDED OBSV.  UN-ION NH4    MAIN..
C     TEST         ORIGINAL      12/24/82 JON                              MAIN..
C     ERROR        ORIGINAL                                                MAIN..
C========================================================================  MAIN..
C LITERATURE CITATIONS FOR ALGRITHMS GIVEN IN BRACKETS [---]               MAIN..
C                                                                          MAIN..
C UPDATES:                                                                 MAIN..
C 11/15/84  REVISED DATA READS SO CARDS WITH ILLEGITIMATE CARD NUMBERS     MAIN..
C *****       MAY BE READ BUT WILL NOT STOP PROCESSING                     MAIN..
C *****                                                                    MAIN..
C 1/17/85 CORRECTED READ ERROR FOR NON-STANDARD ESCAPE COEFFICIENTS        MAIN..
C 1/23/85 FIXED ERROR IN K2 COMPUTATIONS: WAS TEMP CORRECTING IN ROUTE     MAIN..
C *****                                                                    MAIN..
C 2/18/87 CORRECTED LINE-PRINTER PLOT ROUTINES FOR CURRENT PRIMOS F77      MAIN..
C *****                                                                    MAIN..
C   5/87  REMOVED ALL OPTIONS NOT USED IN [NOWLIN, 1987]                   MAIN..
C                                                                          MAIN..
C ------------------------------------------------------------------------ COMMON
C ***** VARIABLES COMMON TO ONE OR MORE OF MAIN, READCD, ROUTE, NITRIF,    COMMON
C *****                                              SUBROUTINES           COMMON
C ***** SCALARS:                                                           COMMON
C *****                                                                    COMMON
      COMMON /VALL/ BDN, BNT, CARD, DELNH4, DELNO2, DELTT, DXPNT, EA,      COMMON
     1 ER, ICDBUF, IEND, IGRAPH, ITYPE, ILIN, IMODEL, INITSW, IPLOT,       COMMON
     2 IPO4, IPRMIN, IPNET, IRET, ISW1, ISWBAD, ITAB1, ITAB2, ITEST,       COMMON
     3 ITFLAG, IXGEOM, J, JJ, JSEG, KPLOT, K2T, KCT, KCRT, KORNRT,         COMMON
     4 KORNFT, KNH4RT, KNH4FT, KNO2RT, KNO2FT, KNO3RT, KPO4BT, KNCR1T,     COMMON
     5 KNCR2T, LNCNTR, MPT, NCONSV, NNCONS, NSEG, PRINT, QTOT, TT,         COMMON
     6 TTSUM, XEND, XL, XSTRT, IRESP, DATE                                 COMMON
C *****                                                                    COMMON
C ***** ARRAYS:                                                            COMMON
C *****                                                                    COMMON
      COMMON /ALL/ AA(50), AB(50), ATRIBC(50,21), ATRIBL(50,21), BN(50),   COMMON
     1 BP(50), BSEG(50), CLONG(5,10), CSHORT(5,2), CUNIT(5,2), DA(50),     COMMON
     2 DB(50), DOSAT(50), ENDC(50,21), ENDL(50,21), GEOM(50,5),            COMMON
     3 GLINC(50,21), GLINL(50,21), IGEOM(50), IK2(50),K2(50),KC(50),       COMMON
     4 KCR(50), KORNR(50), KORNF(50), KNH4R(50), KNH4F(50), KNO2R(50),     COMMON
```

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     5 KNO2F(50), KNO3R(50), KPO4B(50), KNCR1(50), KNCR2(50),          COMMON
     7 NDIV(50), OBSC(200,21), OBSMI(200), OBUNH3(200), PGEOM(6000,5),  COMMON
     8 PH(50), PLOTC(6000,30), PLOTL(6000,30), PNET(50), PRCOEF(50),    COMMON
     9 RESP(50), RLINC(50,21), RLINL(50,21), SCOND(50), SDESC(50,11),   COMMON
     & SFPM(50), SLOPE(50), SNAME(50,6), STARTC(21), STARTL(21),        COMMON
     & TCONC(21), TEMP(50), TITLE1(19), TITLE2(19), TLOAD(21),          COMMON
     & TRINC(50,21), TRINL(50,21), TA(50), TB(50), TTRIBC(50,21),       COMMON
     & TTRIBL(50,21), UNH3(6000), VA(50), VB(50), WA(50), WB(50),       COMMON
     & XDIST(6000), XLEN(50), XSEG(50), CTSVIG(50)                      COMMON
C-----------------------------------------------------------------------COMMON
      COMMON /PLOT/ PARM1(6000),PARM2(6000),PARM3(6000),PARM4(6000),    COMMON
     &PARM5(6000),OBSV1(200),IXPLOT,XAXIS(6000),XMAX,XMIN,XTITLE        COMMON
C ----------------------------------------------------------------------COMMON
C *****                                                                 MAIN..
      DIMENSION BEGC(50),BEGL(50),XNU(1000)                             MAIN..
C *****                                                                 MAIN..
C ----------------------------------------------------------------------MAIN..
C ***** RATE VARIABLES:                                                 MAIN..
      REAL K2T,KCT,KCRT,KORNRT,KORNFT,KNH4RT,KNH4FT,KNO2RT,KNO2FT,      MAIN..
     & KNO3RT,KPO4BT,KNCR1T,KNCR2T,K2TRM                                MAIN..
C *****                                                                 MAIN..
C ***** RATE ARRAYS:                                                    MAIN..
C *****                                                                 MAIN..
      REAL K2,KCR,KC,KNR,KN,KORNR,KORNF,KNH4R,KNH4F,KNO2R,KNO2F,KNO3R,  MAIN..
     & KPO4B,KNCR1,KNCR2                                                MAIN..
C-----------------------------------------------------------------------MAIN..
      INTEGER*4 PTITLE(15),YTITLE(9)                                    MAIN..
      INTEGER*4 CUNIT,CSHORT,CLONG                                      MAIN..
      INTEGER *2 STAR,B2,FGEOM(50)                                      MAIN..
      INTEGER*2 XTITLE(11),XTIME(11),XMILES(11)                         MAIN..
      INTEGER CARD,PRINT                                                MAIN..
      CHARACTER*16 DATE                                                 MAIN..
      REAL NTRM                                                         MAIN..
C *****                                                                 MAIN..
      DATA STAR /2H**/                                                  MAIN..
      DATA B2 /2H  /                                                    MAIN..
      DATA B4 /'    '/                                                  MAIN..
C                                                                       MAIN..
      DATA CSHORT/'SP C','  DS',' I-N','ORTH',' TOT',                   MAIN..
     &            'OND ','    ','/O-P',' P-B','AL P'/                   MAIN..
      DATA CUNIT /'(UMH','(MG/','  (M','(MG/','(MG/',                   MAIN..
     &            'OS )','L)  ','/M) ','L)  ','L)  '/                   MAIN..
      DATA CLONG /'SPEC','DISS','DISS','ORTH','PHOS',                   MAIN..
     &            'IFIC','OLVE','OLVE','OPHO','PHOR',                   MAIN..
     &            ' CON','D SO','D IN','SPHO','US  ',                   MAIN..
     &            'DUCT','LIDS','ORGA','RUS-','    ',                   MAIN..
     &            'ANCE',', RO','NIC-','A   ','    ',                   MAIN..
     &            ', UM','E AT','N/OR','    ','    ',                   MAIN..
     &            'HOS ',' 180','THO-','    ','    ',                   MAIN..
     &            'AT 1',' DEG','P RA','    ','    ',                   MAIN..
```

```
     &           '80 D',' C  ','TIO ','    ','    ',                 MAIN..
     &           'EG C','    ','    ','    ','    '/                 MAIN..
                                                                     MAIN..
C     DATA YTITLE/'CONC','ENTR','ATIO','N IN',' MG/','L   ',' ',' ',' '/ MAIN..
      DATA XMILES/'R','I','V','E','R',' ','M','I','L','E','S'/        MAIN..
      DATA XTIME/'D','A','Y','S',' ','T','R','A','V','E','L'/         MAIN..
C *****                                                               MAIN..
      CARD=5                                                         MAIN..
      PRINT=6                                                        MAIN..
C ------------------------------------------------------------------- MAIN..
C ***** THE FOLLOWING CODE IS SPECIFIC TO THE PRIMOS OPERATING SYSTEM MAIN..
C                                                                    MAIN..
      CALL DATE$A(DATE)                                              MAIN..
C ***** OPEN INPUT AND OUTPUT FILES                                  MAIN..
      OPEN (5,FILE='MODINA',STATUS='UNKNOWN')                        MAIN..
      OPEN (6,FILE='MODOUTA',STATUS='UNKNOWN')                       MAIN..
C ------------------------------------------------------------------- MAIN..
C ***** INITIALIZE ARRAYS FOR UPSTREAM BOUNDARIES                    MAIN..
      IPO4=0                                                         MAIN..
      ISW1=0                                                         MAIN..
      INITSW=0                                                       MAIN..
      ICDBUF=0                                                       MAIN..
      IRESP=0                                                        MAIN..
C-------------------------------------------------------------------- MAIN..
C ***** INITIALIZE ARRAYS FOR RESULTS OF MAJOR TRIBUTARY INPUTS      MAIN..
      DO 5 K=1,50                                                    MAIN..
      DO 5 L=1,21                                                    MAIN..
      ENDC(K,L)=0.                                                   MAIN..
      ENDL(K,L)=0.                                                   MAIN..
      ATRIBC(K,L)=0.                                                 MAIN..
      ATRIBL(K,L)=0.                                                 MAIN..
      TTRIBC(K,L)=0.                                                 MAIN..
    5 TTRIBL(K,L)=0.                                                 MAIN..
C ***** PRINT HEADING FOR FIRST CARD SET                             MAIN..
C ***** INITIALIZE VARIABLES FOR MAINSTEM CALCULATIONS               MAIN..
C ***** ENTRY POINT FOR MAJOR TRIB AND MAINSTEM CALCULATIONS         MAIN..
   50 CONTINUE                                                       MAIN..
C ***** INITIALIZE READ VARIABLES                                    MAIN..
      ITFLAG=0                                                       MAIN..
      K2FLAG=0                                                       MAIN..
      IXTAB1=0                                                       MAIN..
      LNCNTR=0                                                       MAIN..
      DO 20 I=1,21                                                   MAIN..
      STARTC(I)=0.                                                   MAIN..
      STARTL(I)=0.                                                   MAIN..
      TCONC(I)=0.                                                    MAIN..
      TLOAD(I)=0.                                                    MAIN..
   20 CONTINUE                                                       MAIN..
      DO 30 J=1,50                                                   MAIN..
      K2(J)=0.                                                       MAIN..
```

```
      CTSVIG(J)=0.                                              MAIN..
      KCR(J)=0.                                                 MAIN..
      KC(J)=0.                                                  MAIN..
      KORNF(J)=0.                                               MAIN..
      KORNR(J)=0.                                               MAIN..
      KNH4F(J)=0.                                               MAIN..
      KNH4R(J)=0.                                               MAIN..
      KNO2F(J)=0.                                               MAIN..
      KNO2R(J)=0.                                               MAIN..
      KNO3R(J)=0.                                               MAIN..
      KPO4B(J)=0.                                               MAIN..
      KNCR1(J)=0.                                               MAIN..
      KNCR2(J)=0.                                               MAIN..
      SLOPE(J)=0.                                               MAIN..
      TEMP(J)=0.                                                MAIN..
      BP(J)=0.                                                  MAIN..
      SCOND(J)=0.                                               MAIN..
      BN(J)=0.                                                  MAIN..
      PNET(J)=0.                                                MAIN..
      RESP(J)=0.                                                MAIN..
      IK2(J)=0.                                                 MAIN..
      DOSAT(J)=0.                                               MAIN..
      VA(J)=0.                                                  MAIN..
      VB(J)=0.                                                  MAIN..
      DA(J)=0.                                                  MAIN..
      DB(J)=0.                                                  MAIN..
      WA(J)=0.                                                  MAIN..
      WB(J)=0.                                                  MAIN..
      AA(J)=0.                                                  MAIN..
      AB(J)=0.                                                  MAIN..
      BSEG(J)=0.                                                MAIN..
      XSEG(J)=0.                                                MAIN..
      IGEOM(J)=0.                                               MAIN..
      TA(J)=0.                                                  MAIN..
      TB(J)=0.                                                  MAIN..
      XLEN(J)=0.                                                MAIN..
      DO 30 K=1,21                                              MAIN..
      TRINC(J,K)=0.                                             MAIN..
      TRINL(J,K)=0.                                             MAIN..
      RLINC(J,K)=0.                                             MAIN..
      RLINL(J,K)=0.                                             MAIN..
      GLINC(J,K)=0.                                             MAIN..
      GLINL(J,K)=0.                                             MAIN..
      IGEOM(J)=0.                                               MAIN..
      PH(J)=0.                                                  MAIN..
   30 CONTINUE                                                  MAIN..
      DO 40 I=1,6000                                            MAIN..
      DO 40 J=1,30                                              MAIN..
      DO 40 K=1,5                                               MAIN..
      PGEOM(I,K)=0.                                             MAIN..
```

```
      PLOTC(I,J)=0.                                                    MAIN..
      PLOTL(I,J)=0.                                                    MAIN..
      UNH3(J)=0.                                                       MAIN..
   40 CONTINUE                                                         MAIN..
      DO 45 I=1,200                                                    MAIN..
      DO 45 J=1,21                                                     MAIN..
      OBSMI(I)=0.                                                      MAIN..
      OBUNH3(I)=0.                                                     MAIN..
   45 OBSC(I,J)=0.0                                                    MAIN..
C *****                                                                 MAIN..
C ***** START OF PRIMARY COMPUTATION LOOP FOR MAJOR TRIB OR MAINSTEM    MAIN..
C ***** READ DATA                                                       MAIN..
   55 CALL READCD                                                      MAIN..
C-----------------------------------------------------------------      MAIN..
C ***** INITIALIZE STANDARD TRUCKEE RIVER OPTIONS                       MAIN..
C                                                                       MAIN..
      IMODEL = 1                                                       MAIN..
      IP04 =   1                                                       MAIN..
      NCONSV = 3                                                       MAIN..
      NNCONS=  2                                                       MAIN..
      ITYPE =  0                                                       MAIN..
      ILIN =   3                                                       MAIN..
      IRESP =  0                                                       MAIN..
      ITEST =  0                                                       MAIN..
                                                                       MAIN..
C-----------------------------------------------------------------      MAIN..
      IF(ISWBAD.EQ.1)GOTO 1500                                         MAIN..
C-----------------------------------------------------------------      MAIN..
C ***** COMPUTE LOADS, DOSATS, PERCENT SATS FOR UPSTREAM BOUNDARY       MAIN..
      CALL DOSATR(STARTC(2),STARTC(3),STARTC(4),STARTC(6))             MAIN..
      STARTC(7)=(STARTC(5)/STARTC(6))*100.                             MAIN..
      STARTC(15)=STARTC(11)+STARTC(12)+STARTC(13)+STARTC(14)           MAIN..
      DO 60 I=5,21                                                     MAIN..
      STARTL(I)=STARTC(I)*STARTC(1)*5.3938                             MAIN..
   60 CONTINUE                                                         MAIN..
C ***** IF ON MAINSTEM, LOAD ATRIB ARRAY FOR MAJOR TRIBUTARY INPUTS     MAIN..
C ***** SAVE STARTING CONCENTRATIONS AND LOADS                          MAIN..
      DO 62 I=1,50                                                     MAIN..
      DO 62 K=1,21                                                     MAIN..
      BEGC(I)=STARTC(I)                                                MAIN..
      BEGL(I)=STARTL(I)                                                MAIN..
      IF(JSEG.EQ.0) ATRIBC(I,K)=TTRIBC(I,K)                            MAIN..
      IF(JSEG.EQ.0) ATRIBL(I,K)=TTRIBL(I,K)                            MAIN..
   62 CONTINUE                                                         MAIN..
C ***** TRIBS, LINEAR RUNOFF, & SUBREACHES                              MAIN..
C ***** COMPUTE DO DEFICITS FOR INPUTS FROM INPUT SATURATIONS           MAIN..
      DO 90 I=1,NSEG                                                   MAIN..
      CALL DOSATR(TEMP(J),BP(J),SCOND(J),DOSAT(J))                     MAIN..
C ***** POINT SOURCES                                                   MAIN..
      IF(TRINC(I,1).LE.0.) GOTO 70                                     MAIN..
```

```
      CALL DOSATR(TRINC(I,2),TRINC(I,3),TRINC(I,4),TRINC(I,6))            MAIN..
      TRINC(I,7)=(TRINC(I,5)/TRINC(I,6))*100.                             MAIN..
      TRINC(I,15)=TRINC(I,11)+TRINC(I,12)+TRINC(I,13)+TRINC(I,14)         MAIN..
      TRINC(I,8)=TRINC(I,6)-TRINC(I,5)                                    MAIN..
      TRINLF=TRINC(I,1)*5.3938                                            MAIN..
      TRINFI=1./TRINLF                                                    MAIN..
      DO 65 J=5,21                                                        MAIN..
      TRINC(I,J)=(TRINL(I,J)*TRINFI)+TRINC(I,J)                           MAIN..
      TRINL(I,J)=0.                                                       MAIN..
   65 TRINL(I,J)=TRINC(I,J)*TRINLF                                        MAIN..
C ***** SURFACE NONPOINT RETURNS (MAY BE RECALCULATED IN 'ROUTE')         MAIN..
   70 IF(RLINC(I,1).LE.0.) GOTO 80                                        MAIN..
      IF((RLINC(I,2).GE.0.).AND.(RLINC(I,4).GE.0.))                       MAIN..
     & CALL DOSATR(RLINC(I,2),BP(I),RLINC(I,4),RLINC(I,6))                MAIN..
      IF(RLINC(I,6).GT.0.) RLINC(I,7)=(RLINC(I,5)/RLINC(I,6))*100.        MAIN..
      RLINC(I,15)=RLINC(I,11)+RLINC(I,12)+RLINC(I,13)+RLINC(I,14)         MAIN..
      IF(RLINC(I,6).GT.0.) RLINC(I,8)=RLINC(I,6)-RLINC(I,5)               MAIN..
      DO 75 J=5,21                                                        MAIN..
      IF(RLINC(I,J).LT.0.) ITFLAG=1                                       MAIN..
   75 RLINL(I,J)=RLINC(I,J)*RLINC(I,1)*5.3938                             MAIN..
C ***** GROUND-WATER NONPOINT RETURNS                                     MAIN..
   80 IF(GLINC(I,1).LE.0.) GOTO 90                                        MAIN..
      CALL DOSATR(GLINC(I,2),BP(I),GLINC(I,4),GLINC(I,6))                 MAIN..
      GLINC(I,7)=(GLINC(I,5)/GLINC(I,6))*100.                             MAIN..
      GLINC(I,15)=GLINC(I,11)+GLINC(I,12)+GLINC(I,13)+GLINC(I,14)         MAIN..
      IF(GLINC(I,4).GT.0.) GLINC(I,8)=GLINC(I,6)-GLINC(I,5)               MAIN..
      DO 85 J=5,21                                                        MAIN..
   85 GLINL(I,J)=GLINC(I,J)*GLINC(I,1)*5.3938                             MAIN..
   90 CONTINUE                                                            MAIN..
C ***** COMPUTE SUBREACH ENDS, XSEG(NSEG)                                 MAIN..
      L=NSEG-1                                                            MAIN..
      DO 100 I=1,L                                                        MAIN..
      XSEG(I)=BSEG(I+1)                                                   MAIN..
  100 CONTINUE                                                            MAIN..
      XSEG(NSEG)=XEND                                                     MAIN..
      DO 110 J=1,NSEG                                                     MAIN..
      XLEN(J)=BSEG(J)-XSEG(J)                                             MAIN..
  110 CONTINUE                                                            MAIN..
C------------------------------------------------------------------------ MAIN..
C ***** PRINT CONTENTS FOR EACH RUN'S OUTPUT                              MAIN..
      IF(ITAB1.GT.0) GOTO 717                                             MAIN..
      IF(IXTAB1.EQ.1) GOTO 360                                            MAIN..
      WRITE (PRINT,120) TITLE1,DATE,TITLE2                                MAIN..
  120 FORMAT (1H1,16X,'U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION'  MAIN..
     &,':',2X,'TRUCKEE RIVER WATER-QUALITY MODEL',15X,'[REV 87.9]',       MAIN..
     & /1X,130('-'),/4X,/20X,19A4,10X,A16,/20X,19A4)                      MAIN..
      IF(JSEG.NE.0) WRITE(PRINT,125) JSEG                                 MAIN..
  125 FORMAT(/30X,'RESULTS FOR MAJOR TRIBUTARY ENTERING SUBREACH ',I2,    MAIN..
     &'.',/)                                                              MAIN..
      WRITE (PRINT,130)                                                   MAIN..
```

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130 FORMAT (/30X,'TABLE OF CONTENTS FOR OUTPUT FROM THIS MODEL RUN.',     MAIN..
   &/30X,49('-'),//10X,'TABLES',/10X,6('-'))                               MAIN..
    WRITE (PRINT,140)                                                      MAIN..
140 FORMAT(/11X,'TABLE 1.--MODEL OPTIONS FOR THIS RUN.',/17X,'2.--SUB    MAIN..
   $REACH DESCRIPTIONS.',/17X,'3.--MEAN SUBREACH ENVIRONMENTAL FACTORS   MAIN..
   &.',/17X,'4.--SUMMARY OF TRIBUTARY AND POINT-SOURCE INPUTS.')          MAIN..
    WRITE(PRINT,160)                                                       MAIN..
160 FORMAT(17X,'5.--SUBREACH HYDRAULICS DATA.')                           MAIN..
    WRITE(PRINT,170)                                                       MAIN..
170 FORMAT(17X,'6.--SUBREACH REACTION COEFFICIENTS.')                     MAIN..
    IF(MPT.NE.0)WRITE(PRINT,180)                                           MAIN..
180 FORMAT(17X,'7.--OBSERVED WATER-QUALITY DATA.')                        MAIN..
    WRITE (PRINT,210)                                                      MAIN..
210 FORMAT (17X,'8.--RESULTS OF COMPUTATIONS FOR DISSOLVED-OXYGEN ',      MAIN..
   &'PARAMETERS.',/17X,'9.--RESULTS OF COMPUTATIONS FOR OTHER ',          MAIN..
   &'CONSTITUENTS.')                                                       MAIN..
    WRITE(PRINT,215)                                                       MAIN..
215 FORMAT(//10X,'FIGURES',/10X,7('-'),/)                                 MAIN..
    WRITE(PRINT,217)                                                       MAIN..
217 FORMAT(/11X,'FIGURE 1.--RIVER PROFILE OF CALCULATED AND ',            MAIN..
   &'OBSERVED WATER DISCHARGE.')                                           MAIN..
    IF(NCONSV.NE.0)WRITE(PRINT,220) (CSHORT(1,K),K=1,2)                    MAIN..
220 FORMAT(17X,'2A.--RIVER PROFILE OF CALCULATED AND OBSERVED:  ',2A4)   MAIN..
    IF(NCONSV.NE.1)WRITE(PRINT,230) (CSHORT(2,K),K=1,2)                    MAIN..
230 FORMAT(17X,'2B.--RIVER PROFILE OF CALCULATED AND OBSERVED:  ',2A4)   MAIN..
    IF(NCONSV.EQ.3)WRITE(PRINT,240) (CSHORT(3,K),K=1,2)                    MAIN..
240 FORMAT(17X,'2C.--RIVER PROFILE OF CALCULATED AND OBSERVED:  ',2A4)   MAIN..
    WRITE (PRINT,260)                                                      MAIN..
260 FORMAT(18X,'3.--RIVER PROFILE OF CALCULATED AND OBSERVED DISSOLVED   MAIN..
   1-OXYGEN CONCENTRATIONS.'/18X,'4.--RIVER PROFILE OF CALCULATED AND     MAIN..
   2OBSERVED DISSOLVED-OXYGEN SATURATIONS.'/18X,'5.--RIVER PROFILE OF     MAIN..
   &CALCULATED DISSOLVED-OXYGEN DEFICITS.',/18X,'6.--RIVER PROFILE OF     MAIN..
   &CALCULATED AND OBSERVED CBODU CONCENTRATIONS.')                        MAIN..
    IF(IMODEL.EQ.1)WRITE(PRINT,290)                                        MAIN..
290 FORMAT (18X,'8.--RIVER PROFILE OF CALCULATED AND OBSERVED ORGANIC    MAIN..
   1NITROGEN CONCENTRATIONS.'/18X,'9.--RIVER PROFILE OF CALCULATED AND    MAIN..
   2 OBSERVED AMMONIA-NITROGEN CONCENTRATION.'/17X,'10.--RIVER PROFILE    MAIN..
   3 OF CALCULATED AND OBSERVED NITRITE-NITROGEN CONCENTRATIONS.',/17     MAIN..
   4X,'11.--RIVER PROFILE OF CALCULATED AND OBSERVED NITRATE-NITROGEN     MAIN..
   5CONCENTRATIONS.'/17X,'12.--RIVER PROFILE OF CALCULATED AND OBSERVE    MAIN..
   6D TOTAL NITROGEN CONCENTRATIONS.')                                     MAIN..
    IF(IPO4.EQ.1)WRITE(PRINT,310)                                          MAIN..
310 FORMAT (17X,'13.--RIVER PROFILE OF CALCULATED AND OBSERVED PHOSPHA   MAIN..
   1TE-PHOSPHORUS CONCENTRATIONS.')                                        MAIN..
    IF(NNCONS.NE.0)WRITE(PRINT,330) ((CSHORT(I,J),J=1,2),I=4,5)            MAIN..
330 FORMAT (17X,'14.--RIVER PROFILE OF CALCULATED AND OBSERVED ',2A4,'   MAIN..
   & CONCENTRATIONS.'/17X,'15.--RIVER PROFILE OF CALCULATED AND OBSERV    MAIN..
   $ED ',2A4,'CONCENTRATIONS.')                                            MAIN..
    WRITE (PRINT,350)                                                      MAIN..
350 FORMAT (17X,'16.--RIVER PROFILE OF CALCULATED REAERATION RATES (K2   MAIN..
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     &).',/17X,'17.--RIV',                                               MAIN..
     1'ER PROFILE OF MEAN VELOCITY.'/17X,'18.--RIVER PROFILE OF CUMULATI MAIN..
     2VE TRAVEL TIME.'/17X,'17.--RIVER PROFILE OF MEAN CROSS-SECTIONAL A MAIN..
     3REA.',/17X,'20.--RIVER PROFILE OF MEAN CHANNEL DEPTH.'/17X,'21.--R MAIN..
     4IVER PROFILE OF MEAN CHANNEL WIDTH.')                              MAIN..
      IXTAB1=1                                                           MAIN..
C----------------------------------------------------------------------- MAIN..
C ***** PRINT TABLE 1.--MODEL OPTIONS AND UPSTREAM BOUNDARY CONDITIONS.  MAIN..
C----------------------------------------------------------------------- MAIN..
  360 WRITE (PRINT,120) TITLE1,DATE,TITLE2                               MAIN..
      IF(JSEG.NE.0) WRITE(PRINT,125) JSEG                                MAIN..
      WRITE (PRINT,370)                                                  MAIN..
  370 FORMAT (/30X,'TABLE 1.--MODEL OPTIONS AND UPSTREAM BOUNDARY CONDITI MAIN..
     1ONS.'/30X,57('-'),//15X,'MODEL OPTIONS',28X,'SET THIS RUN',/15X,13 MAIN..
     2(1H=),28X,12(1H=))                                                 MAIN..
C ***** CHANNEL GEOM ONLY                                                MAIN..
      WRITE(PRINT,570) NSEG,XSTRT,XSEG(NSEG),DXPNT                       MAIN..
  570 FORMAT (/20X,21HNUMBER OF SUBREACHES:,16X,I2,//20X,20HSTARTING RIV MAIN..
     1ER MILE:,14X,F8.2,/20X,18HENDING RIVER MILE:,16X,F8.2,//20X,'CALCU MAIN..
     2LATION INTERVAL: ',14X,F5.2,' MILE.')                              MAIN..
      IF(ILIN.EQ.0)WRITE(PRINT,400)                                      MAIN..
  400 FORMAT (/20X,22HLINEAR RUNOFF MODELED:,15X,2HNO)                   MAIN..
      IF(ILIN.EQ.1)WRITE(PRINT,420)                                      MAIN..
  420 FORMAT (/20X,22HLINEAR RUNOFF MODELED:,15X,'SURFACE RETURNS.')     MAIN..
      IF(ILIN.EQ.2)WRITE(PRINT,421)                                      MAIN..
  421 FORMAT (/20X,'LINEAR RUNOFF MODELED:',15X,'GROUND-WATER RETURNS.') MAIN..
      IF(ILIN.EQ.3)WRITE(PRINT,422)                                      MAIN..
  422 FORMAT (/20X,22HLINEAR RUNOFF MODELED:,15X,'SURFACE AND GROUND-WAT MAIN..
     &ER RETURNS.')                                                      MAIN..
C----------------------------------------------------------------------- MAIN..
      LNCNTR=0                                                           MAIN..
C----------------------------------------------------------------------- MAIN..
C ***** PRINT TABLE 2.--SUBREACH DESCRIPTIONS                            MAIN..
C----------------------------------------------------------------------- MAIN..
      IF(JSEG.EQ.0) WRITE (PRINT,120) TITLE1,DATE,TITLE2                 MAIN..
      WRITE(PRINT,690)                                                   MAIN..
  690 FORMAT (/30X,'TABLE 2.--SUBREACH DESCRIPTIONS.',                   MAIN..
     1/30X,32('-'),//5X,'SUBREACH',11X,'NAME',16X,'RIVER MILES',9X,      MAIN..
     2'TOTAL',3X,'DESCRIPTION',/43X,'BEGIN',7X,'END',6X,'LENGTH',/5X,    MAIN..
     38('-'),2X,26('-'),2X,17('-'),2X,8('-'),2X,44('-')/)                MAIN..
      DO 700 I=1,NSEG                                                    MAIN..
      WRITE (PRINT,710) I,(SNAME(I,L),L=1,6),BSEG(I),XSEG(I),XLEN(I),    MAIN..
     1(SDESC(I,L),L=1,11)                                                MAIN..
      IF(XLEN(I).LE.0) WRITE(PRINT,709) I                                MAIN..
  709 FORMAT(1X,'SUBREACH ',I2,' LENGTH IS LESS THAN OR EQUAL TO 0,PROC  MAIN..
     &ESSING STOPPED!')                                                  MAIN..
  700 CONTINUE                                                           MAIN..
  710 FORMAT (7X,I2,6X,6A4,3(2X,F8.2),5X,11A4)                           MAIN..
      TOTAL=BSEG(1)-XSEG(NSEG)                                           MAIN..
      WRITE (PRINT,715)TOTAL                                             MAIN..
```

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  715 FORMAT(61X,8('-'),/61X,F8.2,1X,'MILES TOTAL LENGTH MODELED.')        MAIN..
  717 CONTINUE                                                              MAIN..
C---------------------------------------------------------------------- MAIN..
C ***** PRINT TABLE 3.--MEAN SUBREACH ENVIRONMENTAL FACTORS.              MAIN..
C---------------------------------------------------------------------- MAIN..
      DO 720 J=1,NSEG                                                     MAIN..
      CALL DOSATR(TEMP(J),BP(J),SCOND(J),DOSAT(J))                        MAIN..
  720 CONTINUE                                                            MAIN..
      IF(ITAB1.GT.3) GOTO 741                                             MAIN..
      IF(JSEG.EQ.0) WRITE (PRINT,120) TITLE1,DATE,TITLE2                  MAIN..
      WRITE(PRINT,730)                                                    MAIN..
  730 FORMAT(/30X,'TABLE 3.--MEAN SUBREACH ENVIRONMENTAL ',               MAIN..
     &'FACTORS.',/30X,46('-'),//34X,'DO SATURATION CONTROLS',             MAIN..
     &16X,'PHOTOSYNTHESIS & RESPIRATION',/29X,41('-'),2X,31('-'),/,8X,'   MAIN..
     &SUBREACH',14X,'MEAN',2X,'BAROMETRIC',2X,'SPECIFIC',6X,'DO AT',8X,'  MAIN..
     &NET',9X,'NET',6X,3X,'BENTHIC',6X,'MEAN',/30X, 'TEMP',               MAIN..
     &3X,'PRESSURE',2X,'CONDUCTANCE',2X,'SATURATION',2X,'PRODUCTION',2X,  MAIN..
     &'RESPIRATION',2X,4X,'DEMAND',8X,'PH',/29X,'(DEG C)',                MAIN..
     &2X,'(MM HG)',4X,'(UMHOS)',6X,'(MG/L)',4X,2('(MG/L/DAY)',2X),        MAIN..
     &3X,'(GM/SQ M/DAY)'/1X,132('-'))                                     MAIN..
      WRITE (PRINT,740) (J,(SNAME(J,L),L=1,6),TEMP(J),BP(J),SCOND(J),DOS  MAIN..
     1AT(J),PNET(J),RESP(J),BN(J),PH(J),J=1,NSEG)                         MAIN..
  740 FORMAT (1X,I2,2X,6A4,2X,F4.1,4X,F4.0,6X,F6.0,6X,F6.1,5X,F6.1,5X,F6  MAIN..
     1.1,5X,6X,F6.1,10X,F3.1)                                             MAIN..
C---------------------------------------------------------------------- MAIN..
  741 IF ((ITAB1.NE.4).AND.(ITAB1.NE.0)) GOTO 750                         MAIN..
C ----------------------------------------------------------------------MAIN..
C ***** PRINT TABLE 4A.--SUMMARY OF INPUTS TO SUBREACHES: CONCENTRATIONS. MAIN..
C-----------------------------------------------------------------------MAIN..
C ***** HEADING                                                           MAIN..
      WRITE (PRINT,120) TITLE1,DATE,TITLE2                                MAIN..
      WRITE(PRINT,820)                                                    MAIN..
  820 FORMAT (/30X,'TABLE 4A.--SUMMARY OF INPUTS TO SUBREACHES:  ',       MAIN..
     & 'CONCENTRATIONS.'/30X,60('-'))                                     MAIN..
      WRITE (PRINT,826)                                                   MAIN..
  826 FORMAT (/10X,'(NOTE-- NEGATIVE CONCENTRATIONS TO BE RECOMPUTED AS'  MAIN..
     & ,' A FUNCTION OF DIVERTED QUALITY & WILL FOLLOW TABLE 8.)')        MAIN..
      WRITE (PRINT,830) ((CSHORT(L,N),N=1,2),L=1,2),                      MAIN..
     & ((CSHORT(L,N),N=1,2),L=4,5)                                        MAIN..
  830 FORMAT (/1X,'SUBREACH',5X,'DIS-',3X,'DO',3X,' ',1X,'SAT',1X,        MAIN..
     & 'DO DEF',2X,'CBODU',2X,'ORG-N',2X,'NH4-N',2X,'NO2-N',              MAIN..
     & 2X,'NO3-N',1X,'TOT-N',1X,'O-P-A',2X,2A4,2X,2A4,1X,2A4,2A4,2X,      MAIN..
     & 'DIVERTED'/13X,'CHARGE',105X,'SUBR NO.',/1X,132('-'),/)            MAIN..
C *****      CONCENTRATIONS                                               MAIN..
      WRITE(PRINT,835) BEGC(1),BEGC(5),(BEGC(K),K=7,9),                   MAIN..
     & (BEGC(K),K=11,18),(BEGC(K),K=20,21)                                MAIN..
  835 FORMAT (1X,'UPSTREAM:',F9.1,F6.1,F6.0,F6.1,7F7.2,2F8.2,2F10.2/)     MAIN..
      DO  850 I=1,NSEG                                                    MAIN..
      IF(ATRIBC(I,1).GT.(0.0)) WRITE(PRINT,839) I,ATRIBC(I,1),            MAIN..
     & ATRIBC(I,5),(ATRIBC(I,K),K=7,9),(ATRIBC(I,K),K=11,18),             MAIN..
     & (ATRIBC(I,K),K=20,21)                                              MAIN..
```

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  839 FORMAT (1X,I2,2X,'MT',3X,F9.1,F6.1,F6.0,F6.1,7F7.2,2F8.2,2F10.2)     MAIN..
      IF(TRINC(I,1).GT.(0.0))WRITE(PRINT,840) I,TRINC(I,1),TRINC(I,5),     MAIN..
     & (TRINC(I,K),K=7,9),(TRINC(I,K),K=11,18),(TRINC(I,K),K=20,21)        MAIN..
  840 FORMAT (1X,I2,2X,'PS',3X,F9.1,F6.1,F6.0,F6.1,7F7.2,2F8.2,2F10.2)     MAIN..
      IF(TRINC(I,1).LT.(0.0))WRITE(PRINT,841) I,TRINC(I,1)                 MAIN..
  841 FORMAT (1X,I2,2X,'PS',3X,F9.1)                                       MAIN..
      IF(ILIN.EQ.0) GOTO  850                                              MAIN..
      IF(RLINC(I,1).GT.(0.0)) WRITE(PRINT,842) I,RLINC(I,1),               MAIN..
     & RLINC(I,5),(RLINC(I,K),K=7,9),(RLINC(I,K),K=11,18),                 MAIN..
     & (RLINC(I,K),K=20,21),NDIV(I)                                        MAIN..
  842 FORMAT (1X,I2,2X,'SR',3X,F9.1,F6.1,F6.0,F6.1,7F7.2,2F8.2,            MAIN..
     & 2F10.2,I7)                                                          MAIN..
      IF(RLINC(I,1).LT.(0.0)) WRITE (PRINT,843) I,TRINC(I,1)               MAIN..
  843 FORMAT(1X,I2,2X,'SR',1X,I2,F9.1)                                     MAIN..
      IF(GLINC(I,1).NE.(0.0)) WRITE(PRINT,821) I,GLINC(I,1),GLINC(I,5),    MAIN..
     & (GLINC(I,K),K=7,9),(GLINC(I,K),K=11,18),(GLINC(I,K),K=20,21)        MAIN..
  821 FORMAT (1X,I2,2X,'GW',3X,F9.1,F6.1,F6.0,F6.1,7F7.2,2F8.2,2F10.2)     MAIN..
      IF((RLINC(I,1).NE.0.).OR.(TRINC(I,1).NE.0.).OR.(GLINC(I,1).NE.0.)    MAIN..
     &.OR.(ATRIBC(I,1).NE.0.)) WRITE (PRINT,845)                           MAIN..
  845 FORMAT(1X)                                                           MAIN..
  850 CONTINUE                                                             MAIN..
C--------------------------------------------------------------------------MAIN..
C ***** PRINT TABLE 4B.--SUMMARY OF INPUT LOADS.                           MAIN..
C--------------------------------------------------------------------------MAIN..
C ***** HEADINC                                                            MAIN..
      IF(NSEG.GT.20) WRITE (PRINT,120) TITLE1,DATE,TITLE2                  MAIN..
      WRITE(PRINT,885)                                                     MAIN..
  885 FORMAT (/30X,'TABLE 4B.--SUMMARY OF INPUTS ',                        MAIN..
     & 'TO SUBREACHES:  LOADS (LB/DAY).'/30X,58('-'))                      MAIN..
      WRITE (PRINT,890) ((CSHORT(L,N),N=1,2),L=1,2),                       MAIN..
     & ((CSHORT(L,N),N=1,2),L=4,5)                                         MAIN..
  890 FORMAT (/1X,'SUBREACH',5X,'DO',3X,'DO DEF',3X,'CBOD',3X,'ORG-N',     MAIN..
     & 2X,'NH4-N',2X,'NO2-N',2X,'NO3-N',2X,'TOT-N',2X,'O-P-A',1X,          MAIN..
     & 4(2X,2A4),/1X,132('-')/)                                            MAIN..
      WRITE(PRINT,895) BEGL(5),(BEGL(K),K=8,9),(BEGL(K),K=11,18),          MAIN..
     & (BEGL(K),K=20,21)                                                   MAIN..
  895 FORMAT(/2X,'UPSTREAM:',9(F7.0),4(2X,F8.0),/)                         MAIN..
      DO  910 I=1,NSEG                                                     MAIN..
      IF(ATRIBC(I,1).NE.(0.0)) WRITE(PRINT,900)                            MAIN..
     & I,ATRIBL(I,5),(ATRIBL(I,K),K=8,9),(ATRIBL(I,K),K=11,18),            MAIN..
     & (ATRIBL(I,K),K=20,21)                                               MAIN..
  900 FORMAT(1X,I2,' M TRIB:',9F7.0,4(2X,F8.0))                            MAIN..
      IF(TRINC(I,1).GT.(0.0))WRITE (PRINT,901) I,TRINL(I,5),               MAIN..
     & (TRINL(I,K),K=8,9),(TRINL(I,K),K=11,18),(TRINL(I,K),K=20,21)        MAIN..
  901 FORMAT(1X,I2,' PS/DIV:',9F7.0,4(2X,F8.0))                            MAIN..
      IF(RLINC(I,1).GT.0.) WRITE(PRINT,902)                                MAIN..
     & I,RLINL(I,5),(RLINL(I,K),K=8,9),(RLINL(I,K),K=11,18),               MAIN..
     & (RLINL(I,K),K=20,21)                                                MAIN..
  902 FORMAT(1X,I2,' S RET: ',9F7.0,4(2X,F8.0))                            MAIN..
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      IF(GLINC(I,1).NE.(0.0)) WRITE(PRINT,903)                          MAIN..
     & I,GLINL(I,5),(GLINL(I,K),K=8,9),(GLINL(I,K),K=11,18),            MAIN..
     & (GLINL(I,K),K=20,21)                                             MAIN..
  903 FORMAT(1X,I2,' GW RET:',9F7.0,4(2X,F8.0))                         MAIN..
      IF((RLINC(I,1).GT.(0.0)).OR.(TRINC(I,1).GT.0.).OR.                MAIN..
     &(ATRIBC(I,1).GT.0.).OR.(GLINC(I,1).GT.0.)) WRITE(PRINT,845)       MAIN..
  910 CONTINUE                                                          MAIN..
C---------------------------------------------------------------------- MAIN..
C ***** PRINT TABLE 5.--SUBREACH HYDRAULICS DATA.                       MAIN..
C---------------------------------------------------------------------- MAIN..
  750 CONTINUE                                                          MAIN..
      IF((ITAB1.EQ.5).OR.(ITAB1.EQ.0)) WRITE (PRINT,120) TITLE1,DATE,   MAIN..
     &TITLE2                                                            MAIN..
      IF((ITAB1.EQ.5).OR.(ITAB1.EQ.0))WRITE (PRINT,760)                 MAIN..
  760 FORMAT (/45X,'TABLE 5.--SUBREACH HYDRAULICS DATA',                MAIN..
     &/45X,35('-')//9X,'SUBREACH',15X,'STARTING',2X,'LENGTH',           MAIN..
     &3X,'DISCHARGE (CFS)',2X,'GEOM.',4X,'TRAVEL',4X,'VELOCITY',2X,     MAIN..
     &'AREA',2X,'DEPTH',2X,'WIDTH',2X,'MEAN SLOPE',                     MAIN..
     &/33X,'RIVER',5X,'(MI)',4X,14(1H-),                                MAIN..
     &3X,'METH.',5X,'TIME',6X,'(FPS)',2X,'(SQ FT)',2X,'(FT)',           MAIN..
     &2X,'(FT)',3X,15(1H-),/33X,'MILE',15X,'START',4X,                  MAIN..
     &'MEAN',9X,'(HRS) ','(DAYS)',31X,'(FT/FT)',1X,'(FT/MI)'/)          MAIN..
  762 QSTRT=STARTC(1)                                                   MAIN..
      SUM=0.                                                            MAIN..
      SUMDA=0.                                                          MAIN..
      DO 790 J=1,NSEG                                                   MAIN..
      FGEOM(J)=B2                                                       MAIN..
      QSTRT=QSTRT+TRINC(J,1)+ATRIBC(J,1)                                MAIN..
      IF(QSTRT.LT.(0.0)) WRITE(PRINT,765)                               MAIN..
  765 FORMAT(//1X,'TOTAL DISCHARGE WENT NEGATIVE,PROCESSING STOPPED!')  MAIN..
      IF(QSTRT.LT.(0.0))GOTO 1520                                       MAIN..
      QAVG=QSTRT+RLINC(J,1)/2.+GLINC(J,1)/2.                            MAIN..
      CALL CGEOM(NSEG,GEOM(J,1),GEOM(J,2),GEOM(J,3),GEOM(J,4),GEOM(J,5), MAIN..
     &VA(J),VB(J),TA(J),TB(J),AA(J),AB(J),DA(J),DB(J),WA(J),WB(J),      MAIN..
     &IGEOM(J),QAVG,XLEN(J))                                            MAIN..
      DAYS=GEOM(J,2)/24.                                                MAIN..
      IF((ITAB1.EQ.5).OR.(ITAB1.EQ.0))                                  MAIN..
     &WRITE (6,780) J,(SNAME(J,K),K=1,6),BSEG(J),XLEN(J),QSTRT,QAVG,    MAIN..
     &IGEOM(J),FGEOM(J),                                                MAIN..
     1GEOM(J,2),DAYS,GEOM(J,1),(GEOM(J,K),K=3,5),SLOPE(J),SFPM(J)       MAIN..
  780 FORMAT (1X,I2,2X,6A4,2X,F8.2,1X,F8.2,1X,F8.1,1X,F8.1,2X,I2,1A1,2X, MAIN..
     &F6.2,2X,F5.2,                                                     MAIN..
     &2X,F6.2,3X,F5.0,2X,F5.1,2X,F4.0,3X,F7.5,2X,F5.2)                  MAIN..
      SUM=SUM+GEOM(J,2)                                                 MAIN..
      IF (ILIN.NE.0)QSTRT=QSTRT+RLINC(J,1)+GLINC(J,1)                   MAIN..
  790 CONTINUE                                                          MAIN..
      SUMDA=SUM/24.                                                     MAIN..
      IF((ITAB1.ES
Q.5).OR.(ITAB1.EQ.0))WRITE (PRINT,800) QSTRT,SUM,SUMDA   MAIN..
 800  FORMAT(51X,8('-'),14X,6('-'),2X,5('-'),/49X,F8.1,',AT END',8X,F6  MAIN..
     &.2,2X,F5.2,//3X,'(COMPUTATIONAL METHODS-- AREA,DEPTH,WIDTH,VELO   MAIN..
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     1CITY AND TRAVELTIME COMPUTED FROM DISCHARGE AND:'/,6X,'1-- VELOCIT  MAIN..
     2Y AND DEPTH; 2--  TRAVELTIME AND DEPTH; 3-- AREA AND DEPTH; 4--VEL  MAIN..
     3CITY AND WIDTH;  5--TRAVELTIME AND WIDTH;'/,6X,'6-- AREA AND WIDTH  MAIN..
     4; 7--WIDTH AND DEPTH.'/,6X,'NOTE-- * INDICATES HYDRAULICS DATA WIL  MAIN..
     &L BE RECOMPUTED FOR EACH CALCULATION INTERVAL WITHIN THE SUBREACH.  MAIN..
     &)')                                                                 MAIN..
C-----------------------------------------------------------------------  MAIN..
C-----------------------------------------------------------------------  MAIN..
C ***** COMPUTE K2 ONLY FOR SUBREACHES WITH IK2  GT 0                     MAIN..
      DO 810 J=1,NSEG                                                     MAIN..
      IF (IK2(J).EQ.0) GO TO 810                                          MAIN..
      CALL REAER (IK2(J),GEOM(J,4),GEOM(J,1),SLOPE(J),K2(J),CTSVIG(J))    MAIN..
      IF(CTSVIG(J).NE.0) THEN K2FLAG=1                                    MAIN..
  810 CONTINUE                                                            MAIN..
      IF((ITAB1.GT.0).AND.(ITAB1.NE.6))GOTO 955                           MAIN..
C-------------------------------------------------------------------------MAIN..
C ***** PRINT TABLE 6.--SUBREACH REACTION COEFFICENTS.                    MAIN..
C-------------------------------------------------------------------------MAIN..
      WRITE (PRINT,120) TITLE1,DATE,TITLE2                                MAIN..
      WRITE (PRINT,920)                                                   MAIN..
  920 FORMAT (/30X,'TABLE 6.--SUBREACH REACTION COEFFICIENTS.',           MAIN..
     & /30X,40('-'),/30X,'REACTION COEFFICIENTS (/DAY AT 20 DEG C)'/)     MAIN..
      WRITE(PRINT,930) ((CSHORT(L,N),N=1,2),L=4,5)                        MAIN..
  930 FORMAT (1X,'S',2X,'REAERATION',2X,2('CBOD',3X),                     MAIN..
     & 2('ORG-N',2X),2('NH4-N',2X),2('NO2-N',2X),'NO3-N',1X,'ORTH P-A',   MAIN..
     & 2(2X,2A4)/1X,'U',2X,'ME-',2X,'K2',2X,4(3X,'DECAY',                 MAIN..
     & 2X,'FORW'),3X,'DECAY',3(5X,'DECAY'),/1X,'B',2X,'THOD'/)            MAIN..
      WRITE (PRINT,940) (J,IK2(J),K2(J),KCR(J),KC(J),                     MAIN..
     & KORNR(J),KORNF(J),KNH4R(J),KNH4F(J),KNO2R(J),                      MAIN..
     & KNO2F(J),KNO3R(J),KPO4B(J),KNCR1(J),KNCR2(J),J=1,NSEG)             MAIN..
  940 FORMAT (1X,I2,1X,I2,1X,F6.2,9F7.2,3F10.2)                           MAIN..
      WRITE (PRINT,950)                                                   MAIN..
  950 FORMAT (/,10X,'METHODS FOR CALCULATING K2:  0--INPUT AS DATA; 1--B  MAIN..
     &ENNETT/RATHBUN; 2--VELZ| 3--LANGBEIN/DURHAM| 4--PADDEN-GLOYNA|',/1  MAIN..
     &5X,'5--BANSAL; 6--PARKHURST-POMEROY| 7--TSIVOGLOU-WALLACE| 12--MOD  MAIN..
     &IFIED TSIVOGLOU-WALLACE')                                           MAIN..
      IF(K2FLAG.NE.0) WRITE (PRINT,952)                                   MAIN..
  952 FORMAT (' (NON-STANDARD ESCAPE COEFFICIENTS)')                      MAIN..
      WRITE (PRINT,954)                                                   MAIN..
  954 FORMAT ('.')                                                        MAIN..
C ***** MAKE TEMPERATURE CORRECTIONS TO REACTION COEFFICIENTS (JON 6/81)  MAIN..
  955 DO 960 J=1,NSEG                                                     MAIN..
      DTEMP=TEMP(J)-20.                                                   MAIN..
C ***** THETA= 1.0241  [ELMORE AND WEST, 1961]                            MAIN..
      XX=1.0241**DTEMP                                                    MAIN..
      K2(J)=K2(J)*XX                                                      MAIN..
C ***** THETA= 1.047 [SHINDALA, 1972]                                     MAIN..
      XX=1.047**DTEMP                                                     MAIN..
      KC(J)=KC(J)*XX                                                      MAIN..
      KCR(J)=KCR(J)*XX                                                    MAIN..
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C ***** THETA= 1.09                                                       MAIN..
      XX=1.09**DTEMP                                                      MAIN..
      KNCR1(J)=KNCR1(J)*XX                                                MAIN..
      KNCR2(J)=KNCR2(J)*XX                                                MAIN..
      KPO4B(J)=KPO4B(J)*XX                                                MAIN..
      KORNF(J)=KORNF(J)*XX                                                MAIN..
      KNH4F(J)=KNH4F(J)*XX                                                MAIN..
      KNO2F(J)=KNO2F(J)*XX                                                MAIN..
      KNO3R(J)=KNO3R(J)*XX                                                MAIN..
      KORNR(J)=KORNR(J)*XX                                                MAIN..
      KNH4R(J)=KNH4R(J)*XX                                                MAIN..
      KNO2R(J)=KNO2R(J)*XX                                                MAIN..
C ***** THETA= 1.065                                                      MAIN..
      XX=1.065**DTEMP                                                     MAIN..
      BN(J)=BN(J)*XX                                                      MAIN..
  960 CONTINUE                                                            MAIN..
C-------------------------------------------------------------------------MAIN..
C ***** PRINT TABLE OF TEMP CORRECTED REACTION COEFFICIENTS               MAIN..
C-------------------------------------------------------------------------MAIN..
      IF((ITAB1.NE.0).AND.(ITAB1.NE.6))GOTO 1005                          MAIN..
      IF(JSEG.EQ.0) WRITE (PRINT,120) TITLE1,DATE,TITLE2                  MAIN..
      WRITE(PRINT,970)                                                    MAIN..
  970 FORMAT (/30X,'TABLE 6.--SUBREACH REACTION COEFFICIENTS',            MAIN..
     & '--CONTINUED.',/30X,52('-'))                                       MAIN..
      WRITE (PRINT,980)                                                   MAIN..
  980 FORMAT (30X,'TEMPERATURE-CORRECTED REACTION COEFFICIENTS (/DAY',    MAIN..
     & ' AT AMBIENT TEMPERATURE)'/)                                       MAIN..
      WRITE(PRINT,990) ((CSHORT(L,N),N=1,2),L=4,5)                        MAIN..
  990 FORMAT (1X,'S',1X,'MEAN',3X,'K2',2X,2X,2('CBOD',3X),2('ORG-N',2X),  MAIN..
     & 2('NH4-N',2X),2('NO2-N',2X),'NO3-N',1X,'ORTHO-P-A',2(2X,2A4),      MAIN..
     & /,1X,'U',1X,'TEMP.',5X,4(3X,'DECAY',2X,'FORW'),3X,'DECAY',         MAIN..
     & 3(5X,'DECAY'), /,1X,'B',2X,'(C)',/)                                MAIN..
      WRITE (PRINT,1000) (J,TEMP(J),K2(J),KCR(J),KC(J),                   MAIN..
     & KORNR(J),KORNF(J),KNH4R(J),KNH4F(J),KNO2R(J),                      MAIN..
     & KNO2F(J),KNO3R(J),KPO4B(J),KNCR1(J),KNCR2(J),J=1,NSEG)             MAIN..
 1000 FORMAT (1X,I2,1X,F4.1,10F7.2,3F10.2)                                MAIN..
C------------------------------------------------------------------------ MAIN..
C     CHECK FOR OBSERVED                                                  MAIN..
      IF (MPT.EQ.0) GO TO 1110                                            MAIN..
 1005 IF ((ITAB1.NE.0).AND.(ITAB1.NE.7)) GOTO 1110                        MAIN..
C------------------------------------------------------------------------ MAIN..
C ***** PRINT TABLE 7.--OBSERVED WATER-QUALITY DATA.                      MAIN..
C------------------------------------------------------------------------ MAIN..
      LNCNTR=60                                                           MAIN..
      NOLD=0                                                              MAIN..
      OLDMI=0.                                                            MAIN..
      NS=1                                                                MAIN..
      DO 1100 I=1,MPT                                                     MAIN..
C *****                                                                   MAIN..
C   CALCULATE DIS N/P RATIO (MOLES/MOLE                                   MAIN..
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      DIN=OBSC(I,12)+OBSC(I,13)+OBSC(I,14)                              MAIN..
      IF((DIN.GT.0).OR(OBSC(I,20).GT.0))                                MAIN..
     &  DINOP=(DIN/14.007)/(OBSC(I,20)/30.974)                          MAIN..
      OBSC(I,19)=DINOP                                                  MAIN..
C *****                                                                 MAIN..
      IF(LNCNTR.LT.56) GOTO 1075                                        MAIN..
      IF(JSEG.EQ.0) WRITE(PRINT,120) TITLE1,DATE,TITLE2                 MAIN..
      WRITE(PRINT,1070)((CSHORT(K,N),N=1,2),K=1,5),                     MAIN..
     &((CUNIT(K,N),N=1,2),K=1,5)                                        MAIN..
 1070 FORMAT(/30X,'TABLE 7.--OBSERVED WATER-QUALITY DATA.',             MAIN..
     &/30X,38('-'),//4X,'RIVER',3X,'DIS-',3X,'DO',4X,'DO',3X,           MAIN..
     &'CBODU',1X,'ORG-N',1X,'NH4-N',' UN-ION',1X,'NO2-N',1X,            MAIN..
     &'NO3-N',1X,'TOT-N',1X,'O-P-A',5(1X,2A4)/4X,'MILE',3X,'CHARGE',1X, MAIN..
     &'CONC.',2X,'SAT.',19X,'NH3-N',/12X,'(CFS)',1X,'MG/L',2X,'(    )', MAIN..
     &1X,18('-'),'(MG/L)',24('-'),5(1X,2A4),/,1X,132('-')/)             MAIN..
      LNCNTR=10                                                         MAIN..
      IF(OBSMI(I).EQ.OLDMI) GOTO 1088                                   MAIN..
 1075 DO 1085 II=1,NSEG                                                 MAIN..
      IF((OBSMI(I).LE.BSEG(II)).AND.(OBSMI(I).GT.XSEG(II))) GOTO 1086   MAIN..
 1085 CONTINUE                                                          MAIN..
 1086 NS=II                                                             MAIN..
      IF(NS.EQ.NOLD)GOTO 1095                                           MAIN..
      NOLD=NS                                                           MAIN..
 1088 OLDMI=OBSMI(I)                                                    MAIN..
      WRITE(PRINT,1090) NS,(SNAME(NS,L),L=1,6),(SDESC(NS,L),L=1,11)     MAIN..
 1090 FORMAT(/6X,'SUBREACH ',I2,':  ',6A4,'; ',11A4,/)                  MAIN..
      LNCNTR=LNCNTR+3                                                   MAIN..
 1095 WRITE(PRINT,1098) OBSMI(I),OBSC(I,1),OBSC(I,5),OBSC(I,7),         MAIN..
     &OBSC(I,9),(OBSC(I,K),K=11,12),OBUNH3(I),(OBSC(I,K),K=13,21)       MAIN..
 1098 FORMAT(1X,F8.2,F8.1,F6.1,F6.0,3(F6.2),F6.3,4(F6.2),5(F9.2))       MAIN..
      LNCNTR=LNCNTR+1                                                   MAIN..
 1100 CONTINUE                                                          MAIN..
C---------------------------------------------------------------------- MAIN..
 1110 CONTINUE                                                          MAIN..
C     INITIALIZE VARIABLES FOR MASS-BALANCE, ROUTING, AND DECAY         MAIN..
C *****                                                                 MAIN..
      X=XSTRT                                                           MAIN..
      QTOT=STARTC(1)                                                    MAIN..
      XL=XSTRT                                                          MAIN..
      TSUM=0.0                                                          MAIN..
      DELQR=0.0                                                         MAIN..
      DELQG=0.0                                                         MAIN..
      TT=0.0                                                            MAIN..
C *****                                                                 MAIN..
C *****                                                                 MAIN..
C---------------------------------------------------------------------- MAIN..
C     SEGMENT LOOP:  MASS-BALANCE,ROUTING,DECAY,AND PRINT RESULTS       MAIN..
C *****                                                                 MAIN..
      CALL ROUTE                                                        MAIN..
C *****                                                                 MAIN..
C---------------------------------------------------------------------- MAIN..
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C **** PRINT AND/OR PLOT RESULTS OF COMPUTATIONS:                          MAIN..
C--------------------------------------------------------------------------MAIN..
C ***** PRINT TABLE 4A.--SUMMARY OF INPUTS TO SUBREACHES: CONCENTRATIONS.  MAIN..
C--------------------------------------------------------------------------MAIN..
C ***** HEADING                                                            MAIN..
      IF((ITAB1.NE.0).AND.(ITAB1.NE.4)) GOTO 8910                          MAIN..
      IF(ITFLAG.EQ.0) GOTO 8910                                            MAIN..
      WRITE (PRINT,120) TITLE1,DATE,TITLE2                                 MAIN..
      WRITE(PRINT,8820)                                                    MAIN..
 8820 FORMAT(/30X,'REVISED TABLE 4A.--SUMMARY OF INPUTS',                  MAIN..
     & ' TO SUBREACHES:  CONCENTRATIONS.'/30X,60('-'))                     MAIN..
      WRITE (PRINT,830) ((CSHORT(L,N),N=1,2),L=1,2),                       MAIN..
     & ((CSHORT(L,N),N=1,2),L=4,5)                                         MAIN...
C *****     CONCENTRATIONS                                                 MAIN..
      WRITE(PRINT,835) BEGC(1),BEGC(5),(BEGC(K),K=7,9),                    MAIN..
     & (BEGC(K),K=11,18),(BEGC(K),K=20,21)                                 MAIN..
      DO  8850 I=1,NSEG                                                    MAIN..
      IF(ATRIBC(I,1).GT.(0.0)) WRITE(PRINT,839) I,ATRIBC(I,1),             MAIN..
     & ATRIBC(I,5),(ATRIBC(I,K),K=7,9),(ATRIBC(I,K),K=11,18),              MAIN..
     & (ATRIBC(I,K),K=20,21)                                               MAIN..
      IF(TRINC(I,1).GT.(0.0))WRITE(PRINT,840) I,TRINC(I,1),TRINC(I,5),     MAIN..
     & (TRINC(I,K),K=7,9),(TRINC(I,K),K=11,18),(TRINC(I,K),K=20,21)        MAIN..
      IF(TRINC(I,1).LT.(0.0))WRITE(PRINT,841) I,TRINC(I,1)                 MAIN..
      IF(ILIN.EQ.(0)) GOTO 8850                                            MAIN..
      IF(RLINC(I,1).GT.(0.0)) WRITE(PRINT,842) I,RLINC(I,1),               MAIN..
     & RLINC(I,5),(RLINC(I,K),K=7,9),(RLINC(I,K),K=11,18),                 MAIN..
     & (RLINC(I,K),K=20,21),NDIV(I)                                        MAIN..
      IF(RLINC(I,1).LT.(0.0)) WRITE (PRINT,843) I,TRINC(I,1)               MAIN..
      IF(GLINC(I,1).NE.(0.0)) WRITE(PRINT,821) I,GLINC(I,1),GLINC(I,5),    MAIN..
     & (GLINC(I,K),K=7,9),(GLINC(I,K),K=11,18),(GLINC(I,K),K=20,21)        MAIN..
      IF((RLINC(I,1).NE.0.).OR.(TRINC(I,1).NE.0.).OR.(GLINC(I,1).NE.0.)    MAIN..
     &.OR.(ATRIBC(I,1).NE.0.)) WRITE (PRINT,845)                           MAIN..
 8850 CONTINUE                                                             MAIN..
C--------------------------------------------------------------------------MAIN..
C ***** PRINT TABLE 4B.--REVISED SUMMARY OF INPUT LOADS.                   MAIN..
C--------------------------------------------------------------------------MAIN..
C ***** HEADING                                                            MAIN..
      IF(NSEG.GT.20) WRITE (PRINT,120) TITLE1,DATE,TITLE2                  MAIN..
      WRITE(PRINT,8885)                                                    MAIN..
 8885 FORMAT(/30X,'REVISED TABLE 4B.--SUMMARY OF INPUTS',                  MAIN..
     & '  SUBREACHES:  LOADS.'/30X,50('-'))                                MAIN..
      WRITE (PRINT,890) ((CSHORT(L,N),N=1,2),L=1,2),                       MAIN..
     & ((CSHORT(L,N),N=1,2),L=4,5)                                         MAIN..
      WRITE(PRINT,895) BEGL(5),(BEGL(K),K=8,9),(BEGL(K),K=11,18),          MAIN..
     & (BEGL(K),K=20,21)                                                   MAIN..
      DO 8909 I=1,NSEG                                                     MAIN..
      IF(ATRIBC(I,1).NE.(0.0)) WRITE(PRINT,900)                            MAIN..
     & I,ATRIBL(I,5),(ATRIBL(I,K),K=8,9),(ATRIBL(I,K),K=11,18),            MAIN..
     & (ATRIBL(I,K),K=20,21)                                               MAIN..
      IF(TRINC(I,1).GT.(0.0))WRITE (PRINT,901) I,TRINL(I,5),               MAIN..
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     & (TRINL(I,K),K=8,9),(TRINL(I,K),K=11,18),(TRINL(I,K),K=20,21)          MAIN..
      IF(RLINC(I,1).GT.0.) WRITE(PRINT,902)                                  MAIN..
     & I,RLINL(I,5),(RLINL(I,K),K=8,9),(RLINL(I,K),K=11,18),                 MAIN..
     & (RLINL(I,K),K=20,21)                                                  MAIN..
      IF(GLINC(I,1).NE.(0.0)) WRITE(PRINT,903)                               MAIN..
     & I,GLINL(I,5),(GLINL(I,K),K=8,9),(GLINL(I,K),K=11,18),                 MAIN..
     & (GLINL(I,K),K=20,21)                                                  MAIN..
      IF((RLINC(I,1).GT.(0.0)).OR.(TRINC(I,1).GT.0.).OR.                     MAIN..
     &(ATRIBC(I,1).GT.0.).OR.(GLINC(I,1).GT.0.)) WRITE(PRINT,845)            MAIN..
 8909 CONTINUE                                                               MAIN..
 8910 CONTINUE                                                               MAIN..
C-----------------------------------------------------------------------------MAIN..
      IF(IGRAPH.NE.1)GO TO 8917                                              MAIN..
C ---------------------------------------------------------------------------- MAIN..
C ***** OUTPUT A DATA ARRAY FOR POST-PROCESSING BY EXTERNAL PROGRAMS          MAIN..
C       TO PRODUCE PUBLICATION-QUALITY PLOTS                                  MAIN..
C       SUBSEQUENT FILE HANDLING BY EXTERNAL PRIMOS CPL PROGRAMS              MAIN..
C                                                                             MAIN..
C ***** OPEN AND WRITE OUTPUT PLOTFILES                                       MAIN..
      OPEN (11,FILE='PLOTOUT',STATUS='UNKNOWN')                               MAIN..
C                                                                             MAIN..
      DO 8916 I=1,JJ                                                          MAIN..
      WRITE(11,8915)XDIST(I),PLOTC(I,1),PLOTC(I,5),PLOTC(I,6),PLOTC(I,        MAIN..
     &7),PLOTC(I,9),PLOTC(I,11),PLOTC(I,12),PLOTC(I,30),PGEOM(I,2),PL         MAIN..
     &OTC(I,18),PLOTC(I,19),PLOTC(I,20),PLOTC(I,21),PLOTC(I,13),PLOTC(        MAIN..
     &I,14),PLOTC(I,15),PLOTC(I,16),UNH3(I)                                   MAIN..
 8916 CONTINUE                                                                MAIN..
      DO 8930 II=1,MPT                                                        MAIN..
      WRITE (11,8914) OBSMI(II),OBSC(II,1),OBSC(II,5),OBSC(II,6),             MAIN..
     &OBSC(II,7),OBSC(II,9),OBSC(II,11),OBSC(II,12),OBSC(II,18),              MAIN..
     &OBSC(II,20),OBSC(II,21),OBSC(II,13),OBSC(II,14),OBSC(II,15),            MAIN..
     &OBSC(II,16),OBUNH3(II)                                                  MAIN..
 8930 CONTINUE                                                                MAIN..
 8914 FORMAT (F6.2,F6.1,13(F6.2),F6.3)                                        MAIN..
 8915 FORMAT (F6.2,F6.0,16(F6.2),F6.3)                                        MAIN..
C---------------------------------------------------------------------------- MAIN..
 8917 IF(IPLOT.EQ.99) GOTO 1490                                               MAIN..
C ***** PERFORM LINE-PRINTER PLOTS                                            MAIN..
C ***** NPLOT SPECIFIES PLOT PARAMETERS:                                      MAIN..
C    NPLOT                                               NPARM                MAIN..
C    -----  ------------------------------------         ----                 MAIN..
C ***** 1     1 CALCULATED CONSTITUENT                      1                 MAIN..
C ***** 2     1 CALCULATED + 1 OBSERVED                     1                 MAIN..
C ***** 3     DO    SAT: CALC + OBSERVED                    1                 MAIN..
C ***** 4     DO: SAT.,CALC.,OBSERV.                        3                 MAIN..
C ***** 5     DO DEFICITS: CBOD                             2                 MAIN..
C ***** 6     DO DEFICITS: CBOD,NO2,NH4                     3                 MAIN..
C ***** 7     DO DEFICITS: BENTHIC,R,P,K2                   4                 MAIN..
C ---------------------------------------------------------------------------- MAIN..
      DO 9005 I=1,JJ                                                          MAIN..
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      IF(IXPLOT.EQ.0)XAXIS(I)=XDIST(I)                                  MAIN..
 9005 IF(IXPLOT.EQ.1)XAXIS(I)=PGEOM(I,2)                                MAIN..
      IF(IXPLOT.EQ.1)GOTO 9010                                          MAIN..
      XMAX=XL                                                           MAIN..
      XMIN=XSTRT                                                        MAIN..
      DO 9011 I=1,11                                                    MAIN..
 9011 XTITLE(I)=XMILES(I)                                               MAIN..
      GOTO 15                                                           MAIN..
 9010 XMAX=PGEOM(JJ,2)                                                  MAIN..
      XMIN=0.0                                                          MAIN..
      DO 9012 I=1,11                                                    MAIN..
 9012 XTITLE(I)=XTIME(I)                                                MAIN..
   15 CONTINUE                                                          MAIN..
       XMAX=5*(FLOAT(IFIX(XMAX/5.)))                                    MAIN..
       IF(XMIN.GT.5.) XMIN=5*(FLOAT(IFIX((XMIN/5.)+1)))                 MAIN..
       IF(XMIN.LE.5.) XMIN=(FLOAT(IFIX(XMIN+1)))                        MAIN..
C ***** SELECT PLOTS                                                    MAIN..
      GOTO(1112,1210,1235,1166,1340,1119,1360),IPLOT                    MAIN..
C ***** DISCHARGE                                                       MAIN..
 1112 DO 1114 I=1,JJ                                                    MAIN..
      PARM1(I)=PLOTC(I,1)                                               MAIN..
 1114 CONTINUE                                                          MAIN..
      DO 1116 I=1,MPT                                                   MAIN..
 1116 OBSV1(I)=OBSC(I,1)                                                MAIN..
      CALL PPLOT(2,'FIGURE 1.--RIVER PROFILE FOR WATER DISCHARGE.       MAIN..
     &         ','DISCHARGE, IN CFS                ',32,2500.,0.)       MAIN..
      IF(KPLOT.EQ.3) CALL                                               MAIN..
     &PPLOT     (2,'FIGURE 1.--RIVER PROFILE FOR WATER DISCHARGE.       MAIN..
     &         ','DISCHARGE, IN CFS                ',32,500.,0.)        MAIN..
 1119 CONTINUE                                                          MAIN..
C ***** CONSERVATIVES                                                   MAIN..
      DO 1165 II=1,NCONSV                                               MAIN..
      L=16+II                                                           MAIN..
      DO 1120 I=1,JJ                                                    MAIN..
      PARM1(I)=PLOTC(I,L)                                               MAIN..
 1120 CONTINUE                                                          MAIN..
      DO 1130 I=1,MPT                                                   MAIN..
      OBSV1(I)=OBSC(I,L)                                                MAIN..
 1130 CONTINUE                                                          MAIN..
      GO TO (1140,1150,1160),II                                         MAIN..
 1140 CALL PPLOT(2,'FIGURE 2A.--RIVER PROFILE FOR SPECIFIC CONDUCTANCE. MAIN..
     &         ','SPECIFIC CONDUCTANCE, IN UMHOS  ',32,20.,0.)          MAIN..
      GO TO 1165                                                        MAIN..
 1150 CALL PPLOT(2,'FIGURE 2B.--RIVER PROFILE FOR DISSOLVED SOLIDS.     MAIN..
     &         ','DISSOLVED SOLIDS, IN MG/L       ',32,20.,0.)          MAIN..
      GO TO 1165                                                        MAIN..
 1160 CALL PPLOT(2,'FIGURE 2C.--RIVER PROFILE, RATIO OF INORGANIC-N TO O MAIN..
     &RTHO-P   ','INORGANIC|N/ORTHO|P, MOLES/MOLE ',32,20.,0.)          MAIN..
 1165 CONTINUE                                                          MAIN..
 1166 CONTINUE                                                          MAIN..
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      IF(IPLOT.EQ.6) GOTO 1490                                        MAIN..
C ***** DO PARAMETERS                                                 MAIN..
      DO 1170 I=1,JJ                                                  MAIN..
      PARM1(I)=PLOTC(I,6)                                             MAIN..
      PARM2(I)=PLOTC(I,5)                                             MAIN..
 1170 CONTINUE                                                        MAIN..
      DO 1180 I=1,MPT                                                 MAIN..
      OBSV1(I)=OBSC(I,5)                                              MAIN..
 1180 CONTINUE                                                        MAIN..
      CALL PPLOT(3,'FIGURE 3.--RIVER PROFILE FOR DO CONCENTRATIONS.   MAIN..
     &         ','DISSOLVED OXYGEN, IN MG/L       ',32,20.,0.)        MAIN..
      DO 1190 I=1,JJ                                                  MAIN..
      PARM1(I)=100.                                                   MAIN..
      PARM2(I)=PLOTC(I,7)                                             MAIN..
 1190 CONTINUE                                                        MAIN..
      DO 1200 I=1,MPT                                                 MAIN..
      OBSV1(I)=OBSC(I,7)                                              MAIN..
 1200 CONTINUE                                                        MAIN..
      CALL PPLOT(3,'FIGURE 4.--RIVER PROFILE FOR DISSOLVED-OXYGEN SATURA MAIN..
     &TION.    ','DO SATURATION, IN PERCENT       ',32,250.,0.)       MAIN..
C ***** DO DEFICITS                                                   MAIN..
      DO 1202 I=1,JJ                                                  MAIN..
 1202 PARM1(I)=PLOTC(I,8)                                             MAIN..
      CALL PPLOT(1,'FIGURE 5A.--RIVER PROFILE FOR TOTAL DO DEFICITS.  MAIN..
     &DEFICITS.','DO DEFICITS, IN MG/L            ',32,2.0,0.)        MAIN..
      IF(IMODEL.EQ.1)GOTO 1206                                        MAIN..
      DO 1204 I=1,JJ                                                  MAIN..
      PARM1(I)=PLOTC(I,23)                                            MAIN..
      PARM2(I)=PLOTC(I,24)                                            MAIN..
 1204 PARM3(I)=PLOTC(I,8)                                             MAIN..
      CALL PPLOT(5,'FIGURE 5B.--RIVER PROFILE FOR DISSOLVED-OXYGEN DEFIC MAIN..
     &ITS.     ','DO DEFICITS, IN MG/L            ',32,.1,0.)         MAIN..
      GOTO 1208                                                       MAIN..
 1206 DO 1207 I=1,JJ                                                  MAIN..
      PARM1(I)=PLOTC(I,23)                                            MAIN..
      PARM2(I)=PLOTC(I,26)                                            MAIN..
      PARM3(I)=PLOTC(I,25)                                            MAIN..
 1207 CONTINUE                                                        MAIN..
      CALL PPLOT(6,'FIGURE 5B.--RIVER PROFILE FOR DISSOLVED-OXYGEN DEFIC MAIN..
     &ITS.     ','DO DEFICITS, IN MG/L            ',32,.1,0.)         MAIN..
 1208 DO 1209 I=1,JJ                                                  MAIN..
      PARM1(I)=PLOTC(I,29)                                            MAIN..
      PARM2(I)=PLOTC(I,28)                                            MAIN..
      PARM3(I)=-1.*PLOTC(I,27)                                        MAIN..
      PARM4(I)=-1.*PLOTC(I,22)                                        MAIN..
 1209 CONTINUE                                                        MAIN..
      CALL PPLOT(7,'FIGURE 5C.--RIVER PROFILE FOR DISSOLVED-OXYGEN DEFIC MAIN..
     &ITS.     ','DO DEFICITS, IN MG/L            ',32,.1,0.)         MAIN..
C ***** CBOD                                                          MAIN..
 1210 DO 1220 I=1,JJ                                                  MAIN..
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      PARM1(I)=PLOTC(I,9)                                                MAIN..
 1220 CONTINUE                                                           MAIN..
      DO 1230 I=1,MPT                                                    MAIN..
      OBSV1(I)=OBSC(I,9)                                                 MAIN..
 1230 CONTINUE                                                           MAIN..
      IF(IPLOT.EQ.4) GOTO 1490                                           MAIN..
      CALL PPLOT(2,'FIGURE 6.--RIVER PROFILE FOR CBODU.                  MAIN..
     &         ','CBOD ULTIMATE, IN MG/L          ',32,10.,0.)           MAIN..
      IF(IPLOT.EQ.2) GOTO 1490                                           MAIN..
1235  IF (IMODEL.EQ.1) GO TO 1260                                        MAIN..
C ***** NBOD                                                             MAIN..
 1260 CONTINUE                                                           MAIN..
C ***** N CYCLE                                                          MAIN..
      DO 1340 K=11,15                                                    MAIN..
      DO 1270 I=1,JJ                                                     MAIN..
      PARM1(I)=PLOTC(I,K)                                                MAIN..
 1270 CONTINUE                                                           MAIN..
      DO 1280 I=1,MPT                                                    MAIN..
      OBSV1(I)=OBSC(I,K)                                                 MAIN..
 1280 CONTINUE                                                           MAIN..
      L=K-10                                                             MAIN..
      GO TO (1290,1300,1310,1320,1330),L                                 MAIN..
 1290 CALL PPLOT(2,'FIGURE 8.--RIVER PROFILE FOR ORGANIC NITROGEN.       MAIN..
     &         ','ORGANIC NITROGEN, IN MG/L       ',32,2.,0.)            MAIN..
      GO TO 1340                                                         MAIN..
 1300 CALL PPLOT(2,'FIGURE 9.--RIVER PROFILE FOR AMMONIA NITROGEN.       MAIN..
     &         ','AMMONIA NITROGEN, IN MG/L       ',32,2.,0.)            MAIN..
      GO TO 1340                                                         MAIN..
 1310 CALL PPLOT(2,'FIGURE 10.--RIVER PROFILE FOR NITRITE NITROGEN.      MAIN..
     &         ','NITRITE NITROGEN, IN MG/L       ',32,2.,0.)            MAIN..
      GO TO 1340                                                         MAIN..
 1320 CALL PPLOT(2,'FIGURE 11.--RIVER PROFILE FOR NITRATE NITROGEN.      MAIN..
     &         ','NITRATE NITROGEN, IN MG/L       ',32,2.,0.)            MAIN..
      GO TO 1340                                                         MAIN..
 1330 CALL PPLOT(2,'FIGURE 12.--RIVER PROFILE FOR TOTAL NITROGEN.        MAIN..
     &         ','TOTAL NITROGEN, IN MG/L         ',32,5.,0.)            MAIN..
C ***** UN-IONIZED NH3                                                   MAIN..
      DO 1342 I=1,JJ                                                     MAIN..
 1342 PARM1(I)=UNH3(I)                                                   MAIN..
      DO 1344 I=1,MPT                                                    MAIN..
 1344 OBSV1(I)=OBUNH3(I)                                                 MAIN..
      CALL PPLOT(1,'FIGURE 9B.--RIVER PROFILE FOR UN-IONIZED AMMONIA NIT MAIN..
     &ROGEN.   ','UN|IONIZED AMMONIA|N, IN MG/L   ',32,5.,0.)            MAIN..
      IF(IPLOT.EQ.3) GOTO 1490                                           MAIN..
 1340 CONTINUE                                                           MAIN..
      DO 1350 I=1,JJ                                                     MAIN..
 1350 PARM1(I)=PLOTC(I,16)                                               MAIN..
      DO 1355 I=1,MPT                                                    MAIN..
 1355 OBSV1(I)=OBSC(I,16)                                                MAIN..
      CALL PPLOT(2,'FIGURE 13.--RIVER PROFILE FOR ORTHOPHOSPHORUS-A.     MAIN..
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     &          ','ORTHOPHOSPHORUS|A, IN MG/L      ',32,2.,0.)          MAIN..
      IF(IPLOT.EQ.5) GOTO 1490                                          MAIN..
 1360 CONTINUE                                                          MAIN..
      IF(NNCONS.EQ.0) GOTO 1410                                         MAIN..
C ***** NONCONSERVATIVES                                                MAIN..
      NCEND=NNCONS+3                                                    MAIN..
      DO 1408 II=1,NNCONS                                               MAIN..
      L=19+II                                                           MAIN..
      K=II+3                                                            MAIN..
      DO 1366 I=1,JJ                                                    MAIN..
      PARM1(I)=PLOTC(I,L)                                               MAIN..
 1366 CONTINUE                                                          MAIN..
      DO 1370 I=1,MPT                                                   MAIN..
      OBSV1(I)=OBSC(I,L)                                                MAIN..
 1370 CONTINUE                                                          MAIN..
      GO TO (1375,1380),II                                              MAIN..
 1375 CALL PPLOT(2,'FIGURE 14A.--RIVER PROFILE FOR ORTHOPHOSPHORUS-B.   MAIN..
     &          ','ORTHOPHOSPHORUS|B, IN MG/L      ',32,2.,0.)          MAIN..
      GO TO 1408                                                        MAIN..
 1380 CALL PPLOT(2,'FIGURE 14B.--RIVER PROFILE FOR TOTAL PHOSPHORUS     MAIN..
     &          ','TOTAL PHOSPHORUS, IN MG/L       ',32,2.,0.)          MAIN..
 1408 CONTINUE                                                          MAIN..
      IF(IPLOT.EQ.7.OR.IPLOT.EQ.88) GOTO 1490                           MAIN..
 1410 DO 1420 I=1,JJ                                                    MAIN..
      PARM1(I)=PLOTC(I,30)                                              MAIN..
 1420 CONTINUE                                                          MAIN..
      CALL PPLOT(1,'FIGURE 16.--RIVER PROFILE FOR REAERATION RATE (K2). MAIN..
     &          ','REAERATION RATE, PER DAY, BASE E',32,50.,0.)         MAIN..
C ***** CHANNEL GEOMETRY                                                MAIN..
      DO 1485 K=1,5                                                     MAIN..
      DO 1430 I=1,JJ                                                    MAIN..
      PARM1(I)=PGEOM(I,K)                                               MAIN..
 1430 CONTINUE                                                          MAIN..
      GO TO (1440,1450,1460,1470,1480),K                                MAIN..
 1440 CALL PPLOT(1,'FIGURE 17.--RIVER PROFILE FOR MEAN VELOCITY.        MAIN..
     &          ','VELOCITY, IN FT/SEC             ',32,5.,0.)          MAIN..
      GO TO 1485                                                        MAIN..
 1450 CALL PPLOT(1,'FIGURE 18.--RIVER PROFILE FOR CUMULATIVE TRAVELTIME MAIN..
     &.         ','TRAVELTIME, IN DAYS             ',32,15.,0.)         MAIN..
      GO TO 1485                                                        MAIN..
 1460 CALL PPLOT(1,'FIGURE 19.--RIVER PROFILE FOR MEAN CROSS-SECTIONAL A MAIN..
     &REA.      ','CROSS|SECTIONAL AREA, IN SQ FT  ',32,1000.,0.)       MAIN..
      GO TO 1485                                                        MAIN..
 1470 CALL PPLOT(1,'FIGURE 20.--RIVER PROFILE FOR MEAN CHANNEL DEPTH.   MAIN..
     &          ','DEPTH, IN FEET                  ',32,10.,0.)         MAIN..
      GO TO 1485                                                        MAIN..
 1480 CALL PPLOT(1,'FIGURE 21.--RIVER PROFILE FOR MEAN CHANNEL WIDTH.   MAIN..
     &          ','CHANNEL WIDTH, IN FEET          ',32,500.,0.)        MAIN..
 1485 CONTINUE                                                          MAIN..
 1490 CONTINUE                                                          MAIN..
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 1500 IF(ISWBAD.EQ.1)WRITE(PRINT,1510)                                   MAIN..
 1510 FORMAT(1H1,'ERROR HAS OCCURRED IN INPUT DATA,PROCESSING ENDED.')   MAIN..
C------------------------------------------------------------------------ MAIN..
C ***** TEST FOR END OF MAINSTEM CALCULATIONS                            MAIN..
      IF((IEND.EQ.0).AND.(ISWBAD.NE.1))GOTO 50                           MAIN..
C------------------------------------------------------------------------ MAIN..
      CLOSE (5)                                                          MAIN..
      CLOSE (6)                                                          MAIN..
      CLOSE (11)                                                         MAIN..
 1520 STOP                                                               MAIN..
      END                                                                MAIN..
C======================================================================== MAIN..
      SUBROUTINE ROUTE                                                   ROUTE.
C                                                                        ROUTE.
C ***** CONSOLIDATION OF SUBROUTINES CONSERV, NBOD, & NITRIF FROM        ROUTE.
C *****    ORIGINAL MODEL                                                ROUTE.
C ----------------------------------------------------------------------- COMMON
C ***** VARIABLES COMMON TO ONE OR MORE OF MAIN, READCD, ROUTE, NITRIF,  COMMON
C *****                                    SUBROUTINES                   COMMON
C ***** SCALARS:                                                         COMMON
C *****                                                                  COMMON
      COMMON /VALL/ BDN, BNT, CARD, DELNH4, DELNO2, DELTT, DXPNT, EA,     COMMON
     1 ER, ICDBUF, IEND, IGRAPH, ITYPE, ILIN, IMODEL, INITSW, IPLOT,     COMMON
     2 IPO4, IPRMIN, IPNET, IRET, ISW1, ISWBAD, ITAB1, ITAB2, ITEST,     COMMON
     3 ITFLAG, IXGEOM, J, JJ, JSEG, KPLOT, K2T, KCT, KCRT, KORNRT,       COMMON
     4 KORNFT, KNH4RT, KNH4FT, KNO2RT, KNO2FT, KNO3RT, KPO4BT, KNCR1T,   COMMON
     5 KNCR2T, LNCNTR, MPT, NCONSV, NNCONS, NSEG, PRINT, QTOT, TT,       COMMON
     6 TTSUM, XEND, XL, XSTRT, IRESP, DATE                               COMMON
C *****                                                                  COMMON
C ***** ARRAYS:                                                          COMMON
C *****                                                                  COMMON
      COMMON /ALL/ AA(50), AB(50), ATRIBC(50,21), ATRIBL(50,21), BN(50), COMMON
     1 BP(50), BSEG(50), CLONG(5,10), CSHORT(5,2), CUNIT(5,2), DA(50),   COMMON
     2 DB(50), DOSAT(50), ENDC(50,21), ENDL(50,21), GEOM(50,5),          COMMON
     3 GLINC(50,21), GLINL(50,21), IGEOM(50), IK2(50),K2(50),KC(50),     COMMON
     4 KCR(50), KORNR(50), KORNF(50), KNH4R(50), KNH4F(50), KNO2R(50),   COMMON
     5 KNO2F(50), KNO3R(50), KPO4B(50), KNCR1(50), KNCR2(50),            COMMON
     7 NDIV(50), OBSC(200,21), OBSMI(200), OBUNH3(200), PGEOM(6000,5),   COMMON
     8 PH(50), PLOTC(6000,30), PLOTL(6000,30), PNET(50), PRCOEF(50),     COMMON
     9 RESP(50), RLINC(50,21), RLINL(50,21), SCOND(50), SDESC(50,11),    COMMON
     & SFPM(50), SLOPE(50), SNAME(50,6), STARTC(21), STARTL(21),         COMMON
     & TCONC(21), TEMP(50), TITLE1(19), TITLE2(19), TLOAD(21),           COMMON
     & TRINC(50,21), TRINL(50,21), TA(50), TB(50), TTRIBC(50,21),        COMMON
     & TTRIBL(50,21), UNH3(6000), VA(50), VB(50), WA(50), WB(50),        COMMON
     & XDIST(6000), XLEN(50), XSEG(50), CTSVIG(50)                       COMMON
C----------------------------------------------------------------------- COMMON
      COMMON /PLOT/ PARM1(6000),PARM2(6000),PARM3(6000),PARM4(6000),     COMMON
     &PARM5(6000),OBSV1(200),IXPLOT,XAXIS(6000),XMAX,XMIN,XTITLE        COMMON
C------------------------------------------------------------------------ ROUTE.
C ***** RATE VARIABLES:                                                  ROUTE.
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      REAL K2T,KCT,KCRT,KORNRT,KORNFT,KNH4RT,KNH4FT,KNO2RT,KNO2FT,         ROUTE.
     & KNO3RT,KPO4BT,KNCR1T,KNCR2T,K2TRM                                   ROUTE.
C *****                                                                    ROUTE.
C ***** RATE ARRAYS:                                                       ROUTE.
C *****                                                                    ROUTE.
      REAL K2,KCR,KC,KNR,KN,KORNR,KORNF,KNH4R,KNH4F,KNO2R,KNO2F,KNO3R,     ROUTE.
     & KPO4B,KNCR1,KNCR2                                                   ROUTE.
C------------------------------------------------------------------------- ROUTE.
      INTEGER CARD,PRINT                                                   ROUTE.
      CHARACTER*16 DATE                                                    ROUTE.
      REAL NTRM                                                            ROUTE.
      DIMENSION OUT(133)                                                   ROUTE.
C------------------------------------------------------------------------  ROUTE.
C ***** SET OUTPUT FLAG=1 IF USING MORE THAN MINIMUM OPTIONS               ROUTE.
      OFLAG=0                                                              ROUTE.
      TTSUM=0.                                                             ROUTE.
      TSUM=0.                                                              ROUTE.
      TT=0.                                                                ROUTE.
      DD=0.                                                                ROUTE.
      K2TRM=0.                                                             ROUTE.
      PTRM=0.                                                              ROUTE.
      CTRM=0.                                                              ROUTE.
      BNTRM=0.                                                             ROUTE.
      RTRM=0.                                                              ROUTE.
      NTRM=0.                                                              ROUTE.
      TRMNO2=0.                                                            ROUTE.
      TRMNO3=0.                                                            ROUTE.
      DELNO2=0.                                                            ROUTE.
      DELNH4=0.                                                            ROUTE.
      IF ((IPO4.NE.1).OR.(NCONSV.NE.0).OR.(NNCONS.NE.0))OFLAG=1            ROUTE.
C------------------------------------------------------------------------  ROUTE..
C ***** PRINT INITIAL HEADINGS TABLE 8                                     ROUTE.
C------------------------------------------------------------------------  ROUTE.
      IF((ITAB2.EQ.2).OR.(ITAB2.GT.6)) GOTO 60                             ROUTE.
      WRITE (PRINT,10) TITLE1,DATE,TITLE2                                  ROUTE.
   10 FORMAT (1H1,16X,'U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION'  MAIN..
     &,':',2X,'TRUCKEE RIVER WATER-QUALITY MODEL',15X,'[REV 87.9]',        MAIN..
     & /1X,130('-'),/4X,/20X,19A4,10X,A16,/20X,19A4)                       MAIN..
      WRITE (PRINT,11)                                                     ROUTE.
   11 FORMAT(/30X,'TABLE 8.--RESULTS OF COMPUTATIONS.  ',                  ROUTE.
     &'(RESULTS IN MG/L UNLESS OTHERWISE STATED.)',/30X,                   ROUTE.
     &78('-'),/)                                                           ROUTE.
      IF(IMODEL.EQ.1)WRITE(PRINT,40)                                       ROUTE.
   40 FORMAT(36X,'DISSOLVED-OXYGEN DEFICIT FACTORS',30X,'FINAL CONCENT',  ROUTE.
     &'RATIONS'/27X,62('-'),9X,35('-')/2X,'RIVER  DISCHARGE  DAYS  INI',   ROUTE.
     *'TIAL REAER-   CBOD   NH4-   NO2- PHOTO-   RES-   BEN-  TOTAL',4X,   ROUTE.
     &'SAT.  FINAL    ',7X,'CBOD  NH4-N  NO2-N'/3X,'MILE',5X,'(CFS)  T',   ROUTE.
     &'RAVEL    DEF. ATION',11X,'NO2     NO3  SYNTH.   PIR.   THIC DEFI',  ROUTE.
     &'CIT',3X,'D.O.',3X,'D.O.',2X,'SAT'/1X,3(1X,7('=')),1X,               ROUTE.
     &9(1X,6('=')),1X,3(1X,6('=')),1X,3(1X,6('=')))                        ROUTE.
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      WRITE(PRINT,50) (SNAME(1,L),L=1,6),(SDESC(1,L),L=1,11)           ROUTE.
   50 FORMAT(/,6X,'SUBREACH 1:  ',6A4,'; ',11A4,/)                     ROUTE.
   55 FORMAT(1X)                                                       ROUTE.
      LNCNTR=14                                                        ROUTE.
      LPEND=0                                                          ROUTE.
C--------------------------------------------------------------------- ROUTE.
C ***** SET INITIAL CONDITIONS                                         ROUTE.
   60 XL=XSTRT                                                         ROUTE.
      TT=0.0                                                           ROUTE.
      JJ=1                                                             ROUTE.
      X=XL                                                             ROUTE.
C IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII ROUTE.
C MAIN LOOP FOR SUBREACH CALCULATIONS                                I ROUTE.
C                                                                    I ROUTE.
      DO 510 J=1,NSEG                                                I ROUTE.
      ISW1=0                                                         I ROUTE.
      ENDRCH=DXPNT                                                   I ROUTE.
      DELQR=0.0                                                      I ROUTE.
      DELQG=0.0                                                      I ROUTE.
      IFLAG=0                                                        I ROUTE.
C------------------------------------------------------------------  I ROUTE.
C ***** MASS-BALANCE FOR FIRST SEGMENT IN SUBREACH                   I ROUTE.
C ***** COMPUTE MASS BALANCE BY LOADS, COMPUTE DO DEFICITS AFTER MASS I ROUTE.
C *****     BALANCES BY (SUBREACH DOSAT- NEW DO CONCENTRATION)       I ROUTE.
C ***** DURING FOLLOWING COMPUTATIONS TCONC(I) & TLOAD (I) CONTAIN   I ROUTE.
C ***** NON-DECAYED MASS-BALANCED CONCENTATIONS AND LOADS            I ROUTE.
C *****                                                              I ROUTE.
   80 STARTC(2)=TEMP(J)                                              I ROUTE.
      STARTC(3)=BP(J)                                                I ROUTE.
      STARTC(4)=SCOND(J)                                             I ROUTE.
      STARTC(6)=DOSAT(J)                                             I ROUTE.
C ***** ADD DISCHARGES                                               I ROUTE.
      QTOT=STARTC(1)                                                 I ROUTE.
      QTOT=QTOT+TRINC(J,1)+ATRIBC(J,1)                               I ROUTE.
C ***** MASS-BALANCE ALL INPUTS AT START OF SUBREACH                 I ROUTE.
C ***** DO                                                           I ROUTE.
      IF(TRINC(J,1).LT.0.)TRINL(J,5)=STARTC(5)*TRINC(J,1)*5.3938     I ROUTE.
      STARTL(5)=(STARTL(5)+TRINL(J,5)+ATRIBL(J,5))                   I ROUTE.
      STARTC(5)=(STARTL(5)/(QTOT*5.3938))                            I ROUTE.
C ***** COMPUTE DO DEFICIT CONC. AND LOAD USING SUBREACH DOSAT       I ROUTE.
      STARTC(8)=DOSAT(J)-STARTC(5)                                   I ROUTE.
      STARTL(8)=STARTC(8)*QTOT*5.3938                                I ROUTE.
      DO 90 I=9,21                                                   I ROUTE.
      IF(TRINC(J,1).LT.0.)TRINL(J,I)=STARTC(I)*TRINC(J,1)*5.3938     I ROUTE.
      STARTL(I)=STARTL(I)+TRINL(J,I)+ATRIBL(J,I)                     I ROUTE.
      STARTC(I)=STARTL(I)/(QTOT*5.3938)                              I ROUTE.
   90 CONTINUE                                                       I ROUTE.
C ***** IF RETURN CONCENTRATIONS <0, CALCULATE FROM PRIOR DIVERSIONS I ROUTE.
      IF(RLINC(J,1).EQ.0.) GOTO 97                                   I ROUTE.
      IF(RLINC(J,1).LT.0.) GOTO 94                                   I ROUTE.
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      ISUB=NDIV(J)                                                    I ROUTE.
      IF(ISUB.EQ.0) GOTO 92                                           I ROUTE.
C ***** CALCULATE RETURN CONCENTRATIONS FROM UPSTEAM DIVERSION         I ROUTE.
      DO 91 K=2,21                                                    I ROUTE.
      IF(RLINC(J,K).GE.0.) GOTO 91                                    I ROUTE.
      RLINC(J,K)=RLINC(J,K)*ENDC(ISUB,K)*(-1.)                        I ROUTE.
      RLINL(J,K)=RLINC(J,K)*RLINC(J,1)*5.3938                         I ROUTE.
   91 CONTINUE                                                        I ROUTE.
      GOTO 96                                                         I ROUTE.
C ***** CALCULATE CONCENTRATIONS FROM DIVERSIONS IN THIS SUBREACH      I ROUTE.
   92 DO 93 K=2,21                                                    I ROUTE.
      IF(RLINC(J,K).GE.0.) GOTO 93                                    I ROUTE.
      RLINC(J,K)=RLINC(J,K)*STARTC(K)*(-1.)                           I ROUTE.
      RLINL(J,K)=RLINC(J,K)*RLINC(J,1)*5.3938                         I ROUTE.
   93 CONTINUE                                                        I ROUTE.
      GOTO 96                                                         I ROUTE.
C ***** NEGATIVE FLOWS                                                I ROUTE.
   94 DO 95 K=2,21                                                    I ROUTE.
      RLINC(J,K)=STARTC(K)                                            I ROUTE.
      RLINL(J,K)=RLINC(J,1)*RLINC(J,K)*5.3938                         I ROUTE.
   95 CONTINUE                                                        I ROUTE.
   96 CONTINUE                                                        I ROUTE.
C ***** CALCULATE DOSAT AND RETURN DEFICIT IF NOT PREVIOUSLY DONE      I ROUTE.
      IF(RLINC(J,6).GT.0.) GOTO 97                                    I ROUTE.
      CALL DOSATR(RLINC(J,2),BP(J),RLINC(J,4),RLINC(J,6))             I ROUTE.
      RLINC(J,7)=((RLINC(J,5)/DOSAT(J))*100.)                         I ROUTE.
      RLINC(J,8)=RLINC(J,6)-RLINC(J,5)                                I ROUTE.
      RLINL(J,8)=RLINC(J,8)*RLINC(J,1)*5.3938                         I ROUTE.
   97 CONTINUE                                                        I ROUTE.
C ***** NEGATIVE GROUND-WATER RETURNS                                 I ROUTE.
      IF(GLINC(J,1).GE.0.) GOTO 99                                    I ROUTE.
      DO 98 K=2,21                                                    I ROUTE.
      GLINC(J,K)=STARTC(K)                                            I ROUTE.
   98 GLINL(J,K)=GLINC(J,1)*GLINC(J,K)*5.3938                         I ROUTE.
   99 CONTINUE                                                        I ROUTE.
C ***** TEST FOR FIRST PASS                                           I ROUTE.
      IF(ISW1.EQ.0)GOTO 140                                           I ROUTE.
C ***** COMPUTE LINEAR RUNOFF INCREMENTS                              I ROUTE.
C ////////////////////////////////////////////////////////////////////* I ROUTE.
C ***** RE-ENTRY POINT FOR SEGMENT CALCULATIONS WITHIN A SUBREACH    /* I ROUTE.
C                                                                    /* I ROUTE.
  100 CONTINUE                                                       /* I ROUTE.
C ***** CALCULATION LOOP FOR DXPNT INCREMENTS WITHIN SUBREACHES      /* I ROUTE.
C ***** CALCULATE DELTA Q TO ADD TO EACH INCREMENT                   /* I ROUTE.
      IF(ILIN.EQ.0) GOTO 140                                         /* I ROUTE.
      IF((RLINC(J,1).EQ.0.).AND.(GLINC(J,1).EQ.0.)) GOTO 140         /* I ROUTE.
      DELTLF=ENDRCH/XLEN(J)                                          /* I ROUTE.
C ***** MASS-BALANCE LINEAR RUNOFF INPUTS                            /* I ROUTE.
C *****    MASS-BALANCE DO, THEN CALCULATE SUBREACH DEFICIT          /* I ROUTE.
      IF((ILIN.EQ.1).OR.(ILIN.EQ.3)) DELQR=RLINC(J,1)*DELTLF         /* I ROUTE.
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      IF(ILIN.GE.2) DELQG=GLINC(J,1)*DELTLF                            /* I ROUTE.
C ***** PRO-RATE TOTAL SUBREACH INFLOW TO DXPNT                         /* I ROUTE.
      QTOT=QTOT + DELQR + DELQG                                        /* I ROUTE.
      IF(DELQR.GT.0.) STARTL(5)=STARTL(5)+RLINL(J,5)*DELTLF            /* I ROUTE.
      IF(DELQR.LT.0) STARTL(5)=STARTL(5)+STARTC(5)*DELQR*5.3938        /* I ROUTE.
      IF(DELQG.GT.0.)STARTL(5)=STARTL(5)+GLINL(J,5)*DELTLF             /* I ROUTE.
      IF(DELQG.GT.0.)STARTL(5)=STARTL(5)+STARTC(5)*DELQG*5.3938        /* I ROUTE.
      STARTC(5)=STARTL(5)/(QTOT*5.3938)                                /* I ROUTE.
      DO 130 I=9,21                                                    /* I ROUTE.
      IF(DELQR.GT.0.) STARTL(I)=STARTL(I)+RLINL(J,I)*DELTLF            /* I ROUTE.
      IF(DELQG.GT.0.) STARTL(I)=STARTL(I)+GLINL(J,I)*DELTLF            /* I ROUTE.
      IF(DELQR.LT.0.)STARTL(I)=STARTL(I)+STARTC(I)*DELQR*5.3938        /* I ROUTE.
      IF(DELQG.LT.0.)STARTL(I)=STARTL(I)+STARTC(I)*DELQG*5.3938        /* I ROUTE.
      STARTC(I)=STARTL(I)/(QTOT*5.3938)                                /* I ROUTE.
  130 CONTINUE                                                         /* I ROUTE.
      STARTC(8)=DOSAT(J)-STARTC(5)                                     /* I ROUTE.
      STARTL(8)=STARTC(8)*QTOT*5.3938                                  /* I ROUTE.
  140 CONTINUE                                                         /* I ROUTE.
C ***** CHANNEL GEOMETRY FOR CALCULATION INTERVAL                      /* I ROUTE.
C ***** DEFAULT IS SEGMENT AVERAGE VALUES                              /* I ROUTE.
      DO 154 I=1,5                                                     /* I ROUTE.
  154 PGEOM(JJ,I)=GEOM(J,I)                                            /* I ROUTE.
      K2T=K2(J)                                                        /* I ROUTE.
      IF(ISW1.EQ.0)GOTO 260                                            /* I ROUTE.
      DELTT=DXPNT/(PGEOM(JJ,1)*16.3636)                                /* I ROUTE.
C-------------------------------------------------------------------   /* I ROUTE.
C ***** ADJUST TRAVELTIME FOR SHORT DISTANCE AT END OF SUBREACH        /* I ROUTE.
      IF(IFLAG.GE.1)DELTT=DELTT*(ENDRCH/DXPNT)                         /* I ROUTE.
C-------------------------------------------------------------------   /* I ROUTE.
C     INCREMENT TRAVELTIME FOR SUBREACH                                /* I ROUTE.
      TT=TT+DELTT                                                      /* I ROUTE.
C-------------------------------------------------------------------   /* I ROUTE.
C ***** LOAD TEMPORARY VARIABLES FOR DECAYED CONSTITUENTS              /* I ROUTE.
      DO 155 N=5,21                                                    /* I ROUTE.
      TCONC(N)=STARTC(N)                                               /* I ROUTE.
 155  TLOAD(N)=STARTL(N)                                               /* I ROUTE.
C ***** LOAD DECAY RATES                                               /* I ROUTE.
      KCT=KC(J)                                                        /* I ROUTE.
      KCRT=KCR(J)                                                      /* I ROUTE.
      KPO4BT=KPO4B(J)                                                  /* I ROUTE.
      BNT=BN(J)                                                        /* I ROUTE.
      KORNFT=KORNF(J)                                                  /* I ROUTE.
      KNH4FT=KNH4F(J)                                                  /* I ROUTE.
      KNO2FT=KNO2F(J)                                                  /* I ROUTE.
      KNO3RT=KNO3R(J)                                                  /* I ROUTE.
      KORNRT=KORNR(J)                                                  /* I ROUTE.
      KNH4RT=KNH4R(J)                                                  /* I ROUTE.
      KNO2RT=KNO2R(J)                                                  /* I ROUTE.
C ***** IF COEFFICIENTS EQUAL, INCREMENT BY SMALL AMOUNT               /* I ROUTE.
C *****                                                                /* I ROUTE.
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      IF(K2T.EQ.KCRT)K2T=K2T+.00001                                  /* I ROUTE.
      IF(K2T.EQ.0.) K2T=.00001                                       /* I ROUTE.
C------------------------------------------------------------        /* I ROUTE.
C ***** COMPUTE EXPONENTIALS                                         /* I ROUTE.
      ER=EXP(-KCRT*DELTT)                                            /* I ROUTE.
      EA=EXP(-K2T*DELTT)                                             /* I ROUTE.
      EP1=EXP(-KPO4BT*DELTT)                                         /* I ROUTE.
C ***** FIRST-ORDER DECAY SOLUTIONS                                  /* I ROUTE.
      STARTC(9)=TCONC(9)*ER                                          /* I ROUTE.
      STARTC(16)=TCONC(16)*EP1                                       /* I ROUTE.
      STARTC(20)=TCONC(20)*EXP(-KNCR1(J)*DELTT)                      /* I ROUTE.
      STARTC(21)=TCONC(21)*EXP(-KNCR2(J)*DELTT)                      /* I ROUTE.
C ***** NITRIFICATION CALCULATIONS                                   /* I ROUTE.
      CALL NITRIF                                                    /* I ROUTE.
  210 CONTINUE                                                       /* I ROUTE.
C--------------------------------------------------------------      /* I ROUTE.
C ***** SUM UP DO DEFICITS                                           /* I ROUTE.
      DD=TCONC(8)*EA                                                 /* I ROUTE.
      K2TRM=DD-TCONC(8)                                              /* I ROUTE.
      CTRM=TCONC(9)*KCT/(K2T-KCRT)*(ER-EA)                           /* I ROUTE.
      DD=DD+CTRM                                                     /* I ROUTE.
      BNTRM=BNT/(PGEOM(JJ,4)*0.3048)*(1.-EA)/K2T                     /* I ROUTE.
      DD=DD+BNTRM                                                    /* I ROUTE.
      PTRM=-PNET(J)*(1.-EA)/K2T                                      /* I ROUTE.
      DD=DD+PTRM                                                     /* I ROUTE.
      RTRM=RESP(J)*(1.-EA)/K2T                                       /* I ROUTE.
      DD=DD+RTRM                                                     /* I ROUTE.
C ***** COMPUTE DEFICITS DUE TO NBOD OR NITRIFICATION                /* I ROUTE.
C ***** COMPUTE DO LOSS TO NO2                                       /* I ROUTE.
      TRMNO2=3.43*DELNH4                                             /* I ROUTE.
C ***** COMPUTE DO LOSS TO NO3                                       /* I ROUTE.
      TRMNO3=1.14*DELNO2                                             /* I ROUTE.
      NTRM=TRMNO2+TRMNO3                                             /* I ROUTE.
C---------------------------------------------------------------     /* I ROUTE.
  240 CONTINUE                                                       /* I ROUTE.
      DD=DD+NTRM                                                     /* I ROUTE.
      STARTC(8)=DD                                                   /* I ROUTE.
      TTSUM=TSUM+TT                                                  /* I ROUTE.
      STARTC(5)=DOSAT(J)-DD                                          /* I ROUTE.
C---------------------------------------------------------------     /* I ROUTE.
C ***** CHECK FOR ANOXIC COMPUTATIONS                                /* I ROUTE.
      IF(STARTC(5).LE.0.01) STARTC(5)=0.0                            /* I ROUTE.
      IF(STARTC(5).LE.0.01) STARTC(8)=DOSAT(J)                       /* I ROUTE.
C---------------------------------------------------------------     /* I ROUTE.
  260 CONTINUE                                                       /* I ROUTE.
      ISW1=1                                                         /* I ROUTE.
C ***** FINAL COMPUTATIONS                                           /* I ROUTE.
      XDIST(JJ)=XL                                                   /* I ROUTE.
C---------------------------------------------------------------     /* I ROUTE.
C ***** SAVE SUBREACH NUMBER FOR OUTPUT                              /* I ROUTE.
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C ***** SAVE RESULTS FOR NEXT NODE CALCULATION LOOP AND OUTPUT      /* I ROUTE.
      PGEOM(JJ,2)=TSUM+TT                                           /* I ROUTE.
      PLOTC(JJ,1)=QTOT                                              /* I ROUTE.
      STARTC(1)=QTOT                                                /* I ROUTE.
      STARTC(15)=STARTC(11)+STARTC(12)+STARTC(13)+STARTC(14)        /* I ROUTE.
C ***** CALCULATE
      STARTC(7)=(STARTC(5)/DOSAT(J))*100.                           /* I ROUTE.
C ***** RELOAD ALL FINAL VALUES                                     /* I ROUTE.
      DO 270 I=2,21                                                 /* I ROUTE.
      PLOTC(JJ,I)=STARTC(I)                                         /* I ROUTE.
      STARTL(I)=STARTC(I)*QTOT*5.3938                               /* I ROUTE.
      PLOTL(JJ,I)=STARTL(I)                                         /* I ROUTE.
  270 CONTINUE                                                      /* I ROUTE.
      PLOTL(JJ,1)=J                                                 /* I ROUTE.
C ***** ESTIMATE UNIONIZED NH4 [THURSTON, RUSSO, & EMERSON, 1974]   /* I ROUTE.
C                                                                   /* I ROUTE.
      IF(PH(J).EQ.0.) GOTO 275                                      /* I ROUTE.
      PKA=0.09018 + 2729.92/(273.18+TEMP(J))                        /* I ROUTE.
      IF(PH(J).EQ.0.) GOTO 275                                      /* I ROUTE.
      FNH4=1./(10.**(PKA-PH(J))+1.)                                 /* I ROUTE.
      UNH3(JJ)=STARTC(12)*FNH4                                      /* I ROUTE.
  275 CONTINUE                                                      /* I ROUTE.
C *****                                                             /* I ROUTE.
C                                                                   /* I ROUTE.
C   CALCULATE DIS N/P RATIO (MOLES/MOLE)                            /* I ROUTE.
C *****                                                             /* I ROUTE.
      DIN=PLOTC(JJ,12)+PLOTC(JJ,13)+PLOTC(JJ,14)                    /* I ROUTE.
      DINOP=(DIN/14.007)/(PLOTC(JJ,20)/30.974)                      /* I ROUTE.
      PLOTC(JJ,19)=DINOP                                            /* I ROUTE.
C ***** SAVE TRMS FOR DO BALANCE                                    /* I ROUTE.
C ***** DO DEFICIT CONCENTRATIONS                                   /* I ROUTE.
      PLOTC(JJ,22)=K2TRM                                            /* I ROUTE.
      PLOTC(JJ,23)=CTRM                                             /* I ROUTE.
      PLOTC(JJ,24)=NTRM                                             /* I ROUTE.
      PLOTC(JJ,25)=TRMNO2                                           /* I ROUTE.
      PLOTC(JJ,26)=TRMNO3                                           /* I ROUTE.
      PLOTC(JJ,27)=PTRM                                             /* I ROUTE.
      PLOTC(JJ,28)=RTRM                                             /* I ROUTE.
      PLOTC(JJ,29)=BNTRM                                            /* I ROUTE.
      PLOTC(JJ,30)=K2T                                              /* I ROUTE.
C ***** DO DEFICIT TERMS                                            /* I ROUTE.
      DO 280 I=22,29                                                /* I ROUTE.
      PLOTL(JJ,I)=PLOTC(JJ,I)*QTOT*5.3938                           /* I ROUTE.
  280 CONTINUE                                                      /* I ROUTE.
C-------------------------------------------------------------      /* I ROUTE.
C ***** PRINT RESULTS                                               /* I ROUTE.
      IF ((ITAB2.EQ.2).OR.(ITAB2.GT.6)) GOTO 490                    /* I ROUTE.
C-------------------------------------------------------------      /* I ROUTE.
C ***** PRINT N-CYCLE RESULTS:  TABLE 8                             /* I ROUTE.
C-------------------------------------------------------------      /* I ROUTE.
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  300 CONTINUE                                                         /* I ROUTE.
      IF(LNCNTR.LE.60) GOTO 305                                        /* I ROUTE.
      WRITE(PRINT,10) TITLE1,DATE,TITLE2                               /* I ROUTE.
      WRITE(PRINT,11)                                                  /* I ROUTE.
      WRITE(PRINT,40)                                                  /* I ROUTE.
      LNCNTR=12                                                        /* I ROUTE.
      LPEND=0                                                          /* I ROUTE.
  305 IF(ITAB2.LE.1) GOTO 306                                          /* I ROUTE.
      IF(IFLAG.EQ.0) GOTO 311                                          /* I ROUTE.
  306 WRITE(PRINT,310) XDIST(JJ),PLOTC(JJ,1),PGEOM(JJ,2),TCONC(8),     /* I ROUTE.
     &(PLOTC(JJ,K),K=22,23),(PLOTC(JJ,K),K=25,29),PLOTC(JJ,8),         /* I ROUTE.
     &PLOTC(JJ,6),PLOTC(JJ,5),PLOTC(JJ,7),PLOTC(JJ,9),                 /* I ROUTE.
     &(PLOTC(JJ,K),K=12,13)                                            /* I ROUTE.
  310 FORMAT(1X,F8.2,F8.1,F8.2,1X,9F7.3,1X,2F7.2,2X,F5.1,1X,3F7.2)     /* I ROUTE.
      LNCNTR=LNCNTR+1                                                  /* I ROUTE.
  311 CONTINUE                                                         /* I ROUTE.
      IF(IFLAG.EQ.0)GOTO 490                                           /* I ROUTE.
C ***** N-CYCLE END-OF-SUBREACH                                        /* I ROUTE.
      IF (ITAB2.LE.1) WRITE (PRINT,467)                                /* I ROUTE.
  467 FORMAT(1X,132('-'))                                              /* I ROUTE.
  420 WRITE (PRINT,430) (PLOTL(JJ,K),K=22,23),(PLOTL(JJ,K),K=25,29),   /* I ROUTE.
     & PLOTL(JJ,8),PLOTL(JJ,6),PLOTL(JJ,5),PLOTL(JJ,9),                /* I ROUTE.
     & (PLOTL(JJ,K),K=12,13)                                           /* I ROUTE.
  430 FORMAT(3X,'ENDING LOADS (LB/DAY):',8X,8(F7.0),1X,                /* I ROUTE.
     &2(F7.0),8X,3(F7.0))                                              /* I ROUTE.
      IF (IFLAG.EQ.2) GOTO 490                                         /* I ROUTE.
      IF(LNCNTR.LE.60)GOTO 431                                         /* I ROUTE.
      WRITE(PRINT,10) TITLE1,DATE,TITLE2                               /* I ROUTE.
      WRITE(PRINT,11)                                                  /* I ROUTE.
      WRITE(PRINT,40)                                                  /* I ROUTE.
      LNCNTR=12                                                        /* I ROUTE.
  431 JI=J+1                                                           /* I ROUTE.
      WRITE(PRINT,432)JI,(SNAME(JI,L),L=1,6),(SDESC(JI,L)              /* I ROUTE.
     &,L=1,11)                                                         /* I ROUTE.
  432 FORMAT(/,6X,'SUBREACH ',I2,':  ',6A4,';',11A4/)                  /* I ROUTE.
      LNCNTR=LNCNTR+5                                                  /* I ROUTE.
C-----------------------------------------------------------------     /* I ROUTE.
  490 CONTINUE                                                         /* I ROUTE.
C-----------------------------------------------------------------     /* I ROUTE.
C ***** INCREMENT CALCULATION INCREMENTS AND LOOP                      /* I ROUTE.
      IF(IFLAG.NE.2) JJ=JJ+1                                           /* I ROUTE.
C ***** TEST FOR END OF SUBREACH                                       /* I ROUTE.
      IF (IFLAG.NE.0) GO TO 500                                        /* I ROUTE.
      X=X-ABS(DXPNT)                                                   /* I ROUTE.
      XL=XL-DXPNT                                                      /* I ROUTE.
      XTEMP=XSEG(J)-XL                                                 /* I ROUTE.
C ***** TEST FOR SMALL INCREMENT AT END OF SUBREACH                    /* I ROUTE.
      ENDRCH=DXPNT-XTEMP                                               /* I ROUTE.
      IF(ENDRCH.GT.(DXPNT+.01))ENDRCH=DXPNT                            /* I ROUTE.
      IF (XTEMP.GE.-.01) XTEMP=0.0                                     /* I ROUTE.
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C ***** SET UP DISTANCE FOR NEXT NODE                                    /* I ROUTE.
      XTEMP=XTEMP*DXPNT/ABS(DXPNT)                                       /* I ROUTE.
      IF (XTEMP.LT.(0.0)) GO TO 100                                      /* I ROUTE.
C ***** SET END-OF-SUBREACH FLAG                                         /* I ROUTE.
      IFLAG=1                                                            /* I ROUTE.
      IF(J.EQ.NSEG)IFLAG=2                                               /* I ROUTE.
      X=XSEG(J)                                                          /* I ROUTE.
      XL=XSEG(J)                                                         /* I ROUTE.
C ***** LOOP FOR NEXT CALCULATION INCREMENT                              /* I ROUTE.
      GO TO 100                                                          /* I ROUTE.
C ////////////////////////////////////////////////////////////////////////* I ROUTE.
C ***** END OF CALCULATIONS FOR A SUBREACH                                  I ROUTE.
  500 IFLAG=0                                                               I ROUTE.
      XL=XSEG(J)                                                            I ROUTE.
      TSUM=TSUM+TT                                                          I ROUTE.
      TT=0.0                                                                I ROUTE.
C ***** SAVE END-OF-SUBREACH CONCENTRATIONS AND LOADS                       I ROUTE.
      DO 505 II=1,21                                                        I ROUTE.
      ENDC(J,II)=STARTC(II)                                                 I ROUTE.
  505 ENDL(J,II)=STARTL(II)                                                 I ROUTE.
  510 CONTINUE                                                              I ROUTE.
C ***** LOOP FOR NEXT SUBREACH                                              I ROUTE.
C IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII ROUTE.
      IF (JSEG.EQ.0) GO TO 522                                                ROUTE.
C ***** STORE RESULTS IF AT END OF MAJOR TRIBUTARY                            ROUTE.
      DO 520 I=1,21                                                           ROUTE.
      TTRIBC(JSEG,I)=STARTC(I)                                                ROUTE.
      TTRIBL(JSEG,I)=STARTL(I)                                                ROUTE.
  520 CONTINUE                                                                ROUTE.
  522 IF ((ITAB2.NE.1).AND.(ITAB2.NE.6).AND.(ITAB2.NE.9))GOTO 525             ROUTE.
      RETURN                                                                  ROUTE.
  525 CONTINUE                                                                ROUTE.
C ----------------------------------------------------------------------      ROUTE.
C ***** PRINT REMAINING OUTPUT TABLES (FULL AND SHORT TABLE 9)                ROUTE.
C-----------------------------------------------------------------------      ROUTE.
C ***** PRINT FULL TABLE 9                                                    ROUTE.
C ***** N-CYCLE                                                               ROUTE.
      IF(JSEG.EQ.0) WRITE (PRINT,10) TITLE1,DATE,TITLE2                       ROUTE.
      WRITE(PRINT,536)                                                        ROUTE.
  536 FORMAT(/30X,'TABLE 9.--RESULTS OF COMPUTATIONS ',                       ROUTE.
     &'FOR NITROGEN SPECIES AND OTHER CONSTITUENTS.',/30X,78('-'))            ROUTE.
      WRITE(PRINT,550) ((CSHORT(I,K),K=1,2),I=4,5),((CSHORT(I,K),K=1,2),      ROUTE.
     &I=1,3),((CUNIT(I,L),L=1,2),I=4,5),((CUNIT(I,L),L=1,2),I=1,3)            ROUTE.
  550 FORMAT(/33X,'NITROGEN CYCLE',15X,'UN-ION-',9X,'NONCONSERVATIVES',       ROUTE.
     &8X,'CONSERVATIVES',/27X,34('-'),2X,'IZED',11X,18('-'),2X,18('-'),       ROUTE.
     &/2X,'RIVER',2X,'DISCHARGE',                                             ROUTE.
     &2X,'DAYS',3X,'ORG-N',2X,'NH4-N',2X,'NO2-N',2X,'NO3-N',2X,               ROUTE.
     &'TOT-N',2X,'NH3-N',2X,'O-P-A',2X,5(2X,2A4),/2X,'MILE',6X,'(CFS)',       ROUTE.
     &2X,'TRAVEL',                                                            ROUTE.
     &2X,7('(MG/L)',1X),5(2X,2A4),/1X,7('='),2X,8('='),2X,8(6('='),           ROUTE.
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     &1X),5(2X,8('-')))                                               ROUTE.
      LNCNTR=12                                                       ROUTE.
      LPEND=0                                                         ROUTE.
C ***** FIND SUBREACH NUMBER AND WRITE SUBREACH HEADERS               ROUTE.
      JOLD=0                                                          ROUTE.
      DO 570 I=1,JJ                                                   ROUTE.
      M=IFIX(PLOTL(I,1))                                              ROUTE.
      IF(M.EQ.JOLD) GOTO 555                                          ROUTE.
      WRITE(PRINT,432) M,(SNAME(M,L),L=1,6),                          ROUTE.
     &(SDESC(M,L),L=1,11)                                             ROUTE.
  555 JOLD=M                                                          ROUTE.
      IF ((ITAB2.EQ.0).OR.(ITAB2.EQ.2)) GOTO 558                      ROUTE.
      IF((I.NE.JJ).AND.(PLOTL((I+1),1).EQ.PLOTL(I,1))) GOTO 565       ROUTE.
  558 WRITE(PRINT,560)XDIST(I),PLOTC(I,1),PGEOM(I,2),(PLOTC(I,K),K=11,15 ROUTE.
     &),UNH3(I),PLOTC(I,16),(PLOTC(I,K),K=20,21),(PLOTC(I,K),K=17,19) ROUTE.
  560 FORMAT(1X,F7.2,1X,F9.2,6(2X,F5.2),2X,F5.3,2X,F5.2,2X,5F10.2)    ROUTE.
      LNCNTR=LNCNTR+1                                                 ROUTE.
      IF((I.NE.JJ).AND.(PLOTL((I+1),1).EQ.PLOTL(I,1))) GOTO 565       ROUTE.
      IF (ITAB2.LE.2) WRITE(PRINT,467)                                ROUTE.
      IF((I.EQ.JJ).OR.(PLOTL((I+1),1).NE.PLOTL(I,1)))  WRITE(PRINT,563)  ROUTE.
     &(PLOTL(I,K),K=11,15),PLOTL(I,16),(PLOTL(I,K),K=20,21),          ROUTE.
     &(PLOTL(I,K),K=17,19)                                            ROUTE.
  563 FORMAT(3X,'ENDING LOADS (LB/DAY):',5F7.0,7X,F7.0,2X,5F10.0)     ROUTE.
      LNCNTR=LNCNTR+5                                                 ROUTE.
  565 IF(LNCNTR.GE.60) LPEND=1                                        ROUTE.
      IF(LPEND.EQ.0) GOTO 570                                         ROUTE.
      IF(I.EQ.JJ) GOTO 570                                            ROUTE.
      WRITE(PRINT,10) TITLE1,DATE,TITLE2                              ROUTE.
      WRITE(PRINT,536)                                                ROUTE.
      WRITE(PRINT,550) ((CSHORT(L,K),K=1,2),L=4,5),((CSHORT(L,K),K=1,2), ROUTE.
     &L=1,3),((CUNIT(L,K),K=1,2),L=4,5),((CUNIT(L,K),K=1,2),L=1,3)    ROUTE.
      LNCNTR=12                                                       ROUTE.
      LPEND=0                                                         ROUTE.
  570 CONTINUE                                                        ROUTE.
  700 RETURN                                                          ROUTE.
C-------------------------------------------------------------------- ROUTE.
C *****                                                              ROUTE.
      END                                                             ROUTE.
C ==================================================================== NITRIF
      SUBROUTINE NITRIF                                               NITRIF
C                                                                     NITRIF
C ***** SUBROUTINE TO PERFORM CALCULATIONS FOR DECAY OF INDIVIDUAL    NITRIF
C *****         NITROGEN SPECIES                                      NITRIF
C ------------------------------------------------------------------- COMMON
C ***** VARIABLES COMMON TO ONE OR MORE OF MAIN, READCD, ROUTE, NITRIF, COMMON
C *****                                     SUBROUTINES               COMMON
C ***** SCALARS:                                                      COMMON
C *****                                                               COMMON
      COMMON /VALL/ BDN, BNT, CARD, DELNH4, DELNO2, DELTT, DXPNT, EA,  COMMON
     1 ER, ICDBUF, IEND, IGRAPH, ITYPE, ILIN, IMODEL, INITSW, IPLOT,  COMMON
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     2 IPO4, IPRMIN, IPNET, IRET, ISW1, ISWBAD, ITAB1, ITAB2, ITEST,      COMMON
     3 ITFLAG, IXGEOM, J, JJ, JSEG, KPLOT, K2T, KCT, KCRT, KORNRT,        COMMON
     4 KORNFT, KNH4RT, KNH4FT, KNO2RT, KNO2FT, KNO3RT, KPO4BT, KNCR1T,    COMMON
     5 KNCR2T, LNCNTR, MPT, NCONSV, NNCONS, NSEG, PRINT, QTOT, TT,        COMMON
     6 TTSUM, XEND, XL, XSTRT, IRESP, DATE                                COMMON
C *****                                                                  COMMON
C ***** ARRAYS:                                                          COMMON
C *****                                                                  COMMON
      COMMON /ALL/ AA(50), AB(50), ATRIBC(50,21), ATRIBL(50,21), BN(50),  COMMON
     1 BP(50), BSEG(50), CLONG(5,10), CSHORT(5,2), CUNIT(5,2), DA(50),    COMMON
     2 DB(50), DOSAT(50), ENDC(50,21), ENDL(50,21), GEOM(50,5),           COMMON
     3 GLINC(50,21), GLINL(50,21), IGEOM(50), IK2(50),K2(50),KC(50),      COMMON
     4 KCR(50), KORNR(50), KORNF(50), KNH4R(50), KNH4F(50), KNO2R(50),    COMMON
     5 KNO2F(50), KNO3R(50), KPO4B(50), KNCR1(50), KNCR2(50),             COMMON
     7 NDIV(50), OBSC(200,21), OBSMI(200), OBUNH3(200), PGEOM(6000,5),    COMMON
     8 PH(50), PLOTC(6000,30), PLOTL(6000,30), PNET(50), PRCOEF(50),      COMMON
     9 RESP(50), RLINC(50,21), RLINL(50,21), SCOND(50), SDESC(50,11),     COMMON
     & SFPM(50), SLOPE(50), SNAME(50,6), STARTC(21), STARTL(21),          COMMON
     & TCONC(21), TEMP(50), TITLE1(19), TITLE2(19), TLOAD(21),            COMMON
     & TRINC(50,21), TRINL(50,21), TA(50), TB(50), TTRIBC(50,21),         COMMON
     & TTRIBL(50,21), UNH3(6000), VA(50), VB(50), WA(50), WB(50),         COMMON
     & XDIST(6000), XLEN(50), XSEG(50), CTSVIG(50)                        COMMON
C-----------------------------------------------------------------        COMMON
      COMMON /PLOT/ PARM1(6000),PARM2(6000),PARM3(6000),PARM4(6000),      COMMON
     &PARM5(6000),OBSV1(200),IXPLOT,XAXIS(6000),XMAX,XMIN,XTITLE          COMMON
C ------------------------------------------------------------------      COMMON
C ***** RATE VARIABLES:                                                  NITRIF
      REAL K2T,KCT,KCRT,KORNRT,KORNFT,KNH4RT,KNH4FT,KNO2RT,KNO2FT,        NITRIF
     & KNO3RT,KPO4BT,KNCR1T,KNCR2T,K2TRM                                  NITRIF
C *****                                                                  NITRIF
C ***** RATE ARRAYS:                                                     NITRIF
C *****                                                                  NITRIF
      REAL K2,KCR,KC,KNR,KN,KORNR,KORNF,KNH4R,KNH4F,KNO2R,KNO2F,KNO3R,    NITRIF
     & KPO4B,KNCR1,KNCR2                                                  NITRIF
C-------------------------------------------------------------------      NITRIF
      REAL NTRM                                                           NITRIF
      REAL K2MK1,K3MK1,K3MK2,K4MK1,K4MK2,K4MK3,KAMK1,KAMK2,KAMK3,K1KA,K2  NITRIF
     1KA,K3KA                                                             NITRIF
      INTEGER CARD,PRINT                                                  NITRIF
      CHARACTER*16 DATE                                                   NITRIF
C *****                                                                  NITRIF
      DATA END/1HE/                                                       NITRIF
C *****                                                                  NITRIF
C     NITRIFICATION CALCULATIONS    REPROGRAMMED   JAN 26,1979            NITRIF
C     N1= STARTC(11)       N10= TCONC(11)       K11= KORNRT    K12= KORNFT  NITRIF
C     N2= STARTC(12)       N20= TCONC(12)       K22= KNH4RT    K23= KNH4FT  NITRIF
C     N3= STARTC(13)       N30= TCONC(13)       K33= KNO2RT    K34= KNO2FT  NITRIF
C     N4= STARTC(14)       N40= TCONC(14)       K44= KNO3RT                 NITRIF
C *****                                                                  NITRIF
      K2MK1=KNH4RT-KORNRT                                                 NITRIF
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      K3MK1=KNO2RT-KORNRT                                              NITRIF
      K3MK2=KNO2RT-KNH4RT                                              NITRIF
      K4MK1=KNO3RT-KORNRT                                              NITRIF
      K4MK2=KNO3RT-KNH4RT                                              NITRIF
      K4MK3=KNO3RT-KNO2RT                                              NITRIF
C ***** SET DIFFERENCE TERMS TO NON-ZERO VALUES                        NITRIF
      IF (K2MK1.EQ.0.) K2MK1=.002                                      NITRIF
      IF (K3MK1.EQ.0.) K3MK1=.002                                      NITRIF
      IF (K3MK2.EQ.0.) K3MK2=.001                                      NITRIF
      IF (K4MK1.EQ.0.) K4MK1=.002                                      NITRIF
      IF (K4MK2.EQ.0.) K4MK2=.001                                      NITRIF
      IF (K4MK3.EQ.0.) K4MK3=.001                                      NITRIF
C *****                                                                NITRIF
      A=KORNFT*TCONC(11)/K2MK1                                         NITRIF
      B=TCONC(12)-A                                                    NITRIF
      C=A*KNH4FT/K3MK1                                                 NITRIF
      D=TCONC(12)*KNH4FT/K3MK2-A*KNH4FT/K3MK2                          NITRIF
      E=TCONC(13)-TCONC(12)*KNH4FT/K3MK2-C+A*KNH4FT/K3MK2              NITRIF
      F=C*KNO2FT/K4MK1                                                 NITRIF
      G=KNH4FT*KNO2FT*B/(K3MK2*K4MK2)                                  NITRIF
      H=-KNO2FT/K4MK3*(-TCONC(13)+C+KNH4FT/K3MK2*B)                    NITRIF
      A1=TCONC(14)-F-G-H                                               NITRIF
C *****                                                                NITRIF
      E1=EXP(-KORNRT*DELTT)                                            NITRIF
      E2=EXP(-KNH4RT*DELTT)                                            NITRIF
      E3=EXP(-KNO2RT*DELTT)                                            NITRIF
      E4=EXP(-KNO3RT*DELTT)                                            NITRIF
C *****                                                                NITRIF
C     NITROGEN COMPONENTS CONCENTRATIONS                               NITRIF
C *****                                                                NITRIF
      STARTC(11)=TCONC(11)*E1                                          NITRIF
      STARTC(12)=A*E1+B*E2                                             NITRIF
      STARTC(13)=C*E1+D*E2+E*E3                                        NITRIF
      STARTC(14)=F*E1+G*E2+H*E3+A1*E4                                  NITRIF
C *****                                                                NITRIF
C     NITRIFICATION DO DEFICIT                                         NITRIF
C *****                                                                NITRIF
      EA=EXP(-K2T*DELTT)                                               NITRIF
      KAMK1=K2T-KORNRT                                                 NITRIF
      KAMK2=K2T-KNH4RT                                                 NITRIF
      KAMK3=K2T-KNO2RT                                                 NITRIF
      IF(KAMK1.EQ.0.) KAMK1=.002                                       NITRIF
      IF(KAMK2.EQ.0.) KAMK2=.001                                       NITRIF
      IF(KAMK3.EQ.0.) KAMK3=.001                                       NITRIF
      K1KA=(E1-EA)/KAMK1                                               NITRIF
      K2KA=(E2-EA)/KAMK2                                               NITRIF
      K3KA=(E3-EA)/KAMK3                                               NITRIF
C *****                                                                NITRIF
      DELNH4=KNH4FT*(A*K1KA+B*K2KA)                                    NITRIF
      DELNO2=KNO2FT*(C*K1KA+D*K2KA+E*K3KA)                             NITRIF
```

```
C     TEST FOR VALUES .LT. ZERO                                         NITRIF
      IF (STARTC(14).LT.(0.0)) STARTC(14)=0.0                           NITRIF
      IF (STARTC(13).LT.(0.0)) STARTC(13)=0.0                           NITRIF
      IF (STARTC(12).LT.(0.0)) STARTC(12)=0.0                           NITRIF
      IF (STARTC(11).LT.(0.0)) STARTC(11)=0.0                           NITRIF
      RETURN                                                            NITRIF
      END                                                               NITRIF
C=====================================================================  DOSATR
      SUBROUTINE DOSATR(TEMP,BP,SCOND,DSAT)                             DOSATR
C                                                                       DOSATR
C ***** SUBROUTINE TO CALCULATE DO SATURATION CONCENTRATIONS            DOSATR
C ***** PROGRAMMED BY JON, 8/81                                         DOSATR
C---------------------------------------------------------------------  DOSATR
C     *****  FOLLOWING  BY JON 6/81:  DO SATURATION EQUATION            DOSATR
C *****        [WEISS, 1970 (DEEP-SEA RES 17:7310]                      DOSATR
C *****        BP CORRECTION BY JON FROM 5TH ORDER REGRESSION OF        DOSATR
C *****        DATA IN [CRC HANDBOOK CHEM & PHYS, 57TH ED.,P. D-180]    DOSATR
C     UWP=  WATER VAPOR PRESSURE, MM HG                                 DOSATR
C     XWP=  REGRESSION COEFFICIENT FOR TEMPERATURE                      DOSATR
C     T2=   WATER TEMP, DEGREES KELVIN                                  DOSATR
C *****                                                                 DOSATR
      T2=TEMP+273.15                                                    DOSATR
      B1=-.033096                                                       DOSATR
      B2=.014259                                                        DOSATR
      B3=-.001700                                                       DOSATR
      DSAT=-173.4292+249.6339*(100/T2)+143.3483*ALOG(T2/100)-21.8492*(T2 DOSATR
     1/100)                                                             DOSATR
      DSAT=1.4276*EXP(DSAT)                                             DOSATR
      XWP=.0363636*TEMP-1.636364                                        DOSATR
      UWP=71.8602+101.5668*XWP+61.8461*XWP**2+20.6579*XWP**3+3.8645*XWP* DOSATR
     1*4+.3241*XWP**5                                                   DOSATR
      DSAT=DSAT*(BP-UWP)/(760-UWP)                                      DOSATR
C ***** SALINITY CORRECTIONS                                            DOSATR
      SALIN=(5.572*SCOND+.0000202*SCOND**2)/10000.                      DOSATR
      SCORR=SALIN*(B1+B2*(T2/100)+B3*((T2/100)**2))                     DOSATR
      DSAT=DSAT*EXP(SCORR)                                              DOSATR
      RETURN                                                            DOSATR
      END                                                               DOSATR
C=====================================================================  CGEOM.
      SUBROUTINE CGEOM(NSEG,VEL,TTIME,AREA,DEPTH,WIDTH,VA,VB,TA,TB,AA,  CGEOM.
     1AB,DA,DB,WA,WB,IGEOM,Q,XLEN)                                      CGEOM.
C                                                                       CGEOM.
C ***** CHANNEL GEOMETRY COMPUTATIONS                                   CGEOM.
C ***** PROGRAMMED BY JON,12/81                                         CGEOM.
C *****                                                                 CGEOM.
C *****   INPUT DATA FOR NORMAL CALCULATIONS:                           CGEOM.
C *****        IGEOM        INPUT DATA       IGEOM        INPUT DATA    CGEOM.
C *****        =====        ==========       =====        ==========    CGEOM.
C *****          1           VEL, DEPTH        4           VEL, WIDTH   CGEOM.
C *****          2           TTIME, DEPTH      5           TTIME, WITH  CGEOM.
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C *****           3              AREA, DEPTH       6             AREA, WIDTH   CGEOM.
C *****           7              WIDTH, DEPTH                                   CGEOM.
C -------------------------------------------------------------------------   CGEOM.
C                                                                              CGEOM.
      INTEGER PRINT /6/                                                        CGEOM.
C                                                                              CGEOM.
   10 IF (VA.EQ.0.) GO TO 20                                                   CGEOM.
      VEL=VA*Q**VB                                                             CGEOM.
   20 IF (TA.EQ.0.) GO TO 30                                                   CGEOM.
      TTIME=TA*Q**TB                                                           CGEOM.
   30 IF (AA.EQ.0.) GO TO 40                                                   CGEOM.
      AREA=AA*Q**AB                                                            CGEOM.
   40 IF (DA.EQ.0.) GO TO 50                                                   CGEOM.
      DEPTH=DA*Q**DB                                                           CGEOM.
   50 IF (WA.EQ.0.) GO TO 60                                                   CGEOM.
      WIDTH=WA*Q**WB                                                           CGEOM.
C ***** NORMAL COMPUTATIONS                                                    CGEOM.
   60 IF (TTIME.EQ.0.) GO TO 70                                                CGEOM.
      VEL=(XLEN*5280.)/(TTIME*3600.)                                           CGEOM.
      AREA=Q/VEL                                                               CGEOM.
      IGEOM=2                                                                  CGEOM.
      GO TO 100                                                                CGEOM.
   70 IF (VEL.EQ.0.) GO TO 80                                                  CGEOM.
      TTIME=(XLEN*5280.)/(VEL*3600.)                                           CGEOM.
      AREA=Q/VEL                                                               CGEOM.
      IGEOM=1                                                                  CGEOM.
      GO TO 100                                                                CGEOM.
   80 IF (AREA.EQ.0.) GO TO 90                                                 CGEOM.
      VEL=Q/AREA                                                               CGEOM.
      TTIME=(XLEN*5280.)/(VEL*3600.)                                           CGEOM.
      IGEOM=3                                                                  CGEOM.
      GO TO 100                                                                CGEOM.
   90 IF (WIDTH.EQ.0.AND.DEPTH.EQ.0.) GO TO 120                                CGEOM.
      AREA=WIDTH*DEPTH                                                         CGEOM.
      VEL=Q/AREA                                                               CGEOM.
      TTIME=(XLEN*5280.)/(VEL*3600.)                                           CGEOM.
      IGEOM=7                                                                  CGEOM.
      RETURN                                                                   CGEOM.
  100 IF (WIDTH.EQ.0.) GO TO 110                                               CGEOM.
      DEPTH=AREA/WIDTH                                                         CGEOM.
      IGEOM=IGEOM+3                                                            CGEOM.
      RETURN                                                                   CGEOM.
  110 WIDTH=AREA/DEPTH                                                         CGEOM.
      RETURN                                                                   CGEOM.
  120 WRITE (PRINT,130) NSEG                                                   CGEOM.
      RETURN                                                                   CGEOM.
  130 FORMAT (//,1H1'ERROR--INPUT DATA MUST HAVE AVERAGE WIDTH AND DEPTH       CGEOM.
     1 OR VELOCTIY OR AREA OR TRAVELTIME,ERROR IN SUBREACH: ',I3)              CGEOM.
      END                                                                      CGEOM.
C=========================================================================   REAER.
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      SUBROUTINE REAER (NEQUA,DEP,U,S,XK2,CTSV)                          REAER.
C                                                                        REAER.
C ***** PROGRAMMED BY LARRY SMITH,1980                                   REAER.
C ***** MODIFIED BY JON NOWLIN, 6/81,9/83                                REAER.
C                                                                        REAER.
C DEP =DEPTH, Q= DISCHARGE, AR= AREA, DT= TEMP-20, S= SLOPE,             REAER.
C XK2= REAERATION COEF, CTSV= TSV. ESCAPE COEFFICIENT, NEQUA= EQUATION   REAER.
C     FT       CFS          FT**2    DEG-C     PURE        PER DAY       REAER.
C----------------------------------------------------------------------- REAER.
C                                                                        REAER.
      DATA PI/3.1415927/                                                 REAER.
C *****                                                                  REAER.
      GO TO (10,20,50,60,70,80,90,100,900,1000,1100,1200),NEQUA          REAER.
C *****                                                                  REAER.
C ***** [BENNETT & RATHBUN, 1972]--EQUATION FROM FIELD DATA              REAER.
C *****                                                                  REAER.
   10 XK2=20.2*(U**.607)/(DEP**1.689)                                    REAER.
      RETURN                                                             REAER.
C *****                                                                  REAER.
C ***** [VELZ, 1970], FORMULATION: [HIRSCH, 1981],                       REAER.
C *****    [MCCUTCHEON & JENNINGS, 1982].  INCLUDES TEMP COR-            REAER.
C *****  RECTION,AS FORMULATED.  MODIFIED HERE TO 20 DEG C AS AMBIENT    REAER.
C *****  TEMPERATURE CORRECTIONS ARE PERFORMED IN MAIN.                  REAER.
   20 IF (DEP.GT.2.26) GO TO 40                                          REAER.
      XM=2.279+.721*DEP                                                  REAER.
   30 XK2=-1440.*ALOG(1.-.00570*SQRT(XM)/DEP)/XM                         REAER.
      RETURN                                                             REAER.
   40 XM=13.94*ALOG(DEP)-7.45                                            REAER.
      GO TO 30                                                           REAER.
C *****                                                                  REAER.
C ***** [LANGBEIN & DURHAM, 1967]--FROM REGR. ANALYSIS OF SYNTH. DATA    REAER.
C *****                                                                  REAER.
   50 XK2=7.61*U/(DEP**1.33)                                             REAER.
      RETURN                                                             REAER.
C *****                                                                  REAER.
C ***** [PADDEN & GLOYNA, [1971]                                         REAER.
C *****                                                                  REAER.
   60 XK2=6.86*(U**.703)/(DEP**1.054)                                    REAER.
      RETURN                                                             REAER.
C *****                                                                  REAER.
C ***** [BANSAL, 1973]                                                   REAER.
C *****                                                                  REAER.
   70 XK2=4.66*(U**.6)/(DEP**1.4)                                        REAER.
      RETURN                                                             REAER.
C *****                                                                  REAER.
C ***** [PARKHURST & POMEROY, 1972]                                      REAER.
C *****                                                                  REAER.
   80 XK2=48.4*(1.+.17*U**2/DEP*32.2)*(U*S)**.375/DEP                    REAER.
      RETURN                                                             REAER.
C *****                                                                  REAER.
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C ***** [TSIVOGLOU & WALLACE, 1972]                                      REAER.
C *****   UNIT CONVERSION (FT, FT/S, /DAY) BY JON, 6/81                  REAER.
C ***** THE REAERATION COEFFICIENT IS 4100 FOR AN"AVERAGE" STREAM,       REAER.
C *****     TSIVOGLOU RECOMMENDS CALIBRATING THE COEFFICIENT WITH        REAER.
C *****     FIELD GAS-TRACER DATA, HIS ESTIMATES WERE-                   REAER.
C *****                                                                  REAER.
C *****      BOD(5)       COEFFICIENT                                    REAER.
C *****      ---------    ---------                                      REAER.
C *****      DOWN TO 2     6500      "LIGHTLY POLLUTED STREAM"           REAER.
C *****      ABOUT 15      4100      "AVERAGE STREAM"                    REAER.
C *****      UP TO 30      2300      "HEAVILY POLLUTED STREAM"           REAER.
C *****                                                                  REAER.
C ***** NOTE- ORIGINAL REFERENCE GAVE C AT 25 DEG C FOR SLOPE IN FT/FT & REAER.
C ***** VELOCITY IN HRS: K2 WAS IN UNITS OF 1/HR AT 25 DEG C,BASE E      REAER.
C ***** ABOVE COEFFICIENTS CORRECT FOR UNITS AND TEMP (THETA=1.0241),    REAER.
C ***** WITH ROUNDING TO PRESERVE AUTHORS' ORIGINAL 2 SIGNIFICANT FIG.   REAER.
C -----------------------------------------------------------------------REAER.
   90 C=4100.                                                            REAER.
      IF (CTSV.GT.0.0) C=CTSV                                            REAER.
      XK2=C*U*S                                                          REAER.
      RETURN                                                             REAER.
C ***** [O'CONNER & DOBBINS, 1958]                                       REAER.
  100 XK2=12.3*U**.5/(DEP**1.5)                                          REAER.
      RETURN                                                             REAER.
C ***** FOLLOWING ADDED TO CHECK ALTERNATIVE ESCAPE COEFFICIENTS FOR     REAER.
C *****  TSIVOGLOU EQUATION                                              REAER.
  900 RETURN                                                             REAER.
 1000 RETURN                                                             REAER.
 1100 RETURN                                                             REAER.
C ****** MODIFIED TSIVOGLOU EQUATION BASED ON TRUCKEE RIVER TRACER DATA  REAER.
 1200 XK2=3360.*U*S                                                      REAER.
      RETURN                                                             REAER.
      END                                                                REAER.
C=======================================================================PPLOT.
      SUBROUTINE PPLOT (NPLOT,PTITLE,YTITLE,YN,YMAX,YMIN)                PPLOT.
C                                                                        PPLOT.
C ***** SUBROUTINE TO SET UP LINEPRINTER OUTPUT                          PPLOT.
C ***** PROGRAMMED BY JON 1/82                                           PPLOT.
C -----------------------------------------------------------------------COMMON
C ***** VARIABLES COMMON TO ONE OR MORE OF MAIN, READCD, ROUTE, NITRIF,  COMMON
C *****                                 SUBROUTINES                      COMMON
C ***** SCALARS:                                                         COMMON
C *****                                                                  COMMON
      COMMON /VALL/ BDN, BNT, CARD, DELNH4, DELNO2, DELTT, DXPNT, EA,    COMMON
     1 ER, ICDBUF, IEND, IGRAPH, ITYPE, ILIN, IMODEL, INITSW, IPLOT,     COMMON
     2 IPO4, IPRMIN, IPNET, IRET, ISW1, ISWBAD, ITAB1, ITAB2, ITEST,     COMMON
     3 ITFLAG, IXGEOM, J, JJ, JSEG, KPLOT, K2T, KCT, KCRT, KORNRT,       COMMON
     4 KORNFT, KNH4RT, KNH4FT, KNO2RT, KNO2FT, KNO3RT, KPO4BT, KNCR1T,   COMMON
     5 KNCR2T, LNCNTR, MPT, NCONSV, NNCONS, NSEG, PRINT, QTOT, TT,       COMMON
     6 TTSUM, XEND, XL, XSTRT, IRESP, DATE                               COMMON
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C *****                                                                    COMMON
C ***** ARRAYS:                                                            COMMON
C *****                                                                    COMMON
      COMMON /ALL/ AA(50), AB(50), ATRIBC(50,21), ATRIBL(50,21), BN(50),   COMMON
     1 BP(50), BSEG(50), CLONG(5,10), CSHORT(5,2), CUNIT(5,2), DA(50),     COMMON
     2 DB(50), DOSAT(50), ENDC(50,21), ENDL(50,21), GEOM(50,5),            COMMON
     3 GLINC(50,21), GLINL(50,21), IGEOM(50), IK2(50),K2(50),KC(50),       COMMON
     4 KCR(50), KORNR(50), KORNF(50), KNH4R(50), KNH4F(50), KNO2R(50),     COMMON
     5 KNO2F(50), KNO3R(50), KPO4B(50), KNCR1(50), KNCR2(50),              COMMON
     7 NDIV(50), OBSC(200,21), OBSMI(200), OBUNH3(200), PGEOM(6000,5),     COMMON
     8 PH(50), PLOTC(6000,30), PLOTL(6000,30), PNET(50), PRCOEF(50),       COMMON
     9 RESP(50), RLINC(50,21), RLINL(50,21), SCOND(50), SDESC(50,11),      COMMON
     & SFPM(50), SLOPE(50), SNAME(50,6), STARTC(21), STARTL(21),           COMMON
     & TCONC(21), TEMP(50), TITLE1(19), TITLE2(19), TLOAD(21),             COMMON
     & TRINC(50,21), TRINL(50,21), TA(50), TB(50), TTRIBC(50,21),          COMMON
     & TTRIBL(50,21), UNH3(6000), VA(50), VB(50), WA(50), WB(50),          COMMON
     & XDIST(6000), XLEN(50), XSEG(50), CTSVIG(50)                         COMMON
C--------------------------------------------------------------------------- COMMON
      COMMON /PLOT/ PARM1(6000),PARM2(6000),PARM3(6000),PARM4(6000),       COMMON
     &PARM5(6000),OBSV1(200),IXPLOT,XAXIS(6000),XMAX,XMIN,XTITLE           COMMON
C ---------------------------------------------------------------------------- COMMON
C ***** RATE VARIABLES:                                                    PPLOT.
      REAL K2T,KCT,KCRT,KORNRT,KORNFT,KNH4RT,KNH4FT,KNO2RT,KNO2FT,         PPLOT.
     & KNO3RT,KPO4BT,KNCR1T,KNCR2T,K2TRM                                   PPLOT.
C *****                                                                    PPLOT.
C ***** RATE ARRAYS:                                                       PPLOT.
C *****                                                                    PPLOT.
      REAL K2,KCR,KC,KNR,KN,KORNR,KORNF,KNH4R,KNH4F,KNO2R,KNO2F,KNO3R,     PPLOT.
     & KPO4B,KNCR1,KNCR2                                                   PPLOT.
C----------------------------------------------------------------------------- PPLOT.
      INTEGER*4 PTITLE(15),YTITLE(9)                                       PPLOT.
      INTEGER*4 CUNIT,CSHORT,CLONG                                         PPLOT.
      INTEGER*2 XTITLE(11)                                                 PPLOT.
      INTEGER CARD,PRINT                                                   PPLOT.
      CHARACTER*16 DATE                                                    PPLOT.
      DIMENSION GRAPH(6000)                                                PPLOT.
C---------------------------------------------------------------------------- PPLOT.
      NOBS=1                                                               PPLOT.
      IF(MPT.EQ.0) NOBS=0                                                  PPLOT.
      KK=JJ-1                                                              PPLOT.
      AMAX=0.                                                              PPLOT.
      AMIN=0.                                                              PPLOT.
C ***** NPLOT SPECIFIES PLOT PARAMETERS:                                   PPLOT.
C     NPLOT                                              NPARM             PPLOT.
C     -----  ------------------------------------       ----              PPLOT.
C ***** 1    1 CALCULATED CONSTITUENT                      1               PPLOT.
C ***** 2    1 CALCULATED + 1 OBSERVED                     1               PPLOT.
C ***** 3    DO PERCENT SAT: CALC + OBSERVED               1               PPLOT.
C ***** 4    DO: SAT., CALC., OBSERVED                     3               PPLOT.
C ***** 5    DO DEFICITS: CBOD                             2               PPLOT.
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C ***** 6    DO DEFICITS: CBOD, NO2, NH4               3                  PPLOT.
C ***** 7    DO DEFICITS: BENTHIC, R, P, K2            4                  PPLOT.
C *****                                                                   PPLOT.
      IF(KPLOT.EQ.3) GOTO 45                                              PPLOT.
      IF (NPLOT.LE.3) NPARM=1                                             PPLOT.
      IF (NPLOT.EQ.4) NPARM=3                                             PPLOT.
      IF (NPLOT.EQ.5) NPARM=2                                             PPLOT.
      IF (NPLOT.EQ.6) NPARM=3                                             PPLOT.
      IF (NPLOT.EQ.7) NPARM=4                                             PPLOT.
      CALL PMM(AMIN,AMAX,PARM1,KK)                                        PPLOT.
      IF(NPARM.EQ.1)GOTO 20                                               PPLOT.
      CALL PMM(BMIN,BMAX,PARM2,KK)                                        PPLOT.
      AMAX=AMAX1(AMAX,BMAX)                                               PPLOT.
      AMIN=AMIN1(AMIN,BMIN)                                               PPLOT.
      IF(NPARM.EQ.2)GOTO 20                                               PPLOT.
      CALL PMM(BMIN,BMAX,PARM3,KK)                                        PPLOT.
      AMAX=AMAX1(AMAX,BMAX)                                               PPLOT.
      AMIN=AMIN1(AMIN,BMIN)                                               PPLOT.
      IF(NPARM.EQ.3)GOTO 20                                               PPLOT.
      CALL PMM(BMIN,BMAX,PARM4,KK)                                        PPLOT.
      AMAX=AMAX1(AMAX,BMAX)                                               PPLOT.
      AMIN=AMIN1(AMIN,BMIN)                                               PPLOT.
      IF(NPARM.EQ.4)GOTO 20                                               PPLOT.
      CALL PMM(BMIN,BMAX,PARM5,KK)                                        PPLOT.
      AMAX=AMAX1(AMAX,BMAX)                                               PPLOT.
      AMIN=AMIN1(AMIN,BMIN)                                               PPLOT.
   20 IF ((NPLOT.EQ.1).OR.(NPLOT.GE.5)) GOTO 25                           PPLOT.
      CALL PMM(BMIN,BMAX,OBSV1,MPT)                                       PPLOT.
      IF((BMAX.EQ.0.).AND.(BMIN.EQ.0.)) NOBS=0                            PPLOT.
      IF(BMAX.EQ.BMIN) GOTO 25                                            PPLOT.
      AMAX=AMAX1(AMAX,BMAX)                                               PPLOT.
      AMIN=AMIN1(AMIN,BMIN)                                               PPLOT.
C ***** OPTIONAL 'FLOATING' MAX AND MINS FOR PLOTS                        PPLOT.
   25 IF(KPLOT.NE.1) GOTO 27                                              PPLOT.
      IF(AMAX.GT.0.1) GOTO 26                                             PPLOT.
      YMAX=.10                                                            PPLOT.
      YMIN=0.0                                                            PPLOT.
      IF(AMIN.LT.(-.1)) YMIN=AMIN-.1                                      PPLOT.
      IF((AMIN.LT.(-.01)).AND.(AMIN.GT.(-.1))) YMIN=-.1                   PPLOT.
      GOTO 45                                                             PPLOT.
   26 CONTINUE                                                            PPLOT.
      TMIN=FLOAT(IFIX(AMIN))                                              PPLOT.
      IF(TMIN.LT.-1.) AMIN=AMIN-1.0                                       PPLOT.
      DIFF=AMIN-TMIN                                                      PPLOT.
      IF((DIF.EQ.(0.0)).AND.(TMIN.GT.1.)) TMIN=TMIN-1.0                   PPLOT.
      YMIN=TMIN                                                           PPLOT.
      TMAX=FLOAT(IFIX(AMAX))                                              PPLOT.
      IF(TMAX.GE.1.) YMAX=TMAX+1.0                                        PPLOT.
      IF(TMAX.LT.1.) YMAX=1.                                              PPLOT.
      GOTO 45                                                             PPLOT.
```

```
C ***** FOR Y'S > 0.,SET MAX AND MIN VALUES TO MULTIPLES OF 1 OR 5          PPLOT.
   27 IF(AMAX.LE.0.) YMAX=0.                                                 PPLOT.
      IF(YMAX.EQ.0) GOTO 45                                                  PPLOT.
      EMAX=FLOAT(IFIX(ALOG10(AMAX)))                                         PPLOT.
      TMAX=AMAX/10.**EMAX                                                    PPLOT.
      TMIN=FLOAT(IFIX(AMIN/(10**EMAX)))                                      PPLOT.
      IF(TMIN.LT.0.) AFIX=-1.                                                PPLOT.
      IF (TMIN.LT.0.) TMIN=TMIN-1.0                                          PPLOT.
      TDELT=TMAX-TMIN                                                        PPLOT.
      IF(TDELT.LE.20.) TMAX=TMIN+20.                                         PPLOT.
      IF(TDELT.LE.10.) TMAX=TMIN+10.                                         PPLOT.
      IF(TDELT.LE.5.) TMAX=TMIN+5.                                           PPLOT.
      IF(TDELT.LE.2.5) TMAX=TMIN+2.5                                         PPLOT.
      IF(TDELT.LE.2.0) TMAX=TMIN+2.0                                         PPLOT.
      IF(TDELT.LE.1.) TMAX=TMIN+1.                                           PPLOT.
      YMAX=TMAX*(10**EMAX)                                                   PPLOT.
      YMIN=TMIN*(10**EMAX)                                                   PPLOT.
   45 WRITE(PRINT,100)TITLE2,PTITLE                                          PPLOT.
   48 CALL PLOT2(GRAPH,XMAX,XMIN,YMAX,YMIN,PRINT)                            PPLOT.
      GOTO(50,50,55,60,65,70,75),NPLOT                                       PPLOT.
C ***** PLOT 1 PARAMETER                                                     PPLOT.
   50 CALL PLOT3('*',XAXIS,PARM1,KK,GRAPH)                                   PPLOT.
      IF((NPLOT.EQ.2).AND.(NOBS.EQ.1))                                       PPLOT.
     & CALL PLOT3('X',OBSMI,OBSV1,MPT,GRAPH)                                 PPLOT.
      CALL PLOT4(YN,YTITLE,GRAPH)                                            PPLOT.
      IF(NPLOT.EQ.1) WRITE(PRINT,110) XTITLE                                 PPLOT.
      IF(NPLOT.EQ.2)WRITE(PRINT,115) XTITLE                                  PPLOT.
      GOTO 80                                                                PPLOT.
   55 CONTINUE                                                               PPLOT.
C ***** PLOT DO SATURATION                                                   PPLOT.
   56 CALL PLOT2(GRAPH,XMAX,XMIN,YMAX,YMIN,PRINT)                            PPLOT.
      CALL PLOT3('+',XAXIS,PARM1,KK,GRAPH)                                   PPLOT.
      CALL PLOT3('*',XAXIS,PARM2,KK,GRAPH)                                   PPLOT.
      IF(NOBS.EQ.1)CALL PLOT3('X',OBSMI,OBSV1,MPT,GRAPH)                     PPLOT.
      CALL PLOT4(YN,YTITLE,GRAPH)                                            PPLOT.
      WRITE(PRINT,120)XTITLE                                                 PPLOT.
      GOTO 80                                                                PPLOT.
   60 CONTINUE                                                               PPLOT.
C ***** PLOT DO                                                              PPLOT.
      IF(KPLOT.EQ.0) GOTO 62                                                 PPLOT.
      GOTO 63                                                                PPLOT.
   62 IF(AMAX.LE.10.) YMAX=10.                                               PPLOT.
      IF((AMAX.GT.10.).AND.(AMAX.LE.20.)) YMAX=20.                           PPLOT.
      IF(AMAX.GT.20.) YMAX=AMAX                                              PPLOT.
      YMIN=0.                                                                PPLOT.
   63 CALL PLOT2(GRAPH,XMAX,XMIN,YMAX,YMIN,PRINT)                            PPLOT.
      CALL PLOT3('+',XAXIS,PARM1,KK,GRAPH)                                   PPLOT.
      CALL PLOT3('*',XAXIS,PARM2,KK,GRAPH)                                   PPLOT.
      IF(NOBS.EQ.1)CALL PLOT3('X',OBSMI,OBSV1,MPT,GRAPH)                     PPLOT.
      CALL PLOT4(YN,YTITLE,GRAPH)                                            PPLOT.
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      WRITE(PRINT,125) XTITLE                                          PPLOT.
      GOTO 80                                                          PPLOT.
C ***** PLOT CBOD DEFICITS                                             PPLOT.
   65 CALL PLOT3('C',XAXIS,PARM1,KK,GRAPH)                             PPLOT.
      CALL PLOT3('N',XAXIS,PARM2,KK,GRAPH)                             PPLOT.
      CALL PLOT4(YN,YTITLE,GRAPH)                                      PPLOT.
      WRITE(PRINT,130) XTITLE                                          PPLOT.
      GOTO 80                                                          PPLOT.
C ***** PLOT N-CYCLE DEFICITS                                          PPLOT.
   70 CALL PLOT3('C',XAXIS,PARM1,KK,GRAPH)                             PPLOT.
      CALL PLOT3('N',XAXIS,PARM2,KK,GRAPH)                             PPLOT.
      CALL PLOT3('A',XAXIS,PARM3,KK,GRAPH)                             PPLOT.
      CALL PLOT4(YN,YTITLE,GRAPH)                                      PPLOT.
      WRITE(PRINT,135) XTITLE                                          PPLOT.
      GOTO 80                                                          PPLOT.
C ***** PLOT P & R DEFICITS                                            PPLOT.
   75 CALL PLOT3('B',XAXIS,PARM1,KK,GRAPH)                             PPLOT.
      CALL PLOT3('R',XAXIS,PARM2,KK,GRAPH)                             PPLOT.
      CALL PLOT3('P',XAXIS,PARM3,KK,GRAPH)                             PPLOT.
      CALL PLOT3('K',XAXIS,PARM4,KK,GRAPH)                             PPLOT.
      CALL PLOT4(YN,YTITLE,GRAPH)                                      PPLOT.
      WRITE(PRINT,140) XTITLE                                          PPLOT.
   80 DO 85 I=1,2000                                                   PPLOT.
      PARM1(I)=0.                                                      PPLOT.
      PARM2(I)=0.                                                      PPLOT.
      PARM3(I)=0.                                                      PPLOT.
      PARM4(I)=0.                                                      PPLOT.
   85 PARM5(I)=0.                                                      PPLOT.
      DO 90 I=1,200                                                    PPLOT.
   90 OBSV1(I)=0.                                                      PPLOT.
      RETURN                                                           PPLOT.
C----------------------------------------------------------------      PPLOT.
  100 FORMAT (1H1,16X,'U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION' MAIN..
     &,':',2X,'TRUCKEE RIVER WATER-QUALITY MODEL',15X,'[REV 87.9]',    MAIN..
     & /1X,130('-'),/4X,/20X,19A4/20X,15A4)                            MAIN..
  110 FORMAT(/51X,11A1,//10X,'EXPLANATION:  * = CALCULATED VALUES.')   PPLOT.
  115 FORMAT(/51X,11A1,//10X,'EXPLANATION:  * = CALCULATED VALUES, ',  PPLOT.
     &'X = OBSERVED.')                                                 PPLOT.
  120 FORMAT(/51X,11A1,//10X,'EXPLANATION:  + = 100  DO SATURATION,',  PPLOT.
     &' * = CALCULATED DO SATURATION, X = OBSERVED.')                  PPLOT.
  125 FORMAT(/51X,11A1,//10X,'EXPLANATION:  + = DO AT 100  SATURATION,', PPLOT.
     &' D = CALCULATED DO DEFICIT, * = CALCULATED DO, X = OBSERVED.')  PPLOT.
  130 FORMAT(/51X,11A1,//10X,'EXPLANATION:  C= DO DEFICIT DUE ',       PPLOT.
     &'TO CBOD')                                                       PPLOT.
  135 FORMAT(/51X,11A1,//10X,'EXPLANATION:  C= DO DEFICIT DUE TO ',    PPLOT.
     &'CBOD, A = DEFICIT DUE TO NH4 OXIDATION, N = DEFICIT DUE TO NO2 ', PPLOT.
     &'OXIDATION',/24X,'D= TOTAL DEFICIT')                             PPLOT.
  140 FORMAT(/51X,11A1,//10X,'EXPLANATION:  B = DO DEFICIT DUE TO ',   PPLOT.
     &'BENTHIC DEPOSITS, R = DEFICIT DUE TO RESPIRATION,',             PPLOT.
     &/24X,'P = DEFICIT DUE TO PHOTOSYNTHESIS,K= DEFICIT DUE TO ',     PPLOT.
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     &'REAERATION',/24X,'D= TOTAL DEFICIT')                              PPLOT.
      END                                                                PPLOT.
C=====================================================================  PRPLOT
      SUBROUTINE PRPLOT                                                  PRPLOT
C         16 MARCH 73                                                    PRPLOT
C     GENERAL LINE-PRINTER PLOTTER OF UNKNOWN HISTORIC ORIGIN            PRPLOT
C   -------------------------------------------------------------------  PRPLOT
      LOGICAL*1 WL,KPLT,KPLT1,KPLT2,KBOTGL,KORD,KABSC,KNHOR              PRPLOT
      DIMENSION NSCALE(5),ABNOS(26),X(1),Y(1)                            PRPLOT
      CHARACTER *1NOS(10)/'0','1','2','3','4','5','6','7','8','9'/       PRPLOT
      LOGICAL *1 IMAGE(1),CH,LABEL(1),BL1                                PRPLOT
      LOGICAL *1 ERR1,ERR3,ERR5                                          PRPLOT
      LOGICAL *1 VC,HC,NC                                                PRPLOT
      CHARACTER *1 FOR1(19),FOR2(15),FOR3(19),BL,HF,HF1                  PRPLOT
      CHARACTER *8 FOX1(3),FOX2(2),FOX3(3)                               PRPLOT
      EQUIVALENCE (FOR1,FOX1),(FOR2,FOX2),(FOR3,FOX3)                    PRPLOT
      INTEGER PRINT                                                      PRPLOT
C *****                                                                  PRPLOT
      DATA HC/'-'/,NC/'+'/,BL/' '/,HF/'F'/,HF1/'.'/,VC/'|'/,BL1/' '/     PRPLOT
      DATA FOX1/'(1XA1,F9','.2, 121','A1)      '/                        PRPLOT
      DATA FOX2/'(1XA1,9','X121A1) '/                                    PRPLOT
      DATA FOX3/'(1H F  .',' , F   ','. )      '/                        PRPLOT
      DATA KPLT1/.FALSE./,KPLT2/.FALSE./                                 PRPLOT
      DATA KABSC,KORD,KBOTGL/3*.FALSE./                                  PRPLOT
C *****                                                                  PRPLOT
   10 KPLT=.TRUE.                                                        PRPLOT
      IF (NV.LE.25) GO TO 20                                             PRPLOT
      KPLT=.FALSE.                                                       PRPLOT
      ERR3=.TRUE.                                                        PRPLOT
      RETURN                                                             PRPLOT
   20 CONTINUE                                                           PRPLOT
      NVM=NV-1                                                           PRPLOT
      NVP=NV+1                                                           PRPLOT
      NDH=NH*NSH                                                         PRPLOT
      NDHP=NDH+1                                                         PRPLOT
      NDV=NV*NSV                                                         PRPLOT
      NDVP=NDV+1                                                         PRPLOT
      NIMG=(NDHP*NDVP)                                                   PRPLOT
      IF (NDV.LE.120) GO TO 30                                           PRPLOT
      KPLT=.FALSE.                                                       PRPLOT
      ERR5=.TRUE.                                                        PRPLOT
      RETURN                                                             PRPLOT
   30 CONTINUE                                                           PRPLOT
      IF (NSCL.EQ.0) GO TO 40                                            PRPLOT
      FSY=10.**NSCALE(2)                                                 PRPLOT
      FSX=10.**NSCALE(4)                                                 PRPLOT
      IY=MIN0(IABS(NSCALE(3)),7)+1                                       PRPLOT
      IX=MIN0(IABS(NSCALE(5)),9)+1                                       PRPLOT
      GO TO 50                                                           PRPLOT
   40 FSY=1.                                                             PRPLOT
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      FSX=1.                                                            PRPLOT
      IY=3                                                              PRPLOT
      IX=3                                                              PRPLOT
   50 FOR1(10)=NOS(IY)                                                  PRPLOT
      NA=MIN0(IX,NSV)-1                                                 PRPLOT
      NS=NA-MIN0(NA,120-NDV)                                            PRPLOT
      NB=11-NS+NA                                                       PRPLOT
      I1=NB/10                                                          PRPLOT
      I2=NB-I1*10                                                       PRPLOT
      FOR3(6)=NOS(I1+1)                                                 PRPLOT
      FOR3(7)=NOS(I2+1)                                                 PRPLOT
      FOR3(9)=NOS(NA+1)                                                 PRPLOT
      IF (NV.GT.0) GO TO 70                                             PRPLOT
      DO 60 J=11,18                                                     PRPLOT
   60 FOR3(J)=BL                                                        PRPLOT
      GO TO 80                                                          PRPLOT
   70 I1=NV/10                                                          PRPLOT
      I2=NV-I1*10                                                       PRPLOT
      FOR3(11)=NOS(I1+1)                                                PRPLOT
      FOR3(12)=NOS(I2+1)                                                PRPLOT
      FOR3(13)=HF                                                       PRPLOT
      I1=NSV/100                                                        PRPLOT
      I3=NSV-I1*100                                                     PRPLOT
      I2=I3/10                                                          PRPLOT
      I3=I3-I2*10                                                       PRPLOT
      FOR3(14)=NOS(I1+1)                                                PRPLOT
      FOR3(15)=NOS(I2+1)                                                PRPLOT
      FOR3(16)=NOS(I3+1)                                                PRPLOT
      FOR3(17)=HF1                                                      PRPLOT
      FOR3(18)=FOR3(9)                                                  PRPLOT
   80 IF (KPLT1) RETURN                                                 PRPLOT
      KPLT1=.TRUE.                                                      PRPLOT
      GOTO 500                                                          PRPLOT
C *****                                                                 PRPLOT
      ENTRY PLOT2(IMAGE,XMAX,XMIN,YMAX,YMIN,PRINT)                      PRPLOT
      KPLT1=.FALSE.                                                     PRPLOT
  500 SYMIN=YMIN                                                        PRPLOT
      IFL=PRINT                                                         PRPLOT
      KPLT2=.TRUE.                                                      PRPLOT
      IF (KPLT1) GO TO 90                                               PRPLOT
      NSCL=0                                                            PRPLOT
      NH=5                                                              PRPLOT
      NSH=10                                                            PRPLOT
      NV=10                                                             PRPLOT
      NSV=10                                                            PRPLOT
      GO TO 10                                                          PRPLOT
   90 CONTINUE                                                          PRPLOT
      IF (KPLT) GO TO 100                                               PRPLOT
      IF (ERR1) WRITE (IFL,300)                                         PRPLOT
      IF (ERR3) WRITE (IFL,310)                                         PRPLOT
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      IF (ERR5) WRITE (IFL,320)                                        PRPLOT
      RETURN                                                           PRPLOT
  100 YMX=YMAX                                                         PRPLOT
      DH=(YMAX-YMIN)/FLOAT(NDH)                                        PRPLOT
      DV=(XMAX-XMIN)/FLOAT(NDV)                                        PRPLOT
      DO 110 I=1,NVP                                                   PRPLOT
  110 ABNOS(I)=(XMIN+FLOAT((I-1)*NSV)*DV)*FSX                          PRPLOT
      DO 120 I=1,NIMG                                                  PRPLOT
  120 IMAGE(I)=BL1                                                     PRPLOT
      DO 160 I=1,NDHP                                                  PRPLOT
      I2=I*NDVP                                                        PRPLOT
      I1=I2-NDV                                                        PRPLOT
      KNHOR=MOD(I-1,NSH).NE.0                                          PRPLOT
      IF (KNHOR) GO TO 140                                             PRPLOT
      DO 130 J=I1,I2                                                   PRPLOT
  130 IMAGE(J)=HC                                                      PRPLOT
  140 CONTINUE                                                         PRPLOT
      DO 160 J=I1,I2,NSV                                               PRPLOT
      IF (KNHOR) GO TO 150                                             PRPLOT
      IMAGE(J)=NC                                                      PRPLOT
      GO TO 160                                                        PRPLOT
  150 IMAGE(J)=VC                                                      PRPLOT
  160 CONTINUE                                                         PRPLOT
      XMIN1=XMIN-DV/2.                                                 PRPLOT
      YMIN1=YMIN-DH/2.                                                 PRPLOT
      RETURN                                                           PRPLOT
C *****                                                                PRPLOT
      ENTRY PLOT3(CH,X,Y,N3,IMAGE)                                     PRPLOT
      IF (KPLT2) GO TO 180                                             PRPLOT
  170 WRITE (IFL,330)                                                  PRPLOT
  180 CONTINUE                                                         PRPLOT
      IF (.NOT.KPLT) RETURN                                            PRPLOT
      IF (N3.GT.0) GO TO 190                                           PRPLOT
      KPLT=.FALSE.                                                     PRPLOT
      WRITE (IFL,340)                                                  PRPLOT
      RETURN                                                           PRPLOT
  190 DO 260 I=1,N3                                                    PRPLOT
      IF (DV) 210,200,210                                              PRPLOT
  200 DUM1=0                                                           PRPLOT
      GO TO 220                                                        PRPLOT
  210 CONTINUE                                                         PRPLOT
      DUM1=(X(I)-XMIN1)/DV                                             PRPLOT
  220 IF (DH) 240,230,240                                              PRPLOT
  230 DUM2=0                                                           PRPLOT
      GO TO 250                                                        PRPLOT
  240 CONTINUE                                                         PRPLOT
      DUM2=(Y(I)-YMIN1)/DH                                             PRPLOT
  250 CONTINUE                                                         PRPLOT
      IF (DUM1.LT.0..OR.DUM2.LT.0.) GO TO 260                          PRPLOT
      IF (DUM1.GE.NDVP.OR.DUM2.GE.NDHP) GO TO 260                      PRPLOT
```

```
      NX=1+INT(DUM1)                                                    PRPLOT
      NY=1+INT(DUM2)                                                    PRPLOT
      J=(NDHP-NY)*NDVP+NX                                               PRPLOT
      IMAGE(J)=CH                                                       PRPLOT
  260 CONTINUE                                                          PRPLOT
      RETURN                                                            PRPLOT
C *****                                                                  PRPLOT
      ENTRY PLOT4(NL,LABEL,IMAGE)                                       PRPLOT
      IF (.NOT.KPLT) RETURN                                             PRPLOT
      IF (.NOT.KPLT2) GO TO 170                                         PRPLOT
      DO 280 I=1,NDHP                                                   PRPLOT
      IF (I.EQ.NDHP.AND.KBOTGL) GO TO 280                               PRPLOT
      WL=BL1                                                            PRPLOT
      IF (I.LE.NL) WL=LABEL(I)                                          PRPLOT
      I2=I*NDVP                                                         PRPLOT
      I1=I2-NDV                                                         PRPLOT
      IF (MOD(I-1,NSH).EQ.0.AND..NOT.KORD) GO TO 270                    PRPLOT
      WRITE (IFL,FOR2) WL,(IMAGE(J),J=I1,I2)                            PRPLOT
      GO TO 280                                                         PRPLOT
  270 CONTINUE                                                          PRPLOT
      ORDNO=(YMX-FLOAT(I-1)*DH)*FSY                                     PRPLOT
      IF (I.EQ.NDHP) ORDNO=SYMIN                                        PRPLOT
      WRITE (IFL,FOR1) WL,ORDNO,(IMAGE(J),J=I1,I2)                      PRPLOT
  280 CONTINUE                                                          PRPLOT
      IF (KABSC) GO TO 290                                              PRPLOT
      WRITE (IFL,FOR3) (ABNOS(J),J=1,NVP)                               PRPLOT
  290 CONTINUE                                                          PRPLOT
      DO 292 I=1,2000                                                   PRPLOT
  292 IMAGE(I)=BL1                                                      PRPLOT
      RETURN                                                            PRPLOT
C *****                                                                  PRPLOT
C *****                                                                  PRPLOT
C *****                                                                  PRPLOT
  300 FORMAT (T5,'SOME PLOT1 ARG. ILLEGALLY 0')                         PRPLOT
  310 FORMAT (T5,'NO. OF VERTICAL LINES >25')                           PRPLOT
  320 FORMAT (T5,'WIDTH OF GRAPH >121')                                 PRPLOT
  330 FORMAT (T5,'PLOT2 MUST BE CALLED')                                PRPLOT
  340 FORMAT (T5,'PLOT3,ARG2 ) 0')                                      PRPLOT
      END                                                               PRPLOT
C=====================================================================  PMM...
      SUBROUTINE PMM(XMN,XMX,A,N)                                       PMM...
C---------------------------------------------------------------------  PMM...
      DIMENSION A(1)                                                    PMM...
      IF (N.LT.2) GO TO 20                                              PMM...
      XMN=A(1)                                                          PMM...
      XMX=XMN                                                           PMM...
      DO 10 I=2,N                                                       PMM...
      IF (A(I).LT.XMN) XMN=A(I)                                         PMM...
      IF (A(I).GT.XMX) XMX=A(I)                                         PMM...
   10 CONTINUE                                                          PMM...
```

```
      RETURN                                                            PMM...
   20 IF (N.LT.1) GO TO 30                                              PMM...
      XMN=A(1)                                                          PMM...
      XMX=XMN                                                           PMM...
      RETURN                                                            PMM...
   30 XMN=0.0                                                           PMM...
      XMX=0.0                                                           PMM...
      RETURN                                                            PMM...
      END                                                               PMM...
C=====================================================================  READCD
      SUBROUTINE READCD                                                 READCD
C                                                                       READCD
C       SUBROUTINE TO READ DATA,LAST REVISION: 08/15/84 BY: JON         READCD
C --------------------------------------------------------------------- COMMON
C ***** VARIABLES COMMON TO ONE OR MORE OF MAIN, READCD, ROUTE, NITRIF, COMMON
C *****                                           SUBROUTINES           COMMON
C ***** SCALARS:                                                        COMMON
C *****                                                                 COMMON
      COMMON /VALL/ BDN, BNT, CARD, DELNH4, DELNO2, DELTT, DXPNT, EA,    COMMON
     1 ER, ICDBUF, IEND, IGRAPH, ITYPE, ILIN, IMODEL, INITSW, IPLOT,    COMMON
     2 IPO4, IPRMIN, IPNET, IRET, ISW1, ISWBAD, ITAB1, ITAB2, ITEST,    COMMON
     3 ITFLAG, IXGEOM, J, JJ, JSEG, KPLOT, K2T, KCT, KCRT, KORNRT,      COMMON
     4 KORNFT, KNH4RT, KNH4FT, KNO2RT, KNO2FT, KNO3RT, KPO4BT, KNCR1T,  COMMON
     5 KNCR2T, LNCNTR, MPT, NCONSV, NNCONS, NSEG, PRINT, QTOT, TT,      COMMON
     6 TTSUM, XEND, XL, XSTRT, IRESP, DATE                              COMMON
C *****                                                                 COMMON
C ***** ARRAYS:                                                         COMMON
C *****                                                                 COMMON
      COMMON /ALL/ AA(50), AB(50), ATRIBC(50,21), ATRIBL(50,21), BN(50), COMMON
     1 BP(50), BSEG(50), CLONG(5,10), CSHORT(5,2), CUNIT(5,2), DA(50),  COMMON
     2 DB(50), DOSAT(50), ENDC(50,21), ENDL(50,21), GEOM(50,5),         COMMON
     3 GLINC(50,21), GLINL(50,21), IGEOM(50), IK2(50),K2(50),KC(50),    COMMON
     4 KCR(50), KORNR(50), KORNF(50), KNH4R(50), KNH4F(50), KNO2R(50),  COMMON
     5 KNO2F(50), KNO3R(50), KPO4B(50), KNCR1(50), KNCR2(50),           COMMON
     7 NDIV(50), OBSC(200,21), OBSMI(200), OBUNH3(200), PGEOM(6000,5),  COMMON
     8 PH(50), PLOTC(6000,30), PLOTL(6000,30), PNET(50), PRCOEF(50),    COMMON
     9 RESP(50), RLINC(50,21), RLINL(50,21), SCOND(50), SDESC(50,11),   COMMON
     & SFPM(50), SLOPE(50), SNAME(50,6), STARTC(21), STARTL(21),        COMMON
     & TCONC(21), TEMP(50), TITLE1(19), TITLE2(19), TLOAD(21),          COMMON
     & TRINC(50,21), TRINL(50,21), TA(50), TB(50), TTRIBC(50,21),       COMMON
     & TTRIBL(50,21), UNH3(6000), VA(50), VB(50), WA(50), WB(50),       COMMON
     & XDIST(6000), XLEN(50), XSEG(50), CTSVIG(50)                      COMMON
C---------------------------------------------------------------------  COMMON
      COMMON /PLOT/ PARM1(6000),PARM2(6000),PARM3(6000),PARM4(6000),    COMMON
     &PARM5(6000),OBSV1(200),IXPLOT,XAXIS(6000),XMAX,XMIN,XTITLE        COMMON
C --------------------------------------------------------------------- COMMON
C ***** RATE VARIABLES:                                                 READCD
      REAL K2T,KCT,KCRT,KORNRT,KORNFT,KNH4RT,KNH4FT,KNO2RT,KNO2FT,      READCD
     & KNO3RT,KPO4BT,KNCR1T,KNCR2T,K2TRM                                READCD
C *****                                                                 READCD
```

```
C ***** RATE ARRAYS:                                                    READCD
C *****                                                                 READCD
      REAL K2,KCR,KC,KNR,KN,KORNR,KORNF,KNH4R,KNH4F,KNO2R,KNO2F,KNO3R,  READCD
     & KPO4B,KNCR1,KNCR2                                                READCD
C---------------------------------------------------------------------- READCD
      INTEGER CARD,PRINT                                                READCD
      CHARACTER*16 DATE                                                 READCD
      INTEGER *2CHARST(80),CARD1,CARD2,CARD3,CARD4,CARD5,CARD6          READCD
      INTEGER *2CARD7,CARD8,CARD9,CARDA,CARDC                           READCD
      INTEGER *2CHERR                                                   READCD
      INTEGER *2BLANK                                                   READCD
C ***** SET-UP DATA FOR CARD TYPES:                                     READCD
      DATA CARD1,CARD2,CARD3,CARD4,CARD5,CARD6,CARD7,CARD8,CARD9,CARDA, READCD
     1CARDC/1H1,1H2,1H3,1H4,1H5,1H6,1H7,1H8,1H9,1HA,1HC/                READCD
      DATA BLANK/1H /                                                   READCD
C---------------------------------------------------------------------- READCD
C     INITIALIZE VAR.                                                   READCD
      ISECT=1                                                           READCD
      MPT=0                                                             READCD
      MPT1=0                                                            READCD
      KK=0                                                              READCD
      IEND=0                                                            READCD
      ISWBAD=0                                                          READCD
      IGOT1=0                                                           READCD
      ICONS=1                                                           READCD
      INCONS=1                                                          READCD
      ISECT=1                                                           READCD
      IRET=0                                                            READCD
      IDUM=0                                                            READCD
      XDUM=0.                                                           READCD
C                                                                       READCD
C---------------------------------------------------------------------- READCD
C     INITIALIZE REREAD CARD INPUT FUNCTION                             READCD
C *****                                                                 READCD
C ***** READ CARD IN BUFFER AND TEST FOR CHARACTERS NE NUMBERS,BLNK,    READCD
C *****  PRINT CARD IMAGES IF ITEST NE 0, TEST FOR CARD NUMBERS,        READCD
C *****  CHECK LEGIT CARDS FOR CHARACTER TYPES, BYPASS CARDS STARTING   READCD
C *****  WITH A 'C' AND BLANK CARDS                                     READCD
C *****                                                                 READCD
   30 READ (CARD,40,END=490) CHARST                                     READCD
   40 FORMAT(80A1)                                                      READCD
      IF(ITEST.NE.0) WRITE (PRINT,41) CHARST                            READCD
   41 FORMAT(1X,'DATA-CARD IMAGE= ',80A1)                               READCD
      IF (CHARST(1).EQ.CARDC) GOTO 30                                   READCD
      IF (CHARST(1).EQ.BLANK.OR.CHARST(2).EQ.BLANK) GOTO 30             READCD
      BACKSPACE (5)                                                     READCD
   50 IF(CHARST(1).EQ.CARD1) GOTO 70                                    READCD
      IF(CHARST(1).EQ.CARDA)GOTO 60                                     READCD
      IF (CHARST(1).EQ.CARD3) GO TO 390                                 READCD
      CALL TEST(CHARST,IRET,CHERR)                                      READCD
```

```
      IF (IRET.EQ.1) GO TO 430                                          READCD
C     CARD CK OKAY                                                      READCD
C *****                                                                READCD
      IF (CHARST(1).EQ.CARD2) GO TO 100                                 READCD
      IF (CHARST(1).EQ.CARD4) GO TO 170                                 READCD
      IF (CHARST(1).EQ.CARD5) GO TO 270                                 READCD
      IF (CHARST(1).EQ.CARD6) GO TO 310                                 READCD
      IF (CHARST(1).EQ.CARD7) GO TO 230                                 READCD
      IF (CHARST(1).EQ.CARD8) GO TO 330                                 READCD
      IF (CHARST(1).EQ.CARD9) GO TO 190                                 READCD
C *****                                                                READCD
      GO TO 410                                                         READCD
C-------------------------------------------------------------------   READCD
C ***** "A" CARDS-- PRIMARY MODEL OPTIONS                              READCD
   60 IF (CHARST(2).NE.CARD1)  READ (5,612) IDUM                        READCD
  612 FORMAT(1X,I1)                                                     READCD
      IF (CHARST(2).NE.CARD1) GOTO 30                                   READCD
      READ (5,62) IDUM,IDUM,IDUM,IDUM,IDUM,IDUM,IDUM,IPNET,IRESP,       READCD
     &ITEST                                                             READCD
   62 FORMAT(3X,20I1)                                                   READCD
      GOTO 30                                                           READCD
C ***** "1" CARD                                                       READCD
   70 IF (CHARST(2).EQ.CARD2) GO TO 90                                  READCD
C ***** TEST FOR START OF NEXT MAJOR TRIBUTARY OR MAINSTEM             READCD
      IF (IGOT1.EQ.1) GO TO 380                                         READCD
      IGOT1=1                                                           READCD
      ICDBUF=0                                                          READCD
      READ  (5,80) TITLE1                                               READCD
   80 FORMAT (2X,19A4)                                                  READCD
      GO TO 30                                                          READCD
   90 CONTINUE                                                          READCD
      READ  (5,80) TITLE2                                               READCD
      GO TO 30                                                          READCD
C-----------------------------------------------------------------------  READCD
C ***** "21" CARDS FOR SECONDARY MODEL OPTIONS                         READCD
  100 CONTINUE                                                          READCD
      IF (CHARST(2).EQ.CARD2) GO TO 120                                 READCD
      IF (CHARST(2).EQ.CARD3) GO TO 150                                 READCD
      READ (5,110) ITAB1,ITAB2,IPLOT,NSEG,JSEG,DXPNT,XSTRT,XEND,IGRAPH  READCD
  110 FORMAT (3X,2I1,1X,3(I2,1X),F3.0,2(1X,F8.0),3X,I1)                 READCD
      IF (NSEG.GT.50) GO TO 470                                         READCD
      GO TO 140                                                         READCD
C ***** "22" CARDS FOR BOUNDARY CONDITIONS                             READCD
  120 READ (5,130) (STARTC(I),I=1,5),(STARTC(I),I=9,12)                 READCD
  130 FORMAT (3X,9F8.0)                                                 READCD
  140 CONTINUE                                                          READCD
      GO TO 30                                                          READCD
C ***** "23" CARDS FOR CONTINUING INITIAL CONDITIONS                   READCD
  150 READ (5,160) (STARTC(L),L=13,14),(STARTC(L),L=16,21)              READCD
  160 FORMAT (3X,9F8.0)                                                 READCD
```

```
      GO TO 30                                                          READCD
C-----------------------------------------------------------------------READCD
C ***** "41" CARDS FOR CHANNEL GEOMETRY DATA                            READCD
  170 READ  (5,180) K,IDUM,(GEOM(K,L),L=1,5),VA(K),VB(K),TA(K),TB(K),   READCD
     1AA(K),AB(K),DA(K),DB(K),WA(K),WB(K)                               READCD
  180 FORMAT (2X,I2,I1,15(F5.0))                                        READCD
      IF (K.GT.50) GO TO 450                                            READCD
      GO TO 30                                                          READCD
C-----------------------------------------------------------------------READCD
C ***** "91" CARDS FOR READING IN OBSERVED DATA                         READCD
  190 CONTINUE                                                          READCD
      IF (CHARST(2).EQ.CARD2) GO TO 210                                 READCD
      MPT=MPT+1                                                         READCD
      READ  (5,200) OBSMI(MPT),OBSC(MPT,5),OBSC(MPT,7),(OBSC(MPT,I),I=9, READCD
     114),(OBSC(MPT,I),I=16,17)                                         READCD
  200 FORMAT (2X,11F7.0)                                                READCD
      OBSC(MPT,15)=OBSC(MPT,11)+OBSC(MPT,12)+OBSC(MPT,13)+OBSC(MPT,14)  READCD
      GO TO 220                                                         READCD
C ***** "92" CARDS FOR OBSERVED DATA                                    READCD
  210 CONTINUE                                                          READCD
      MPT1=MPT1+1                                                       READCD
      READ (5,200)  (OBSC(MPT1,K),K=18,21),OBSC(MPT1,1),                READCD
     &OBUNH3(MPT1)                                                      READCD
  220 CONTINUE                                                          READCD
      IF (MPT1.GT.200) GO TO 450                                        READCD
      IF (MPT.GT.200) GO TO 450                                         READCD
      GO TO 30                                                          READCD
C-----------------------------------------------------------------------READCD
C ***** "71"   CARDS FOR INPUT OF WASTE OR TRIN CONCENTRATION OR LOADS  READCD
  230 CONTINUE                                                          READCD
      IF (CHARST(2).EQ.CARD2) GO TO 250                                 READCD
      READ  (5,240) N,(TRINC(N,I),I=1,5),(TRINC(N,I),I=9,14),TRINC(N,16) READCD
  240 FORMAT (2X,I2,1X,12F6.0)                                          READCD
      GO TO 260                                                         READCD
C ***** "72" CARDS FOR WASTE OR TRIN INPUTS                             READCD
  250 CONTINUE                                                          READCD
      READ  (5,240) N,(TRINC(N,I),I=17,21),(TRINL(N,I),I=9,14),         READCD
     &TRINL(N,16)                                                       READCD
  260 CONTINUE                                                          READCD
      IF (N.GT.50) GO TO 450                                            READCD
      GO TO 30                                                          READCD
C-----------------------------------------------------------------------READCD
C ***** 51 CARDS,SUBREACH ENVIRONMENTAL FACTORS                         READCD
  270 CONTINUE                                                          READCD
      READ  (5,280) K,TEMP(K),BP(K),SCOND(K),BN(K),PNET(K),RESP(K),DUM1, READCD
     1K2(K),IK2(K),SFPM(K),SLOPE(K),PH(K),CTSVIG(K)                     READCD
  280 FORMAT (2X,I2,3F5.0,5F6.0,I2,F5.0,F8.0,1X,F3.1,1X,F6.0)           READCD
      IF (K.GT.50) GO TO 450                                            READCD
C ***** TURN ON P &/OR R BY IPNET OPTIONS                               READCD
      IF(IPNET.EQ.1) RESP(K)=0.0                                        READCD
```

```
      IF(IPNET.GE.2) PNET(K)=0.0                                       READCD
      IF(IPNET.EQ.3) RESP(K)=0.0                                       READCD
C ***** SLOPE COMPUTATIONS                                              READCD
      IF(SLOPE(K).EQ.0) SLOPE(K)=SFPM(K)/5280.                         READCD
      IF(SLOPE(K).NE.0) SFPM(K)=SLOPE(K)*5280.                         READCD
      GO TO 30                                                         READCD
C----------------------------------------------------------------------READCD
C ***** "6" CARDS,SUBREACH DECAY RATES                                 READCD
  310 CONTINUE                                                         READCD
      READ  (5,320) K1,KCR(K1),KC(K1),DUM1,DUM1,DUM1,                  READCD
     &DUM1,KORNR(K1),KORNF(K1),KNH4R(K1),KNH4F(K1),KNO2R(K1),          READCD
     &KNO2F(K1),KNO3R(K1),DUM4,KPO4B(K1),DUM1     ,KNCR1(K1),          READCD
     &KNCR2(K1)                                                        READCD
  320 FORMAT (2X,I2,1X,14F4.0,2F5.0,2F4.0)                             READCD
      IF (K1.GT.50) GO TO 450                                          READCD
      GO TO 30                                                         READCD
C----------------------------------------------------------------------READCD
C     LINEAR DATA                                                      READCD
C ***** "8-" CARDS- LINEAR RUNOFF DATA                                 READCD
  330 CONTINUE                                                         READCD
      IF (CHARST(2).EQ.CARD2) GO TO 350                                READCD
      IF(CHARST(2).EQ.CARD3) GOTO 352                                  READCD
      IF(CHARST(2).EQ.CARD4) GOTO 354                                  READCD
      READ  (5,340) N,(RLINC(N,I),I=1,2),(RLINC(N,I),I=4,5),(RLINC(N,I),  READCD
     &I=9,14),(RLINC(N,I),I=16,17),NDIV(N)                             READCD
  340 FORMAT (2X,I2,1X,12F6.0,I2)                                      READCD
      GO TO 370                                                        READCD
C ***** "82" CARDS                                                     READCD
  350 READ  (5,360) N,(RLINC(N,I),I=18,21)                             READCD
  360 FORMAT (2X,I2,1X,12F6.0)                                         READCD
      GOTO 370                                                         READCD
C ***** "83" CARDS- GROUND-WATER RETURN DATA                           READCD
  352 CONTINUE                                                         READCD
      READ  (5,340) N,(GLINC(N,I),I=1,2),(GLINC(N,I),I=4,5),(GLINC(N,I),  READCD
     1I=9,14),(GLINC(N,I),I=16,17)                                     READCD
      GO TO 370                                                        READCD
C ***** "84" CARDS                                                     READCD
  354 READ  (5,360) N,(GLINC(N,I),I=18,21)                             READCD
  370 CONTINUE                                                         READCD
      IF (N.GT.50) GO TO 450                                           READCD
      GO TO 30                                                         READCD
C *****                                                                READCD
  380 ICDBUF=1                                                         READCD
      INITSW=1                                                         READCD
      RETURN                                                           READCD
C----------------------------------------------------------------------READCD
C ***** 31 CARDS FOR SUBREACH DESCRIPTIONS                             READCD
  390 READ  (5,400) N,(SNAME(N,L),L=1,6),BSEG(N),(SDESC(N,LL),LL=1,11)  READCD
  400 FORMAT (2X,I2,1X,6A4,F6.0,1X,11A4)                               READCD
      GO TO 30                                                         READCD
```

```
C-------------------------------------------------------------------------- READCD
C     INVALID CARD TYPE                                                      READCD
  410 WRITE (PRINT,420) CHARST(1),ISECT,CHARST                                READCD
  420 FORMAT (1H1,10X,20HINVALID CARD TYPE = ,A1/10X,21HCARD INPUT SECTI     READCD
     1ON = ,I1//10X,13HCARD IMAGE = ,80A1)                                   READCD
      ISWBAD=1                                                                READCD
      CALL ERROR                                                              READCD
      RETURN                                                                  READCD
  430 WRITE (PRINT,440) ISECT,CHARST,CHERR                                    READCD
  440 FORMAT (1H1,////10X,35HERROR ON INPUT DATA CARD FOR SECT. ,I1//10X     READCD
     1,13HCARD IMAGE = ,80A1//10X,12HBAD CHAR. = ,A1)                        READCD
      ISWBAD=1                                                                READCD
      CALL ERROR                                                              READCD
      RETURN                                                                  READCD
C *****                                                                       READCD
  450 WRITE (PRINT,460) LL,MPT,J,K,JJ                                         READCD
  460 FORMAT (1H1,2X,60HINPUT DATA HAS EXCEEDED SPACE PROVIDED,CHECK REA     READCD
     1DCD ROUTINE.//10X,4HLL= ,I3,2X,6HMPT= ,I3,2X,3HJ= ,I3,2X,3HK= ,I3,     READCD
     22X,4HJJ= ,I3,2X,7HMPT3= ,I3,2X,6HNMOD= ,I3)                            READCD
      ISWBAD=1                                                                READCD
      CALL ERROR                                                              READCD
      RETURN                                                                  READCD
C *****                                                                       READCD
  470 WRITE (PRINT,480)                                                       READCD
  480 FORMAT (1H1////45HNSEG EXCEEDS FIRST DIMENSION STATEMENT VALUES)       READCD
      ISWBAD=1                                                                READCD
      CALL ERROR                                                              READCD
      RETURN                                                                  READCD
C     END OF CARD INPUT,SET FLAG                                             READCD
  490 IEND=1                                                                  READCD
      RETURN                                                                  READCD
C-------------------------------------------------------------------------- READCD
      END                                                                     READCD
C========================================================================== TEST..
      SUBROUTINE TEST(CHARST,IRET,CHERR)                                      TEST..
C                                                                             TEST..
C     ROUTINE TO CHECK FOR BAD CHARACTERS IN CARD DECK                       TEST..
C                                                                             TEST..
C     LAST DATE OF REVISION, FEBRUARY 1974                                   TEST..
C -------------------------------------------------------------------------- TEST..
      INTEGER *2TESTY1,TESTY2,TESTY3,TESTY4,TESTY5,CHARST(80)                TEST..
      INTEGER *2CHERR                                                         TEST..
      DATA TESTY1,TESTY2,TESTY3,TESTY4,TESTY5/1H0,1H9,1H.,1H ,1H-/          TEST..
C *****                                                                       TEST..
      IRET=0                                                                  TEST..
      DO 10 I=2,70                                                            TEST..
      IF (CHARST(I).EQ.TESTY3) GO TO 10                                       TEST..
      IF (CHARST(I).EQ.TESTY4) GO TO 10                                       TEST..
      IF (CHARST(I).EQ.TESTY5) GO TO 10                                       TEST..
      IF (CHARST(I).GE.TESTY1.AND.CHARST(I).LE.TESTY2) GO TO 10              TEST..
```

```
C     BAD CHAR                                                          TEST..
      CHERR=CHARST(I)                                                   TEST..
      IRET=1                                                            TEST..
   10 CONTINUE                                                          TEST..
      RETURN                                                            TEST..
      END                                                               TEST..
C=====================================================================  ERROR.
      SUBROUTINE ERROR                                                  ERROR.
C                                                                       ERROR.
C     SUBROUTINE TO SCAN DATA CARDS                                     ERROR.
C     LAST DATE OF REVISION,FEBRUARY 1974                               ERROR.
C ---------------------------------------------------------------------  ERROR.
      INTEGER *2CHARST(80),CARD1,CARD2,CARD3,CARD4,CARD5,CARD6          ERROR.
      INTEGER *2CARD7,CARD8,CARD9,CARDA,CARDI,CARDP,CARDK               ERROR.
      INTEGER *2CHERR                                                   ERROR.
      INTEGER CARD/5/,PRINT/6/                                          ERROR.
      CHARACTER*16 DATE                                                 ERROR.
C                                                                       ERROR.
      DATA CARD1,CARD2,CARD3,CARD4,CARD5,CARD6,CARD7,CARD8,CARD9,CARDA,C ERROR.
     1ARDI,CARDP,CARDK/1H1,1H2,1H3,1H4,1H5,1H6,1H7,1H8,1H9,1HA,1HI,1HP,1 ERROR.
     2HK/                                                               ERROR.
C                                                                       ERROR.
   10 READ (CARD,40,END=30) CHARST                                      ERROR.
      IF (CHARST(1).EQ.CARD1) GO TO 10                                  ERROR.
      IF (CHARST(1).EQ.CARDI) GO TO 10                                  ERROR.
      IF (CHARST(1).EQ.CARDP) GO TO 10                                  ERROR.
      IF (CHARST(1).EQ.CARD6) GO TO 10                                  ERROR.
      IF (CHARST(1).EQ.CARD7) GO TO 10                                  ERROR.
      IF (CHARST(1).EQ.CARDK) GO TO 10                                  ERROR.
      IF (CHARST(1).EQ.CARD8) GO TO 10                                  ERROR.
      CALL TEST(CHARST,IRET,CHERR)                                      ERROR.
      IF (IRET.EQ.1) GO TO 20                                           ERROR.
      IF (CHARST(1).EQ.CARD2) GO TO 10                                  ERROR.
      IF (CHARST(1).EQ.CARD3) GO TO 10                                  ERROR.
      IF (CHARST(1).EQ.CARD4) GO TO 10                                  ERROR.
      IF (CHARST(1).EQ.CARD5) GO TO 10                                  ERROR.
      IF (CHARST(1).EQ.CARDA) GO TO 10                                  ERROR.
      IF (CHARST(1).EQ.CARD9) GO TO 10                                  ERROR.
      WRITE (PRINT,60) CHARST                                           ERROR.
      GO TO 10                                                          ERROR.
   20 WRITE (PRINT,50) CHARST,CHERR                                     ERROR.
      GO TO 10                                                          ERROR.
   30 RETURN                                                            ERROR.
C *****                                                                 ERROR.
C *****                                                                 ERROR.
   40 FORMAT (80A1)                                                     ERROR.
   50 FORMAT (//10X,29HADDITION ERRORS IN INPUT DATA//10X,13HCARD IMAGE  ERROR.
     1= ,80A1/10X,12HBAD CHAR. = ,A1)                                   ERROR.
   60 FORMAT (//10X,28HBAD CARD TYPE,CARD IMAGE = ,80A1)                ERROR.
      END                                                               ERROR.
C=========================END OF PROGRAM DECK===========================
```

## APPENDIX II--LISTING OF EXAMPLE DATA SETS

### Notes on Assumptions made for Modeling Phosphorus in the Truckee River

As discussed in detail by Nowlin (1987), model calibration and validation based on observed river data collected in 1979 and 1980 disclosed problems in mass-balance of phosphorus in the Truckee River reach from Vista to Patrick. Successful model calibration was achieved by adding calculated nonpoint loadings of phosphorus to the river in the affected reach (Nowlin, table 28, figures 30-32).

The TRWQ Model was configured to allow independent simulation of phosphorus with, and without, optional assumptions regarding potential unmeasured sources of phosphorus in the affected reach. To do this, two simulations are made for orthophosphorus calculations: orthophosphorus-A and orthophosphorus-B. Internal calculations in the model for each assume simple first-order decay or uptake, as do the calculations for total phosphorus.

In simulations presented in Nowlin (1987) and in the example data sets presented in this report, orthophosphorus-A is used to track strict accounting of orthophosphorus based on measured and estimated point and nonpoint loadings to the Truckee River. For the selected data sets with anomalous trends in observed instream concentrations, calculated nonpoint loadings of phosphorus were added as "dummy" nonpoint ground-water returns ("83,84" cards) to reaches 3, and 7-11. For these data sets, the predicted values of orthophosphorus-B and total phosphorus provide simulations including effects of the "dummy" loadings. Calculations of the molar ratio of inorganic nitrogen to orthophosphorus use the orthophosphorus-B values.

Thus, the issue of adjustments in phosphorus loadings in the Vista to Patrick reach is handled external to the model code and at the discretion of the user. If no assumptions are made regarding "dummy" external loads of phosphorus, simulated values for orthophosphorus-A and orthophosphorus-B will be identical.

### Notes on Simulations of Mininum Daily Dissolved Oxygen

As explained by Nowlin (1987), the TRWQ Model was calibrated by coding measured minimum dissolved-oxygen concentrations for all river point inputs, setting the photosynthetic production to zero, and calibrating a respiration coefficient to match observed minimum daily dissolved-oxygen concentrations. These simulations may be matched with the following model data sets by replacing mean daily dissolved-oxygen concentrations on data cards "22" and "71" with minimum daily concentrations and coding IPNET on card "A1" as "0".

A.--Truckee River, June 1979

The following data set represents Truckee River conditions observed during field investigations in June 1979. Cards beginning with "C" are annotations for the following lines in the data set; they will be ignored by the TRWQ Model and are not required to run the data. Refer to table 1 for explanation of formats for input.

--------

```
C-----------------------------------------------------------------------------
C  R679.PUB  *** JUNE 1979 SYNOPTIC DATA, FINAL CALIBRATION/VALIDATION
C
C----- column ruler ------------------------------------------------------------
C        1         2         3         4         5         6         7         8
C2345678901234567890123456789012345678901234567890123456789012345678901234567890
C------------------------------------------------------------------------------
C----- primary options:  autoscale plots, daily mean DO ----------------------
A1       01 0
C----- DATA FOR 1ST SUBMODEL:  NORTH TRUCKEE DRAIN ---------------------------
11TRUCKEE RIVER, MCCARRAN BRIDGE TO DERBY DAM
12NORTH TRUCKEE DRAIN, KLEPPE LANE TO MOUTH      (R679.PUB MEAN DO)
C----- output formats:  print all tables and plots ---------------------------
21 00 00 01 02 .1  .26      .00       0
C----- starting discharge, concentrations, etc. for condition modeled ---------
22 40.0     17.8    650.     337.     8.8      4.2                 .87      .05
23 .02      .29     .10      337.     235.               .10       .14
C----- configuration of stream segments (don't change) -----------------------
3101 KLEPPE LANE TO MOUTH     .26     NO DIVERSIONS OR RETURNS
C----- channel geometry data (don't change) ----------------------------------
4101                         .58  .26                                   5.0  .30
C----- environmental data for subreachs for condition modeled ----------------
510118.0 650. 340.                                 12 2.3           8.5
C----- calibrated/validated reaction rates (don't change) --------------------
6101 .20 .20                .10 .10 .40 .40 1.0 1.0 .30       .25  0     .25 .25
C----- observed data during field studies (calibration targets) --------------
91.26    12.2   152.   5.0              1.2     .06     .04     .39     .12     385.
91.26    8.8    108.   4.2              .87     .05     .02     .29     .10     337.
91.26    5.0    60.    3.5              .66     .04     .02     .23     .08     303.
92268.          .12    .20      40.     0.00
92235.          .10    .14      40.     .005
92211.          .08    .12      35.     0.00
C=============================================================================
C----- DATA FOR SECOND SUBMODEL:  STEAMBOAT CREEK ----------------------------
C-----------------------------------------------------------------------------
11TRUCKEE RIVER, MCCARRAN BRIDGE TO DERBY DAM
12STEAMBOAT CREEK, KIMLICK LANE TO MOUTH        (R679.PUB  MEAN DO)
C----- output formats:  print all tables and plots ---------------------------
```

```
21 99 99 02 03 .1  .75      .05
C----- starting discharge, concentrations, etc. for condition modeled ---------
22 50.     19.1    650.    367.    7.8     7.6                 1.2     .06
23 .05     .06     .22     367.    255.            .22     .27
C----- configuration of stream segments (don't change) -----------------------
3101 KIMLICK LANE TO STP     .75     NO DIVERSIONS OR RETURNS
3102 STP OUTLINE TO MOUTH    .13     STP OUTFALL ENTERS AT HEAD
C----- channel geometry data (don't change) ----------------------------------
4101                           .26  .32                                  14.  .20
4102                           .088 .30                                  14.  .20
C----- environmental data for subreachs for condition modeled ----------------
510119.0 650. 370.                             12 .5         8.0
510220.0 650. 420.                             12 .5         8.5
C----- calibrated/validated reaction rates (don't change) --------------------
6101 .20 .20                  .10 .10 .40 .40 1.0 1.0 .30     .25  0    .25 .25
6102 1.7 .20                  1.7 .80 .40 .40 10. 10. .30     .25  0    .25 .25
C----- data for point-source inflows (Reno/Sparks STP) -----------------------
7102 25.0  22.0  650.  524.  7.1   24.        .40   13.   2.1   .24   4.9
7202 524.  299.        4.9   5.8
C----- observed data during field studies (calibration targets) --------------
91.75    10.3   136.   11.0         1.5    .10    .06    .10    .25    413.
91.75    7.8    99.    7.6          1.2    .06    .05    .06    .22    367.
91.75    4.6    58.    5.5          .93    .03    .02    .03    .19    335.
92287.          .25    .30    60.   0.00
92255.          .22    .27    50.   0.00
92233.          .19    .24    40.   0.00
C----- DATA FOR MAINSTEM TRUCKEE RIVER ---------------------------------------
11TRUCKEE RIVER, MCCARRAN BRIDGE TO DERBY DAM
12MAINSTEM TRUCKEE RIVER                         (R679.PUB  MEAN DO)
C----- output formats:  print summary tables 8 & 9 and plots -----------------
21 99 00 43 00 .1  56.12    0.00       1
C----- starting discharge, concentrations, etc. for condition modeled ---------
22 375.0   15.4    650.    90.     8.5     2.7     0       .33     .03
23 .02     .01     .02     90.     61.             .02     .03
C----- configuration of stream segments (don't change) -----------------------
3101 MCCARRAN BR - N TRUCKEE 56.12  NO DIVERSIONS OR RETURNS
3102 N TRUCKEE DR - STEAMBT  53.66  N TRUCKEE DRAIN AT HEAD
3103 STEAMBOAT - VISTA       53.53  STEAMBOAT C AT HEAD
3104 VISTA - LARGOMARSINO DV 52.23  NO DIVERSION
3105 LARGOMARSINO DIVERSIONS 51.25  NOCE AND MURPHY DIVERSIONS
3106 BELOW LARG. - LOCKWOOD  50.90  NOCE AND MURPHY RETURNS
3107 LOCKWOOD - GROTON DIV   50.05  L-NOCE & L-MURPHY RETURNS
3108 GROTON DV - MUSTANG BR#149.90  GROTON & L-MURPHY RETURNS
3109 MUSTANG BR - LAST RET.  48.25  L-MURPHY RETURNS
3110 MCCARRAN POOL           46.68  BACKWATER ABOVE MCCARRAN DAM
3111 MCCARRAN DV - PATRICK B 46.35  NO RETURNS
3112 PATRICK BR - SP RR BR   44.92  MCCARRAN RETURNS
3113 SP RR BR - HILL DIV     42.88  BACKWATER ABOVE HILL DAM
3114 HILL DIV - TRACY DIV    42.02  NO RETURNS
3115 TRACY DIV - TRACY BRIDGE40.76  NO RETURNS
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3116 TRACY BR - CLARK BR       40.62  HILL RETURNS
3117 CLARK BR - RM 37.1        38.60  NO DIVERSIONS OR RETURNS
3118 RM 37.1 - I-80 OXBOW      37.10  NO DIVERSIONS OR RETURNS
3119 I-80 OXBOW - DERBY DAM    35.60  BACKWATER ABOVE DERBY DAM
3120 DERBY DAM - GAGE CABLE    34.88  TRUCKEE CANAL DIVERTS AT HEAD
3121 GAGE CABLEWAY - WASHBRN 34.52  NO DIVERSIONS OR RETURNS MODELED
3122 WASHBURN -PAINTED ROCK  31.28  WASHBURN & TRUCKEE CANAL RETURNS
3123 PAINTED R - GREGORY-MONT29.97  NO RETURNS
3124 GREGORY-MONTE - RM 28.0 29.35  GREGORY-MONTEAND CANAL RETURNS
3125 RM 28.0 - HERMAN DIV      28.00  HERMAN AND CANAL RETURNS
3126 HERMAN DIV - PIERSON DIV26.75  HERMAN  AND CANAL RETURNS
3127 PIERSON DIV - PROCTR DIV25.95  HERMAN,  PIERSON , & CANAL RETURNS
3128 PROCTOR - WADSWORTH       23.90  FERNLEY AREA GROUND-WATER RETURNS
3129 WADSWORTH -FELLNAGLE DN 23.69  FERNLEY AREA GROUND-WATER RETURNS
3130 FELLNAGLE - RM 21.4       22.55  OLINGHOUSE #1 & FELLNAGLE RETURNS
3131 RM 21.4 - S-BAR-S DIV     21.40  OLINGHOUSE #1 & FELLNAGLE RETURNS
3132 S-S DAM - S-S PUMP        19.84  S-S AND OLINGHOUSE #2 RETURNS
3133 S-BAR-S PUMP - RM 15.8  17.82  S-S DAM, S-S PUMP & OLINGH.#3 RETURNS
3134 RM 15.8 - DEAD OX WASH  15.82  SALINE GROUND WATER INFLOWS
3135 DEAD OX - RM 10.0         13.18  SALINE GROUND WATER INFLOWS
3136 RM 10.0 - RM 9.2          10.0   SALINE GROUND WATER INFLOWS
3137 RM9.2  - NUMANA DAM       9.20   SALINE GROUND WATER INFLOWS
3138 NUMANA DAM - RM 7.6       8.21   NO RETURNS
3139 RM 7.6 - RM 6.8           7.60   NUMANA RETURNS
3140 RM 6.8 - RM 4.0           6.80   NUMANA RETURNS
3141 RM 4.0 - NIXON BRIDGE     4.00   NUMANA RETURNS
3142 NIXON BRIDGE - RM 1.0     3.22   NUMANA RETURNS
3143 RM 1.0 - MARBLE BLUFF D 1.00   NUMANA RETURNS, BACKWATER ABOVE DAM
C----- channel geometry data (don't change) ----------------------------------
4101                            .0695.50                                 50.  .1
4102                            .0733.50                                 54.  .1
4103                            .0351.603                                65.  .1
4104                            .0351.603                                63.  .1
4105                            .0137.765                                67.  .1
4106                            .0137.765                                60.  .1
4107                            .0137.765                                60.  .1
4108                            .0401.634                                65.  .1
4109                            .0343.634                                55.  .1
4110                            .0343.634                                68.  .1
4111                            .0355.634                                65.  .1
4112                            .0427.583                                56.  .1
4113                            .0427.583                                75.  .1
4114                            .0280.576                                76.  .1
4115                            .0518.586                                71.  .1
4116                            .0518.586                                62.  .1
4117                            .0374.582                                58.  .1
4118                            .0374.582                                54.  .1
4119                            .0374.582                                52.  .1
4120                            .0231.750                                53.  .1
4121                            .0231.750                                48.  .1
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4122                          .0231.750                              44.  .1
4123                          .0231.750                              57.  .1
4124                          .0131.851                              40.  .1
4125                          .0131.851                              59.  .1
4126                          .0131.851                              52.  .1
4127                          .0131.851                              54.  .1
4128                          .0164.706                              36.  .1
4129                          .0164.706                              57.  .1
4130                          .0361.706                              49.  .1
4131                          .0361.706                              50.  .1
4132                          .0262.706                              46.  .1
4133                          .0333.706                              45.  .1
4134                          .0416.706                              52.  .1
4135                          .0114.793                              61.  .1
4136                          .0114.793                              61.  .1
4137                          .0114.793                              74.  .1
4138                          .0304.744                              70.  .1
4139                          .0304.744                              60.  .1
4140                          .0304.744                              52.  .1
4141                          .0304.744                              41.  .1
4142                          .0178.578                              41.  .1
4143                          .0178.578                              491. .1
C----- environmental data for subreachs for condition modeled ----------------
510115.5 650.  90. 0    0.   2.    0         12 5.1         8.4
510215.5 650. 110. 0    0.   2.    0         12 1.0         8.4
510316.5 650. 160. 0    0.   2.    0         12 .50         8.4
510417.0 650. 160. 0    0.   2.    0         12 .50         8.1
510517.0 650. 160. 0    0.   12.   0         12 37.         8.0
510617.0 650. 160. 0    0.   12.   0         12 37.         8.0
510717.5 650. 160. 0    1.   12.   0         12 37.         8.0
510817.5 650. 160. 0    1.   12.   0         12 14.         7.9
510917.0 650. 160. 0    1.   12.   0         12 7.0         7.8
511017.0 650. 160. 0    1.   12.   0         12 .5          7.7
511117.0 650. 160. 0    1.   12.   0         12 18.         7.6
511217.5 650. 160. 0    1.   12.   0         12 9.8         7.7
511317.5 650. 160. 0    1.   12.   0         12 2.3         7.8
511418.0 650. 165. 0    1.   12.   0         12 7.9         7.9
511518.0 655. 170. 0    1.   12.   0         12 29.         8.0
511618.5 655. 170. 0    1.   12.   0         12 6.4         8.0
511719.0 650. 170. 0    1.   6.    0         12 11.         8.0
511819.0 650. 170. 0    1.   6.    0         12 5.3         8.1
511919.5 650. 170. 0    1.   6.    0         12 .8          8.1
512019.5 655. 170. 0    2.   7.    0         12 53.         8.0
512119.5 660. 170. 0    2.   7.    0         12 13.         8.0
512219.5 660. 170. 0    2.   7.    0         12 21.0        8.0
512319.5 660. 170. 0    2.   7.    0         12 6.40        8.1
512419.5 660. 170. 0    2.   7.    0         12 17.0        8.2
512520.0 660. 170. 0    2.   7.    0         12 5.6         8.2
512620.0 665. 170. 0    2.   7.    0         12 10.0        8.3
512720.0 665. 170. 0    2.   7.    0         12 11.0        8.3
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512820.0 665. 170. 0     2.    7.    0           12 29.          8.3
512920.0 665. 170. 0     2.    6.    0           12 5.3          8.3
513020.0 665. 170. 0     2.    6.    0           12 14.          8.4
513120.0 665. 170. 0     2.    6.    0           12 7.7          8.6
513219.5 665. 200. 0     2.    6.    0           12 11.0         8.8
513319.5 665. 250. 0     2.    6.    0           12 7.0          9.0
513419.5 665. 290. 0     2.    6.    0           12 6.1          9.1
513519.0 665. 290. 0     2.    3.    0           12 5.4          9.1
513619.0 665. 290. 0     2.    3.    0           12 15.          9.1
513719.0 665. 290. 0     2.    3.    0           12 1.0          9.1
513819.0 665. 345. 0     2.    3.    0           12 26.          9.1
513919.0 665. 345. 0     2.    3.    0           12 11.          9.1
514019.0 665. 345. 0     2.    3.    0           12 6.8          9.1
514119.0 665. 345. 0     2.    3.    0           12 11.5         9.1
514218.5 665. 400. 0     1.    1.    0           12 9.5          9.1
514318.0 665. 400. 0     1.    1.    0           12 1.5          9.1
C----- calibrated/validated reaction rates (don't change) --------------------
6101 .20 .20                .10 .10 .40 .40 1.0 1.0 .30     .25  0     .25 .25
6102 .20 .20                .10 .10 .40 .40 1.0 1.0 .30     .25  0     .25 .25
6103 1.7 .20                1.7 .80 .40 .40 10. 10. .30     .25  0     .25 .25
6104 1.7 .20                1.7 .80 .40 .40 10. 10. .30     .25  0     .25 .25
6105 .70 .20                .10 .10 2.4 2.4 10. 10. .30     .25  0     .25 .25
6106 .70 .20                .10 .10 2.4 2.4 10. 10. .30     .25  0     .25 .25
6107 .20 .20                .10 .10 2.4 2.4 10. 10. .30     .25  0     .25 .25
6108 .20 .20                .10 .10 2.4 2.4 10. 10. .30     .25  0     .25 .25
6109 .20 .20                .10 .10 2.4 2.4 6.0 6.0 .30     .25  0     .25 .25
6110 .20 .20                .10 .10 2.4 2.4 6.0 6.0 .30     .25  0     .25 .25
6111 .20 .20                .10 .10 2.4 2.4 5.0 5.0 .30     .25  0     .25 .25
6112 .20 .20                .10 .10 2.4 2.4 3.0 3.0 .30     .25  0     .25 .25
6113 .20 .20                .10 .10 2.4 2.4 3.0 3.0 .30     .25  0     .25 .25
6114 .20 .20                .10 .10 2.4 2.4 3.0 3.0 .30     .25  0     .25 .25
6115 .20 .20                .10 .10 2.4 2.4 3.0 3.0 .30     .25  0     .25 .25
6116 .20 .20                .10 .10 2.4 2.4 3.0 3.0 .30     .25  0     .25 .25
6117 .20 .20                .10 .10 2.4 2.4 3.0 3.0 .30     .25  0     .25 .25
6118 .20 .20                .10 .10 2.4 2.4 3.0 3.0 .30     .25  0     .25 .25
6119 .20 .20                .10 .10 2.4 2.4 3.0 3.0 1.5     .25  0     .25 .25
6120 .20 .20                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0     .25 .25
6121 .20 .20                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0     .25 .25
6122 .20 .20                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0     .25 .25
6123 .20 .20                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0     .25 .25
6124 .20 .20                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0     .25 .25
6125 .20 .20                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0     .25 .25
6126 .20 .20                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0     .25 .25
6127 .20 .20                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0     .25 .25
6128 .20 .20                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0     .25 .25
6129 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0     .25 .25
6130 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0     .25 .25
6131 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0     .25 .25
6132 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0     .25 .25
6133 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0     .25 .25
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6134 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6135 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6136 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6137 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6138 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6139 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6140 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6141 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6142 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6143 .14 .14                .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
C------ data for point-source inflows (negative discharges denote diversions)--
7105 -24.
7108 -5.0
7111 -22.0
7114 -4.0
7115 -4.0
7120 -390.
7122 -6.0
7124 -5.0
7126 -11.0
7127 -8.0
7128 -8.0
7138 -20.0
C------ data for surface nonpoint returns (see table 1 for explanation
C                                          of negative values -------------
8106 2.1   22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 05
8107  .7   22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 05
8108  14.  22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 05
8109  9.1  22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 05
8111  2.0  22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 00
8112 17.7  22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 11
8114  .4   22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 00
8115  .2   22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 14
8116 2.8   22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 14
8120  .4   22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 00
8121 3.6   22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 00
8122 3.5   22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 00
8123 0.7   22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 00
8124 2.3   22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 00
8125 2.2   22.   130.  -.70  10.0      1.3   .10   .30   .30   .50   -1.20 00
8126 1.0   22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 00
8127 8.2   22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 00
8128 1.1   22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 26
8130 .1    22.   130.  -.70  25.0      1.3   .10   .10   .30   .50   -1.20 28
8131 .4    22.   130.  -.70  25.0      1.3   .10   .10   .30   .50   -1.20 28
8132  1.7  22.   130.  -.70  25.0      1.3   .10   .10   .30   .50   -1.20 28
8133 1.7   22.   130.  -.70  25.0      1.3   .10   .10   .30   .50   -1.20 28
8140 2.7   22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 38
8141 .8    22.   130.  -.70  10.0      1.3   .10   .10   .30   .50   -1.20 38
8206 -1.20       .50   .60
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8207 -1.20     .50   .60
8208 -1.20     .50   .60
8209 -1.20     .50   .60
8211 -1.20     .50   .60
8212 -1.20     .50   .60
8214 -1.20     .50   .60
8215 -1.20     .50   .60
8216 -1.20     .50   .60
8220 -1.20     .50   .60
8221 -1.20     .50   .60
8222 -1.20     .50   .60
8223 -1.20     .50   .60
8224 -1.20     .50   .60
8225 -1.20     .50   .60
8226 -1.20     .50   .60
8227 -1.20     .50   .60
8228 -1.20     .50   .60
8230 -1.20     .50   .60
8231 -1.20     .50   .60
8232 -1.20     .50   .60
8233 -1.20     .50   .60
8240 -1.20     .50   .60
8241 -1.20     .50   .60
C------ data for nonpoint ground-water inflows -----------------------------
8307 .0003                                              0.
8308 .0032                                              0.
8309 .0031                                              0.
8310 .0006                                              0.
8311 .0028                                              0.
8329 4.8  17.0 730.  .5   1.                       1.8  .1    730.
8330 4.9  17.0 730.  .5   1.                       1.8  .1    730.
8331 .2   17.0 1080. .5   1.                       .5   .1    1080.
8332 .4   17.0 1080. .5   1.                       .5   .1    1080.
8333 .3   17.0 1080. .5   1.                       .5   .1    1080.
8334 .4   17.0 1080. .5   1.                       .5   .1    1080.
8335 .9   17.0 2250. .5   1.                       .1   .1    2250.
8336 .2   17.0 2250. .5   1.                       .1   .1    2250.
8337 .2   17.0 2250. .5   1.                       .1   .1    2250.
8338 .2   17.0 780.  .5   1.                       1.0  .1    780.
8339 .2   17.0 780.  .5   1.                       1.0  .1    780.
8340 .7   17.0 780.  .5   1.                       1.0  .1    780.
8341 .2   17.0 780.  .5   1.                       1.0  .1    780.
8342 .7   17.0 780.  .5   1.                       1.0  .1    780.
8343 .3   17.0 2410. .5   1.                       1.0  .1    2410.
8407           2600. 2600.
8408           2600. 2600.
8409           2600. 2600.
8410           2600. 2600.
8411           2600. 2600.
8429 540.      .1    .1
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8430 540.         .1     .1
8431 800.         .1     .1
8432 800.         .1     .1
8433 800.         .1     .1
8434 800.         .1     .1
8435 1670.        .1     .1
8436 1670.        .1     .1
8437 1670.        .1     .1
8438 580.         .1     .1
8439 580.         .1     .1
8440 580.         .1     .1
8441 580.         .1     .1
8442 580.         .1     .1
8443 1790.        .1     .1
C----- observed data during field studies (calibration targets) --------------
9156.12  9.4   107.   3.8          .45    .05    .02    .03    .05    102.
9156.12  8.5   100.   2.7          .33    .03    .02    .01    .02    90.
9156.12  7.4   92.    1.9          .25    .01    .01    .01    .01    85.
9152.23  9.4   115.   3.1          .52    .90    .28    .20    .56    173.
9152.23  8.3   100.   2.4          .38    .65    .19    .03    .31    159.
9152.23  7.2   81.    1.7          .00    .52    .06    .00    .04    140.
9150.05  9.4   113.   4.8          .72    .84    .27    .38    .55    174.
9150.05  8.1   99.    3.7          .44    .56    .15    .10    .30    160.
9150.05  7.0   88.    2.8          .00    .11    .04    .02    .08    144.
9144.92  9.2   112.   4.7          .70    .57    .21    1.1    .62    184.
9144.92  8.1   98.    3.8          .46    .28    .11    .30    .35    163.
9144.92  7.0   81.    2.2          .28    .03    .02    .10    .11    148.
9140.62  9.7   118.   4.7          .94    .54    .25    .90    .44    183.
9140.62  8.2   100.   3.9          .45    .25    .13    .41    .32    168.
9140.62  6.3   78.    3.2          .15    .03    .02    .20    .15    149.
9134.88  9.6   123.   5.2          .97    .34    .27    .82    .41    186.
9134.88  8.2   103.   3.8          .57    .21    .18    .49    .33    169.
9134.88  6.8   80.    3.1          .37    .01    .02    .34    .17    159.
9134.52  9.0   113.   5.0          .74    .23    .25    .72    .41    182.
9134.52  8.1   100.   3.5          .56    .16    .13    .53    .33    169.
9134.52  7.1   86.    2.9          .40    .01    .02    .35    .24    152.
9123.65               5.9          .78    .12    .14    .22    .29    190.
9123.65               5.1          .56    .05    .08    .05    .25    174.
9123.65               4.8          .37    .01    .04    .00    .14    152.
9113.18               9.6          .72    .08    .02    .02    .19    311.
9113.18               6.7          .56    .04    .01    .01    .16    288.
9113.18               4.7          .42    .01    .01    .00    .14    265.
913.22   9.0   116.   6.8          .72    .06    .02    .01    .17    443.
913.22   8.4   102.   5.0          .53    .03    .02    .00    .15    401.
913.22   7.4   82.    4.0          .37    .01    .01    .00    .14    378.
910.     9.0   108.   6.2          .73    .16    .02    .02    .20    420.
910.     7.5   91.    5.2          .57    .11    .02    .00    .18    400.
910.     6.3   75.    4.4          .46    .06    .01    .00    .16    369.
9269.          .05    .04    385.  0.00
9261.          .02    .03    375.  .002
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| | | | | |
|---|---|---|---|---|
| 9258. | .01 | .02 | 335. | 0.00 |
| 92114. | .56 | .53 | 560. | 0.00 |
| 92106. | .31 | .38 | 490. | 0.00 |
| 9295. | .04 | .06 | 420. | 0.00 |
| 92114. | .55 | .56 | 545. | .055 |
| 92107. | .30 | .36 | 470. | .018 |
| 9297. | .08 | .08 | 405. | .009 |
| 92120. | .62 | .58 | 520. | .025 |
| 92108. | .35 | .40 | 460. | .006 |
| 92100. | .11 | .12 | 405. | .002 |
| 92120. | .44 | .52 | 520. | .038 |
| 92111. | .32 | .42 | 470. | .013 |
| 92100. | .15 | .32 | 410. | .011 |
| 92121. | .41 | .51 | 530. | .042 |
| 92112. | .33 | .40 | 480. | .012 |
| 92106. | .17 | .21 | 420. | .004 |
| 92119. | .41 | .47 | 110. | 0.00 |
| 92112. | .33 | .38 | 90. | .005 |
| 92102. | .24 | .29 | 65. | 0.00 |
| 92124. | .29 | .37 | 95. | .059 |
| 92114. | .25 | .32 | 75. | .025 |
| 92102. | .14 | .19 | 60. | .001 |
| 92192. | .19 | .29 | 110. | .050 |
| 92179. | .16 | .23 | 90. | .015 |
| 92166. | .14 | .18 | 75. | .003 |
| 92268. | .17 | .20 | 85. | 0.00 |
| 92244. | .15 | .19 | 75. | 0.0 |
| 92231. | .14 | .16 | 50. | 0.00 |
| 92254. | .20 | .25 | 85. | 0.00 |
| 92243. | .18 | .22 | 76. | 0.00 |
| 92225. | .16 | .20 | 50. | 0.00 |

C-----------------------------------------------------------------------

## B.--Truckee River, August 1979

The following data set represents Truckee River conditions observed during field investigations in August 1979. The printed output from this data set is presented in Appendix III. Format controls ("21" cards) have been set to provide the following outputs:

North Truckee Drain submodel-- all tables (full tables 8 & 9), no graphs

Steamboat Creek submodel-- all tables (full tables 8 & 9), no graphs suppresed

Mainstem river-- all tables and graphs, tables 8 and 9 limited to summary data for ends of subreaches

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```
C------------------------------------------------------------------------------
C  R879.PUB
C
C------------------------------------------------------------------------
A1       01 0
C----NORTH-TRUCKEE-DRAIN-SUBMODEL----------------------------------------
11TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM
12NORTH TRUCKEE DRAIN, KLEPPE LANE TO MOUTH       (R879.PUB MEAN DO)
21 00 99 01 02 .1  .26      .00       0
22 50.0    19.9    652.    359.    7.0     3.9               .68      .02
23 .01     .41     .11     359.    250.              .11    .10
3101 KLEPPE LANE TO MOUTH     .26    NO DIVERSIONS OR RETURNS
4101                          .58  .26                                   5.0  .30
510120.0 652. 360.                                  12  2.3          7.9
6101 .20 .20                  .10 .10 .40 .40 1.0 1.0 .30     .25  0     .25 .25
91.26     11.0    147.    4.6         .81     .03     .01     .46     .14     396.
91.26     7.0     90.     3.9         .68     .02     .01     .41     .11     359.
91.26     4.4     56.     3.4         .62     .01     .01     .28     .08     328.
92276.            .14     .10     52.     .006    3.9     540.
92250.            .11     .10     50.     .001    2.0     400.
92228.            .08     .09     49.     .000    1.3     320.
C----STEAMBOAT-CREEK-SUBMODEL--------------------------------------------
11TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM
12STEAMBOAT CREEK, KIMLICK LANE TO MOUTH          (R879.PUB  MEAN DO )
21 00 99 02 03 .1  .75      .00       0
22 40.0    22.2    652.    279.    5.8     6.9               .90      .10
23 .01     .09     .21     279.    194.               .21   .24
3101 KIMLICK LANE TO STP      .75    NO DIVERSIONS OR RETURNS
3102 STP OUTFALL TO MOUTH     .13    STP OUTFALL ENTERS AT HEAD
4101                          .26  .32                                   14.  .20
4102                          .088 .30                                   14.  .20
```

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510122.0 650. 280.                                  12  .5          8.0
510223.5 650. 380.                                  12              7.9
6101 .20 .20                .10 .10 .40 .40 1.0 1.0 .30      .25  0     .25 .25
6102 1.7 .20                1.7 .80 .40 .40 10. 10. .30      .25  0     .25 .25
7102 30.0  24.8  652.  509.  6.6   37.        3.    14.0  .15   .01   3.8
7202 509.  291.        3.8  4.7
91.75    8.2    115.   8.8          1.0    .16    .02    .12    .24    294.
91.75    5.8    78.    6.9          .90    .10    .01    .09    .21    279.
91.75    4.0    49.    5.6          .76    .04    .01    .04    .20    263.
92205.          .24    .28    42.   .006   3.0    2910.
92194.          .21    .24    40.   .004   1.7    2170.
92183.          .20    .21    31.   .003   1.1    1260.
C----MAINSTEM-TRUCKEE-RIVER-------------------------------------------------
11TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM
12 MAINSTEM TRUCKEE RIVER                          (R879.PUB  MEAN DO)
21 05 00 43 00 .1  56.12     0.00      0
22 160.0   20.3    653 .   127.    7.6     2.4              .33      .03
23 .01     .04     .08     127.    86.              .08    .04
3101 MCCARRAN BR - N TRUCKEE 56.12  NO DIVERSIONS OR RETURNS
3102 N TRUCKEE DR - STEAMBT  53.66  N TRUCKEE DRAIN AT HEAD
3103 STEAMBOAT - VISTA       53.53  STEAMBOAT C AT HEAD
3104 VISTA - LARGOMARSINO DV 52.23  NO DIVERSION
3105 LARGOMARSINO DIVERSIONS 51.25  NOCE AND MURPHY DIVERSIONS
3106 BELOW LARG. - LOCKWOOD  50.90  NOCE AND MURPHY RETURNS
3107 LOCKWOOD - GROTON DIV   50.05  L-NOCE & L-MURPHY RETURNS
3108 GROTON DV - MUSTANG BR#149.90  GROTON & L-MURPHY RETURNS
3109 MUSTANG BR - LAST RET.  48.25  L-MURPHY RETURNS
3110 MCCARRAN POOL           46.68  BACKWATER ABOVE MCCARRAN DAM
3111 MCCARRAN DV - PATRICK B 46.35  NO RETURNS
3112 PATRICK BR - SP RR BR   44.92  MCCARRAN RETURNS
3113 SP RR BR - HILL DIV     42.88  BACKWATER ABOVE HILL DAM
3114 HILL DIV - TRACY DIV    42.02  NO RETURNS
3115 TRACY DIV - TRACY BRIDGE40.76  NO RETURNS
3116 TRACY BR - CLARK BR     40.62  HILL RETURNS
3117 CLARK BR - RM 37.1      38.60  NO DIVERSIONS OR RETURNS
3118 RM 37.1 - I-80 OXBOW    37.10  NO DIVERSIONS OR RETURNS
3119 I-80 OXBOW - DERBY DAM  35.60  BACKWATER ABOVE DERBY DAM
3120 DERBY DAM - GAGE CABLE  34.88  TRUCKEE CANAL DIVERTS AT HEAD
3121 GAGE CABLEWAY - WASHBRN 34.52  NO DIVERSIONS OR RETURNS MODELED
3122 WASHBURN -PAINTED ROCK  31.28  WASHBURN & TRUCKEE CANAL RETURNS
3123 PAINTED R - GREGORY-MONT29.97  NO RETURNS
3124 GREGORY-MONTE - RM 28.0 29.35  GREGORY-MONTEAND CANAL RETURNS
3125 RM 28.0 - HERMAN DIV    28.00  HERMAN AND CANAL RETURNS
3126 HERMAN DIV - PIERSON DIV26.75  HERMAN  AND CANAL RETURNS
3127 PIERSON DIV - PROCTR DIV25.95  HERMAN,  PIERSON , & CANAL RETURNS
3128 PROCTOR - WADSWORTH     23.90  FERNLEY AREA GROUND-WATER RETURNS
3129 WADSWORTH -FELLNAGLE DN 23.69  FERNLEY AREA GROUND-WATER RETURNS
3130 FELLNAGLE - RM 21.4     22.55  OLINGHOUSE #1 & FELLNAGLE RETURNS
3131 RM 21.4 - S-BAR-S DIV   21.40  OLINGHOUSE #1 & FELLNAGLE RETURNS
3132 S-S DAM - S-S PUMP      19.84  S-S AND OLINGHOUSE #2 RETURNS
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3133 S-BAR-S PUMP - RM 15.8  17.82  S-S DAM, S-S PUMP & OLINGH.#3 RETURNS
3134 RM 15.8 - DEAD OX WASH  15.82  SALINE GROUND WATER INFLOWS
3135 DEAD OX - RM 10.0       13.18  SALINE GROUND WATER INFLOWS
3136 RM 10.0 - RM 9.2        10.0   SALINE GROUND WATER INFLOWS
3137 RM9.2  - NUMANA DAM     9.20   SALINE GROUND WATER INFLOWS
3138 NUMANA DAM - RM 7.6     8.21   NO RETURNS
3139 RM 7.6 - RM 6.8         7.60   NUMANA RETURNS
3140 RM 6.8 - RM 4.0         6.80   NUMANA RETURNS
3141 RM 4.0 - NIXON BRIDGE   4.00   NUMANA RETURNS
3142 NIXON BRIDGE - RM 1.0   3.22   NUMANA RETURNS
3143 RM 1.0 - MARBLE BLUFF D 1.00   NUMANA RETURNS, BACKWATER ABOVE DAM
4101                          .0695.50                                      50.   .1
4102                          .0733.50                                      54.   .1
4103                          .0351.603                                     65.   .1
4104                          .0351.603                                     63.   .1
4105                          .0137.765                                     67.   .1
4106                          .0137.765                                     60.   .1
4107                          .0137.765                                     60.   .1
4108                          .0401.634                                     65.   .1
4109                          .0343.634                                     55.   .1
4110                          .0343.634                                     68.   .1
4111                          .0355.634                                     65.   .1
4112                          .0427.583                                     56.   .1
4113                          .0427.583                                     75.   .1
4114                          .0280.576                                     76.   .1
4115                          .0518.586                                     71.   .1
4116                          .0518.586                                     62.   .1
4117                          .0374.582                                     58.   .1
4118                          .0374.582                                     54.   .1
4119                          .0374.582                                     52.   .1
4120                          .0231.750                                     53.   .1
4121                          .0231.750                                     48.   .1
4122                          .0231.750                                     44.   .1
4123                          .0231.750                                     57.   .1
4124                          .0131.851                                     40.   .1
4125                          .0131.851                                     59.   .1
4126                          .0131.851                                     52.   .1
4127                          .0131.851                                     54.   .1
4128                          .0164.706                                     36.   .1
4129                          .0164.706                                     57.   .1
4130                          .0361.706                                     49.   .1
4131                          .0361.706                                     50.   .1
4132                          .0262.706                                     46.   .1
4133                          .0333.706                                     45.   .1
4134                          .0416.706                                     52.   .1
4135                          .0114.793                                     61.   .1
4136                          .0114.793                                     61.   .1
4137                          .0114.793                                     74.   .1
4138                          .0304.744                                     70.   .1
4139                          .0304.744                                     60.   .1
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4140                          .0304.744                               52.  .1
4141                          .0304.744                               41.  .1
4142                          .0178.578                               41.  .1
4143                          .0178.578                              491.  .1
510120.5 655. 130. 0     0.    2.    0          12 5.1          8.0
510220.0 655. 180. 0     0.    2.    0          12 1.0          8.2
510321.0 655. 240. 0     0.    2.    0          12 .50          8.0
510421.0 655. 240. 0     0.    2.    0          12 .50          7.7
510521.0 655. 240. 0     0.   12.    0          12 37.          7.6
510621.5 655. 240. 0     0.   12.    0          12 15.          7.5
510721.5 655. 240. 0     1.   12.    0          12 15.          7.4
510821.5 655. 240. 0     1.   12.    0          12 14.          7.5
510921.5 655. 240. 0     1.   12.    0          12 7.0          7.6
511021.5 655. 240. 0     1.   12.    0          12 .5           7.7
511121.5 655. 240. 0     1.   12.    0          12 18.          7.8
511222.0 655. 240. 0     1.   12.    0          12 9.8          7.8
511322.0 655. 240. 0     1.   12.    0          12 2.3          7.8
511422.0 655. 240. 0     1.   12.    0          12 7.9          7.8
511522.0 655. 250. 0     1.   12.    0          12 29.          7.8
511622.0 655. 250. 0     1.   12.    0          12 6.4          7.8
511722.0 655. 240. 0     1.    6.    0          12 11.          7.8
511822.5 655. 240. 0     1.    6.    0          12 5.3          7.9
511922.5 655. 240. 0     1.    6.    0          12 .8           8.0
512023.0 655. 240. 0     2.    7.    0          12 53.          8.0
512123.0 655. 240. 0     2.    7.    0          12 13.          8.0
512223.0 655. 540. 0     2.    7.    0          12 21.0         8.0
512323.0 660. 540. 0     2.    7.    0          12 6.40         8.0
512423.0 660. 250. 0     2.    7.    0          12 17.0         8.1
512523.0 660. 250. 0     2.    7.    0          12 5.6          8.1
512623.0 660. 250. 0     2.    7.    0          12 10.0         8.1
512723.0 660. 260. 0     2.    7.    0          12 11.0         8.1
512823.0 660. 260. 0     2.    7.    0          12 29.          8.1
512923.0 660. 260. 0     2.    6.    0          12 5.3          8.1
513023.0 660. 300. 0     2.    6.    0          12 14.          8.2
513123.5 660. 300. 0     2.    6.    0          12 7.7          8.2
513224.0 660. 400. 0     2.    6.    0          12 11.0         8.3
513324.0 660. 460. 0     2.    6.    0          12 7.0          8.4
513424.5 660. 460. 0     2.    6.    0          12 6.1          8.4
513524.5 660. 460. 0     2.    3.    0          12 5.4          8.4
513624.5 660. 460. 0     2.    3.    0          12 15.          8.4
513724.5 660. 460. 0     2.    3.    0          12 1.0          8.4
513825.0 660. 610. 0     2.    3.    0          12 26.          8.4
513925.0 665. 610. 0     2.    3.    0          12 11.          8.4
514025.0 665. 610. 0     2.    3.    0          12 6.8          8.4
514125.0 665. 610. 0     2.    3.    0          12 11.5         8.4
514224.0 665. 630. 0     1.    1.    0          12 9.5          8.6
514323.0 665. 630. 0     1.    1.    0          12 1.5          8.8
6101 .20 .20                 .10 .10 .40 .40 1.0 1.0 .30     .25  0    .25 .25
6102 .20 .20                 .10 .10 .40 .40 1.0 1.0 .30     .25  0    .25 .25
6103 1.7 .20                 1.7 .80 .40 .40 10. 10. .30     .25  0    .25 .25
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| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6104 | 1.7 | .20 | 1.7 | .80 | .40 | .40 | 10. | 10. | .30 | .25 | 0 | .25 | .25 |
| 6105 | .70 | .20 | .10 | .10 | 2.4 | 2.4 | 10. | 10. | .30 | .25 | 0 | .25 | .25 |
| 6106 | .70 | .20 | .10 | .10 | 2.4 | 2.4 | 10. | 10. | .30 | .25 | 0 | .25 | .25 |
| 6107 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 10. | 10. | .30 | .25 | 0 | .25 | .25 |
| 6108 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 10. | 10. | .30 | .25 | 0 | .25 | .25 |
| 6109 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 6.0 | 6.0 | .30 | .25 | 0 | .25 | .25 |
| 6110 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 6.0 | 6.0 | .30 | .25 | 0 | .25 | .25 |
| 6111 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 5.0 | 5.0 | .30 | .25 | 0 | .25 | .25 |
| 6112 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | .30 | .25 | 0 | .25 | .25 |
| 6113 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | .30 | .25 | 0 | .25 | .25 |
| 6114 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | .30 | .25 | 0 | .25 | .25 |
| 6115 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | .30 | .25 | 0 | .25 | .25 |
| 6116 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | .30 | .25 | 0 | .25 | .25 |
| 6117 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | .30 | .25 | 0 | .25 | .25 |
| 6118 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | .30 | .25 | 0 | .25 | .25 |
| 6119 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 1.5 | .25 | 0 | .25 | .25 |
| 6120 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6121 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6122 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6123 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6124 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6125 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6126 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6127 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6128 | .20 | .20 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6129 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6130 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6131 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6132 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6133 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6134 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6135 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6136 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6137 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6138 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6139 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6140 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6141 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6142 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |
| 6143 | .14 | .14 | .10 | .10 | 2.4 | 2.4 | 3.0 | 3.0 | 2.0 | .25 | 0 | .25 | .25 |

7105 -27.
7108 -4.0
7111 -13.0
7114 -6.0
7115 -4.0
7120 -220.
7122 -2.0
7124 -8.0
7126 -14.0
7130 -6.0

```
7132 -4.0
7138 -13.0
8106 3.0   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 05
8107 .7    22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 05
8108 10.1  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 05
8109  7.1  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 05
8111  1.3  22.   130.  -.70  10.0        1.0   .10   .10   .30   .50   -1.20 00
8112  7.8  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 11
8114   .5  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8115   .3  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 14
8116  3.2  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 14
8120   .4  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8121 3.6   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8122 1.6   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8123 0.7   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8124 1.9   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8125 1.8   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8126 1.0   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8127 3.5   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8128 .5    22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8130 0.0   22.   130.  -.70  25.0        1.3   .10   .10   .30   .50   -1.20 00
8131 1.1   22.   130.  -.70  25.0        1.3   .10   .10   .30   .50   -1.20 30
8132   .3  22.   130.  -.70  25.0        1.3   .10   .10   .30   .50   -1.20 00
8133 .5    22.   130.  -.70  25.0        1.3   .10   .10   .30   .50   -1.20 32
8140 5.1   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 38
8141 1.4   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 38
8206 -1.20       .50   .60
8207 -1.20       .50   .60
8208 -1.20       .50   .60
8209 -1.20       .50   .60
8211 -1.20       .50   .60
8212 -1.20       .50   .60
8214 -1.20       .50   .60
8215 -1.20       .50   .60
8216 -1.20       .50   .60
8220 -1.20       .50   .60
8221 -1.20       .50   .60
8222 -1.20       .50   .60
8223 -1.20       .50   .60
8224 -1.20       .50   .60
8225 -1.20       .50   .60
8226 -1.20       .50   .60
8227 -1.20       .50   .60
8228 -1.20       .50   .60
8230 -1.20       .50   .60
8231 -1.20       .50   .60
8232 -1.20       .50   .60
8233 -1.20       .50   .60
8240 -1.20       .50   .60
8241 -1.20       .50   .60
```

```
8303 .01
8307 .0003                                                        0.
8308 .0032                                                        0.
8309 .0031                                                        0.
8310 .0006                                                        0.
8311 .0028                                                        0.
8329 4.8   17.0  730.  .5    1.                             1.8   .1    730.
8330 4.9   17.0  730.  .5    1.                             1.8   .1    730.
8331 .2    17.0  1080. .5    1.                             .5    .1    1080.
8332 .4    17.0  1080. .5    1.                             .5    .1    1080.
8333 .3    17.0  1080. .5    1.                             .5    .1    1080.
8334 .4    17.0  1080. .5    1.                             .5    .1    1080.
8335 .9    17.0  2250. .5    1.                             .1    .1    2250.
8336 .2    17.0  2250. .5    1.                             .1    .1    2250.
8337 .2    17.0  2250. .5    1.                             .1    .1    2250.
8338 .2    17.0  780.  .5    1.                             1.0   .1    780.
8339 .2    17.0  780.  .5    1.                             1.0   .1    780.
8340 .7    17.0  780.  .5    1.                             1.0   .1    780.
8341 .2    17.0  780.  .5    1.                             1.0   .1    780.
8342 .7    17.0  780.  .5    1.                             1.0   .1    780.
8343 .3    17.0  2410. .5    1.                             1.0   .1    2410.
8403              3400. 3400.
8407             10000.10000.
8408             10000.10000.
8409             10000.10000.
8410             10000.10000.
8411             10000.10000.
8429 540.         .1    .1
8430 540.         .1    .1
8431 800.         .1    .1
8432 800.         .1    .1
8433 800.         .1    .1
8434 800.         .1    .1
8435 1670.        .1    .1
8436 1670.        .1    .1
8437 1670.        .1    .1
8438 580.         .1    .1
8439 580.         .1    .1
8440 580.         .1    .1
8441 580.         .1    .1
8442 580.         .1    .1
8443 1790.        .1    .1
9156.12  9.2    123.   3.2            .82    .09    .01    .05    .14    143.
9156.12  7.6    98.    2.4            .33    .03    .01    .04    .08    127.
9156.12  6.4    84.    2.0            .10    .01    .01    .02    .03    116.
9152.23  8.2    114.   6.5            .80    1.8    .06    .16    .75    253.
9152.23  6.6    86.    6.0            .57    1.5    .05    .13    .60    244.
9152.23  5.4    67.    5.0            .45    .97    .04    .12    .41    222.
9150.05  7.8    104.   6.7            .92    1.5    .19    .41    .84    261.
9150.05  6.0    79.    5.2            .63    1.2    .16    .37    .62    249.
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 9150.05 | 4.5 | 58. | 4.4 | | .45 | .79 | .10 | .31 | .42 | 230. |
| 9144.92 | 9.0 | 125. | 6.2 | | .90 | .94 | .33 | .82 | 1.4 | 258. |
| 9144.92 | 6.6 | 88. | 5.5 | | .70 | .58 | .28 | .77 | .91 | 243. |
| 9144.92 | 4.5 | 57. | 4.4 | | .46 | .33 | .21 | .68 | .44 | 229. |
| 9138.60 | 9.1 | 123. | 7.1 | | 1.1 | .32 | .33 | 1.4 | 1.1 | 268. |
| 9138.60 | 6.3 | 84. | 5.3 | | .64 | .21 | .26 | 1.1 | .74 | 251. |
| 9138.60 | 3.8 | 48. | 3.9 | | .45 | .10 | .16 | .92 | .47 | 241. |
| 9134.88 | 10.2 | 144. | 5.4 | | .92 | .28 | .27 | 1.20 | .98 | 248. |
| 9134.88 | 6.3 | 86. | 4.4 | | .68 | .11 | .19 | 1.1 | .69 | 237. |
| 9134.88 | 4.4 | 58. | 3.8 | | .48 | .01 | .14 | .95 | .52 | 223. |
| 9134.52 | 8.2 | 114. | 4.5 | | .75 | .23 | .23 | 1.20 | 1.1 | 246. |
| 9134.52 | 6.6 | 89. | 3.8 | | .58 | .12 | .17 | 1.10 | .72 | 238. |
| 9134.52 | 5.5 | 73. | 2.9 | | .42 | .06 | .13 | .97 | .51 | 225. |
| 9123.65 | 11.8 | 166. | 5.4 | | .70 | .04 | .01 | .08 | .44 | 278. |
| 9123.65 | 6.9 | 94. | 4.1 | | .52 | .02 | .01 | .02 | .38 | 260. |
| 9123.65 | 3.4 | 45. | 2.9 | | .36 | .01 | .01 | .00 | .35 | 249. |
| 9113.18 | 10.4 | 153. | 4.3 | | .54 | .07 | .01 | .00 | .24 | 477. |
| 9113.18 | 7.2 | 100. | 3.7 | | .40 | .02 | .01 | .00 | .23 | 455. |
| 9113.18 | 4.6 | 58. | 3.1 | | .27 | .01 | .01 | .00 | .22 | 431. |
| 913.22 | 10.4 | 158. | 4.3 | | .99 | .01 | .01 | .03 | .20 | 649. |
| 913.22 | 7.7 | 107. | 3.6 | | .66 | .01 | .01 | .01 | .14 | 607. |
| 913.22 | 5.2 | 68. | 2.8 | | .38 | .01 | .01 | .00 | .11 | 564. |
| 910. | 10.2 | 140. | 8.1 | | .74 | .03 | .01 | .00 | .25 | 664. |
| 910. | 8.2 | 109. | 5.9 | | .62 | .02 | .01 | .00 | .23 | 634. |
| 910. | 6.6 | 87. | 3.6 | 0 | .54 | .01 | .01 | .00 | .20 | 577. |
| 9297. | | .14 | .11 | 175. | .035 | 2.4 | 490. | | | |
| 9286. | | .08 | .04 | 160. | .002 | 1.2 | 360. | | | |
| 9279. | | .03 | .01 | 150. | .000 | .26 | 260. | | | |
| 92159. | | .75 | 1.1 | 290. | .16 | 1.1 | | | | |
| 92154. | | .60 | .75 | 275. | .049 | .53 | | | | |
| 92142. | | .41 | .46 | 260. | .014 | .26 | | | | |
| 92164. | | .84 | .87 | 270. | .04 | 2.8 | 720. | | | |
| 92157. | | .62 | .63 | 255. | .016 | 1.5 | 610. | | | |
| 92146. | | .42 | .45 | 240. | .007 | .53 | 510. | | | |
| 92162. | | 1.4 | 1.4 | 280. | .075 | 2.1 | | | | |
| 92154. | | .91 | .94 | 260. | .02 | 1.1 | | | | |
| 92146. | | .44 | .50 | 230. | .007 | .53 | | | | |
| 92168 | | 1.1 | 1.2 | 270. | .036 | 4.1 | | | | |
| 92158. | | .74 | .85 | 260. | .007 | 1.4 | | | | |
| 92153. | | .47 | .60 | 230. | .001 | .21 | | | | |
| 92157. | | .98 | 1.1 | 280. | .013 | 2.1 | 1180. | | | |
| 92150. | | .69 | .78 | 260. | .006 | 1.4 | 1030. | | | |
| 92142. | | .52 | .58 | 225. | .001 | .65 | 710. | | | |
| 92155. | | 1.1 | 1.1 | 40. | .013 | 2.0 | | | | |
| 92151. | | .72 | .78 | 40. | .007 | 1.0 | | | | |
| 92144. | | .51 | .56 | 40. | .002 | .26 | | | | |
| 92174. | | .44 | .50 | 45. | .019 | 4.2 | | | | |
| 92163. | | .38 | .48 | 31. | .002 | 1.3 | | | | |
| 92157. | | .35 | .45 | 25. | .000 | .45 | | | | |
| 92287. | | .24 | .29 | 40. | .007 | 2.3 | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 92274. | .23 | .25 | 35. | .003 | 1.5 | |
| 92261. | .22 | .22 | 30. | .001 | .53 | |
| 92385. | .20 | .19 | 35. | .004 | 2.8 | |
| 92361. | .14 | .15 | 30. | .002 | 2.2 | |
| 92336. | .11 | .12 | 25. | .001 | 1.5 | |
| 92393. | .25 | .29 | 35. | .012 | 9.7 | 7260. |
| 92376. | .23 | .28 | 31. | .007 | 6.4 | 4820. |
| 92344. | .20 | .24 | 25. | .002 | 4.2 | 3350. |

C-----------------------------------------------------------------------------

## C.--Truckee River, June 1980

The following data set represents Truckee River conditions observed during field investigations in June 1980.

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C---------------------------------------------------------------------------------
C R680.PUB
A1       01 0
11TRUCKEE RIVER, MCCARRAN BRIDGE TO DERBY DAM
12NORTH TRUCKEE DRAIN, KLEPPE LANE TO MOUTH      (R680.PUB  MEAN DO)
21 99 99 01 02 .1  .26      .00       0
22 50.0    12.3    647.    381.    8.8     4.6             1.2     .12
23 .01     .44     .09     381.    265.            .09     .11
3101 KLEPPE LANE TO MOUTH     .26    NO DIVERSIONS OR RETURNS
4101                           .58  .26                                     5.0  .30
510112.5 645. 380.                               12 2.3          8.1
6101 .20 .20                  .10 .10 .40 .40 1.0 1.0 .30     .25  0     .25 .25
91.26     10.3    120.    5.1         1.7     .23     .01     .62     .12     406.
91.26     8.8     98.     4.6         1.2     .12     .01     .44     .09     381.
91.26     7.2     77.     3.7         .80     .00     .00     .26     .05     344.
92283.            .12     .15     50.     .017    1.7     2070.
92265.            .09     .11     50.     .004    1.3     1760.
92239.            .05     .08     45.     0.00    .85     1450.
11TRUCKEE RIVER, MCCARRAN BRIDGE TO DERBY DAM
12STEAMBOAT CREEK, KIMLICK LANE TO MOUTH         (R680.PUB  MEAN DO)
21 99 99 02 03 .1  .75      .00       0
22 145.    13.1    648.    485.    7.9     5.7             1.4     .15
23 .01     .19     .18     485.    337.            .18     .20
3101 KIMLICK LANE TO STP      .75    NO DIVERSIONS OR RETURNS
3102 STP OUTFALL TO MOUTH     .13    STP OUTFALL ENTERS AT HEAD
4101                           .26  .32                                     14.  .20
4102                           .088 .30                                     14.  .20
510113.0 650. 480. 0     0     0     0           12 .5           8.0
510214.0 650. 490. 0     0     0     0           12 .5           7.9
6101 .20 .20                  .10 .10 .40 .40 1.0 1.0 .30     .25  0     .25 .25
6102 1.7 .20                  1.7 .80 .40 .40 10. 10. .30     .25  0     .25 .25
7102 45.0  18.6  648.  498.  8.6   35.       6.    14.0  .28   .23   4.5
7202 498.  284.          4.5  5.7
91.75     8.8     105.    6.6         1.6     .26     .02     .25     .20     527.
91.75     7.9     88.     5.7         1.4     .15     .01     .19     .18     485.
91.75     6.7     71.     4.6         1.2     .08     .00     .13     .16     445.
92367.            .20     .22     165.    .007    2.2     1590.
92337.            .18     .20     145.    .003    1.7     1420.
92310.            .16     .15     125.    .002    .95     1250.
11TRUCKEE RIVER, MCCARRAN BRIDGE TO DERBY DAM
12MAINSTEM TRUCKEE RIVER                         (R680.PUB MEAN DO)
21 99 05 43 00 .1  56.12    .00       0
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22 1780.   10.3     648.    70.     9.7     1.9               .51     .14
23 .00     .24      .04     70.     47.              .04      .03
3101 MCCARRAN BR - N TRUCKEE 56.12  NO DIVERSIONS OR RETURNS
3102 N TRUCKEE DR - STEAMBT  53.66  N TRUCKEE DRAIN AT HEAD
3103 STEAMBOAT - VISTA       53.53  STEAMBOAT C AT HEAD
3104 VISTA - LARGOMARSINO DV 52.23  NO DIVERSION
3105 LARGOMARSINO DIVERSIONS 51.25  NOCE AND MURPHY DIVERSIONS
3106 BELOW LARG. - LOCKWOOD  50.90  NOCE AND MURPHY RETURNS
3107 LOCKWOOD - GROTON DIV   50.05  L-NOCE & L-MURPHY RETURNS
3108 GROTON DV - MUSTANG BR#149.90  GROTON & L-MURPHY RETURNS
3109 MUSTANG BR - LAST RET.  48.25  L-MURPHY RETURNS
3110 MCCARRAN POOL           46.68  BACKWATER ABOVE MCCARRAN DAM
3111 MCCARRAN DV - PATRICK B 46.35  NO RETURNS
3112 PATRICK BR - SP RR BR   44.92  MCCARRAN RETURNS
3113 SP RR BR - HILL DIV     42.88  BACKWATER ABOVE HILL DAM
3114 HILL DIV - TRACY DIV    42.02  NO RETURNS
3115 TRACY DIV - TRACY BRIDGE40.76  NO RETURNS
3116 TRACY BR - CLARK BR     40.62  HILL RETURNS
3117 CLARK BR - RM 37.1      38.60  NO DIVERSIONS OR RETURNS
3118 RM 37.1 - I-80 OXBOW    37.10  NO DIVERSIONS OR RETURNS
3119 I-80 OXBOW - DERBY DAM  35.60  BACKWATER ABOVE DERBY DAM
3120 DERBY DAM - GAGE CABLE  34.88  TRUCKEE CANAL DIVERTS AT HEAD
3121 GAGE CABLEWAY - WASHBRN 34.52  NO DIVERSIONS OR RETURNS MODELED
3122 WASHBURN -PAINTED ROCK  31.28  WASHBURN & TRUCKEE CANAL RETURNS
3123 PAINTED R - GREGORY-MONT29.97  NO RETURNS
3124 GREGORY-MONTE - RM 28.0 29.35  GREGORY-MONTEAND CANAL RETURNS
3125 RM 28.0 - HERMAN DIV    28.00  HERMAN AND CANAL RETURNS
3126 HERMAN DIV - PIERSON DIV26.75  HERMAN  AND CANAL RETURNS
3127 PIERSON DIV - PROCTR DIV25.95  HERMAN,  PIERSON , & CANAL RETURNS
3128 PROCTOR - WADSWORTH     23.90  FERNLEY AREA GROUND-WATER RETURNS
3129 WADSWORTH -FELLNAGLE DN 23.69  FERNLEY AREA GROUND-WATER RETURNS
3130 FELLNAGLE - RM 21.4     22.55  OLINGHOUSE #1 & FELLNAGLE RETURNS
3131 RM 21.4 - S-BAR-S DIV   21.40  OLINGHOUSE #1 & FELLNAGLE RETURNS
3132 S-S DAM - S-S PUMP      19.84  S-S AND OLINGHOUSE #2 RETURNS
3133 S-BAR-S PUMP - RM 15.8  17.82  S-S DAM, S-S PUMP & OLINGH.#3 RETURNS
3134 RM 15.8 - DEAD OX WASH  15.82  SALINE GROUND WATER INFLOWS
3135 DEAD OX - RM 10.0       13.18  SALINE GROUND WATER INFLOWS
3136 RM 10.0 - RM 9.2        10.0   SALINE GROUND WATER INFLOWS
3137 RM9.2  - NUMANA DAM     9.20   SALINE GROUND WATER INFLOWS
3138 NUMANA DAM - RM 7.6     8.21   NO RETURNS
3139 RM 7.6 - RM 6.8         7.60   NUMANA RETURNS
3140 RM 6.8 - RM 4.0         6.80   NUMANA RETURNS
3141 RM 4.0 - NIXON BRIDGE   4.00   NUMANA RETURNS
3142 NIXON BRIDGE - RM 1.0   3.22   NUMANA RETURNS
3143 RM 1.0 - MARBLE BLUFF D 1.00   NUMANA RETURNS, BACKWATER ABOVE DAM
4101                          .085 .50                                  50.  .1
4102                          .0733.50                                  54.  .1
4103                          .0728.50                                  65.  .1
4104                          .0728.50                                  63.  .1
4105                          .0778.50                                  67.  .1
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4106                          .0778.50                                60.  .1
4107                          .0778.50                                60.  .1
4108                          .101 .50                                65.  .1
4109                          .0854.50                                65.  .1
4110                          .0854.50                                68.  .1
4111                          .0858.50                                65.  .1
4112                          .0785.50                                56.  .1
4113                          .0785.50                                75.  .1
4114                          .0596.50                                76.  .1
4115                          .0754.50                                71.  .1
4116                          .0754.50                                62.  .1
4117                          .065 .50                                58.  .1
4118                          .065 .50                                54.  .1
4119                          .065 .50                                52.  .1
4120                          .180 .40                                53.  .1
4121                          .180 .40                                48.  .1
4122                          .180 .40                                44.  .1
4123                          .180 .40                                57.  .1
4124                          .202 .40                                40.  .1
4125                          .202 .40                                59.  .1
4126                          .202 .40                                52.  .1
4127                          .202 .40                                54.  .1
4128                          .151 .40                                36.  .1
4129                          .151 .40                                57.  .1
4130                          .539 .287                               49.  .1
4131                          .539 .287                               50.  .1
4132                          .279 .326                               46.  .1
4133                          .353 .326                               45.  .1
4134                          .253 .326                               52.  .1
4135                          .254 .326                               61.  .1
4136                          .254 .326                               61.  .1
4137                          .254 .326                               74.  .1
4138                          .404 .326                               70.  .1
4139                          .404 .326                               60.  .1
4140                          .404 .326                               52.  .1
4141                          .404 .326                               41.  .1
4142                          .189 .326                               41.  .1
4143                          .189 .326                               491. .1
510110.5 650.  70. 0     0.    2.    0           12 5.1          7.9
510210.5 645.  80. 0     0.    2.    0           12 1.0          7.9
510311.0 645. 110. 0     0.    2.    0           12 .50          7.9
510411.0 645. 110. 0     0.    2.    0           12 .50          7.8
510511.0 650. 110. 0     0.    12.   0           12 37.          7.7
510610.5 650. 110. 0     0.    12.   0           12 15.          7.7
510710.5 650. 110. 0     1.    12.   0           12 15.          7.6
510810.5 650. 110. 0     1.    12.   0           12 14.          7.6
510910.5 650. 110. 0     1.    12.   0           12 7.0          7.6
511010.5 650. 110. 0     1.    12.   0           12 .5           7.6
511110.5 650. 110. 0     1.    12.   0           12 18.          7.6
511210.5 650. 110. 0     1.    12.   0           12 9.8          7.5
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511311.0 650. 110. 0     1.    12.    0            12 2.3           7.4
511411.0 650. 115. 0     1.    12.    0            12 7.9           7.3
511511.0 650. 120. 0     1.    12.    0            12 29.           7.2
511611.0 650. 120. 0     1.    12.    0            12 6.4           7.2
511711.0 650. 120. 0     1.    6.     0            12 11.           7.2
511811.0 650. 120. 0     1.    6.     0            12 5.3           7.2
511911.0 650. 120. 0     1.    6.     0            12 .8            7.2
512011.0 650. 120. 0     2.    7.     0            12 53.           7.2
512111.0 655. 120. 0     2.    7.     0            12 13.           7.3
512211.0 655. 125. 0     2.    7.     0            12 21.0          7.3
512311.5 655. 125. 0     2.    7.     0            12 6.40          7.4
512411.5 655. 130. 0     2.    7.     0            12 17.0          7.5
512511.5 655. 130. 0     2.    7.     0            12 5.6           7.5
512611.5 655. 130. 0     2.    7.     0            12 10.0          7.6
512711.5 655. 130. 0     2.    7.     0            12 11.0          7.6
512811.5 655. 130. 0     2.    7.     0            12 29.           7.6
512911.5 655. 130. 0     2.    6.     0            12 5.3           7.6
513011.5 655. 130. 0     2.    6.     0            12 14.           7.6
513111.5 655. 130. 0     2.    6.     0            12 7.7           7.6
513212.0 660. 130. 0     2.    6.     0            12 11.0          7.7
513312.0 660. 130. 0     2.    6.     0            12 7.0           7.7
513412.0 660. 130. 0     2.    6.     0            12 6.1           7.7
513512.0 660. 130. 0     2.    3.     0            12 5.4           7.7
513612.0 660. 130. 0     2.    3.     0            12 15.           7.7
513712.0 660. 130. 0     2.    3.     0            12 1.0           7.8
513812.0 660. 135. 0     2.    3.     0            12 26.           7.8
513912.0 660. 135. 0     2.    3.     0            12 11.           7.8
514012.0 660. 135. 0     2.    3.     0            12 6.8           7.8
514112.0 660. 135. 0     2.    3.     0            12 11.5          7.8
514212.0 660. 140. 0     1.    1.     0            12 9.5           7.8
514312.0 660. 140. 0     1.    1.     0            12 1.5           7.7
6101 .20 .20                 .10 .10 .40 .40 1.0 1.0 .30      .25  0      .25 .25
6102 .20 .20                 .10 .10 .40 .40 1.0 1.0 .30      .25  0      .25 .25
6103 1.7 .20                 1.7 .80 .40 .40 10. 10. .30      .25  0      .25 .25
6104 1.7 .20                 1.7 .80 .40 .40 10. 10. .30      .25  0      .25 .25
6105 .70 .20                 .10 .10 2.4 2.4 10. 10. .30      .25  0      .25 .25
6106 .70 .20                 .10 .10 2.4 2.4 10. 10. .30      .25  0      .25 .25
6107 .20 .20                 .10 .10 2.4 2.4 10. 10. .30      .25  0      .25 .25
6108 .20 .20                 .10 .10 2.4 2.4 10. 10. .30      .25  0      .25 .25
6109 .20 .20                 .10 .10 2.4 2.4 6.0 6.0 .30      .25  0      .25 .25
6110 .20 .20                 .10 .10 2.4 2.4 6.0 6.0 .30      .25  0      .25 .25
6111 .20 .20                 .10 .10 2.4 2.4 5.0 5.0 .30      .25  0      .25 .25
6112 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 .30      .25  0      .25 .25
6113 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 .30      .25  0      .25 .25
6114 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 .30      .25  0      .25 .25
6115 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 .30      .25  0      .25 .25
6116 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 .30      .25  0      .25 .25
6117 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 .30      .25  0      .25 .25
6118 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 .30      .25  0      .25 .25
6119 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 1.5      .25  0      .25 .25
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6120 .20 .20                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6121 .20 .20                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6122 .20 .20                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6123 .20 .20                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6124 .20 .20                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6125 .20 .20                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6126 .20 .20                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6127 .20 .20                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6128 .20 .20                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6129 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6130 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6131 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6132 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6133 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6134 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6135 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6136 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6137 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6138 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6139 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6140 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6141 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6142 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
6143 .14 .14                          .10 .10 2.4 2.4 3.0 3.0 2.0      .25  0       .25 .25
7105 -20.
7111 -20.0
7115 -4.0
7120 -130.
7122 -5.0
7124 -10.0
7126 -5.0
7127 -5.0
7128 -15.0
7130 -10.0
7132 -3.0
7138 -16.0
8106  1.2  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 05
8107  .4   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 05
8108 4.3   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 05
8109  4.1  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 05
8111  1.0  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8112  9.0  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 11
8120  3.5  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8121 31.1  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8122 15.0  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8123 6.0   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8124 15.5  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8125 14.4  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8126 7.8   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8127 24.1  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
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8128 2.6    22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8129  3.7   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8130 4.2    22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8131 10.6   22.   100.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8132 10.3   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8133 10.6   22.   100.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8134  8.5   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8135 10.4   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8136  2.6   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8137  0.0   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8138  0.0   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8139  0.0   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8140 11.3   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 38
8141 3.2    22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 38
8142  0.0   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8143  0.0   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8206 -1.20        .50   .60
8207 -1.20        .50   .60
8208 -1.20        .50   .60
8209 -1.20        .50   .60
8210 -1.20        .50   .60
8211 -1.20        .50   .60
8212 -1.20        .50   .60
8213 -1.20        .50   .60
8214 -1.20        .50   .60
8215 -1.20        .50   .60
8216 -1.20        .50   .60
8217 -1.20        .50   .60
8218 -1.20        .50   .60
8219 -1.20        .50   .60
8220 -1.20        .50   .60
8221 -1.20        .50   .60
8222 -1.20        .50   .60
8223 -1.20        .50   .60
8224 -1.20        .50   .60
8225 -1.20        .50   .60
8226 -1.20        .50   .60
8227 -1.20        .50   .60
8228 -1.20        .50   .60
8229 -1.20        .50   .60
8230 -1.20        .50   .60
8231 -1.20        .50   .60
8232 -1.20        .50   .60
8233 -1.20        .50   .60
8234 -1.20        .50   .60
8235 -1.20        .50   .60
8236 -1.20        .50   .60
8237 -1.20        .50   .60
8238 -1.20        .50   .60
8239 -1.20        .50   .60
```

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8240 | -1.20 | | .50 | .60 | | | | |
| 8241 | -1.20 | | .50 | .60 | | | | |
| 8242 | -1.20 | | .50 | .60 | | | | |
| 8243 | -1.20 | | .50 | .60 | | | | |
| 8307 | .5 | 17.0 | 1470. | .5 | 1. | 1.9 | .1 | 1470. |
| 8308 | 5.8 | 17.0 | 850. | .5 | 1. | 2.5 | .1 | 850. |
| 8309 | 5.7 | 17.0 | 360. | .5 | 1. | 1.6 | .1 | 360. |
| 8310 | 1.2 | 17.0 | 360. | .5 | 1. | 1.6 | .1 | 360. |
| 8311 | 5.1 | 17.0 | 360. | .5 | 1. | 1.6 | .1 | 360. |
| 8312 | 7.2 | 17.0 | 360. | .5 | 1. | 1.6 | .1 | 360. |
| 8313 | 3.1 | 17.0 | 360. | .5 | 1. | 1.6 | .1 | 360. |
| 8314 | 4.5 | 17.0 | 360. | .5 | 1. | 1.6 | .1 | 360. |
| 8315 | .5 | 17.0 | 360. | .5 | 1. | 1.6 | .1 | 360. |
| 8316 | 7.2 | 17.0 | 360. | .5 | 1. | 1.6 | .1 | 360. |
| 8317 | 5.3 | 17.0 | 360. | .5 | 1. | 1.6 | .1 | 360. |
| 8318 | 5.3 | 17.0 | 360. | .5 | 1. | 1.6 | .1 | 360. |
| 8319 | 2.6 | 17.0 | 360. | .5 | 1. | 1.6 | .1 | 360. |
| 8329 | 4.8 | 17.0 | 730. | .5 | 1. | 1.8 | .1 | 730. |
| 8330 | 4.9 | 17.0 | 730. | .5 | 1. | 1.8 | .1 | 730. |
| 8331 | .2 | 17.0 | 1080. | .5 | 1. | .5 | .1 | 1080. |
| 8332 | .4 | 17.0 | 1080. | .5 | 1. | .5 | .1 | 1080. |
| 8333 | .3 | 17.0 | 1080. | .5 | 1. | .5 | .1 | 1080. |
| 8334 | .4 | 17.0 | 1080. | .5 | 1. | .5 | .1 | 1080. |
| 8335 | .9 | 17.0 | 2250. | .5 | 1. | .1 | .1 | 2250. |
| 8336 | .2 | 17.0 | 2250. | .5 | 1. | .1 | .1 | 2250. |
| 8337 | .2 | 17.0 | 2250. | .5 | 1. | .1 | .1 | 2250. |
| 8338 | .2 | 17.0 | 780. | .5 | 1. | 1.0 | .1 | 780. |
| 8339 | .2 | 17.0 | 780. | .5 | 1. | 1.0 | .1 | 780. |
| 8340 | .7 | 17.0 | 780. | .5 | 1. | 1.0 | .1 | 780. |
| 8341 | .2 | 17.0 | 780. | .5 | 1. | 1.0 | .1 | 780. |
| 8342 | .7 | 17.0 | 780. | .5 | 1. | 1.0 | .1 | 780. |
| 8343 | .3 | 17.0 | 2410. | .5 | 1. | 1.0 | .1 | 2410. |
| 8407 | 1090. | | .1 | .1 | | | | |
| 8408 | 630. | | .1 | .1 | | | | |
| 8409 | 270. | | .1 | .1 | | | | |
| 8410 | 270. | | .1 | .1 | | | | |
| 8411 | 270. | | .1 | .1 | | | | |
| 8412 | 270. | | .1 | .1 | | | | |
| 8413 | 270. | | .1 | .1 | | | | |
| 8414 | 270. | | .1 | .1 | | | | |
| 8415 | 270. | | .1 | .1 | | | | |
| 8416 | 270. | | .1 | .1 | | | | |
| 8417 | 270. | | .1 | .1 | | | | |
| 8418 | 270. | | .1 | .1 | | | | |
| 8419 | 270. | | .1 | .1 | | | | |
| 8429 | 540. | | .1 | .1 | | | | |
| 8430 | 540. | | .1 | .1 | | | | |
| 8431 | 800. | | .1 | .1 | | | | |
| 8432 | 800. | | .1 | .1 | | | | |
| 8433 | 800. | | .1 | .1 | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 8434 | 800. | .1 | .1 | | | | | | | |
| 8435 | 1670. | .1 | .1 | | | | | | | |
| 8436 | 1670. | .1 | .1 | | | | | | | |
| 8437 | 1670. | .1 | .1 | | | | | | | |
| 8438 | 580. | .1 | .1 | | | | | | | |
| 8439 | 580. | .1 | .1 | | | | | | | |
| 8440 | 580. | .1 | .1 | | | | | | | |
| 8441 | 580. | .1 | .1 | | | | | | | |
| 8442 | 580. | .1 | .1 | | | | | | | |
| 8443 | 1790. | .1 | .1 | | | | | | | |
| 9156.12 | 10.4 | 107. | 2.9 | | .69 | .17 | .01 | .36 | .08 | 72. |
| 9156.12 | 9.7 | 101. | 1.9 | | .51 | .14 | .00 | .24 | .04 | 70. |
| 9156.12 | 9.2 | 93. | 1.4 | | .24 | .12 | .00 | .11 | .01 | 64. |
| 9152.23 | 9.8 | 108. | 2.7 | | .78 | .42 | .02 | .33 | .15 | 123. |
| 9152.23 | 9.5 | 101. | 2.5 | | .40 | .31 | .01 | .24 | .12 | 115. |
| 9152.23 | 8.9 | 95. | 2.0 | | .18 | .22 | .00 | .10 | .09 | 106. |
| 9150.05 | 9.8 | 103. | 3.0 | | .44 | .39 | .01 | .26 | .14 | 121. |
| 9150.05 | 9.3 | 97. | 2.4 | | .42 | .33 | .01 | .20 | .13 | 112. |
| 9150.05 | 8.6 | 92. | 2.0 | | .36 | .26 | .01 | .13 | .11 | 102. |
| 9144.92 | 9.7 | 103. | 3.1 | | .75 | .36 | .02 | .45 | .14 | 119. |
| 9144.92 | 9.2 | 96. | 2.6 | | .60 | .26 | .01 | .21 | .11 | 112. |
| 9144.92 | 8.7 | 93. | 2.4 | | .40 | .15 | .01 | .10 | .08 | 105. |
| 9140.62 | 9.9 | 106. | 5.0 | | .88 | .32 | .02 | .47 | .15 | 125. |
| 9140.62 | 9.1 | 96. | 3.0 | | .63 | .26 | .02 | .23 | .12 | 121. |
| 9140.62 | 8.7 | 91. | 2.2 | | .08 | .14 | .01 | .11 | .04 | 117. |
| 9134.88 | 9.4 | 103. | 3.6 | | .90 | .34 | .03 | .60 | .14 | 126. |
| 9134.88 | 9.0 | 95. | 2.8 | | .64 | .26 | .02 | .28 | .10 | 121. |
| 9134.88 | 8.6 | 89. | 2.4 | | .46 | .22 | .01 | .12 | .06 | 115. |
| 9134.52 | 9.7 | 107. | | | | | | | | 131. |
| 9134.52 | 9.2 | 98. | | | | | | | | 124. |
| 9134.52 | 9.0 | 93. | | | | | | | | 127. |
| 9129.97 | 9.5 | 102. | 3.2 | | .63 | .23 | .03 | .48 | .15 | 134. |
| 9129.97 | 9.2 | 98. | 2.7 | | .48 | .20 | .02 | .30 | .13 | 128. |
| 9129.97 | 8.9 | 93. | 2.1 | | .36 | .13 | .01 | .18 | .12 | 122. |
| 9123.65 | 9.6 | 101. | 2.8 | | .96 | .26 | .04 | .43 | .21 | 148. |
| 9123.65 | 9.3 | 98. | 2.5 | | .62 | .20 | .03 | .27 | .13 | 127. |
| 9123.65 | 9.2 | 95. | 2.1 | | .34 | .13 | .01 | .18 | .09 | 111. |
| 9113.18 | 9.4 | 103. | 3.8 | | .60 | .18 | .03 | .52 | .15 | 139. |
| 9113.18 | 9.1 | 97. | 2.7 | | .40 | .13 | .02 | .30 | .12 | 129. |
| 9113.18 | 8.9 | 92. | 2.0 | | .20 | .10 | .01 | .20 | .09 | 118. |
| 913.22 | 9.7 | 102. | 3.6 | | .72 | .13 | .03 | .31 | .15 | 145. |
| 913.22 | 9.3 | 99. | 2.9 | | .45 | .08 | .02 | .25 | .11 | 141. |
| 913.22 | 8.9 | 95. | 2.1 | | .30 | .04 | .02 | .16 | .06 | 135. |
| 910. | 9.4 | 102. | 3.0 | | .51 | .29 | .03 | .87 | .15 | 149. |
| 910. | 9.1 | 97. | 2.6 | | .32 | .21 | .03 | .43 | .12 | 144. |
| 910. | 8.6 | 91. | 2.2 | | .24 | .10 | .02 | .24 | .09 | 137. |
| 9249. | | .08 | .07 | 1950. | .003 | 1.43 | 413. | | | |
| 9247. | | .04 | .03 | 1790. | .002 | 1.43 | 413. | | | |
| 9243. | | .01 | .01 | 1740. | .001 | 1.43 | 413. | | | |
| 9285. | | .16 | .12 | 2130. | .004 | .57 | 483. | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9281. | .12 | .10 | 2010. | .003 | .57 | 470. |
| 9276. | .09 | .07 | 1960. | .002 | .57 | 458. |
| 9284. | .14 | .17 | 2060. | .003 | 1.28 | 596. |
| 9279. | .13 | .12 | 1990. | .002 | 1.28 | 476. |
| 9274. | .11 | .09 | 1940. | .001 | 1.28 | 355. |
| 9283. | .14 | .13 | 2060. | .003 | | 512. |
| 9279. | .11 | .11 | 1990. | .002 | | 512. |
| 9275. | .08 | .07 | 1940. | .001 | | 512. |
| 9287. | .15 | .13 | 2060. | .001 | | 665. |
| 9284. | .12 | .11 | 2015. | .001 | | 539. |
| 9282. | .04 | .08 | 1940. | 0.00 | | 412. |
| 9287. | .14 | .12 | 2110. | .000 | 1.5 | 526. |
| 9284. | .10 | .11 | 2040. | .001 | .80 | 502. |
| 9281. | .06 | .08 | 1990. | .000 | .11 | 478. |
| 9290. | | | 1950. | 0.00 | | |
| 9286. | | | 1910. | 0.00 | | |
| 9282. | | | 1860. | 0.00 | | |
| 9292. | .15 | .14 | 1960. | .002 | 1.50 | 516. |
| 9288. | .13 | .12 | 1940. | .002 | 1.02 | 449. |
| 9285. | .12 | .10 | 1870. | .001 | .58 | 382. |
| 92100. | .21 | .21 | 2060. | .003 | 1.47 | 666 |
| 9288. | .13 | .13 | 1990. | .002 | 1.13 | 564. |
| 9279. | .09 | .09 | 1940. | .001 | .93 | 462. |
| 9295. | .15 | .13 | 2090. | .003 | | 426. |
| 9289. | .12 | .11 | 2040. | .002 | | 387. |
| 9283. | .09 | .09 | 1980. | .001 | | 348. |
| 9298. | .15 | .15 | 2150. | .003 | 1.23 | 442. |
| 9296. | .11 | .11 | 2050. | .001 | 1.23 | 401. |
| 9292. | .06 | .09 | 1990. | .000 | 1.23 | 360. |
| 92100. | .15 | .14 | 2100. | .003 | .77 | 331. |
| 9297. | .12 | .11 | 2060. | .002 | .73 | 321. |
| 9293. | .09 | .09 | 1990. | .001 | .69 | 311. |

C-----------------------------------------------------------------------

## D.-- Truckee River, August 1980

The following data set represents Truckee River conditions observed during field investigations in August 1980.

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C-----------------------------------------------------------------------------
C R880.PUB
A1       01 0
11TRUCKEE RIVER, MCCARRAN BRIDGE TO DERBY DAM
12NORTH TRUCKEE DRAIN, KLEPPE LANE TO MOUTH      (R880.PUB MEAN DO)
21 99 99 01 02 .1  .26      .00
22 40.0    17.5    646.    348.    8.0     4.0             1.0     .04
23 .02     .44     .04     348.    242.            .04     .11
3101 KLEPPE LANE TO MOUTH    .26    NO DIVERSIONS OR RETURNS
4101                          .58  .26                                    5.0  .30
510117.5 645. 350.                                12 2.3          7.8
6101 .20 .20                 .10 .10 .40 .40 1.0 1.0 .30      .25  0     .25 .25
91.26     10.8    143.    4.4         1.4     .07     .04     .51     .06     384.
91.26     8.0     99.     4.0         1.0     .04     .02     .44     .04     348.
91.26     5.6     66.     3.7         .51     .01     .01     .35     .00     299.
92267.            .06     .15     41.     .006    1.0     1850.
92242.            .04     .11     40.     .001    .94     1650.
92208.            .00     .09     33.     .000    .87     1380.
11TRUCKEE RIVER, MCCARRAN BRIDGE TO DERBY DAM
12STEMBOAT CREEK, KIMLICK LANE TO MOUTH          (R880.PUB  MEAN DO)
21 99 99 02 03 .1  .75      .00
22 70.0    19.6    646.    290.    6.9     5.8             1.8     .06
23 .02     .07     .09     290.    202.            .09     .16
3101 KIMLICK LANE TO STP     .75    NO DIVERSIONS OR RETURNS
3102 STP OUTFALL TO MOUTH    .13    STP OUTFALL ENTERS AT HEAD
4101                          .26  .32                                    14.  .20
4102                          .088 .30                                    14.  .20
510119.5 645. 290. 0     0     0     0            12 .5           8.0
510221.0 645. 380. 0     0     0     0            12 .5           8.0
6101 .20 .20                 .10 .10 .40 .40 1.0 1.0 .30      .25  0     .25 .25
6102 1.7 .20                 1.7 .80 .40 .40 10. 10. .30      .25  0     .25 .25
7102 35.0  23.3  646.  572.  7.6  39.       6.   14.   .15   .00   3.5
7202 572.  327.          3.5  4.4
91.75     9.0     126.    6.3         2.9     .09     .03     .09     .13     302.
91.75     6.9     89.     5.8         1.8     .06     .02     .07     .09     290.
91.75     5.0     59.     4.9         1.3     .03     .01     .04     .05     277.
92210.            .13     .21     79.     .014    2.6     2060.
92202.            .09     .16     70.     .003    1.8     1750.
92193.            .05     .14     64.     .001    .89     1160.
11TRUCKEE RIVER, MCCARRAN BRIDGE TO DERBY DAM
12MAINSTEM TRUCKEE RIVER                          (R880.PUB MEAN DO)
21 99 99 43 00 .10 56.12    0.00       0
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22 155.0    17.9     646.     126.     8.3     2.5               .52      .03
23 .02      .00      .02      126.     85.              .02      .07
3101 MCCARRAN BR - N TRUCKEE 56.12  NO DIVERSIONS OR RETURNS
3102 N TRUCKEE DR - STEAMBT  53.66  N TRUCKEE DRAIN AT HEAD
3103 STEAMBOAT - VISTA       53.53  STEAMBOAT C AT HEAD
3104 VISTA - LARGOMARSINO DV 52.23  NO DIVERSION
3105 LARGOMARSINO DIVERSIONS 51.25  NOCE AND MURPHY DIVERSIONS
3106 BELOW LARG. - LOCKWOOD  50.90  NOCE AND MURPHY RETURNS
3107 LOCKWOOD - GROTON DIV   50.05  L-NOCE & L-MURPHY RETURNS
3108 GROTON DV - MUSTANG BR#149.90  GROTON & L-MURPHY RETURNS
3109 MUSTANG BR - LAST RET.  48.25  L-MURPHY RETURNS
3110 MCCARRAN POOL           46.68  BACKWATER ABOVE MCCARRAN DAM
3111 MCCARRAN DV - PATRICK B 46.35  NO RETURNS
3112 PATRICK BR - SP RR BR   44.92  MCCARRAN RETURNS
3113 SP RR BR - HILL DIV     42.88  BACKWATER ABOVE HILL DAM
3114 HILL DIV - TRACY DIV    42.02  NO RETURNS
3115 TRACY DIV - TRACY BRIDGE40.76  NO RETURNS
3116 TRACY BR - CLARK BR     40.62  HILL RETURNS
3117 CLARK BR - RM 37.1      38.60  NO DIVERSIONS OR RETURNS
3118 RM 37.1 - I-80 OXBOW    37.10  NO DIVERSIONS OR RETURNS
3119 I-80 OXBOW - DERBY DAM  35.60  BACKWATER ABOVE DERBY DAM
3120 DERBY DAM - GAGE CABLE  34.88  TRUCKEE CANAL DIVERTS AT HEAD
3121 GAGE CABLEWAY - WASHBRN 34.52  NO DIVERSIONS OR RETURNS MODELED
3122 WASHBURN -PAINTED ROCK  31.28  WASHBURN & TRUCKEE CANAL RETURNS
3123 PAINTED R - GREGORY-MONT29.97  NO RETURNS
3124 GREGORY-MONTE - RM 28.0 29.35  GREGORY-MONTEAND CANAL RETURNS
3125 RM 28.0 - HERMAN DIV    28.00  HERMAN AND CANAL RETURNS
3126 HERMAN DIV - PIERSON DIV26.75  HERMAN  AND CANAL RETURNS
3127 PIERSON DIV - PROCTR DIV25.95  HERMAN,  PIERSON , & CANAL RETURNS
3128 PROCTOR - WADSWORTH     23.90  FERNLEY AREA GROUND-WATER RETURNS
3129 WADSWORTH -FELLNAGLE DN 23.69  FERNLEY AREA GROUND-WATER RETURNS
3130 FELLNAGLE - RM 21.4     22.55  OLINGHOUSE #1 & FELLNAGLE RETURNS
3131 RM 21.4 - S-BAR-S DIV   21.40  OLINGHOUSE #1 & FELLNAGLE RETURNS
3132 S-S DAM - S-S PUMP      19.84  S-S AND OLINGHOUSE #2 RETURNS
3133 S-BAR-S PUMP - RM 15.8  17.82  S-S DAM, S-S PUMP & OLINGH.#3 RETURNS
3134 RM 15.8 - DEAD OX WASH  15.82  SALINE GROUND WATER INFLOWS
3135 DEAD OX - RM 10.0       13.18  SALINE GROUND WATER INFLOWS
3136 RM 10.0 - RM 9.2        10.0   SALINE GROUND WATER INFLOWS
3137 RM9.2  - NUMANA DAM     9.20   SALINE GROUND WATER INFLOWS
3138 NUMANA DAM - RM 7.6     8.21   NO RETURNS
3139 RM 7.6 - RM 6.8         7.60   NUMANA RETURNS
3140 RM 6.8 - RM 4.0         6.80   NUMANA RETURNS
3141 RM 4.0 - NIXON BRIDGE   4.00   NUMANA RETURNS
3142 NIXON BRIDGE - RM 1.0   3.22   NUMANA RETURNS
3143 RM 1.0 - MARBLE BLUFF D 1.00   NUMANA RETURNS, BACKWATER ABOVE DAM
4101                          .0695.50                              50.  .1
4102                          .0733.50                              54.  .1
4103                          .0351.603                             65.  .1
4104                          .0351.603                             63.  .1
4105                          .0137.765                             67.  .1
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4106                                  .0137.765                                          60.   .1
4107                                  .0137.765                                          60.   .1
4108                                  .0401.634                                          65.   .1
4109                                  .0343.634                                          55.   .1
4110                                  .0343.634                                          68.   .1
4111                                  .0355.634                                          65.   .1
4112                                  .0427.583                                          56.   .1
4113                                  .0427.583                                          75.   .1
4114                                  .0280.576                                          76.   .1
4115                                  .0518.586                                          71.   .1
4116                                  .0518.586                                          62.   .1
4117                                  .0374.582                                          58.   .1
4118                                  .0374.582                                          54.   .1
4119                                  .0374.582                                          52.   .1
4120                                  .0231.750                                          53.   .1
4121                                  .0231.750                                          48.   .1
4122                                  .0231.750                                          44.   .1
4123                                  .0231.750                                          57.   .1
4124                                  .0131.851                                          40.   .1
4125                                  .0131.851                                          59.   .1
4126                                  .0131.851                                          52.   .1
4127                                  .0131.851                                          54.   .1
4128                                  .0164.706                                          36.   .1
4129                                  .0164.706                                          57.   .1
4130                                  .0361.706                                          49.   .1
4131                                  .0361.706                                          50.   .1
4132                                  .0262.706                                          46.   .1
4133                                  .0333.706                                          45.   .1
4134                                  .0416.706                                          52.   .1
4135                                  .0114.793                                          61.   .1
4136                                  .0114.793                                          61.   .1
4137                                  .0114.793                                          74.   .1
4138                                  .0304.744                                          70.   .1
4139                                  .0304.744                                          60.   .1
4140                                  .0304.744                                          52.   .1
4141                                  .0304.744                                          41.   .1
4142                                  .0178.578                                          41.   .1
4143                                  .0178.578                                          491.  .1
510118.0 645. 130. 0    0.    2.    0           12 5.1            8.1
510218.0 645. 170. 0    0.    2.    0           12 1.0            8.2
510319.0 645. 240. 0    0.    2.    0           12 .50            8.1
510419.5 645. 240. 0    0.    2.    0           12 .50            8.0
510520.0 645. 250. 0    0.    12.   0           12 37.            8.0
510620.0 645. 250. 0    0.    12.   0           12 15.            7.9
510720.0 645. 250. 0    1.    12.   0           12 15.            7.9
510820.0 645. 250. 0    1.    12.   0           12 14.            7.9
510920.5 650. 250. 0    1.    12.   0           12 7.0            7.8
511020.5 650. 250. 0    1.    12.   0           12 .5             7.7
511120.5 650. 250. 0    1.    12.   0           12 18.            7.7
511220.5 650. 250. 0    1.    12.   0           12 9.8            7.7
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511320.5 650. 250. 0      1.     12.    0             12 2.3            7.8
511421.0 650. 250. 0      1.     12.    0             12 7.9            7.8
511521.0 650. 250. 0      1.     12.    0             12 29.            7.8
511621.0 650. 250. 0      1.     12.    0             12 6.4            7.8
511721.0 650. 250. 0      1.     5.     0             12 11.            7.9
511820.5 650. 260. 0      1.     5.     0             12 5.3            8.2
511920.5 650. 260. 0      1.     5.     0             12 .8             8.4
512021.0 650. 260. 0      2.     7.     0             12 53.            8.5
512121.0 650. 260. 0      2.     7.     0             12 13.            8.5
512221.0 650. 260. 0      2.     7.     0             12 21.0           8.4
512321.5 650. 260. 0      2.     7.     0             12 6.40           8.4
512421.5 650. 260. 0      2.     7.     0             12 17.0           8.4
512521.5 650. 260. 0      2.     7.     0             12 5.6            8.4
512622.0 650. 260. 0      2.     7.     0             12 10.0           8.4
512722.0 650. 260. 0      2.     7.     0             12 11.0           8.4
512822.0 650. 260. 0      2.     7.     0             12 29.            8.4
512922.0 650. 260. 0      2.     6.     0             12 5.3            8.4
513022.0 650. 300. 0      2.     6.     0             12 14.            8.4
513121.5 655. 300. 0      2.     6.     0             12 7.7            8.4
513221.5 655. 330. 0      2.     6.     0             12 11.0           8.5
513321.5 660. 350. 0      2.     6.     0             12 7.0            8.5
513421.5 660. 360. 0      2.     6.     0             12 6.1            8.5
513521.5 660. 380. 0      2.     3.     0             12 5.4            8.4
513621.5 660. 380. 0      2.     3.     0             12 15.            8.4
513721.5 660. 500. 0      2.     3.     0             12 1.0            8.4
513821.5 660. 500. 0      2.     3.     0             12 26.            8.3
513921.5 660. 500. 0      2.     3.     0             12 11.            8.3
514021.5 660. 500. 0      2.     3.     0             12 6.8            8.2
514121.5 660. 500. 0      2.     3.     0             12 11.5           8.2
514221.0 660. 531. 0      1.     1.     0             12 9.5            8.2
514320.5 660. 530. 0      1.     1.     0             12 1.5            8.3
6101 .20 .20                   .10 .10 .40 .40 1.0 1.0 .30      .25  0      .25 .25
6102 .20 .20                   .10 .10 .40 .40 1.0 1.0 .30      .25  0      .25 .25
6103 1.7 .20                   1.7 .80 .40 .40 10. 10. .30      .25  0      .25 .25
6104 1.7 .20                   1.7 .80 .40 .40 10. 10. .30      .25  0      .25 .25
6105 .70 .20                   .10 .10 2.4 2.4 10. 10. .30      .25  0      .25 .25
6106 .70 .20                   .10 .10 2.4 2.4 10. 10. .30      .25  0      .25 .25
6107 .20 .20                   .10 .10 2.4 2.4 10. 10. .30      .25  0      .25 .25
6108 .20 .20                   .10 .10 2.4 2.4 10. 10. .30      .25  0      .25 .25
6109 .20 .20                   .10 .10 2.4 2.4 6.0 6.0 .30      .25  0      .25 .25
6110 .20 .20                   .10 .10 2.4 2.4 6.0 6.0 .30      .25  0      .25 .25
6111 .20 .20                   .10 .10 2.4 2.4 5.0 5.0 .30      .25  0      .25 .25
6112 .20 .20                   .10 .10 2.4 2.4 3.0 3.0 .30      .25  0      .25 .25
6113 .20 .20                   .10 .10 2.4 2.4 3.0 3.0 .30      .25  0      .25 .25
6114 .20 .20                   .10 .10 2.4 2.4 3.0 3.0 .30      .25  0      .25 .25
6115 .20 .20                   .10 .10 2.4 2.4 3.0 3.0 .30      .25  0      .25 .25
6116 .20 .20                   .10 .10 2.4 2.4 3.0 3.0 .30      .25  0      .25 .25
6117 .20 .20                   .10 .10 2.4 2.4 3.0 3.0 .30      .25  0      .25 .25
6118 .20 .20                   .10 .10 2.4 2.4 3.0 3.0 .30      .25  0      .25 .25
6119 .20 .20                   .10 .10 2.4 2.4 3.0 3.0 1.5      .25  0      .25 .25
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6120 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6121 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6122 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6123 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6124 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6125 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6126 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6127 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6128 .20 .20                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6129 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6130 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6131 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6132 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6133 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6134 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6135 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6136 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6137 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6138 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6139 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6140 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6141 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6142 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
6143 .14 .14                 .10 .10 2.4 2.4 3.0 3.0 2.0     .25  0    .25 .25
7105 -19.
7108 -3.0
7111 -10.0
7114 -7.0
7115 -4.0
7120 -205.
7122 -1.0
7124 -5.0
7126 -15.0
7127 -6.0
7128 -6.0
7130 -11.0
7132 -4.0
7138 -20.0
8106  .8   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 05
8107  .2   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 05
8108  3.8  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 05
8109  2.6  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 05
8111  .3   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8112  3.0  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 11
8114  .3   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8115  .1   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 14
8116 1.9   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 14
8120  .4   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8121  3.6  22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
8122 1.8   22.   130.  -.70  10.0        1.3   .10   .10   .30   .50   -1.20 00
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| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8123 | 0.7 | 22. | 130. | -.70 | 10.0 | 1.3 | .10 | .10 | .30 | .50 | -1.20 | 00 |
| 8124 | 2.4 | 22. | 130. | -.70 | 10.0 | 1.3 | .10 | .10 | .30 | .50 | -1.20 | 00 |
| 8125 | 2.3 | 22. | 130. | -.70 | 10.0 | 1.3 | .10 | .10 | .30 | .50 | -1.20 | 00 |
| 8126 | 1.1 | 22. | 130. | -.70 | 10.0 | 1.3 | .10 | .10 | .30 | .50 | -1.20 | 00 |
| 8127 | 9.1 | 22. | 130. | -.70 | 10.0 | 1.3 | .10 | .10 | .30 | .50 | -1.20 | 26 |
| 8128 | 1.6 | 22. | 130. | -.70 | 10.0 | 1.3 | .10 | .10 | .30 | .50 | -1.20 | 26 |
| 8130 | .2 | 22. | 130. | -.70 | 25.0 | 1.3 | .10 | .10 | .30 | .50 | -1.20 | 00 |
| 8131 | 3.1 | 22. | 130. | -.70 | 25.0 | 1.3 | .10 | .10 | .30 | .50 | -1.20 | 30 |
| 8132 | 1.2 | 22. | 130. | -.70 | 25.0 | 1.3 | .10 | .10 | .30 | .50 | -1.20 | 28 |
| 8133 | 1.4 | 22. | 130. | -.70 | 25.0 | 1.3 | .10 | .10 | .30 | .50 | -1.20 | 28 |
| 8140 | 3.5 | 22. | 130. | -.70 | 10.0 | 1.3 | .10 | .10 | .30 | .50 | -1.20 | 38 |
| 8141 | 1.0 | 22. | 130. | -.70 | 10.0 | 1.3 | .10 | .10 | .30 | .50 | -1.20 | 38 |
| 8206 | -1.20 | | .50 | .60 | | | | | | | | |
| 8207 | -1.20 | | .50 | .60 | | | | | | | | |
| 8208 | -1.20 | | .50 | .60 | | | | | | | | |
| 8209 | -1.20 | | .50 | .60 | | | | | | | | |
| 8211 | -1.20 | | .50 | .60 | | | | | | | | |
| 8212 | -1.20 | | .50 | .60 | | | | | | | | |
| 8214 | -1.20 | | .50 | .60 | | | | | | | | |
| 8215 | -1.20 | | .50 | .60 | | | | | | | | |
| 8216 | -1.20 | | .50 | .60 | | | | | | | | |
| 8220 | -1.20 | | .50 | .60 | | | | | | | | |
| 8221 | -1.20 | | .50 | .60 | | | | | | | | |
| 8222 | -1.20 | | .50 | .60 | | | | | | | | |
| 8223 | -1.20 | | .50 | .60 | | | | | | | | |
| 8224 | -1.20 | | .50 | .60 | | | | | | | | |
| 8225 | -1.20 | | .50 | .60 | | | | | | | | |
| 8226 | -1.20 | | .50 | .60 | | | | | | | | |
| 8227 | -1.20 | | .50 | .60 | | | | | | | | |
| 8228 | -1.20 | | .50 | .60 | | | | | | | | |
| 8230 | -1.20 | | .50 | .60 | | | | | | | | |
| 8231 | -1.20 | | .50 | .60 | | | | | | | | |
| 8232 | -1.20 | | .50 | .60 | | | | | | | | |
| 8233 | -1.20 | | .50 | .60 | | | | | | | | |
| 8240 | -1.20 | | .50 | .60 | | | | | | | | |
| 8241 | -1.20 | | .50 | .60 | | | | | | | | |
| 8307 | .0003 | | | | | | | | | 0. | | |
| 8308 | .0032 | | | | | | | | | 0. | | |
| 8309 | .0031 | | | | | | | | | 0. | | |
| 8310 | .0006 | | | | | | | | | 0. | | |
| 8311 | .0028 | | | | | | | | | 0. | | |
| 8329 | 4.8 | 17.0 | 730. | .5 | 1. | | | | 1.8 | .1 | 730. | |
| 8330 | 4.9 | 17.0 | 730. | .5 | 1. | | | | 1.8 | .1 | 730. | |
| 8331 | .2 | 17.0 | 1080. | .5 | 1. | | | | .5 | .1 | 1080. | |
| 8332 | .4 | 17.0 | 1080. | .5 | 1. | | | | .5 | .1 | 1080. | |
| 8333 | .3 | 17.0 | 1080. | .5 | 1. | | | | .5 | .1 | 1080. | |
| 8334 | .4 | 17.0 | 1080. | .5 | 1. | | | | .5 | .1 | 1080. | |
| 8335 | .9 | 17.0 | 2250. | .5 | 1. | | | | .1 | .1 | 2250. | |
| 8336 | .2 | 17.0 | 2250. | .5 | 1. | | | | .1 | .1 | 2250. | |
| 8337 | .2 | 17.0 | 2250. | .5 | 1. | | | | .1 | .1 | 2250. | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8338 | .2 | 17.0 | 780. | .5 | 1. | | | | 1.0 | .1 | 780. |
| 8339 | .2 | 17.0 | 780. | .5 | 1. | | | | 1.0 | .1 | 780. |
| 8340 | .7 | 17.0 | 780. | .5 | 1. | | | | 1.0 | .1 | 780. |
| 8341 | .2 | 17.0 | 780. | .5 | 1. | | | | 1.0 | .1 | 780. |
| 8342 | .7 | 17.0 | 780. | .5 | 1. | | | | 1.0 | .1 | 780. |
| 8343 | .3 | 17.0 | 2410. | .5 | 1. | | | | 1.0 | .1 | 2410. |
| 8407 | | | 6600. | 6600. | | | | | | | |
| 8408 | | | 6600. | 6600. | | | | | | | |
| 8409 | | | 6600. | 6600. | | | | | | | |
| 8410 | | | 6600. | 6600. | | | | | | | |
| 8411 | | | 6600. | 6600. | | | | | | | |
| 8429 | 540. | | .1 | .1 | | | | | | | |
| 8430 | 540. | | .1 | .1 | | | | | | | |
| 8431 | 800. | | .1 | .1 | | | | | | | |
| 8432 | 800. | | .1 | .1 | | | | | | | |
| 8433 | 800. | | .1 | .1 | | | | | | | |
| 8434 | 800. | | .1 | .1 | | | | | | | |
| 8435 | 1670. | | .1 | .1 | | | | | | | |
| 8436 | 1670. | | .1 | .1 | | | | | | | |
| 8437 | 1670. | | .1 | .1 | | | | | | | |
| 8438 | 580. | | .1 | .1 | | | | | | | |
| 8439 | 580. | | .1 | .1 | | | | | | | |
| 8440 | 580. | | .1 | .1 | | | | | | | |
| 8441 | 580. | | .1 | .1 | | | | | | | |
| 8442 | 580. | | .1 | .1 | | | | | | | |
| 8443 | 1790. | | .1 | .1 | | | | | | | |
| 9156.12 | | 9.7 | 126. | 3.0 | | .69 | .06 | .02 | .00 | .04 | 130. |
| 9156.12 | | 8.3 | 102. | 2.5 | | .52 | .03 | .02 | .00 | .02 | 126. |
| 9156.12 | | 6.8 | 82. | 1.9 | | .34 | .01 | .01 | .00 | .01 | 124. |
| 9152.23 | | 8.5 | 115. | 7.3 | | 1.7 | 1.1 | .08 | .14 | .76 | 253. |
| 9152.23 | | 7.2 | 91. | 6.2 | | 1.7 | 1.1 | .06 | .11 | .46 | 240. |
| 9152.23 | | 6.0 | 74. | 5.4 | | 1.7 | 1.1 | .04 | .07 | .20 | 215. |
| 9150.05 | | 8.0 | 107. | 6.7 | | 1.4 | .76 | .14 | .31 | .77 | 254. |
| 9150.05 | | 6.9 | 88. | 5.6 | | 1.4 | .76 | .10 | .26 | .42 | 246. |
| 9150.05 | | 5.6 | 68. | 4.9 | | 1.4 | .76 | .03 | .21 | .14 | 234. |
| 9144.92 | | 9.2 | 128. | 6.5 | | 1.1 | .54 | .31 | .82 | .99 | 268. |
| 9144.92 | | 7.1 | 93. | 5.7 | | 1.1 | .54 | .24 | .63 | .65 | 251. |
| 9144.92 | | 5.4 | 68. | 4.5 | | 1.1 | .54 | .10 | .26 | .35 | 240. |
| 9138.60 | | 9.9 | 138. | 6.3 | | 1.4 | .49 | .34 | 1.1 | .94 | 265. |
| 9138.60 | | 7.5 | 98. | 5.1 | | 1.1 | .35 | .29 | .86 | .64 | 253. |
| 9138.60 | | 5.2 | 64. | 4.4 | | .98 | .19 | .21 | .45 | .37 | 239. |
| 9134.88 | | 9.0 | 122. | 6.7 | | 2.0 | .34 | .39 | 1.2 | .99 | 272. |
| 9134.88 | | 6.7 | 87. | 5.4 | | 1.4 | .25 | .30 | 1.1 | .66 | 260. |
| 9134.88 | | 5.5 | 69. | 4.6 | | .90 | .12 | .24 | .96 | .40 | 256. |
| 9134.52 | | 8.0 | | | | | | | | | |
| 9134.52 | | 7.0 | | | | | | | | | |
| 9134.52 | | 5.7 | | | | | | | | | |
| 9129.97 | | 9.9 | 138. | 5.4 | | 2.4 | .10 | .24 | 1.2 | .77 | 270. |
| 9129.97 | | 8.4 | 113. | 4.8 | | 1.8 | .07 | .15 | .92 | .55 | 263. |
| 9129.97 | | 6.3 | 81. | 4.1 | | 1.2 | .04 | .08 | .64 | .34 | 252. |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 9123.65 | 13.1 | 188. | 7.0 | | 1.6 | .06 | .09 | .52 | .46 | 274. |
| 9123.65 | 8.6 | 115. | 5.5 | | .99 | .04 | .07 | .38 | .33 | 264. |
| 9123.65 | 5.0 | 64. | 3.8 | | .68 | .02 | .02 | .29 | .24 | 254. |
| 9113.18 | 11.2 | 158. | 6.7 | | 1.0 | .07 | .02 | .00 | .28 | 406. |
| 9113.18 | 7.6 | 101. | 5.9 | | .80 | .04 | .01 | .00 | .22 | 384. |
| 9113.18 | 4.8 | 59. | 4.8 | | .64 | .00 | .01 | .00 | .15 | 353. |
| 913.22 | 9.2 | 130. | 4.5 | | 1.4 | .07 | .02 | .00 | .28 | 532. |
| 913.22 | 7.5 | 99. | 4.1 | | 1.1 | .04 | .01 | .00 | .21 | 517. |
| 913.22 | 5.9 | 73. | 3.6 | | .84 | .01 | .00 | .00 | .13 | 477. |
| 910. | 10.4 | 132. | 3.7 | | 1.3 | .10 | .01 | .00 | .25 | 557. |
| 910. | 7.4 | 92. | 3.4 | | 1.0 | .05 | .00 | .00 | .21 | 533. |
| 910. | 5.2 | 66. | 2.8 | | .54 | .02 | .00 | .00 | .13 | 511. |
| 9288. | | .04 | .11 | 165. | .007 | .18 | 480. | | | |
| 9285. | | .02 | .07 | 155. | .002 | .18 | 390. | | | |
| 9284. | | .01 | .04 | 145. | .000 | .18 | 300. | | | |
| 92159. | | .76 | .79 | 320. | .099 | .36 | 1200. | | | |
| 92152. | | .46 | .51 | 300. | .051 | .36 | 1040. | | | |
| 92138. | | .20 | .30 | 290. | .008 | .36 | 690. | | | |
| 92160. | | .77 | .81 | 310. | .032 | .52 | 1340. | | | |
| 92155. | | .42 | .48 | 285. | .023 | .52 | 1170. | | | |
| 92149. | | .14 | .20 | 275. | .003 | .52 | 950. | | | |
| 92168. | | .99 | 1.0 | 285. | .076 | 1.4 | 1810. | | | |
| 92158. | | .65 | .65 | 280. | .017 | 1.0 | 1440. | | | |
| 92152. | | .35 | .39 | 280. | .003 | .64 | 1100. | | | |
| 92166. | | .94 | .97 | 280. | .065 | 1.3 | 2640. | | | |
| 92159. | | .64 | .68 | 275. | .014 | .75 | 1960. | | | |
| 92151. | | .37 | .40 | 270. | .002 | .24 | 1670. | | | |
| 92170. | | .99 | 1.0 | 285. | .076 | 1.0 | 3330. | | | |
| 92163. | | .66 | .72 | 270. | .029 | .84 | 2630. | | | |
| 92161. | | .40 | .47 | 265. | .01 | .68 | 2110. | | | |
| 92 | | | | 70. | .000 | | | | | |
| 92 | | | | 65. | .000 | | | | | |
| 92 | | | | 60. | .000 | | | | | |
| 92169. | | .77 | .80 | 70. | .042 | 1.4 | 3190. | | | |
| 92165. | | .55 | .60 | 70. | .013 | 1.0 | 2710. | | | |
| 92159. | | .34 | .45 | 70. | .005 | .64 | 1740. | | | |
| 92171. | | .46 | .50 | 60. | .007 | 4.1 | 4240. | | | |
| 92166. | | .33 | .40 | 55. | .005 | 2.7 | 3230. | | | |
| 92160. | | .24 | .29 | 50. | .001 | 1.4 | 2020. | | | |
| 92247. | | .28 | .31 | 60. | .028 | 1.2 | 4040. | | | |
| 92234. | | .22 | .28 | 55. | .007 | 1.1 | 3560. | | | |
| 92216. | | .15 | .24 | 50. | .000 | .98 | 3150. | | | |
| 92318. | | .28 | .29 | 50. | .007 | .87 | 4730. | | | |
| 92310. | | .21 | .24 | 44. | .003 | .61 | 4230. | | | |
| 92287. | | .13 | .16 | 40. | .000 | .35 | 3520. | | | |
| 92332. | | .25 | .30 | 55. | .005 | 1.6 | 5430. | | | |
| 92319. | | .21 | .26 | 45. | .005 | 1.1 | 4390. | | | |
| 92306. | | .13 | .20 | 40. | .002 | .66 | 3880. | | | |

C-----------------------------------------------------------------------------

APPENDIX II--LISTING OF EXAMPLE DATA SETS--Continued.

E.-- Truckee Canal, June 1979

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The following data set represents Truckee Canal conditions observed during field investigations in June 1979. Starting flows and concentrations for the following Truckee Canal data sets are those observed at the Derby Dam diversion into the canal.

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C----------------------------------------------------------------------
C C679.PUB
A1       01 0
11TRUCKEE CANAL, DERBY DAM TO LAHONTAN WIER
12JUNE 6-8, 1979                             (C679.PUB  MEAN DO)
21 05 00 09 01 .1  31.42    .00        0
22 390.     19.5    650.    170.     8.2     3.8               .57      .21
23 .18      .49     .33     169.     112.               .33     .40
3101 DERBY DAM - PYRAMID CHK 31.42  REGULAR CHANNEL, 26
3102 PYRAMID CHK - TUNNEL #3 25.38  REGULAR CHANNEL, 76
3103 TUNNEL #3 - FERNLEY CHK 22.54  REGULAR CHANNEL, 10
3104 FERNLEY CHK - ANDERSON  18.02  REGULAR CHANNEL, UNLINED.    8 DIVERSIONS
3105 ANDERSON CHK - ALLENDALE15.07  REGULAR CHANNEL, UNLINED.    7 DIVERSIONS
3106 ALLENDALE CHK - MASON   11.07  REGULAR CHANNEL, UNLINED.    3 DIVERSIONS
3107 MASON CHK - BANGO CHK    6.39  REGULAR CHANNEL, UNLINED.    1 DIVERSIONS
3108 BANGO CHK - HWY 50 BR.   3.25  REGULAR CHANNEL, UNLINED.    NO DIVERSIONS
3109 HWY 50 BR - LAHON. WIER   .44  REGULAR CHANNEL, 48
4101                         .0464.579                                7.8   .29
4102                         .0757.579                                9.1   .15
4103                         .0484.579                                4.0   .36
4104                         .0136.758                                21.   .09
4105                         .0155.750                                30.   .04
4106                         .0302.649                                12.   .23
4107                         .0122.810                                32.   .067
4108                         .267 .368                                22.   .076
4109                         .239 .368                                16.   .16
510119.0 650. 170.      .5                    12 .8        8.0
510219.0 655. 170.      .5                    12 1.5       7.9
510318.5 655. 165.      .5                    12 .1        7.8
510418.5 655. 165.      .5                    12 .3        7.7
510518.5 655. 165.      .5                    12 .5        7.8
510618.5 655. 165.      .5                    12 .02       8.0
510718.5 655. 165.      .5                    12 .3        8.1
510819.0 655. 165.      .5                    12 1.1       8.1
510919.0 655. 165.      .5                    12 1.        8.1
6101 .13 .13                .05 .05 .90 .90 .70 .70 .18    .10 0    .10 .10
6102 .13 .13                .05 .05 .90 .90 .70 .70 .18    .10 0    .10 .10
6103 .13 .13                .05 .05 .90 .90 .70 .70 .18    .10 0    .10 .10
6104 .13 .13                .05 .05 .90 .90 .70 .70 .18    .10 0    .10 .10
6105 .13 .13                .05 .05 .90 .90 .70 .70 .18    .10 0    .10 .10
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6106 .13 .13                .05 .05 .90 .90 .70 .70 .18     .10  0    .10 .10
6107 .13 .13                .05 .05 .90 .90 .70 .70 .18     .10  0    .10 .10
6108 .03 .03                .05 .05 .90 .90 .70 .70 .18     .10  0    .10 .10
6109 .03 .03                .05 .05 .90 .90 .70 .70 .18     .10  0    .10 .10
8101 -5.
8102 -5.
8103 -20.
8104 -15.
8105 -15.
8106 -20.
8107 -10.
8108 -10.
8109 -1.
9131.42   9.6   123.   5.2           .97    .34    .27    .82    .41    186.
9131.42   8.2   103.   3.8           .57    .21    .18    .49    .33    169.
9131.42   6.8    80.   3.1           .37    .01    .02    .34    .17    159.
9118.23   8.0    98.   4.3           .77    .20    .25    .87    .40    185.
9118.23   7.1    89.   3.4           .55    .09    .14    .49    .31    174.
9118.23   5.7    78.   2.6           .43    .01    .02    .32    .26    158.
91.44     8.1   104.   5.4           .61    .05    .18    .70    .38    176.
91.44     7.8   96.    4.1           .55    .04    .13    .58    .30    166.
91.44     7.2   87.    3.2           .43    .02    .06    .42    .24    157.
92121.          .41    .51    420.   .042
92112.          .33    .40    390.   .012
92106.          .17    .21    355.   .000
92121.          .40    .50    380.   .002
92112.          .31    .38    360.   .002
92105.          .26    .31    340.   .002
92116.          .38    .43    300.   .004
92110.          .30    .35    290.   .002
92105.          .24    .30    280.   .001
C-------------------------------------------------------------------------------
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APPENDIX II--LISTING OF EXAMPLE DATA SETS--Continued.

F.--Truckee Canal, August 1979

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The following data set represents Truckee Canal conditions observed during field investigations in August 1979.

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C------------------------------------------------------------------------------
C C879.PUB
A1       01 0
11TRUCKEE CANAL, DERBY DAM TO LAHONTAN WIER
12AUGUST 9-10, 1979                          (C879.PUB MEAN DO)
21 05 00 09 01 .1  31.42    .00        0
22 220.    22.8    655.    235.    6.3     4.4              .68     .11
23 .19     1.1     .69     237.    150.                .69  .78
3101 DERBY DAM - PYRAMID CHK 31.42  REGULAR CHANNEL, 26
3102 PYRAMID CHK - TUNNEL #3 25.38  REGULAR CHANNEL, 76
3103 TUNNEL #3 - FERNLEY CHK 22.54  REGULAR CHANNEL, 10
3104 FERNLEY CHK - ANDERSON  18.02  REGULAR CHANNEL, UNLINED.    8 DIVERSIONS
3105 ANDERSON CHK - ALLENDALE15.07  REGULAR CHANNEL, UNLINED.    7 DIVERSIONS
3106 ALLENDALE CHK - MASON   11.07  REGULAR CHANNEL, UNLINED.    3 DIVERSIONS
3107 MASON CHK - BANGO CHK    6.39  REGULAR CHANNEL, UNLINED.    1 DIVERSIONS
3108 BANGO CHK - HWY 50 BR.   3.25  REGULAR CHANNEL, UNLINED.    NO DIVERSIONS
3109 HWY 50 BR - LAHON. WIER   .44  REGULAR CHANNEL, 48
4101                         .0464.579                                7.8  .29
4102                         .0757.579                                9.1  .15
4103                         .0484.579                                4.0  .36
4104                         .0136.758                                21.  .09
4105                         .0155.750                                30.  .04
4106                         .0302.649                                12.  .23
4107                         .0122.810                                32.  .067
4108                         .267 .368                                22.  .076
4109                         .239 .368                                16.  .16
510123.0 655. 235.      2.5                     12 .80        8.1
510223.0 655. 240.      2.5                     12 1.5        8.2
510323.5 655. 245.      2.5                     12 .10        8.2
510423.5 655. 245.      2.5                     12 .30        8.3
510523.5 655. 245.      2.5                     12 .50        8.5
510623.5 660. 245.      2.5                     12 .02        8.8
510724.0 660. 245.      2.5                     12 .30        8.9
510824.0 660. 245.      2.5                     12 1.1        9.0
510924.0 660. 245.      2.5                     12 1.0        9.0
6101 .13 .13                .05 .05 .90 .90 .70 .70 .18     .10  0     .10 .10
6102 .13 .13                .05 .05 .90 .90 .70 .70 .18     .10  0     .10 .10
6103 .13 .13                .05 .05 .90 .90 .70 .70 .18     .10  0     .10 .10
6104 .13 .13                .05 .05 .90 .90 .70 .70 .18     .10  0     .10 .10
6105 .13 .13                .05 .05 .90 .90 .70 .70 .18     .10  0     .10 .10
6106 .13 .13                .05 .05 .90 .90 .70 .70 .18     .10  0     .10 .10
6107 .13 .13                .05 .05 .90 .90 .70 .70 .18     .10  0     .10 .10
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6108 .03 .03                      .05 .05 .90 .90 .70 .70 .18       .10  0      .10 .10
6109 .03 .03                      .05 .05 .90 .90 .70 .70 .18       .10  0      .10 .10
7101 0
7102 0
7103 0
7104 -20.
7105 -15.
7108 -10.
8101 -10.
8102 -10.
8103 -20.
8104 -30.
8105 -15.
8106 -10.
8107 -10.
8108 -10.
8109 -1.
9131.42  10.2   144.   5.4          .92    .28    .27   1.20   .98    248.
9131.42   6.3    86.   4.4          .68    .11    .19   1.10   .69    237.
9131.42   4.4    58.   3.8          .48    .01    .14    .95   .52    223.
9118.23   9.0   120.   4.9          1.1    .12    .19   1.30   .99    258.
9118.23   7.5   101.   4.4          .70    .06    .14   1.10   .75    245.
9118.23   5.9    80.   4.0          .52    .01    .05    .64   .38    231.
91.44    14.1   206.   7.3          1.4    .01    .23    .91   .82    261.
91.44    10.1   139.   6.1          .86    .01    .12    .76   .67    246.
91.44     7.5   100.   4.6          .51    .01    .05    .68   .53    234.
92157.           .98   1.1   240.   .013   2.06   1180.
92150.           .69   .78   220.   .006   1.36   1030.
92142.           .52   .58   185.   .001   .65    710.
92162.           .99   1.0   195.   .007   3.99   162.
92155.           .75   .82   180.   .006   1.86   155.
92147.           .38   .53   165.   .001   .53    144.
92164.           .82   .95    85.   .005   38.9   17450.
92155.           .67   .79    60.   .003   17.7   12050.
92149.           .53   .62    50.   .003   10.0   7900.
C--------------------------------------------------------------------------------
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## G.--Truckee Canal, June 1980

The following data set represents Truckee Canal conditions observed during field investigations in June 1980.

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C-----------------------------------------------------------------------------
C C680.PUB
A1 .     01 0
11TRUCKEE CANAL, DERBY DAM TO LAHONTAN WIER
12JUNE 5-6, 1980                               (C680.PUB  MEAN DO)
21 05 00 09 01 .1  31.42    .00         0
22 130.    10.9    652.    121.    9.0     2.8             .64     .26
23 .02     .28     .10     121.    84.             .10     .11
3101 DERBY DAM - PYRAMID CHK 31.42  REGULAR CHANNEL, 26
3102 PYRAMID CHK - TUNNEL #3 25.38  REGULAR CHANNEL, 76
3103 TUNNEL #3 - FERNLEY CHK 22.54  REGULAR CHANNEL, 10
3104 FERNLEY CHK - ANDERSON  18.02  REGULAR CHANNEL, UNLINED.    8 DIVERSIONS
3105 ANDERSON CHK - ALLENDALE15.07  REGULAR CHANNEL, UNLINED.    7 DIVERSIONS
3106 ALLENDALE CHK - MASON   11.07  REGULAR CHANNEL, UNLINED.    3 DIVERSIONS
3107 MASON CHK - BANGO CHK    6.39  REGULAR CHANNEL, UNLINED.    1 DIVERSIONS
3108 BANGO CHK - HWY 50 BR.   3.25  REGULAR CHANNEL, UNLINED.    NO DIVERSIONS
3109 HWY 50 BR - LAHON. WIER   .44  REGULAR CHANNEL, 48
4101                          .0464.579                                7.8  .29
4102                          .0757.579                                9.1  .15
4103                          .0484.579                                4.0  .36
4104                          .0136.758                                21.  .09
4105                          .0155.750                                30.  .04
4106                          .0302.649                                12.  .23
4107                          .0122.810                                32.  .067
4108                          .267 .368                                22.  .076
4109                          .239 .368                                16.  .16
510111.0 655. 120.        .5                     12 .8           7.3
510211.5 655. 125.        .5                     12 1.5          7.5
510311.5 655. 130.        .5                     12 .1           7.7
510411.5 655. 130.        .5                     12 .3           7.8
510512.5 655. 130.        .5                     12 .5           7.7
510613.0 655. 130.        .5                     12 .02          7.8
510713.5 655. 130.        .5                     12 .3           8.0
510813.5 655. 130.        .5                     12 1.1          8.2
510913.5 655. 130.        .5                     12 1.           8.3
6101 .13 .13                 .05 .05 .90 .90 .70 .70 .18     .10 0     .10 .10
6102 .13 .13                 .05 .05 .90 .90 .70 .70 .18     .10 0     .10 .10
6103 .13 .13                 .05 .05 .90 .90 .70 .70 .18     .10 0     .10 .10
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6104 .13 .13                     .05 .05 .90 .90 .70 .70 .18     .10  0     .10 .10
6105 .13 .13                     .05 .05 .90 .90 .70 .70 .18     .10  0     .10 .10
6106 .13 .13                     .05 .05 .90 .90 .70 .70 .18     .10  0     .10 .10
6107 .13 .13                     .05 .05 .90 .90 .70 .70 .18     .10  0     .10 .10
6108 .03 .03                     .05 .05 .90 .90 .70 .70 .18     .10  0     .10 .10
6109 .03 .03                     .05 .05 .90 .90 .70 .70 .18     .10  0     .10 .10
8101 -2.
8102 -3.
8103 -10.
8104 -7.
8105 -8.
8106 -5.
8107 -3.
8108 -2.
8109 -1.
9131.42   9.4   103.   3.6          .90    .34    .03    .60    .14    126.
9131.42   9.0    95.   2.8          .64    .26    .02    .28    .10    121.
9131.42   8.6    89.   2.4          .46    .22    .01    .12    .06    115.
9118.23   8.8    95.   3.9          .78    .26    .03    .32    .12    142.
9118.23   8.5    90.   2.8          .60    .19    .02    .24    .11    129.
9118.23   8.2    88.   2.1          .32    .12    .02    .16    .09    121.
9111.07   9.1   103.   2.7          .90    .25    .03    .38    .13    134.
9111.07   9.0    99.   2.1          .54    .19    .02    .30    .12    128.
9111.07   8.8    94.   1.8          .33    .13    .01    .20    .10    124.
91.44    10.2   119.   2.6          .62    .12    .03    .35    .16    137.
91.44     9.7   110.   2.3          .51    .08    .02    .31    .12    130.
91.44     9.2    99.   2.1          .39    .04    .01    .26    .11    125.
9287.           .14    .12   160.   .000   1.5    526.
9284.           .10    .11   130.   .001   .80    502.
9281.           .06    .08   130.   .000   .11    478.
9296.           .12    .13   115.   .003   .79    377.
9289.           .11    .10   115.   .002   .79    363.
9284.           .09    .09   110.   .002   .79    348.
9292.           .13    .11   105.   .002          582.
9288.           .12    .10   100.   .002          582.
9286.           .10    .09   90.    .001          582.
9293.           .16    .15   95.    .008   1.71   1440.
9289.           .12    .11   90.    .004   1.11   1220.
9287.           .11    .09   80.    .001   .51    1010.
C-------------------------------------------------------------------------------
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APPENDIX II--LISTING OF EXAMPLE DATA SETS--Continued.

H.--Truckee Canal, August 1980

The following data set represents Truckee Canal conditions observed during field investigations in August 1980.

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C------------------------------------------------------------------------------
C  C880.PUB
A1      01 0
11TRUCKEE CANAL, DERBY DAM TO LAHONTAN WIER
12AUGUST 13-14, 1980                          (C880.PUB  MEAN DO)
21 05 00 09 01 .1  31.42    .00        0
22 205.    20.6    650.    260.    6.7     5.4     0       1.4      .25
23 .30     1.10    .66     260.    163.            .66     .72
3101 DERBY DAM - PYRAMID CHK 31.42  REGULAR CHANNEL, 26
3102 PYRAMID CHK - TUNNEL #3 25.38  REGULAR CHANNEL, 76
3103 TUNNEL #3 - FERNLEY CHK 22.54  REGULAR CHANNEL, 10
3104 FERNLEY CHK - ANDERSON  18.02  REGULAR CHANNEL, UNLINED.    8 DIVERSIONS
3105 ANDERSON CHK - ALLENDALE15.07  REGULAR CHANNEL, UNLINED.    7 DIVERSIONS
3106 ALLENDALE CHK - MASON   11.07  REGULAR CHANNEL, UNLINED.    3 DIVERSIONS
3107 MASON CHK - BANGO CHK    6.39  REGULAR CHANNEL, UNLINED.    1 DIVERSIONS
3108 BANGO CHK - HWY 50 BR.   3.25  REGULAR CHANNEL, UNLINED.    NO DIVERSIONS
3109 HWY 50 BR - LAHON. WIER   .44  REGULAR CHANNEL, 48
4101                          .0464.579                              7.8   .29
4102                          .0757.579                              9.1   .15
4103                          .0484.579                              4.0   .36
4104                          .0136.758                              21.   .09
4105                          .0155.750                              30.   .04
4106                          .0302.649                              12.   .23
4107                          .0122.810                              32.   .067
4108                          .267 .368                              22.   .076
4109                          .239 .368                              16.   .16
510121.0 650. 235.     2.5                      12 .80          8.2
510221.0 650. 240.     2.5                      12 1.5          7.9
510321.5 650. 245.     2.5                      12 .10          7.6
510421.5 650. 245.     2.5                      12 .30          7.4
510522.0 650. 245.     2.5                      12 .50          7.9
510622.0 650. 245.     2.5                      12 .02          8.2
510722.0 650. 245.     2.5                      12 .30          8.3
510821.5 650. 245.     2.5                      12 1.1          8.4
510921.5 650. 245.     2.5                      12 1.0          8.5
6101 .13 .13                 .05 .05 .90 .90 .70 .70 .18     .10  0    .10 .10
6102 .13 .13                 .05 .05 .90 .90 .70 .70 .18     .10  0    .10 .10
6103 .13 .13                 .05 .05 .90 .90 .70 .70 .18     .10  0    .10 .10
6104 .13 .13                 .05 .05 .90 .90 .70 .70 .18     .10  0    .10 .10
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6105 .13 .13                        .05 .05 .90 .90 .70 .70 .18       .10  0     .10 .10
6106 .13 .13                        .05 .05 .90 .90 .70 .70 .18       .10  0     .10 .10
6107 .13 .13                        .05 .05 .90 .90 .70 .70 .18       .10  0     .10 .10
6108 .03 .03                        .05 .05 .90 .90 .70 .70 .18       .10  0     .10 .10
6109 .03 .03                        .05 .05 .90 .90 .70 .70 .18       .10  0     .10 .10
7105 -15.
7106 -5.
7108 -15.
8101 -10.
8102 -5.
8103 -40.
8104 -40.
8105 -25.
8106 -10.
8107 -10.
8108 -10.
8109 -1.
9131.42    9.0   122.   6.7           2.0     .34     .39    1.2     .99     272.
9131.42    6.7    87.   5.4           1.4     .25     .30    1.1     .66     260.
9131.42    5.5    69.   4.6            .90    .12     .24     .96    .40     256.
9118.23    7.0   114.   5.4           1.5     .15     .31    1.3     .86     251.
9118.23    6.8    92.   4.3           1.0     .11     .23    1.2     .56     245.
9118.23    6.4    85.   3.5            .69    .04     .15     .93    .30     238.
9111.07    9.8   132.   5.6           1.5     .07     .26    1.3     .58     242.
9111.07    8.8   118.   4.8            .99    .03     .19    1.2     .45     234.
9111.07    7.8   103.   4.1            .74    .00     .05    1.1     .36     225.
91.44     14.2   206.   4.4           1.1     .06     .13    1.10    .37     226.
91.44     10.2   137.   3.9            .88    .03     .09     .78    .30     217.
91.44      7.8    98.   3.5            .57    .00     .04     .44    .20     210.
92170.            .99   1.0    215.    .076   1.0     3330.
92163.            .66    .72   205.    .029    .84    2630.
92161.            .40    .47   205.    .001    .68    2110.
92158.            .86    .87   165.    .002    .99    3620.
92155.            .56    .60   150.    .001    .67    2990.
92151.            .30    .35   145.    .000    .35    2450.
92153.            .58    .62    90.    .005   3.4     11300.
92149.            .45    .52    70.    .002   2.1     8950.
92144.            .36    .43    50.    .000    .79    6400.
92144.            .37    .43    25.    .019   2.8     5390.
92139.            .30    .35    20.    .004   1.5     3950.
92135.            .20    .26    15.    .000    .16    2340.
C-------------------------------------------------------------------------------
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# APPENDIX III--EXAMPLE OUTPUT

Following are printed tables and figures produced by processing the data set for August 1979 (Appendix II-B).

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        U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION:  TRUCKEE RIVER WATER-QUALITY MODEL          [REV 87.9]
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          TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM                              TUE, SEP 29 1987
          NORTH TRUCKEE DRAIN, KLEPPE LANE TO MOUTH      (RB79.PUB MEAN DO)

                    RESULTS FOR MAJOR TRIBUTARY ENTERING SUBREACH  2.


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APPENDIX III--EXAMPLE OUTPUT--Continued.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
NORTH TRUCKEE DRAIN, KLEPPE LANE TO MOUTH (R879.PUB MEAN DO)

RESULTS FOR MAJOR TRIBUTARY ENTERING SUBREACH 2.

TABLE 1.--MODEL OPTIONS AND UPSTREAM BOUNDARY CONDITONS.

| MODEL OPTIONS | SET THIS RUN |
|---|---|
| NUMBER OF SUBREACHES: | 1 |
| STARTING RIVER MILE: | 0.26 |
| ENDING RIVER MILE: | 0.00 |
| CALCULATION INTERVAL: | 0.10 MILE. |
| LINEAR RUNOFF MODELED: | SURFACE AND GROUND-WATER RETURNS. |

TABLE 2.--SUBREACH DESCRIPTIONS.

| SUBREACH | NAME | RIVER MILES BEGIN | RIVER MILES END | TOTAL LENGTH | DESCRIPTION |
|---|---|---|---|---|---|
| 1 | KLEPPE LANE TO MOUTH | 0.26 | 0.00 | 0.26 | NO DIVERSIONS OR RETURNS |

0.26 MILES TOTAL LENGTH MODELED.

TABLE 3.--MEAN SUBREACH ENVIRONMENTAL FACTORS.

| SUBREACH | DO SATURATION CONTROLS: MEAN TEMP (DEG C) | BAROMETRIC PRESSURE (MM HG) | SPECIFIC CONDUCTANCE (UMHOS) | DO AT SATURATION (MG/L) | PHOTOSYNTHESIS & RESPIRATION: NET PRODUCTION (MG/L/DAY) | NET RESPIRATION (MG/L/DAY) | BENTHIC DEMAND (GM/SQ M/DAY) | MEAN PH |
|---|---|---|---|---|---|---|---|---|
| 1 KLEPPE LANE TO MOUTH | 20.0 | 652. | 360. | 7.7 | 0.0 | 0.0 | 0.0 | 7.9 |

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
NORTH TRUCKEE DRAIN, KLEPPE LANE TO MOUTH (R879.PUB MEAN DO)

TABLE 4A.--SUMMARY OF INPUTS TO SUBREACHES: CONCENTRATIONS.

(NOTE-- NEGATIVE CONCENTRATIONS TO BE RECOMPUTED AS A FUNCTION OF DIVERTED QUALITY & WILL FOLLOW TABLE 8.)

| SUBREACH | DIS-CHARGE | DO | % SAT | DO DEF | CBODU | ORG-N | NH4-N | NO2-N | NO3-N | TOT-N | O-P-A | SP COND | DS | ORTH P-B | TOTAL P | DIVERTED SUBR NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UPSTREAM: | 50.0 | 7.0 | 90. | 0.0 | 3.90 | 0.68 | 0.02 | 0.01 | 0.41 | 1.12 | 0.11 | 359.00 | 250.00 | 0.11 | 0.10 | |

TABLE 4B.--SUMMARY OF INPUTS TO SUBREACHES: LOADS (LB/DAY).

| SUBREACH | DO | DO DEF | CBOD | ORG-N | NH4-N | NO2-N | NO3-N | TOT-N | O-P-A | SP COND | DS | ORTH P-B | TOTAL P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UPSTREAM: | 1888. | 0. | 1052. | 183. | 5. | 3. | 111. | 302. | 30. | 96819. | 67422. | 30. | 27. |

TABLE 5.--SUBREACH HYDRAULICS DATA

| SUBREACH | STARTING RIVER MILE | LENGTH (MI) | DISCHARGE (CFS) START | DISCHARGE (CFS) MEAN | GEOM. METH. | TRAVEL TIME (HRS) | TRAVEL TIME (DAYS) | VELOCITY (FPS) | AREA (SQ FT) | DEPTH (FT) | WIDTH (FT) | MEAN SLOPE (FT/FT) | MEAN SLOPE (FT/MI) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 KLEPPE LANE TO MOUTH | 0.26 | 0.26 | 50.0 | 50.0 | 4 | 0.24 | 0.01 | 1.60 | 31. | 1.9 | 16. | 0.00044 | 2.30 |
| | | | 50.0,AT END | | | 0.24 | 0.01 | | | | | | |

(COMPUTATIONAL METHODS-- AREA,DEPTH,WIDTH,VELO CITY AND TRAVELTIME COMPUTED FROM DISCHARGE AND:
1-- VELOCITY AND DEPTH; 2-- TRAVELTIME AND DEPTH; 3-- AREA AND DEPTH; 4--VELCITY AND WIDTH; 5--TRAVELTIME AND WIDTH;
6-- AREA AND WIDTH; 7--WIDTH AND DEPTH.
NOTE-- * INDICATES HYDRAULICS DATA WILL BE RECOMPUTED FOR EACH CALCULATION INTERVAL WITHIN THE SUBREACH.)

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
NORTH TRUCKEE DRAIN, KLEPPE LANE TO MOUTH (R879.PUB MEAN DO)

TABLE 6.--SUBREACH REACTION COEFFICIENTS.

REACTION COEFFICIENTS (/DAY AT 20 DEG C)

| SUB | REAERATION METHOD | K2 | CBOD DECAY | CBOD FORW | ORG-N DECAY | ORG-N FORW | NH4-N DECAY | NH4-N FORW | NO2-N DECAY | NO2-N FORW | NO3-N DECAY | ORTH P-A DECAY | ORTH P-B DECAY | TOTAL P DECAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12 | 2.35 | 0.20 | 0.20 | 0.10 | 0.10 | 0.40 | 0.40 | 1.00 | 1.00 | 0.30 | 0.25 | 0.25 | 0.25 |

METHODS FOR CALCULATING K2: 0--INPUT AS DATA; 1--BENNETT/RATHBUN; 2--VELZ| 3--LANGBEIN/DURHAM| 4--PADDEN-GLOYNA|
5--BANSAL; 6--PARKHURST-POMEROY| 7--TSIVOGLOU-WALLACE| 12--MODIFIED TSIVOGLOU-WALLACE

TABLE 6.--SUBREACH REACTION COEFFICIENTS--CONTINUED.

TEMPERATURE-CORRECTED REACTION COEFFICIENTS (/DAY AT AMBIENT TEMPERATURE)

| SUB | MEAN TEMP. (C) | K2 | CBOD DECAY | CBOD FORW | ORG-N DECAY | ORG-N FORW | NH4-N DECAY | NH4-N FORW | NO2-N DECAY | NO2-N FORW | NO3-N DECAY | ORTHO-P-A DECAY | ORTH P-B DECAY | TOTAL P DECAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20.0 | 2.35 | 0.20 | 0.20 | 0.10 | 0.10 | 0.40 | 0.40 | 1.00 | 1.00 | 0.30 | 0.25 | 0.25 | 0.25 |

TABLE 7.--OBSERVED WATER-QUALITY DATA.

| RIVER MILE | DIS-CHARGE (CFS) | DO CONC. MG/L | DO SAT. ( % ) | CBODU (MG/L) | ORG-N (MG/L) | NH4-N (MG/L) | UN-ION NH3-N (MG/L) | NO2-N (MG/L) | NO3-N (MG/L) | TOT-N (MG/L) | O-P-A (MG/L) | SP COND (UMHOS ) | DS (MG/L) | I-N/O-P (M/M) | ORTH P-B (MG/L) | TOTAL P (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUBREACH 1: KLEPPE LANE TO MOUTH ; NO DIVERSIONS OR RETURNS | | | | | | | | | | | | | | | | |
| 0.26 | 52.0 | 11.0 | 147. | 4.60 | 0.81 | 0.03 | 0.006 | 0.01 | 0.46 | 1.31 | 0.14 | 396.00 | 276.00 | 7.90 | 0.14 | 0.10 |
| 0.26 | 50.0 | 7.0 | 90. | 3.90 | 0.68 | 0.02 | 0.001 | 0.01 | 0.41 | 1.12 | 0.11 | 359.00 | 250.00 | 8.85 | 0.11 | 0.10 |
| 0.26 | 49.0 | 4.4 | 56. | 3.40 | 0.62 | 0.01 | 0.000 | 0.01 | 0.28 | 0.92 | 0.08 | 328.00 | 228.00 | 8.29 | 0.08 | 0.09 |

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
NORTH TRUCKEE DRAIN, KLEPPE LANE TO MOUTH (R879.PUB MEAN DO)

TABLE 8.--RESULTS OF COMPUTATIONS. (RESULTS IN MG/L UNLESS OTHERWISE STATED.)

| | | | DISSOLVED-OXYGEN DEFICIT FACTORS | | | | | | | | | FINAL CONCENTRATIONS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | INITIAL DEF. | REAER-ATION | CBOD | NH4-NO2 | NO2-NO3 | PHOTO-SYNTH. | RES-PIR. | BEN-THIC | TOTAL DEFICIT | SAT. D.O. | FINAL D.O. | % SAT | CBOD | NH4-N | NO2-N |
| SUBREACH 1: KLEPPE LANE TO MOUTH ; NO DIVERSIONS OR RETURNS | | | | | | | | | | | | | | | | | |
| 0.26 | 50.0 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.739 | 7.74 | 7.00 | 90.5 | 3.90 | 0.02 | 0.01 |
| 0.16 | 50.0 | 0.00 | 0.739 | -0.007 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.736 | 7.74 | 7.00 | 90.5 | 3.90 | 0.02 | 0.01 |
| 0.06 | 50.0 | 0.01 | 0.736 | -0.007 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.732 | 7.74 | 7.01 | 90.5 | 3.89 | 0.02 | 0.01 |
| 0.00 | 50.0 | 0.01 | 0.732 | -0.004 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.730 | 7.74 | 7.01 | 90.6 | 3.89 | 0.02 | 0.01 |
| ENDING LOADS (LB/DAY): | | | | -1. | 0. | 0. | 0. | 0. | 0. | 0. | 197. | 2087. | 1890. | | 1050. | 6. | 3. |

TABLE 9.--RESULTS OF COMPUTATIONS FOR NITROGEN SPECIES AND OTHER CONSTITUENTS.

| | | | NITROGEN CYCLE | | | | | UN-ION-IZED | | NONCONSERVATIVES | | CONSERVATIVES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | ORG-N (MG/L) | NH4-N (MG/L) | NO2-N (MG/L) | NO3-N (MG/L) | TOT-N (MG/L) | NH3-N (MG/L) | O-P-A (MG/L) | ORTH P-B (MG/L) | TOTAL P (MG/L) | SP COND (UMHOS ) | DS (MG/L) | I-N/O-P (M/M) |
| SUBREACH 1: KLEPPE LANE TO MOUTH ;NO DIVERSIONS OR RETURNS | | | | | | | | | | | | | | |
| 0.26 | 50.00 | 0.00 | 0.68 | 0.02 | 0.01 | 0.41 | 1.12 | 0.001 | 0.11 | 0.11 | 0.10 | 359.00 | 250.00 | 8.85 |
| 0.16 | 50.00 | 0.00 | 0.68 | 0.02 | 0.01 | 0.41 | 1.12 | 0.001 | 0.11 | 0.11 | 0.10 | 359.00 | 250.00 | 8.85 |
| 0.06 | 50.00 | 0.01 | 0.68 | 0.02 | 0.01 | 0.41 | 1.12 | 0.001 | 0.11 | 0.11 | 0.10 | 359.00 | 250.00 | 8.85 |
| 0.00 | 50.00 | 0.01 | 0.68 | 0.02 | 0.01 | 0.41 | 1.12 | 0.001 | 0.11 | 0.11 | 0.10 | 359.00 | 250.00 | 8.86 |
| ENDING LOADS (LB/DAY): | | | 183. | 6. | 3. | 110. | 302. | | 30. | 30. | 27. | 96819. | 67422. | 0. |

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
STEAMBOAT CREEK, KIMLICK LANE TO MOUTH (R879.PUB MEAN DO )

RESULTS FOR MAJOR TRIBUTARY ENTERING SUBREACH 3.

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U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
STEAMBOAT CREEK, KIMLICK LANE TO MOUTH (R879.PUB MEAN DO )

RESULTS FOR MAJOR TRIBUTARY ENTERING SUBREACH 3.

TABLE 1.--MODEL OPTIONS AND UPSTREAM BOUNDARY CONDITONS.

| MODEL OPTIONS | SET THIS RUN |
|---|---|
| NUMBER OF SUBREACHES: | 2 |
| STARTING RIVER MILE: | 0.75 |
| ENDING RIVER MILE: | 0.00 |
| CALCULATION INTERVAL: | 0.10 MILE. |
| LINEAR RUNOFF MODELED: | SURFACE AND GROUND-WATER RETURNS. |

TABLE 2.--SUBREACH DESCRIPTIONS.

| SUBREACH | NAME | RIVER MILES BEGIN | RIVER MILES END | TOTAL LENGTH | DESCRIPTION |
|---|---|---|---|---|---|
| 1 | KIMLICK LANE TO STP | 0.75 | 0.13 | 0.62 | NO DIVERSIONS OR RETURNS |
| 2 | STP OUTFALL TO MOUTH | 0.13 | 0.00 | 0.13 | STP OUTFALL ENTERS AT HEAD |

0.75 MILES TOTAL LENGTH MODELED.

TABLE 3.--MEAN SUBREACH ENVIRONMENTAL FACTORS.

| | SUBREACH | DO SATURATION CONTROLS: MEAN TEMP (DEG C) | BAROMETRIC PRESSURE (MM HG) | SPECIFIC CONDUCTANCE (UMHOS) | DO AT SATURATION (MG/L) | PHOTOSYNTHESIS & RESPIRATION: NET PRODUCTION (MG/L/DAY) | NET RESPIRATION (MG/L/DAY) | BENTHIC DEMAND (GM/SQ M/DAY) | MEAN PH |
|---|---|---|---|---|---|---|---|---|---|
| 1 | KIMLICK LANE TO STP | 22.0 | 650. | 280. | 7.4 | 0.0 | 0.0 | 0.0 | 8.0 |
| 2 | STP OUTFALL TO MOUTH | 23.5 | 650. | 380. | 7.2 | 0.0 | 0.0 | 0.0 | 7.9 |

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
STEAMBOAT CREEK, KIMLICK LANE TO MOUTH (R879.PUB MEAN DO )

TABLE 4A.--SUMMARY OF INPUTS TO SUBREACHES: CONCENTRATIONS.

(NOTE-- NEGATIVE CONCENTRATIONS TO BE RECOMPUTED AS A FUNCTION OF DIVERTED QUALITY & WILL FOLLOW TABLE 8.)

| SUBREACH | DIS-CHARGE | DO | % SAT | DO DEF | CBODU | ORG-N | NH4-N | NO2-N | NO3-N | TOT-N | O-P-A | SP COND | DS | ORTH P-B | TOTAL P | DIVERTED SUBR NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UPSTREAM: | 40.0 | 5.8 | 78. | 0.0 | 6.90 | 0.90 | 0.10 | 0.01 | 0.09 | 1.10 | 0.21 | 279.00 | 194.00 | 0.21 | 0.24 | |
| 2 PS | 30.0 | 6.6 | 94. | 0.4 | 37.00 | 3.00 | 14.00 | 0.15 | 0.01 | 17.16 | 3.80 | 509.00 | 291.00 | 3.80 | 4.70 | |

TABLE 4B.--SUMMARY OF INPUTS TO SUBREACHES: LOADS (LB/DAY).

| SUBREACH | DO | DO DEF | CBOD | ORG-N | NH4-N | NO2-N | NO3-N | TOT-N | O-P-A | SP COND | DS | ORTH P-B | TOTAL P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UPSTREAM: | 1251. | 0. | 1489. | 194. | 22. | 2. | 19. | 237. | 45. | 60195. | 41856. | 45. | 52. |
| 2 PS/DIV: | 1068. | 72. | 5987. | 485. | 2265. | 24. | 2. | 2777. | 615. | 82363. | 47088. | 615. | 761. |

TABLE 5.--SUBREACH HYDRAULICS DATA

| SUBREACH | STARTING RIVER MILE | LENGTH (MI) | DISCHARGE (CFS) START | DISCHARGE (CFS) MEAN | GEOM. METH. | TRAVEL TIME (HRS) | TRAVEL TIME (DAYS) | VELOCITY (FPS) | AREA (SQ FT) | DEPTH (FT) | WIDTH (FT) | MEAN SLOPE (FT/FT) | MEAN SLOPE (FT/MI) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 KIMLICK LANE TO STP | 0.75 | 0.62 | 40.0 | 40.0 | 4 | 1.07 | 0.04 | 0.85 | 47. | 1.6 | 29. | 0.00009 | 0.50 |
| 2 STP OUTFALL TO MOUTH | 0.13 | 0.13 | 70.0 | 70.0 | 4 | 0.61 | 0.03 | 0.31 | 222. | 6.8 | 33. | 0.00000 | 0.00 |
| | | | 70.0,AT END | | | 1.68 | 0.07 | | | | | | |

(COMPUTATIONAL METHODS-- AREA,DEPTH,WIDTH,VELO CITY AND TRAVELTIME COMPUTED FROM DISCHARGE AND:
1-- VELOCITY AND DEPTH; 2-- TRAVELTIME AND DEPTH; 3-- AREA AND DEPTH; 4--VELCITY AND WIDTH; 5--TRAVELTIME AND WIDTH;
6-- AREA AND WIDTH; 7--WIDTH AND DEPTH.
NOTE-- * INDICATES HYDRAULICS DATA WILL BE RECOMPUTED FOR EACH CALCULATION INTERVAL WITHIN THE SUBREACH.)

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
STEAMBOAT CREEK, KIMLICK LANE TO MOUTH (R879.PUB MEAN DO )

TABLE 6.--SUBREACH REACTION COEFFICIENTS.

REACTION COEFFICIENTS (/DAY AT 20 DEG C)

| SUB | REAERATION METHOD | K2 | CBOD DECAY | CBOD FORW | ORG-N DECAY | ORG-N FORW | NH4-N DECAY | NH4-N FORW | NO2-N DECAY | NO2-N FORW | NO3-N DECAY | ORTH P-A DECAY | ORTH P-B DECAY | TOTAL P DECAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12 | 0.27 | 0.20 | 0.20 | 0.10 | 0.10 | 0.40 | 0.40 | 1.00 | 1.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 2 | 12 | 0.00 | 1.70 | 0.20 | 1.70 | 0.80 | 0.40 | 0.40 | 10.00 | 10.00 | 0.30 | 0.25 | 0.25 | 0.25 |

METHODS FOR CALCULATING K2: 0--INPUT AS DATA; 1--BENNETT/RATHBUN; 2--VELZ| 3--LANGBEIN/DURHAM| 4--PADDEN-GLOYNA| 5--BANSAL; 6--PARKHURST-POMEROY| 7--TSIVOGLOU-WALLACE| 12--MODIFIED TSIVOGLOU-WALLACE

TABLE 6.--SUBREACH REACTION COEFFICIENTS--CONTINUED.

TEMPERATURE-CORRECTED REACTION COEFFICIENTS (/DAY AT AMBIENT TEMPERATURE)

| SUB | MEAN TEMP. (C) | K2 | CBOD DECAY | CBOD FORW | ORG-N DECAY | ORG-N FORW | NH4-N DECAY | NH4-N FORW | NO2-N DECAY | NO2-N FORW | NO3-N DECAY | ORTHO-P-A DECAY | ORTH P-B DECAY | TOTAL P DECAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 22.0 | 0.28 | 0.22 | 0.22 | 0.12 | 0.12 | 0.48 | 0.48 | 1.19 | 1.19 | 0.36 | 0.30 | 0.30 | 0.30 |
| 2 | 23.5 | 0.00 | 2.00 | 0.23 | 2.30 | 1.08 | 0.54 | 0.54 | 13.52 | 13.52 | 0.41 | 0.34 | 0.34 | 0.34 |

TABLE 7.--OBSERVED WATER-QUALITY DATA.

| RIVER MILE | DIS-CHARGE (CFS) | DO CONC. MG/L | DO SAT. ( % ) | CBODU (MG/L) | ORG-N (MG/L) | NH4-N (MG/L) | UN-ION NH3-N (MG/L) | NO2-N (MG/L) | NO3-N (MG/L) | TOT-N (MG/L) | O-P-A (MG/L) | SP COND (UMHOS ) | DS (MG/L) | I-N/O-P (M/M) | ORTH P-B (MG/L) | TOTAL P (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUBREACH 1: KIMLICK LANE TO STP ; NO DIVERSIONS OR RETURNS | | | | | | | | | | | | | | | | |
| 0.75 | 42.0 | 8.2 | 115. | 8.80 | 1.00 | 0.16 | 0.006 | 0.02 | 0.12 | 1.30 | 0.24 | 294.00 | 205.00 | 2.76 | 0.24 | 0.28 |
| 0.75 | 40.0 | 5.8 | 78. | 6.90 | 0.90 | 0.10 | 0.004 | 0.01 | 0.09 | 1.10 | 0.21 | 279.00 | 194.00 | 2.11 | 0.21 | 0.24 |
| 0.75 | 31.0 | 4.0 | 49. | 5.60 | 0.76 | 0.04 | 0.003 | 0.01 | 0.04 | 0.85 | 0.20 | 263.00 | 183.00 | 1.00 | 0.20 | 0.21 |

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STEAMBOAT CREEK, KIMLICK LANE TO MOUTH (R879.PUB MEAN DO )

TABLE 8.--RESULTS OF COMPUTATIONS. (RESULTS IN MG/L UNLESS OTHERWISE STATED.)

| | | | DISSOLVED-OXYGEN DEFICIT FACTORS | | | | | | | | | FINAL CONCENTRATIONS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | INITIAL DEF. | REAER-ATION | CBOD | NH4-NO2 | NO2-NO3 | PHOTO-SYNTH. | RES-PIR. | BEN-THIC | TOTAL DEFICIT | SAT. D.O. | FINAL D.O. | % SAT | CBOD | NH4-N | NO2-N |
| SUBREACH 1: KIMLICK LANE TO STP ; NO DIVERSIONS OR RETURNS | | | | | | | | | | | | | | | | | |
| 0.75 | 40.0 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.615 | 7.41 | 5.80 | 78.2 | 6.90 | 0.10 | 0.01 |
| 0.65 | 40.0 | 0.01 | 1.615 | -0.003 | 0.011 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 1.624 | 7.41 | 5.79 | 78.1 | 6.89 | 0.10 | 0.01 |
| 0.55 | 40.0 | 0.01 | 1.624 | -0.003 | 0.011 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 1.633 | 7.41 | 5.78 | 78.0 | 6.88 | 0.10 | 0.01 |
| 0.45 | 40.0 | 0.02 | 1.633 | -0.003 | 0.011 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 1.642 | 7.41 | 5.77 | 77.9 | 6.87 | 0.10 | 0.01 |
| 0.35 | 40.0 | 0.03 | 1.642 | -0.003 | 0.011 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 1.650 | 7.41 | 5.76 | 77.7 | 6.86 | 0.10 | 0.01 |
| 0.25 | 40.0 | 0.04 | 1.650 | -0.003 | 0.011 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 1.659 | 7.41 | 5.76 | 77.6 | 6.85 | 0.10 | 0.01 |
| 0.15 | 40.0 | 0.04 | 1.659 | -0.003 | 0.011 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 1.668 | 7.41 | 5.75 | 77.5 | 6.83 | 0.10 | 0.01 |
| 0.13 | 40.0 | 0.04 | 1.668 | -0.001 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.670 | 7.41 | 5.75 | 77.5 | 6.83 | 0.10 | 0.01 |
| ENDING LOADS (LB/DAY): | | | | -0. | 0. | 0. | 0. | 0. | 0. | 0. | 360. | 1600. | 1240. | | 1474. | 22. | 2. |
| SUBREACH 2: STP OUTFALL TO MOUTH ;STP OUTFALL ENTERS AT HEAD | | | | | | | | | | | | | | | | | |
| 0.13 | 70.0 | 0.04 | 1.668 | -0.001 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.088 | 7.20 | 6.11 | 84.9 | 19.76 | 6.06 | 0.07 |
| 0.03 | 70.0 | 0.06 | 1.088 | 0.000 | 0.088 | 0.218 | 0.027 | 0.000 | 0.000 | 0.000 | 1.421 | 7.20 | 5.78 | 80.3 | 19.01 | 6.03 | 0.11 |
| 0.00 | 70.0 | 0.07 | 1.421 | 0.000 | 0.026 | 0.065 | 0.010 | 0.000 | 0.000 | 0.000 | 1.523 | 7.20 | 5.68 | 78.9 | 18.79 | 6.02 | 0.12 |
| ENDING LOADS (LB/DAY): | | | | 0. | 10. | 25. | 4. | 0. | 0. | 0. | 575. | 2718. | 2143. | | 7095. | 2274. | 45. |

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STEAMBOAT CREEK, KIMLICK LANE TO MOUTH (R879.PUB MEAN DO )

TABLE 9.--RESULTS OF COMPUTATIONS FOR NITROGEN SPECIES AND OTHER CONSTITUENTS.

| | | | NITROGEN CYCLE | | | | | UN-ION-IZED | | NONCONSERVATIVES | | CONSERVATIVES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | ORG-N (MG/L) | NH4-N (MG/L) | NO2-N (MG/L) | NO3-N (MG/L) | TOT-N (MG/L) | NH3-N (MG/L) | O-P-A (MG/L) | ORTH P-B (MG/L) | TOTAL P (MG/L) | SP COND (UMHOS ) | DS (MG/L) | I-N/O-P (M/M) |
| SUBREACH 1: KIMLICK LANE TO STP ;NO DIVERSIONS OR RETURNS | | | | | | | | | | | | | | |
| 0.75 | 40.00 | 0.00 | 0.90 | 0.10 | 0.01 | 0.09 | 1.10 | 0.004 | 0.21 | 0.21 | 0.24 | 279.00 | 194.00 | 2.11 |
| 0.65 | 40.00 | 0.01 | 0.90 | 0.10 | 0.01 | 0.09 | 1.10 | 0.004 | 0.21 | 0.21 | 0.24 | 279.00 | 194.00 | 2.12 |
| 0.55 | 40.00 | 0.01 | 0.90 | 0.10 | 0.01 | 0.09 | 1.10 | 0.004 | 0.21 | 0.21 | 0.24 | 279.00 | 194.00 | 2.13 |
| 0.45 | 40.00 | 0.02 | 0.90 | 0.10 | 0.01 | 0.09 | 1.10 | 0.004 | 0.21 | 0.21 | 0.24 | 279.00 | 194.00 | 2.14 |
| 0.35 | 40.00 | 0.03 | 0.90 | 0.10 | 0.01 | 0.09 | 1.10 | 0.004 | 0.21 | 0.21 | 0.24 | 279.00 | 194.00 | 2.15 |
| 0.25 | 40.00 | 0.04 | 0.90 | 0.10 | 0.01 | 0.09 | 1.10 | 0.004 | 0.21 | 0.21 | 0.24 | 279.00 | 194.00 | 2.16 |
| 0.15 | 40.00 | 0.04 | 0.90 | 0.10 | 0.01 | 0.09 | 1.10 | 0.004 | 0.21 | 0.21 | 0.24 | 279.00 | 194.00 | 2.17 |
| 0.13 | 40.00 | 0.04 | 0.90 | 0.10 | 0.01 | 0.09 | 1.10 | 0.005 | 0.21 | 0.21 | 0.24 | 279.00 | 194.00 | 2.17 |
| ENDING LOADS (LB/DAY): | | | 193. | 22. | 2. | 19. | 237. | | 45. | 45. | 51. | 60195. | 41856. | 0. |
| SUBREACH 2: STP OUTFALL TO MOUTH ;STP OUTFALL ENTERS AT HEAD | | | | | | | | | | | | | | |
| 0.13 | 70.00 | 0.04 | 1.80 | 6.06 | 0.07 | 0.06 | 7.98 | 0.236 | 1.75 | 1.75 | 2.15 | 377.57 | 235.57 | 7.83 |
| 0.03 | 70.00 | 0.06 | 1.72 | 6.03 | 0.11 | 0.08 | 7.94 | 0.235 | 1.74 | 1.74 | 2.14 | 377.57 | 235.57 | 7.93 |
| 0.00 | 70.00 | 0.07 | 1.70 | 6.02 | 0.12 | 0.09 | 7.93 | 0.235 | 1.73 | 1.73 | 2.13 | 377.57 | 235.57 | 7.96 |
| ENDING LOADS (LB/DAY): | | | 640. | 2274. | 45. | 33. | 2993. | | 654. | 654. | 805. | 142558. | 88944. | 0. |

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MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE OF CONTENTS FOR OUTPUT FROM THIS MODEL RUN.

TABLES



FIGURES

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     TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM                                TUE, SEP 29 1987
      MAINSTEM TRUCKEE RIVER                          (R879.PUB  MEAN DO)

              TABLE 1.--MODEL OPTIONS AND UPSTREAM BOUNDARY CONDITONS.
              ---------------------------------------------------------

 MODEL OPTIONS                          SET THIS RUN
 =============                          ============

     NUMBER OF SUBREACHES:               43

     STARTING RIVER MILE:                56.12
     ENDING RIVER MILE:                   0.00

     CALCULATION INTERVAL:               0.10 MILE.

     LINEAR RUNOFF MODELED:              SURFACE AND GROUND-WATER RETURNS.
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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 2.--SUBREACH DESCRIPTIONS.

| SUBREACH | NAME | RIVER MILES BEGIN | RIVER MILES END | TOTAL LENGTH | DESCRIPTION |
|---|---|---|---|---|---|
| 1 | MCCARRAN BR - N TRUCKEE | 56.12 | 53.66 | 2.46 | NO DIVERSIONS OR RETURNS |
| 2 | N TRUCKEE DR - STEAMBT | 53.66 | 53.53 | 0.13 | N TRUCKEE DRAIN AT HEAD |
| 3 | STEAMBOAT - VISTA | 53.53 | 52.23 | 1.30 | STEAMBOAT C AT HEAD |
| 4 | VISTA - LARGOMARSINO DV | 52.23 | 51.25 | 0.98 | NO DIVERSION |
| 5 | LARGOMARSINO DIVERSIONS | 51.25 | 50.90 | 0.35 | NOCE AND MURPHY DIVERSIONS |
| 6 | BELOW LARG. - LOCKWOOD | 50.90 | 50.05 | 0.85 | NOCE AND MURPHY RETURNS |
| 7 | LOCKWOOD - GROTON DIV | 50.05 | 49.90 | 0.15 | L-NOCE & L-MURPHY RETURNS |
| 8 | GROTON DV - MUSTANG BR#1 | 49.90 | 48.25 | 1.65 | GROTON & L-MURPHY RETURNS |
| 9 | MUSTANG BR - LAST RET. | 48.25 | 46.68 | 1.57 | L-MURPHY RETURNS |
| 10 | MCCARRAN POOL | 46.68 | 46.35 | 0.33 | BACKWATER ABOVE MCCARRAN DAM |
| 11 | MCCARRAN DV - PATRICK B | 46.35 | 44.92 | 1.43 | NO RETURNS |
| 12 | PATRICK BR - SP RR BR | 44.92 | 42.88 | 2.04 | MCCARRAN RETURNS |
| 13 | SP RR BR - HILL DIV | 42.88 | 42.02 | 0.86 | BACKWATER ABOVE HILL DAM |
| 14 | HILL DIV - TRACY DIV | 42.02 | 40.76 | 1.26 | NO RETURNS |
| 15 | TRACY DIV - TRACY BRIDGE | 40.76 | 40.62 | 0.14 | NO RETURNS |
| 16 | TRACY BR - CLARK BR | 40.62 | 38.60 | 2.02 | HILL RETURNS |
| 17 | CLARK BR - RM 37.1 | 38.60 | 37.10 | 1.50 | NO DIVERSIONS OR RETURNS |
| 18 | RM 37.1 - I-80 OXBOW | 37.10 | 35.60 | 1.50 | NO DIVERSIONS OR RETURNS |
| 19 | I-80 OXBOW - DERBY DAM | 35.60 | 34.88 | 0.72 | BACKWATER ABOVE DERBY DAM |
| 20 | DERBY DAM - GAGE CABLE | 34.88 | 34.52 | 0.36 | TRUCKEE CANAL DIVERTS AT HEAD |
| 21 | GAGE CABLEWAY - WASHBRN | 34.52 | 31.28 | 3.24 | NO DIVERSIONS OR RETURNS MODELED |
| 22 | WASHBURN -PAINTED ROCK | 31.28 | 29.97 | 1.31 | WASHBURN & TRUCKEE CANAL RETURNS |
| 23 | PAINTED R - GREGORY-MONT | 29.97 | 29.35 | 0.62 | NO RETURNS |
| 24 | GREGORY-MONTE - RM 28.0 | 29.35 | 28.00 | 1.35 | GREGORY-MONTEAND CANAL RETURNS |
| 25 | RM 28.0 - HERMAN DIV | 28.00 | 26.75 | 1.25 | HERMAN AND CANAL RETURNS |
| 26 | HERMAN DIV - PIERSON DIV | 26.75 | 25.95 | 0.80 | HERMAN AND CANAL RETURNS |
| 27 | PIERSON DIV - PROCTR DIV | 25.95 | 23.90 | 2.05 | HERMAN, PIERSON , & CANAL RETURNS |
| 28 | PROCTOR - WADSWORTH | 23.90 | 23.69 | 0.21 | FERNLEY AREA GROUND-WATER RETURNS |
| 29 | WADSWORTH -FELLNAGLE DN | 23.69 | 22.55 | 1.14 | FERNLEY AREA GROUND-WATER RETURNS |
| 30 | FELLNAGLE - RM 21.4 | 22.55 | 21.40 | 1.15 | OLINGHOUSE #1 & FELLNAGLE RETURNS |
| 31 | RM 21.4 - S-BAR-S DIV | 21.40 | 19.84 | 1.56 | OLINGHOUSE #1 & FELLNAGLE RETURNS |
| 32 | S-S DAM - S-S PUMP | 19.84 | 17.82 | 2.02 | S-S AND OLINGHOUSE #2 RETURNS |
| 33 | S-BAR-S PUMP - RM 15.8 | 17.82 | 15.82 | 2.00 | S-S DAM, S-S PUMP & OLINGH.#3 RETURNS |
| 34 | RM 15.8 - DEAD OX WASH | 15.82 | 13.18 | 2.64 | SALINE GROUND WATER INFLOWS |
| 35 | DEAD OX - RM 10.0 | 13.18 | 10.00 | 3.18 | SALINE GROUND WATER INFLOWS |
| 36 | RM 10.0 - RM 9.2 | 10.00 | 9.20 | 0.80 | SALINE GROUND WATER INFLOWS |
| 37 | RM9.2 - NUMANA DAM | 9.20 | 8.21 | 0.99 | SALINE GROUND WATER INFLOWS |
| 38 | NUMANA DAM - RM 7.6 | 8.21 | 7.60 | 0.61 | NO RETURNS |
| 39 | RM 7.6 - RM 6.8 | 7.60 | 6.80 | 0.80 | NUMANA RETURNS |
| 40 | RM 6.8 - RM 4.0 | 6.80 | 4.00 | 2.80 | NUMANA RETURNS |
| 41 | RM 4.0 - NIXON BRIDGE | 4.00 | 3.22 | 0.78 | NUMANA RETURNS |
| 42 | NIXON BRIDGE - RM 1.0 | 3.22 | 1.00 | 2.22 | NUMANA RETURNS |
| 43 | RM 1.0 - MARBLE BLUFF D | 1.00 | 0.00 | 1.00 | NUMANA RETURNS, BACKWATER ABOVE DAM |

56.12 MILES TOTAL LENGTH MODELED.

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TABLE 3.--MEAN SUBREACH ENVIRONMENTAL FACTORS.

| | SUBREACH | DO SATURATION CONTROLS: MEAN TEMP (DEG C) | DO SATURATION CONTROLS: BAROMETRIC PRESSURE (MM HG) | DO SATURATION CONTROLS: SPECIFIC CONDUCTANCE (UMHOS) | DO SATURATION CONTROLS: DO AT SATURATION (MG/L) | PHOTOSYNTHESIS & RESPIRATION: NET PRODUCTION (MG/L/DAY) | PHOTOSYNTHESIS & RESPIRATION: NET RESPIRATION (MG/L/DAY) | BENTHIC DEMAND (GM/SQ M/DAY) | MEAN PH |
|---|---|---|---|---|---|---|---|---|---|
| 1 | MCCARRAN BR - N TRUCKEE | 20.5 | 655. | 130. | 7.7 | 0.0 | 0.0 | 0.0 | 8.0 |
| 2 | N TRUCKEE DR - STEAMBT | 20.0 | 655. | 180. | 7.8 | 0.0 | 0.0 | 0.0 | 8.2 |
| 3 | STEAMBOAT - VISTA | 21.0 | 655. | 240. | 7.6 | 0.0 | 0.0 | 0.0 | 8.0 |
| 4 | VISTA - LARGOMARSINO DV | 21.0 | 655. | 240. | 7.6 | 0.0 | 0.0 | 0.0 | 7.7 |
| 5 | LARGOMARSINO DIVERSIONS | 21.0 | 655. | 240. | 7.6 | 0.0 | 0.0 | 0.0 | 7.6 |
| 6 | BELOW LARG. - LOCKWOOD | 21.5 | 655. | 240. | 7.5 | 0.0 | 0.0 | 0.0 | 7.5 |
| 7 | LOCKWOOD - GROTON DIV | 21.5 | 655. | 240. | 7.5 | 1.0 | 0.0 | 0.0 | 7.4 |
| 8 | GROTON DV - MUSTANG BR#1 | 21.5 | 655. | 240. | 7.5 | 1.0 | 0.0 | 0.0 | 7.5 |
| 9 | MUSTANG BR - LAST RET. | 21.5 | 655. | 240. | 7.5 | 1.0 | 0.0 | 0.0 | 7.6 |
| 10 | MCCARRAN POOL | 21.5 | 655. | 240. | 7.5 | 1.0 | 0.0 | 0.0 | 7.7 |
| 11 | MCCARRAN DV - PATRICK B | 21.5 | 655. | 240. | 7.5 | 1.0 | 0.0 | 0.0 | 7.8 |
| 12 | PATRICK BR - SP RR BR | 22.0 | 655. | 240. | 7.5 | 1.0 | 0.0 | 0.0 | 7.8 |
| 13 | SP RR BR - HILL DIV | 22.0 | 655. | 240. | 7.5 | 1.0 | 0.0 | 0.0 | 7.8 |
| 14 | HILL DIV - TRACY DIV | 22.0 | 655. | 240. | 7.5 | 1.0 | 0.0 | 0.0 | 7.8 |
| 15 | TRACY DIV - TRACY BRIDGE | 22.0 | 655. | 250. | 7.5 | 1.0 | 0.0 | 0.0 | 7.8 |
| 16 | TRACY BR - CLARK BR | 22.0 | 655. | 250. | 7.5 | 1.0 | 0.0 | 0.0 | 7.8 |
| 17 | CLARK BR - RM 37.1 | 22.0 | 655. | 240. | 7.5 | 1.0 | 0.0 | 0.0 | 7.8 |
| 18 | RM 37.1 - I-80 OXBOW | 22.5 | 655. | 240. | 7.4 | 1.0 | 0.0 | 0.0 | 7.9 |
| 19 | I-80 OXBOW - DERBY DAM | 22.5 | 655. | 240. | 7.4 | 1.0 | 0.0 | 0.0 | 8.0 |
| 20 | DERBY DAM - GAGE CABLE | 23.0 | 655. | 240. | 7.3 | 2.0 | 0.0 | 0.0 | 8.0 |
| 21 | GAGE CABLEWAY - WASHBRN | 23.0 | 655. | 240. | 7.3 | 2.0 | 0.0 | 0.0 | 8.0 |
| 22 | WASHBURN -PAINTED ROCK | 23.0 | 655. | 540. | 7.3 | 2.0 | 0.0 | 0.0 | 8.0 |
| 23 | PAINTED R - GREGORY-MONT | 23.0 | 660. | 540. | 7.4 | 2.0 | 0.0 | 0.0 | 8.0 |
| 24 | GREGORY-MONTE - RM 28.0 | 23.0 | 660. | 250. | 7.4 | 2.0 | 0.0 | 0.0 | 8.1 |
| 25 | RM 28.0 - HERMAN DIV | 23.0 | 660. | 250. | 7.4 | 2.0 | 0.0 | 0.0 | 8.1 |
| 26 | HERMAN DIV - PIERSON DIV | 23.0 | 660. | 250. | 7.4 | 2.0 | 0.0 | 0.0 | 8.1 |
| 27 | PIERSON DIV - PROCTR DIV | 23.0 | 660. | 260. | 7.4 | 2.0 | 0.0 | 0.0 | 8.1 |
| 28 | PROCTOR - WADSWORTH | 23.0 | 660. | 260. | 7.4 | 2.0 | 0.0 | 0.0 | 8.1 |
| 29 | WADSWORTH -FELLNAGLE DN | 23.0 | 660. | 260. | 7.4 | 2.0 | 0.0 | 0.0 | 8.1 |
| 30 | FELLNAGLE - RM 21.4 | 23.0 | 660. | 300. | 7.4 | 2.0 | 0.0 | 0.0 | 8.2 |
| 31 | RM 21.4 - S-BAR-S DIV | 23.5 | 660. | 300. | 7.3 | 2.0 | 0.0 | 0.0 | 8.2 |
| 32 | S-S DAM - S-S PUMP | 24.0 | 660. | 400. | 7.2 | 2.0 | 0.0 | 0.0 | 8.3 |
| 33 | S-BAR-S PUMP - RM 15.8 | 24.0 | 660. | 460. | 7.2 | 2.0 | 0.0 | 0.0 | 8.4 |
| 34 | RM 15.8 - DEAD OX WASH | 24.5 | 660. | 460. | 7.2 | 2.0 | 0.0 | 0.0 | 8.4 |
| 35 | DEAD OX - RM 10.0 | 24.5 | 660. | 460. | 7.2 | 2.0 | 0.0 | 0.0 | 8.4 |
| 36 | RM 10.0 - RM 9.2 | 24.5 | 660. | 460. | 7.2 | 2.0 | 0.0 | 0.0 | 8.4 |
| 37 | RM9.2 - NUMANA DAM | 24.5 | 660. | 460. | 7.2 | 2.0 | 0.0 | 0.0 | 8.4 |
| 38 | NUMANA DAM - RM 7.6 | 25.0 | 660. | 610. | 7.1 | 2.0 | 0.0 | 0.0 | 8.4 |
| 39 | RM 7.6 - RM 6.8 | 25.0 | 665. | 610. | 7.2 | 2.0 | 0.0 | 0.0 | 8.4 |
| 40 | RM 6.8 - RM 4.0 | 25.0 | 665. | 610. | 7.2 | 2.0 | 0.0 | 0.0 | 8.4 |
| 41 | RM 4.0 - NIXON BRIDGE | 25.0 | 665. | 610. | 7.2 | 2.0 | 0.0 | 0.0 | 8.4 |
| 42 | NIXON BRIDGE - RM 1.0 | 24.0 | 665. | 630. | 7.3 | 1.0 | 0.0 | 0.0 | 8.6 |
| 43 | RM 1.0 - MARBLE BLUFF D | 23.0 | 665. | 630. | 7.4 | 1.0 | 0.0 | 0.0 | 8.8 |

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MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 4A.--SUMMARY OF INPUTS TO SUBREACHES: CONCENTRATIONS.

(NOTE-- NEGATIVE CONCENTRATIONS TO BE RECOMPUTED AS A FUNCTION OF DIVERTED QUALITY & WILL FOLLOW TABLE 8.)

| SUBREACH | DIS-CHARGE | DO | % SAT | DO DEF | CBODU | ORG-N | NH4-N | NO2-N | NO3-N | TOT-N | O-P-A | SP COND | DS | ORTH P-B | TOTAL P | DIVERTED SUBR NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UPSTREAM: | 160.0 | 7.6 | 99. | 0.0 | 2.40 | 0.33 | 0.03 | 0.01 | 0.04 | 0.41 | 0.08 | 127.00 | 86.00 | 0.08 | 0.04 | |
| 2 MT | 50.0 | 7.0 | 91. | 0.7 | 3.89 | 0.68 | 0.02 | 0.01 | 0.41 | 1.12 | 0.11 | 359.00 | 250.00 | 0.11 | 0.10 | |
| 3 MT | 70.0 | 5.7 | 79. | 1.5 | 18.79 | 1.70 | 6.02 | 0.12 | 0.09 | 7.93 | 1.73 | 377.57 | 235.57 | 1.73 | 2.13 | |
| 3 GW | 0.0 | 0.0 | 0. | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3400.00 | 3400.00 | |
| 5 PS | -27.0 | | | | | | | | | | | | | | | |
| 6 SR | 3.0 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 5 |
| 7 SR | 0.7 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 5 |
| 7 GW | 0.0 | 0.0 | 0. | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10000.00 | 10000.00 | |
| 8 PS | -4.0 | | | | | | | | | | | | | | | |
| 8 SR | 10.1 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 5 |
| 8 GW | 0.0 | 0.0 | 0. | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10000.00 | 10000.00 | |
| 9 SR | 7.1 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 5 |
| 9 GW | 0.0 | 0.0 | 0. | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10000.00 | 10000.00 | |
| 10 GW | 0.0 | 0.0 | 0. | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10000.00 | 10000.00 | |
| 11 PS | -13.0 | | | | | | | | | | | | | | | |
| 11 SR | 1.3 | -0.7 | -9. | 8.2 | 10.00 | 1.00 | 0.10 | 0.10 | 0.30 | 1.50 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 0 |
| 11 GW | 0.0 | 0.0 | 0. | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10000.00 | 10000.00 | |
| 12 SR | 7.8 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 11 |
| 14 PS | -6.0 | | | | | | | | | | | | | | | |
| 14 SR | 0.5 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 0 |
| 15 PS | -4.0 | | | | | | | | | | | | | | | |
| 15 SR | 0.3 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 14 |
| 16 SR | 3.2 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 14 |
| 20 PS | -220.0 | | | | | | | | | | | | | | | |
| 20 SR | 0.4 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 0 |
| 21 SR | 3.6 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 0 |
| 22 PS | -2.0 | | | | | | | | | | | | | | | |
| 22 SR | 1.6 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 0 |

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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 4A.--SUMMARY OF INPUTS TO SUBREACHES: CONCENTRATIONS.

(NOTE-- NEGATIVE CONCENTRATIONS TO BE RECOMPUTED AS A FUNCTION OF DIVERTED QUALITY & WILL FOLLOW TABLE 8.)

| SUBREACH | | DIS-CHARGE | DO | % SAT | DO DEF | CBODU | ORG-N | NH4-N | NO2-N | NO3-N | TOT-N | O-P-A | SP COND | DS | ORTH P-B | TOTAL P | DIVERTED SUBR NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | SR | 0.7 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 0 |
| 24 | PS | -8.0 | | | | | | | | | | | | | | | |
| 24 | SR | 1.9 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 0 |
| 25 | SR | 1.8 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 0 |
| 26 | PS | -14.0 | | | | | | | | | | | | | | | |
| 26 | SR | 1.0 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 0 |
| 27 | SR | 3.5 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 0 |
| 28 | SR | 0.5 | -0.7 | -9. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 0 |
| 29 | GW | 4.8 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 1.80 | 1.80 | 0.10 | 730.00 | 540.00 | 0.10 | 0.10 | |
| 30 | PS | -6.0 | | | | | | | | | | | | | | | |
| 30 | GW | 4.9 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 1.80 | 1.80 | 0.10 | 730.00 | 540.00 | 0.10 | 0.10 | |
| 31 | SR | 1.1 | -0.7 | -9. | 8.2 | 25.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 30 |
| 31 | GW | 0.2 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.50 | 0.10 | 1080.00 | 800.00 | 0.10 | 0.10 | |
| 32 | PS | -4.0 | | | | | | | | | | | | | | | |
| 32 | SR | 0.3 | -0.7 | -9. | 8.2 | 25.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 0 |
| 32 | GW | 0.4 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.50 | 0.10 | 1080.00 | 800.00 | 0.10 | 0.10 | |
| 33 | SR | 0.5 | -0.7 | -9. | 8.2 | 25.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 32 |
| 33 | GW | 0.3 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.50 | 0.10 | 1080.00 | 800.00 | 0.10 | 0.10 | |
| 34 | GW | 0.4 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.50 | 0.10 | 1080.00 | 800.00 | 0.10 | 0.10 | |
| 35 | GW | 0.9 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 | 0.10 | 2250.00 | 1670.00 | 0.10 | 0.10 | |
| 36 | GW | 0.2 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 | 0.10 | 2250.00 | 1670.00 | 0.10 | 0.10 | |
| 37 | GW | 0.2 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 | 0.10 | 2250.00 | 1670.00 | 0.10 | 0.10 | |
| 38 | PS | -13.0 | | | | | | | | | | | | | | | |
| 38 | GW | 0.2 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.10 | 780.00 | 580.00 | 0.10 | 0.10 | |
| 39 | GW | 0.2 | 0.5 | 6. | 7.9 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.10 | 780.00 | 580.00 | 0.10 | 0.10 | |
| 40 | SR | 5.1 | -0.7 | -9. | 8.3 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 38 |
| 40 | GW | 0.7 | 0.5 | 6. | 7.9 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.10 | 780.00 | 580.00 | 0.10 | 0.10 | |
| 41 | SR | 1.4 | -0.7 | -9. | 8.3 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | -1.20 | -1.20 | 0.50 | 0.60 | 38 |
| 41 | GW | 0.2 | 0.5 | 6. | 7.9 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.10 | 780.00 | 580.00 | 0.10 | 0.10 | |
| 42 | GW | 0.7 | 0.5 | 6. | 7.9 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.10 | 780.00 | 580.00 | 0.10 | 0.10 | |

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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 4B.--SUMMARY OF INPUTS TO SUBREACHES: LOADS (LB/DAY).

| SUBREACH | DO | DO DEF | CBOD | ORG-N | NH4-N | NO2-N | NO3-N | TOT-N | O-P-A | SP COND | DS | ORTH P-B | TOTAL P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UPSTREAM: | 6559. | 0. | 2071. | 285. | 26. | 9. | 35. | 354. | 69. | 109602. | 74219. | 69. | 35. |
| 2 M TRIB: | 1890. | 197. | 1050. | 183. | 6. | 3. | 110. | 302. | 30. | 96819. | 67422. | 30. | 27. |
| 3 M TRIB: | 2143. | 575. | 7095. | 640. | 2274. | 45. | 33. | 2993. | 654. | 142558. | 88944. | 654. | 805. |
| 3 GW RET: | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 183. | 183. |
| 6 S RET: | -11. | 132. | 162. | 21. | 2. | 2. | 5. | 29. | 8. | -19. | -19. | 8. | 10. |
| 7 S RET: | -3. | 31. | 38. | 5. | 0. | 0. | 1. | 7. | 2. | -5. | -5. | 2. | 2. |
| 7 GW RET: | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 16. | 16. |
| 8 S RET: | -38. | 445. | 545. | 71. | 5. | 5. | 16. | 98. | 27. | -65. | -65. | 27. | 33. |
| 8 GW RET: | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 173. | 173. |
| 9 S RET: | -27. | 313. | 383. | 50. | 4. | 4. | 11. | 69. | 19. | -46. | -46. | 19. | 23. |
| 9 GW RET: | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 167. | 167. |
| 10 GW RET: | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 32. | 32. |
| 11 S RET: | -5. | 57. | 70. | 7. | 1. | 1. | 2. | 11. | 4. | -8. | -8. | 4. | 4. |
| 11 GW RET: | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 151. | 151. |
| 12 S RET: | -29. | 344. | 421. | 55. | 4. | 4. | 13. | 76. | 21. | -50. | -50. | 21. | 25. |
| 14 S RET: | -2. | 22. | 27. | 4. | 0. | 0. | 1. | 5. | 1. | -3. | -3. | 1. | 2. |
| 15 S RET: | -1. | 13. | 16. | 2. | 0. | 0. | 0. | 3. | 1. | -2. | -2. | 1. | 1. |
| 16 S RET: | -12. | 141. | 173. | 22. | 2. | 2. | 5. | 31. | 9. | -21. | -21. | 9. | 10. |
| 20 S RET: | -2. | 18. | 22. | 3. | 0. | 0. | 1. | 4. | 1. | -3. | -3. | 1. | 1. |
| 21 S RET: | -14. | 159. | 194. | 25. | 2. | 2. | 6. | 35. | 10. | -23. | -23. | 10. | 12. |

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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 4B.--SUMMARY OF INPUTS TO SUBREACHES: LOADS (LB/DAY).

| SUBREACH | DO | DO DEF | CBOD | ORG-N | NH4-N | NO2-N | NO3-N | TOT-N | O-P-A | SP COND | DS | ORTH P-B | TOTAL P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22 S RET: | -6. | 71. | 86. | 11. | 1. | 1. | 3. | 16. | 4. | -10. | -10. | 4. | 5. |
| 23 S RET: | -3. | 31. | 38. | 5. | 0. | 0. | 1. | 7. | 2. | -5. | -5. | 2. | 2. |
| 24 S RET: | -7. | 84. | 102. | 13. | 1. | 1. | 3. | 18. | 5. | -12. | -12. | 5. | 6. |
| 25 S RET: | -7. | 80. | 97. | 13. | 1. | 1. | 3. | 17. | 5. | -12. | -12. | 5. | 6. |
| 26 S RET: | -4. | 44. | 54. | 7. | 1. | 1. | 2. | 10. | 3. | -6. | -6. | 3. | 3. |
| 27 S RET: | -13. | 155. | 189. | 25. | 2. | 2. | 6. | 34. | 9. | -23. | -23. | 9. | 11. |
| 28 S RET: | -2. | 22. | 27. | 4. | 0. | 0. | 1. | 5. | 1. | -3. | -3. | 1. | 2. |
| 29 GW RET: | 13. | 203. | 26. | 0. | 0. | 0. | 47. | 47. | 3. | 18900. | 13981. | 3. | 3. |
| 30 GW RET: | 13. | 207. | 26. | 0. | 0. | 0. | 48. | 48. | 3. | 19294. | 14272. | 3. | 3. |
| 31 S RET: | -4. | 49. | 148. | 8. | 1. | 1. | 2. | 11. | 3. | -7. | -7. | 3. | 4. |
| 31 GW RET: | 1. | 8. | 1. | 0. | 0. | 0. | 1. | 1. | 0. | 1165. | 863. | 0. | 0. |
| 32 S RET: | -1. | 13. | 40. | 2. | 0. | 0. | 0. | 3. | 1. | -2. | -2. | 1. | 1. |
| 32 GW RET: | 1. | 17. | 2. | 0. | 0. | 0. | 1. | 1. | 0. | 2330. | 1726. | 0. | 0. |
| 33 S RET: | -2. | 22. | 67. | 4. | 0. | 0. | 1. | 5. | 1. | -3. | -3. | 1. | 2. |
| 33 GW RET: | 1. | 13. | 2. | 0. | 0. | 0. | 1. | 1. | 0. | 1748. | 1295. | 0. | 0. |
| 34 GW RET: | 1. | 17. | 2. | 0. | 0. | 0. | 1. | 1. | 0. | 2330. | 1726. | 0. | 0. |
| 35 GW RET: | 2. | 38. | 5. | 0. | 0. | 0. | 0. | 0. | 0. | 10922. | 8107. | 0. | 0. |
| 36 GW RET: | 1. | 8. | 1. | 0. | 0. | 0. | 0. | 0. | 0. | 2427. | 1802. | 0. | 0. |
| 37 GW RET: | 1. | 8. | 1. | 0. | 0. | 0. | 0. | 0. | 0. | 2427. | 1802. | 0. | 0. |
| 38 GW RET: | 1. | 8. | 1. | 0. | 0. | 0. | 1. | 1. | 0. | 841. | 626. | 0. | 0. |
| 39 GW RET: | 1. | 9. | 1. | 0. | 0. | 0. | 1. | 1. | 0. | 841. | 626. | 0. | 0. |
| 40 S RET: | -19. | 228. | 275. | 36. | 3. | 3. | 8. | 50. | 14. | -33. | -33. | 14. | 17. |
| 40 GW RET: | 2. | 30. | 4. | 0. | 0. | 0. | 4. | 4. | 0. | 2945. | 2190. | 0. | 0. |
| 41 S RET: | -5. | 63. | 76. | 10. | 1. | 1. | 2. | 14. | 4. | -9. | -9. | 4. | 5. |
| 41 GW RET: | 1. | 9. | 1. | 0. | 0. | 0. | 1. | 1. | 0. | 841. | 626. | 0. | 0. |
| 42 GW RET: | 2. | 30. | 4. | 0. | 0. | 0. | 4. | 4. | 0. | 2945. | 2190. | 0. | 0. |
| 43 GW RET: | 1. | 13. | 2. | 0. | 0. | 0. | 2. | 2. | 0. | 3900. | 2896. | 0. | 0. |

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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SFP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 5.--SUBREACH HYDRAULICS DATA

| | SUBREACH | STARTING RIVER MILE | LENGTH (MI) | DISCHARGE (CFS) START | DISCHARGE (CFS) MEAN | GEOM. METH. | TRAVEL TIME (HRS) | TRAVEL TIME (DAYS) | VELOCITY (FPS) | AREA (SQ FT) | DEPTH (FT) | WIDTH (FT) | MEAN SLOPE (FT/FT) | MEAN SLOPE (FT/MI) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MCCARRAN BR - N TRUCKEE | 56.12 | 2.46 | 160.0 | 160.0 | 4 | 4.10 | 0.17 | 0.88 | 182. | 2.2 | 83. | 0.00097 | 5.10 |
| 2 | N TRUCKEE DR - STEAMBT | 53.66 | 0.13 | 210.0 | 210.0 | 4 | 0.18 | 0.01 | 1.06 | 198. | 2.1 | 92. | 0.00019 | 1.00 |
| 3 | STEAMBOAT - VISTA | 53.53 | 1.30 | 280.0 | 280.0 | 4 | 1.82 | 0.08 | 1.05 | 267. | 2.3 | 114. | 0.00009 | 0.50 |
| 4 | VISTA - LARGOMARSINO DV | 52.23 | 0.98 | 280.0 | 280.0 | 4 | 1.37 | 0.06 | 1.05 | 267. | 2.4 | 111. | 0.00009 | 0.50 |
| 5 | LARGOMARSINO DIVERSIONS | 51.25 | 0.35 | 253.0 | 253.0 | 4 | 0.54 | 0.02 | 0.94 | 268. | 2.3 | 117. | 0.00701 | 37.00 |
| 6 | BELOW LARG. - LOCKWOOD | 50.90 | 0.85 | 253.0 | 254.5 | 4 | 1.31 | 0.05 | 0.95 | 268. | 2.6 | 104. | 0.00284 | 15.00 |
| 7 | LOCKWOOD - GROTON DIV | 50.05 | 0.15 | 256.0 | 256.4 | 4 | 0.23 | 0.01 | 0.95 | 269. | 2.6 | 104. | 0.00284 | 15.00 |
| 8 | GROTON DV - MUSTANG BR#1 | 49.90 | 1.65 | 252.7 | 257.8 | 4 | 1.79 | 0.07 | 1.35 | 190. | 1.7 | 113. | 0.00265 | 14.00 |
| 9 | MUSTANG BR - LAST RET. | 48.25 | 1.57 | 262.8 | 266.4 | 4 | 1.95 | 0.08 | 1.18 | 225. | 2.3 | 96. | 0.00133 | 7.00 |
| 10 | MCCARRAN POOL | 46.68 | 0.33 | 269.9 | 269.9 | 4 | 0.41 | 0.02 | 1.19 | 226. | 1.9 | 119. | 0.00009 | 0.50 |
| 11 | MCCARRAN DV - PATRICK B | 46.35 | 1.43 | 256.9 | 257.6 | 4 | 1.75 | 0.07 | 1.20 | 215. | 1.9 | 113. | 0.00341 | 18.00 |
| 12 | PATRICK BR - SP RR BR | 44.92 | 2.04 | 258.2 | 262.1 | 4 | 2.73 | 0.11 | 1.10 | 239. | 2.4 | 98. | 0.00186 | 9.80 |
| 13 | SP RR BR - HILL DIV | 42.88 | 0.86 | 266.0 | 266.0 | 4 | 1.14 | 0.05 | 1.11 | 240. | 1.8 | 131. | 0.00044 | 2.30 |
| 14 | HILL DIV - TRACY DIV | 42.02 | 1.26 | 260.0 | 260.3 | 4 | 2.68 | 0.11 | 0.69 | 378. | 2.8 | 133. | 0.00150 | 7.90 |
| 15 | TRACY DIV - TRACY BRIDGE | 40.76 | 0.14 | 256.5 | 256.7 | 4 | 0.15 | 0.01 | 1.34 | 192. | 1.6 | 124. | 0.00549 | 29.00 |
| 16 | TRACY BR - CLARK BR | 40.62 | 2.02 | 256.8 | 258.4 | 4 | 2.21 | 0.09 | 1.34 | 192. | 1.8 | 108. | 0.00121 | 6.40 |
| 17 | CLARK BR - RM 37.1 | 38.60 | 1.50 | 260.0 | 260.0 | 4 | 2.31 | 0.10 | 0.95 | 273. | 2.7 | 101. | 0.00208 | 11.00 |
| 18 | RM 37.1 - I-80 OXBOW | 37.10 | 1.50 | 260.0 | 260.0 | 4 | 2.31 | 0.10 | 0.95 | 273. | 2.9 | 94. | 0.00100 | 5.30 |
| 19 | I-80 OXBOW - DERBY DAM | 35.60 | 0.72 | 260.0 | 260.0 | 4 | 1.11 | 0.05 | 0.95 | 273. | 3.0 | 91. | 0.00015 | 0.80 |
| 20 | DERBY DAM - GAGE CABLE | 34.88 | 0.36 | 40.0 | 40.2 | 4 | 1.43 | 0.06 | 0.37 | 109. | 1.4 | 77. | 0.01004 | 53.00 |
| 21 | GAGE CABLEWAY - WASHBRN | 34.52 | 3.24 | 40.4 | 42.2 | 4 | 12.42 | 0.52 | 0.38 | 110. | 1.6 | 70. | 0.00246 | 13.00 |
| 22 | WASHBURN -PAINTED ROCK | 31.28 | 1.31 | 42.0 | 42.8 | 4 | 4.97 | 0.21 | 0.39 | 111. | 1.7 | 64. | 0.00398 | 21.00 |
| 23 | PAINTED R - GREGORY-MONT | 29.97 | 0.62 | 43.6 | 44.0 | 4 | 2.31 | 0.10 | 0.39 | 111. | 1.3 | 83. | 0.00121 | 6.40 |
| 24 | GREGORY-MONTE - RM 28.0 | 29.35 | 1.35 | 36.3 | 37.3 | 4 | 6.95 | 0.29 | 0.28 | 131. | 2.3 | 57. | 0.00322 | 17.00 |
| 25 | RM 28.0 - HERMAN DIV | 28.00 | 1.25 | 38.2 | 39.1 | 4 | 6.18 | 0.26 | 0.30 | 132. | 1.5 | 85. | 0.00106 | 5.60 |
| 26 | HERMAN DIV - PIERSON DIV | 26.75 | 0.80 | 26.0 | 26.5 | 4 | 5.50 | 0.23 | 0.21 | 124. | 1.7 | 72. | 0.00189 | 10.00 |
| 27 | PIERSON DIV - PROCTR DIV | 25.95 | 2.05 | 27.0 | 28.8 | 4 | 13.16 | 0.55 | 0.23 | 126. | 1.7 | 76. | 0.00208 | 11.00 |
| 28 | PROCTOR - WADSWORTH | 23.90 | 0.21 | 30.5 | 30.8 | 4 | 1.67 | 0.07 | 0.18 | 167. | 3.3 | 51. | 0.00549 | 29.00 |
| 29 | WADSWORTH -FELLNAGLE DN | 23.69 | 1.14 | 31.0 | 33.4 | 4 | 8.56 | 0.36 | 0.20 | 171. | 2.1 | 81. | 0.00100 | 5.30 |
| 30 | FELLNAGLE - RM 21.4 | 22.55 | 1.15 | 29.8 | 32.3 | 4 | 4.02 | 0.17 | 0.42 | 77. | 1.1 | 69. | 0.00265 | 14.00 |
| 31 | RM 21.4 - S-BAR-S DIV | 21.40 | 1.56 | 34.7 | 35.4 | 4 | 5.11 | 0.21 | 0.45 | 79. | 1.1 | 71. | 0.00146 | 7.70 |
| 32 | S-S DAM - S-S PUMP | 19.84 | 2.02 | 32.0 | 32.4 | 4 | 9.71 | 0.40 | 0.31 | 106. | 1.6 | 65. | 0.00208 | 11.00 |
| 33 | S-BAR-S PUMP - RM 15.8 | 17.82 | 2.00 | 32.7 | 33.1 | 4 | 7.44 | 0.31 | 0.39 | 84. | 1.3 | 64. | 0.00133 | 7.00 |
| 34 | RM 15.8 - DEAD OX WASH | 15.82 | 2.64 | 33.5 | 33.7 | 4 | 7.77 | 0.32 | 0.50 | 68. | 0.9 | 74. | 0.00116 | 6.10 |
| 35 | DEAD OX - RM 10.0 | 13.18 | 3.18 | 33.9 | 34.4 | 4 | 24.76 | 1.03 | 0.19 | 182. | 2.1 | 87. | 0.00102 | 5.40 |
| 36 | RM 10.0 - RM 9.2 | 10.00 | 0.80 | 34.8 | 34.9 | 4 | 6.15 | 0.26 | 0.19 | 183. | 2.1 | 87. | 0.00284 | 15.00 |
| 37 | RM9.2 - NUMANA DAM | 9.20 | 0.99 | 35.0 | 35.1 | 4 | 7.58 | 0.32 | 0.19 | 183. | 1.7 | 106. | 0.00019 | 1.00 |
| 38 | NUMANA DAM - RM 7.6 | 8.21 | 0.61 | 22.2 | 22.3 | 4 | 2.92 | 0.12 | 0.31 | 73. | 0.8 | 95. | 0.00492 | 26.00 |
| 39 | RM 7.6 - RM 6.8 | 7.60 | 0.80 | 22.4 | 22.5 | 4 | 3.80 | 0.16 | 0.31 | 73. | 0.9 | 82. | 0.00208 | 11.00 |
| 40 | RM 6.8 - RM 4.0 | 6.80 | 2.80 | 22.6 | 25.5 | 4 | 12.13 | 0.51 | 0.34 | 75. | 1.0 | 72. | 0.00129 | 6.80 |
| 41 | RM 4.0 - NIXON BRIDGE | 4.00 | 0.78 | 28.4 | 29.2 | 4 | 3.06 | 0.13 | 0.37 | 78. | 1.4 | 57. | 0.00218 | 11.50 |
| 42 | NIXON BRIDGE - RM 1.0 | 3.22 | 2.22 | 30.0 | 30.4 | 4 | 25.43 | 1.06 | 0.13 | 237. | 4.1 | 58. | 0.00180 | 9.50 |
| 43 | RM 1.0 - MARBLE BLUFF D | 1.00 | 1.00 | 30.7 | 30.9 | 4 | 11.35 | 0.47 | 0.13 | 239. | 0.3 | 692. | 0.00028 | 1.50 |
| | | | | 31.0,AT END | | | 224.46 | 9.35 | | | | | | |

(COMPUTATIONAL METHODS-- AREA,DEPTH,WIDTH,VELO CITY AND TRAVELTIME COMPUTED FROM DISCHARGE AND:
1-- VELOCITY AND DEPTH; 2-- TRAVELTIME AND DEPTH; 3-- AREA AND DEPTH; 4--VELCITY AND WIDTH; 5--TRAVELTIME AND WIDTH;
6-- AREA AND WIDTH; 7--WIDTH AND DEPTH.
NOTE-- * INDICATES HYDRAULICS DATA WILL BE RECOMPUTED FOR EACH CALCULATION INTERVAL WITHIN THE SUBREACH.)

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 6.--SUBREACH REACTION COEFFICIENTS.

REACTION COEFFICIENTS (/DAY AT 20 DEG C)

| SUB | REAERATION METHOD | K2 | CBOD DECAY | CBOD FORW | ORG-N DECAY | ORG-N FORW | NH4-N DECAY | NH4-N FORW | NO2-N DECAY | NO2-N FORW | NO3-N DECAY | ORTH P-A DECAY | ORTH P-B DECAY | TOTAL P DECAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12 | 2.85 | 0.20 | 0.20 | 0.10 | 0.10 | 0.40 | 0.40 | 1.00 | 1.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 2 | 12 | 0.68 | 0.20 | 0.20 | 0.10 | 0.10 | 0.40 | 0.40 | 1.00 | 1.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 3 | 12 | 0.33 | 1.70 | 0.20 | 1.70 | 0.80 | 0.40 | 0.40 | 10.00 | 10.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 4 | 12 | 0.33 | 1.70 | 0.20 | 1.70 | 0.80 | 0.40 | 0.40 | 10.00 | 10.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 5 | 12 | 22.23 | 0.70 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 10.00 | 10.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 6 | 12 | 9.05 | 0.70 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 10.00 | 10.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 7 | 12 | 9.11 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 10.00 | 10.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 8 | 12 | 12.07 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 10.00 | 10.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 9 | 12 | 5.27 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 6.00 | 6.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 10 | 12 | 0.38 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 6.00 | 6.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 11 | 12 | 13.73 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 5.00 | 5.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 12 | 12 | 6.84 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 13 | 12 | 1.62 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 14 | 12 | 3.47 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 15 | 12 | 24.68 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 16 | 12 | 5.47 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 17 | 12 | 6.66 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 18 | 12 | 3.21 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 19 | 12 | 0.48 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 1.50 | 0.25 | 0.25 | 0.25 |
| 20 | 12 | 12.44 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 21 | 12 | 3.17 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 22 | 12 | 5.17 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 23 | 12 | 1.61 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 24 | 12 | 3.08 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 25 | 12 | 1.06 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 26 | 12 | 1.36 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 27 | 12 | 1.60 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 28 | 12 | 3.40 | 0.20 | 0.20 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 29 | 12 | 0.66 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 30 | 12 | 3.74 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 31 | 12 | 2.19 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 32 | 12 | 2.14 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 33 | 12 | 1.76 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 34 | 12 | 1.94 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 35 | 12 | 0.65 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 36 | 12 | 1.82 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 37 | 12 | 0.12 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 38 | 12 | 5.07 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 39 | 12 | 2.16 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 40 | 12 | 1.46 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 41 | 12 | 2.74 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 42 | 12 | 0.77 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |
| 43 | 12 | 0.12 | 0.14 | 0.14 | 0.10 | 0.10 | 2.40 | 2.40 | 3.00 | 3.00 | 2.00 | 0.25 | 0.25 | 0.25 |

METHODS FOR CALCULATING K2: 0--INPUT AS DATA; 1--BENNETT/RATHBUN; 2--VELZ| 3--LANGBEIN/DURHAM| 4--PADDEN-GLOYNA|
5--BANSAL; 6--PARKHURST-POMEROY| 7--TSIVOGLOU-WALLACE| 12--MODIFIED TSIVOGLOU-WALLACE

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 6.--SUBREACH REACTION COEFFICIENTS--CONTINUED.

TEMPERATURE-CORRECTED REACTION COEFFICIENTS (/DAY AT AMBIENT TEMPERATURE)

| SUB | MEAN TEMP. (C) | K2 | CBOD DECAY | CBOD FORW | ORG-N DECAY | ORG-N FORW | NH4-N DECAY | NH4-N FORW | NO2-N DECAY | NO2-N FORW | NO3-N DECAY | ORTHO-P-A DECAY | ORTH P-B DECAY | TOTAL P DECAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20.5 | 2.89 | 0.20 | 0.20 | 0.10 | 0.10 | 0.42 | 0.42 | 1.04 | 1.04 | 0.31 | 0.26 | 0.26 | 0.26 |
| 2 | 20.0 | 0.68 | 0.20 | 0.20 | 0.10 | 0.10 | 0.40 | 0.40 | 1.00 | 1.00 | 0.30 | 0.25 | 0.25 | 0.25 |
| 3 | 21.0 | 0.34 | 1.78 | 0.21 | 1.85 | 0.87 | 0.44 | 0.44 | 10.90 | 10.90 | 0.33 | 0.27 | 0.27 | 0.27 |
| 4 | 21.0 | 0.34 | 1.78 | 0.21 | 1.85 | 0.87 | 0.44 | 0.44 | 10.90 | 10.90 | 0.33 | 0.27 | 0.27 | 0.27 |
| 5 | 21.0 | 22.77 | 0.73 | 0.21 | 0.11 | 0.11 | 2.62 | 2.62 | 10.90 | 10.90 | 0.33 | 0.27 | 0.27 | 0.27 |
| 6 | 21.5 | 9.38 | 0.75 | 0.21 | 0.11 | 0.11 | 2.73 | 2.73 | 11.38 | 11.38 | 0.34 | 0.28 | 0.28 | 0.28 |
| 7 | 21.5 | 9.44 | 0.21 | 0.21 | 0.11 | 0.11 | 2.73 | 2.73 | 11.38 | 11.38 | 0.34 | 0.28 | 0.28 | 0.28 |
| 8 | 21.5 | 12.51 | 0.21 | 0.21 | 0.11 | 0.11 | 2.73 | 2.73 | 11.38 | 11.38 | 0.34 | 0.28 | 0.28 | 0.28 |
| 9 | 21.5 | 5.46 | 0.21 | 0.21 | 0.11 | 0.11 | 2.73 | 2.73 | 6.83 | 6.83 | 0.34 | 0.28 | 0.28 | 0.28 |
| 10 | 21.5 | 0.39 | 0.21 | 0.21 | 0.11 | 0.11 | 2.73 | 2.73 | 6.83 | 6.83 | 0.34 | 0.28 | 0.28 | 0.28 |
| 11 | 21.5 | 14.23 | 0.21 | 0.21 | 0.11 | 0.11 | 2.73 | 2.73 | 5.69 | 5.69 | 0.34 | 0.28 | 0.28 | 0.28 |
| 12 | 22.0 | 7.18 | 0.22 | 0.22 | 0.12 | 0.12 | 2.85 | 2.85 | 3.56 | 3.56 | 0.36 | 0.30 | 0.30 | 0.30 |
| 13 | 22.0 | 1.70 | 0.22 | 0.22 | 0.12 | 0.12 | 2.85 | 2.85 | 3.56 | 3.56 | 0.36 | 0.30 | 0.30 | 0.30 |
| 14 | 22.0 | 3.63 | 0.22 | 0.22 | 0.12 | 0.12 | 2.85 | 2.85 | 3.56 | 3.56 | 0.36 | 0.30 | 0.30 | 0.30 |
| 15 | 22.0 | 25.88 | 0.22 | 0.22 | 0.12 | 0.12 | 2.85 | 2.85 | 3.56 | 3.56 | 0.36 | 0.30 | 0.30 | 0.30 |
| 16 | 22.0 | 5.73 | 0.22 | 0.22 | 0.12 | 0.12 | 2.85 | 2.85 | 3.56 | 3.56 | 0.36 | 0.30 | 0.30 | 0.30 |
| 17 | 22.0 | 6.99 | 0.22 | 0.22 | 0.12 | 0.12 | 2.85 | 2.85 | 3.56 | 3.56 | 0.36 | 0.30 | 0.30 | 0.30 |
| 18 | 22.5 | 3.41 | 0.22 | 0.22 | 0.12 | 0.12 | 2.98 | 2.98 | 3.72 | 3.72 | 0.37 | 0.31 | 0.31 | 0.31 |
| 19 | 22.5 | 0.51 | 0.22 | 0.22 | 0.12 | 0.12 | 2.98 | 2.98 | 3.72 | 3.72 | 1.86 | 0.31 | 0.31 | 0.31 |
| 20 | 23.0 | 13.36 | 0.23 | 0.23 | 0.13 | 0.13 | 3.11 | 3.11 | 3.89 | 3.89 | 2.59 | 0.32 | 0.32 | 0.32 |
| 21 | 23.0 | 3.40 | 0.23 | 0.23 | 0.13 | 0.13 | 3.11 | 3.11 | 3.89 | 3.89 | 2.59 | 0.32 | 0.32 | 0.32 |
| 22 | 23.0 | 5.55 | 0.23 | 0.23 | 0.13 | 0.13 | 3.11 | 3.11 | 3.89 | 3.89 | 2.59 | 0.32 | 0.32 | 0.32 |
| 23 | 23.0 | 1.73 | 0.23 | 0.23 | 0.13 | 0.13 | 3.11 | 3.11 | 3.89 | 3.89 | 2.59 | 0.32 | 0.32 | 0.32 |
| 24 | 23.0 | 3.31 | 0.23 | 0.23 | 0.13 | 0.13 | 3.11 | 3.11 | 3.89 | 3.89 | 2.59 | 0.32 | 0.32 | 0.32 |
| 25 | 23.0 | 1.14 | 0.23 | 0.23 | 0.13 | 0.13 | 3.11 | 3.11 | 3.89 | 3.89 | 2.59 | 0.32 | 0.32 | 0.32 |
| 26 | 23.0 | 1.46 | 0.23 | 0.23 | 0.13 | 0.13 | 3.11 | 3.11 | 3.89 | 3.89 | 2.59 | 0.32 | 0.32 | 0.32 |
| 27 | 23.0 | 1.72 | 0.23 | 0.23 | 0.13 | 0.13 | 3.11 | 3.11 | 3.89 | 3.89 | 2.59 | 0.32 | 0.32 | 0.32 |
| 28 | 23.0 | 3.65 | 0.23 | 0.23 | 0.13 | 0.13 | 3.11 | 3.11 | 3.89 | 3.89 | 2.59 | 0.32 | 0.32 | 0.32 |
| 29 | 23.0 | 0.71 | 0.16 | 0.16 | 0.13 | 0.13 | 3.11 | 3.11 | 3.89 | 3.89 | 2.59 | 0.32 | 0.32 | 0.32 |
| 30 | 23.0 | 4.01 | 0.16 | 0.16 | 0.13 | 0.13 | 3.11 | 3.11 | 3.89 | 3.89 | 2.59 | 0.32 | 0.32 | 0.32 |
| 31 | 23.5 | 2.38 | 0.16 | 0.16 | 0.14 | 0.14 | 3.24 | 3.24 | 4.06 | 4.06 | 2.70 | 0.34 | 0.34 | 0.34 |
| 32 | 24.0 | 2.35 | 0.17 | 0.17 | 0.14 | 0.14 | 3.39 | 3.39 | 4.23 | 4.23 | 2.82 | 0.35 | 0.35 | 0.35 |
| 33 | 24.0 | 1.93 | 0.17 | 0.17 | 0.14 | 0.14 | 3.39 | 3.39 | 4.23 | 4.23 | 2.82 | 0.35 | 0.35 | 0.35 |
| 34 | 24.5 | 2.15 | 0.17 | 0.17 | 0.15 | 0.15 | 3.54 | 3.54 | 4.42 | 4.42 | 2.95 | 0.37 | 0.37 | 0.37 |
| 35 | 24.5 | 0.72 | 0.17 | 0.17 | 0.15 | 0.15 | 3.54 | 3.54 | 4.42 | 4.42 | 2.95 | 0.37 | 0.37 | 0.37 |
| 36 | 24.5 | 2.03 | 0.17 | 0.17 | 0.15 | 0.15 | 3.54 | 3.54 | 4.42 | 4.42 | 2.95 | 0.37 | 0.37 | 0.37 |
| 37 | 24.5 | 0.14 | 0.17 | 0.17 | 0.15 | 0.15 | 3.54 | 3.54 | 4.42 | 4.42 | 2.95 | 0.37 | 0.37 | 0.37 |
| 38 | 25.0 | 5.71 | 0.18 | 0.18 | 0.15 | 0.15 | 3.69 | 3.69 | 4.62 | 4.62 | 3.08 | 0.38 | 0.38 | 0.38 |
| 39 | 25.0 | 2.43 | 0.18 | 0.18 | 0.15 | 0.15 | 3.69 | 3.69 | 4.62 | 4.62 | 3.08 | 0.38 | 0.38 | 0.38 |
| 40 | 25.0 | 1.65 | 0.18 | 0.18 | 0.15 | 0.15 | 3.69 | 3.69 | 4.62 | 4.62 | 3.08 | 0.38 | 0.38 | 0.38 |
| 41 | 25.0 | 3.09 | 0.18 | 0.18 | 0.15 | 0.15 | 3.69 | 3.69 | 4.62 | 4.62 | 3.08 | 0.38 | 0.38 | 0.38 |
| 42 | 24.0 | 0.85 | 0.17 | 0.17 | 0.14 | 0.14 | 3.39 | 3.39 | 4.23 | 4.23 | 2.82 | 0.35 | 0.35 | 0.35 |
| 43 | 23.0 | 0.13 | 0.16 | 0.16 | 0.13 | 0.13 | 3.11 | 3.11 | 3.89 | 3.89 | 2.59 | 0.32 | 0.32 | 0.32 |

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM — TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 7.--OBSERVED WATER-QUALITY DATA.

| RIVER MILE | DIS-CHARGE (CFS) | DO CONC. MG/L | DO SAT. ( % ) | CBODU (MG/L) | ORG-N (MG/L) | NH4-N (MG/L) | UN-ION NH3-N (MG/L) | NO2-N (MG/L) | NO3-N (MG/L) | TOT-N (MG/L) | O-P-A (MG/L) | SP COND (UMHOS ) | DS (MG/L) | I-N/O-P (M/M) | ORTH P-B (MG/L) | TOTAL P (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUBREACH 1: MCCARRAN BR - N TRUCKEE ; NO DIVERSIONS OR RETURNS | | | | | | | | | | | | | | | | |
| 56.12 | 175.0 | 9.2 | 123. | 3.20 | 0.82 | 0.09 | 0.035 | 0.01 | 0.05 | 0.97 | 0.14 | 143.00 | 97.00 | 2.37 | 0.14 | 0.11 |
| 56.12 | 160.0 | 7.6 | 98. | 2.40 | 0.33 | 0.03 | 0.002 | 0.01 | 0.04 | 0.41 | 0.08 | 127.00 | 86.00 | 2.21 | 0.08 | 0.04 |
| 56.12 | 150.0 | 6.4 | 84. | 2.00 | 0.10 | 0.01 | 0.000 | 0.01 | 0.02 | 0.14 | 0.03 | 116.00 | 79.00 | 2.95 | 0.03 | 0.01 |
| SUBREACH 4: VISTA - LARGOMARSINO DV ; NO DIVERSION | | | | | | | | | | | | | | | | |
| 52.23 | 290.0 | 8.2 | 114. | 6.50 | 0.80 | 1.80 | 0.160 | 0.06 | 0.16 | 2.82 | 0.75 | 253.00 | 159.00 | 5.96 | 0.75 | 1.10 |
| 52.23 | 275.0 | 6.6 | 86. | 6.00 | 0.57 | 1.50 | 0.049 | 0.05 | 0.13 | 2.25 | 0.60 | 244.00 | 154.00 | 6.19 | 0.60 | 0.75 |
| 52.23 | 260.0 | 5.4 | 67. | 5.00 | 0.45 | 0.97 | 0.014 | 0.04 | 0.12 | 1.58 | 0.41 | 222.00 | 142.00 | 6.09 | 0.41 | 0.46 |
| SUBREACH 7: LOCKWOOD - GROTON DIV ; L-NOCE & L-MURPHY RETURNS | | | | | | | | | | | | | | | | |
| 50.05 | 270.0 | 7.8 | 104. | 6.70 | 0.92 | 1.50 | 0.040 | 0.19 | 0.41 | 3.02 | 0.84 | 261.00 | 164.00 | 5.53 | 0.84 | 0.87 |
| 50.05 | 255.0 | 6.0 | 79. | 5.20 | 0.63 | 1.20 | 0.016 | 0.16 | 0.37 | 2.36 | 0.62 | 249.00 | 157.00 | 6.17 | 0.62 | 0.63 |
| 50.05 | 240.0 | 4.5 | 58. | 4.40 | 0.45 | 0.79 | 0.007 | 0.10 | 0.31 | 1.65 | 0.42 | 230.00 | 146.00 | 6.32 | 0.42 | 0.45 |
| SUBREACH 12: PATRICK BR - SP RR BR ; MCCARRAN RETURNS | | | | | | | | | | | | | | | | |
| 44.92 | 280.0 | 9.0 | 125. | 6.20 | 0.90 | 0.94 | 0.075 | 0.33 | 0.82 | 2.99 | 1.40 | 258.00 | 162.00 | 3.30 | 1.40 | 1.40 |
| 44.92 | 260.0 | 6.6 | 88. | 5.50 | 0.70 | 0.58 | 0.020 | 0.28 | 0.77 | 2.33 | 0.91 | 243.00 | 154.00 | 3.96 | 0.91 | 0.94 |
| 44.92 | 230.0 | 4.5 | 57. | 4.40 | 0.46 | 0.33 | 0.007 | 0.21 | 0.68 | 1.68 | 0.44 | 229.00 | 146.00 | 6.13 | 0.44 | 0.50 |
| SUBREACH 17: CLARK BR - RM 37.1 ; NO DIVERSIONS OR RETURNS | | | | | | | | | | | | | | | | |
| 38.60 | 270.0 | 9.1 | 123. | 7.10 | 1.10 | 0.32 | 0.036 | 0.33 | 1.40 | 3.15 | 1.10 | 268.00 | 168.00 | 4.12 | 1.10 | 1.20 |
| 38.60 | 260.0 | 6.3 | 84. | 5.30 | 0.64 | 0.21 | 0.007 | 0.26 | 1.10 | 2.21 | 0.74 | 251.00 | 158.00 | 4.69 | 0.74 | 0.85 |
| 38.60 | 230.0 | 3.8 | 48. | 3.90 | 0.45 | 0.10 | 0.001 | 0.16 | 0.92 | 1.63 | 0.47 | 241.00 | 153.00 | 5.55 | 0.47 | 0.60 |
| SUBREACH 20: DERBY DAM - GAGE CABLE ; TRUCKEE CANAL DIVERTS AT HEAD | | | | | | | | | | | | | | | | |
| 34.88 | 280.0 | 10.2 | 144. | 5.40 | 0.92 | 0.28 | 0.013 | 0.27 | 1.20 | 2.67 | 0.98 | 248.00 | 157.00 | 3.95 | 0.98 | 1.10 |
| 34.88 | 260.0 | 6.3 | 86. | 4.40 | 0.68 | 0.11 | 0.006 | 0.19 | 1.10 | 2.08 | 0.69 | 237.00 | 150.00 | 4.49 | 0.69 | 0.78 |
| 34.88 | 225.0 | 4.4 | 58. | 3.80 | 0.48 | 0.01 | 0.001 | 0.14 | 0.95 | 1.58 | 0.52 | 223.00 | 142.00 | 4.68 | 0.52 | 0.58 |
| SUBREACH 21: GAGE CABLEWAY - WASHERN ; NO DIVERSIONS OR RETURNS MODELED | | | | | | | | | | | | | | | | |
| 34.52 | 40.0 | 8.2 | 114. | 4.50 | 0.75 | 0.23 | 0.013 | 0.23 | 1.20 | 2.41 | 1.10 | 246.00 | 155.00 | 3.34 | 1.10 | 1.10 |
| 34.52 | 40.0 | 6.6 | 89. | 3.80 | 0.58 | 0.12 | 0.007 | 0.17 | 1.10 | 1.97 | 0.72 | 238.00 | 151.00 | 4.27 | 0.72 | 0.78 |
| 34.52 | 40.0 | 5.5 | 73. | 2.90 | 0.42 | 0.06 | 0.002 | 0.13 | 0.97 | 1.58 | 0.51 | 225.00 | 144.00 | 5.03 | 0.51 | 0.56 |
| SUBREACH 29: WADSWORTH -FELLNAGLE DN ; FERNLEY AREA GROUND-WATER RETURNS | | | | | | | | | | | | | | | | |
| 23.65 | 45.0 | 11.8 | 166. | 5.40 | 0.70 | 0.04 | 0.019 | 0.01 | 0.08 | 0.83 | 0.44 | 278.00 | 174.00 | 0.65 | 0.44 | 0.50 |

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 7.--OBSERVED WATER-QUALITY DATA.

| RIVER MILE | DIS-CHARGE (CFS) | DO CONC. MG/L | DO SAT. ( % ) | CBODU | ORG-N | NH4-N | UN-ION NH3-N | NO2-N | NO3-N | TOT-N | O-P-A | SP COND (UMHOS ) | DS (MG/L) | I-N/O-P (M/M) | ORTH P-B (MG/L) | TOTAL P (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (MG/L) | | | | | | | | | | | | |
| SUBREACH 29: WADSWORTH -FELLNAGLE DN ; FERNLEY AREA GROUND-WATER RETURNS | | | | | | | | | | | | | | | | |
| 23.65 | 31.0 | 6.9 | 94. | 4.10 | 0.52 | 0.02 | 0.002 | 0.01 | 0.02 | 0.57 | 0.38 | 260.00 | 163.00 | 0.29 | 0.38 | 0.48 |
| 23.65 | 25.0 | 3.4 | 45. | 2.90 | 0.36 | 0.01 | 0.000 | 0.01 | 0.00 | 0.38 | 0.35 | 249.00 | 157.00 | 0.13 | 0.35 | 0.45 |
| SUBREACH 35: DEAD OX - RM 10.0 ; SALINE GROUND WATER INFLOWS | | | | | | | | | | | | | | | | |
| 13.18 | 40.0 | 10.4 | 153. | 4.30 | 0.54 | 0.07 | 0.007 | 0.01 | 0.00 | 0.62 | 0.24 | 477.00 | 287.00 | 0.74 | 0.24 | 0.29 |
| 13.18 | 35.0 | 7.2 | 100. | 3.70 | 0.40 | 0.02 | 0.003 | 0.01 | 0.00 | 0.43 | 0.23 | 455.00 | 274.00 | 0.29 | 0.23 | 0.25 |
| 13.18 | 30.0 | 4.6 | 58. | 3.10 | 0.27 | 0.01 | 0.001 | 0.01 | 0.00 | 0.29 | 0.22 | 431.00 | 261.00 | 0.20 | 0.22 | 0.22 |
| SUBREACH 42: NIXON BRIDGE - RM 1.0 ; NUMANA RETURNS | | | | | | | | | | | | | | | | |
| 3.22 | 35.0 | 10.4 | 158. | 4.30 | 0.99 | 0.01 | 0.004 | 0.01 | 0.03 | 1.04 | 0.20 | 649.00 | 385.00 | 0.55 | 0.20 | 0.19 |
| 3.22 | 30.0 | 7.7 | 107. | 3.60 | 0.66 | 0.01 | 0.002 | 0.01 | 0.01 | 0.69 | 0.14 | 607.00 | 361.00 | 0.47 | 0.14 | 0.15 |
| 3.22 | 25.0 | 5.2 | 68. | 2.80 | 0.38 | 0.01 | 0.001 | 0.01 | 0.00 | 0.40 | 0.11 | 564.00 | 336.00 | 0.40 | 0.11 | 0.12 |
| SUBREACH 44: ; | | | | | | | | | | | | | | | | |
| 0.00 | 35.0 | 10.2 | 140. | 8.10 | 0.74 | 0.03 | 0.012 | 0.01 | 0.00 | 0.78 | 0.25 | 664.00 | 393.00 | 0.35 | 0.25 | 0.29 |
| 0.00 | 31.0 | 8.2 | 109. | 5.90 | 0.62 | 0.02 | 0.007 | 0.01 | 0.00 | 0.65 | 0.23 | 634.00 | 376.00 | 0.29 | 0.23 | 0.28 |
| 0.00 | 25.0 | 6.6 | 87. | 3.60 | 0.54 | 0.01 | 0.002 | 0.01 | 0.00 | 0.56 | 0.20 | 577.00 | 344.00 | 0.22 | 0.20 | 0.24 |

APPENDIX III--EXAMPLE OUTPUT--Continued.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 8.--RESULTS OF COMPUTATIONS. (RESULTS IN MG/L UNLESS OTHERWISE STATED.)

| | | | DISSOLVED-OXYGEN DEFICIT FACTORS | | | | | | | | | FINAL CONCENTRATIONS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | INITIAL DEF. | REAER-ATION | CBOD | NH4-NO2 | NO2-NO3 | PHOTO-SYNTH. | RES-PIR. | BEN-THIC | TOTAL DEFICIT | SAT. D.O. | FINAL D.O. | % SAT | CBOD | NH4-N | NO2-N |
| SUBREACH 1: MCCARRAN BR - N TRUCKEE ; NO DIVERSIONS OR RETURNS | | | | | | | | | | | | | | | | | |
| 53.66 | 160.0 | 0.17 | 0.135 | -0.002 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.136 | 7.70 | 7.57 | 98.2 | 2.32 | 0.03 | 0.01 |
| ENDING LOADS (LB/DAY): | | | | -1. | 2. | 0. | 0. | 0. | 0. | 0. | 117. | 6648. | 6531. | | 2000. | 29. | 9. |
| SUBREACH 2: N TRUCKEE DR - STEAMBT ;N TRUCKEE DRAIN AT HEAD | | | | | | | | | | | | | | | | | |
| 53.53 | 210.0 | 0.18 | 0.348 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.348 | 7.78 | 7.43 | 95.5 | 2.69 | 0.03 | 0.01 |
| ENDING LOADS (LB/DAY): | | | | -0. | 1. | 0. | 0. | 0. | 0. | 0. | 395. | 8813. | 8418. | | 3045. | 35. | 12. |
| SUBREACH 3: STEAMBOAT - VISTA ;STEAMBOAT C AT HEAD | | | | | | | | | | | | | | | | | |
| 52.23 | 280.0 | 0.25 | 0.904 | -0.002 | 0.007 | 0.013 | 0.004 | 0.000 | 0.000 | 0.000 | 0.926 | 7.62 | 6.70 | 87.9 | 5.87 | 1.52 | 0.05 |
| ENDING LOADS (LB/DAY): | | | | -3. | 11. | 20. | 6. | 0. | 0. | 0. | 1399. | 11515. | 10116. | | 8862. | 2301. | 77. |
| SUBREACH 4: VISTA - LARGOMARSINO DV ;NO DIVERSION | | | | | | | | | | | | | | | | | |
| 51.25 | 280.0 | 0.31 | 1.123 | -0.002 | 0.005 | 0.011 | 0.003 | 0.000 | 0.000 | 0.000 | 1.140 | 7.62 | 6.48 | 85.0 | 5.30 | 1.52 | 0.06 |
| ENDING LOADS (LB/DAY): | | | | -3. | 8. | 16. | 5. | 0. | 0. | 0. | 1722. | 11515. | 9793. | | 8006. | 2289. | 84. |
| SUBREACH 5: LARGOMARSINO DIVERSIONS ;NOCE AND MURPHY DIVERSIONS | | | | | | | | | | | | | | | | | |
| 50.90 | 253.0 | 0.33 | 0.975 | -0.069 | 0.003 | 0.040 | 0.005 | 0.000 | 0.000 | 0.000 | 0.954 | 7.62 | 6.67 | 87.5 | 5.21 | 1.43 | 0.12 |
| ENDING LOADS (LB/DAY): | | | | -94. | 5. | 55. | 6. | 0. | 0. | 0. | 1302. | 10405. | 9103. | | 7115. | 1951. | 164. |
| SUBREACH 6: BELOW LARG. - LOCKWOOD ;NOCE AND MURPHY RETURNS | | | | | | | | | | | | | | | | | |
| 50.05 | 256.0 | 0.39 | 1.201 | -0.036 | 0.003 | 0.036 | 0.009 | 0.000 | 0.000 | 0.000 | 1.213 | 7.55 | 6.34 | 83.9 | 5.06 | 1.22 | 0.21 |
| ENDING LOADS (LB/DAY): | | | | -49. | 5. | 50. | 12. | 0. | 0. | 0. | 1675. | 10424. | 8749. | | 6987. | 1686. | 290. |
| SUBREACH 7: LOCKWOOD - GROTON DIV ;L-NOCE & L-MURPHY RETURNS | | | | | | | | | | | | | | | | | |
| 49.90 | 256.7 | 0.40 | 1.235 | -0.037 | 0.003 | 0.035 | 0.009 | -0.003 | 0.000 | 0.000 | 1.242 | 7.55 | 6.31 | 83.5 | 5.06 | 1.19 | 0.22 |
| ENDING LOADS (LB/DAY): | | | | -51. | 5. | 49. | 12. | -4. | 0. | 0. | 1720. | 10452. | 8732. | | 7010. | 1644. | 302. |
| SUBREACH 8: GROTON DV - MUSTANG BR#1;GROTON & L-MURPHY RETURNS | | | | | | | | | | | | | | | | | |
| 48.25 | 262.8 | 0.47 | 1.158 | -0.032 | 0.002 | 0.020 | 0.007 | -0.002 | 0.000 | 0.000 | 1.152 | 7.55 | 6.40 | 84.7 | 5.17 | 0.94 | 0.23 |
| ENDING LOADS (LB/DAY): | | | | -46. | 3. | 28. | 9. | -3. | 0. | 0. | 1633. | 10701. | 9067. | | 7332. | 1332. | 330. |
| SUBREACH 9: MUSTANG BR - LAST RET. ;L-MURPHY RETURNS | | | | | | | | | | | | | | | | | |

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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (RB79.PUB MEAN DO)

TABLE 8.--RESULTS OF COMPUTATIONS. (RESULTS IN MG/L UNLESS OTHERWISE STATED.)

| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | INITIAL DEF. | DISSOLVED-OXYGEN DEFICIT FACTORS: REAER-ATION | CBOD | NH4-NO2 | NO2-NO3 | PHOTO-SYNTH. | RES-PIR. | BEN-THIC | TOTAL DEFICIT | FINAL CONCENTRATIONS: SAT. D.O. | FINAL D.O. | % SAT | CBOD | NH4-N | NO2-N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 46.68 | 269.9 | 0.55 | 1.415 | -0.028 | 0.004 | 0.025 | 0.008 | -0.004 | 0.000 | 0.000 | 1.421 | 7.55 | 6.13 | 81.2 | 5.21 | 0.74 | 0.27 |
| ENDING LOADS (LB/DAY): | | | | -40. | 6. | 36. | 11. | -5. | 0. | 0. | 2068. | 10990. | 8922. | | 7585. | 1078. | 395. |
| SUBREACH 10: MCCARRAN POOL ;BACKWATER ABOVE MCCARRAN DAM | | | | | | | | | | | | | | | | | |
| 46.35 | 269.9 | 0.57 | 1.550 | -0.001 | 0.002 | 0.010 | 0.003 | -0.002 | 0.000 | 0.000 | 1.563 | 7.55 | 5.99 | 79.3 | 5.19 | 0.71 | 0.27 |
| ENDING LOADS (LB/DAY): | | | | -1. | 2. | 15. | 5. | -2. | 0. | 0. | 2276. | 10990. | 8715. | | 7557. | 1031. | 397. |
| SUBREACH 11: MCCARRAN DV - PATRICK B ;NO RETURNS | | | | | | | | | | | | | | | | | |
| 44.92 | 258.2 | 0.64 | 0.926 | -0.020 | 0.002 | 0.008 | 0.003 | -0.002 | 0.000 | 0.000 | 0.917 | 7.55 | 6.63 | 87.9 | 5.13 | 0.58 | 0.28 |
| ENDING LOADS (LB/DAY): | | | | -28. | 2. | 11. | 4. | -2. | 0. | 0. | 1277. | 10514. | 9237. | | 7151. | 811. | 395. |
| SUBREACH 12: PATRICK BR - SP RR BR ;MCCARRAN RETURNS | | | | | | | | | | | | | | | | | |
| 42.88 | 266.0 | 0.76 | 0.888 | -0.014 | 0.002 | 0.009 | 0.003 | -0.002 | 0.000 | 0.000 | 0.886 | 7.47 | 6.59 | 88.1 | 5.15 | 0.42 | 0.31 |
| ENDING LOADS (LB/DAY): | | | | -20. | 4. | 13. | 4. | -3. | 0. | 0. | 1272. | 10725. | 9453. | | 7391. | 600. | 452. |
| SUBREACH 13: SP RR BR - HILL DIV ;BACKWATER ABOVE HILL DAM | | | | | | | | | | | | | | | | | |
| 42.02 | 266.0 | 0.80 | 1.046 | -0.006 | 0.004 | 0.012 | 0.004 | -0.003 | 0.000 | 0.000 | 1.057 | 7.47 | 6.42 | 85.9 | 5.10 | 0.37 | 0.31 |
| ENDING LOADS (LB/DAY): | | | | -8. | 5. | 17. | 6. | -5. | 0. | 0. | 1516. | 10725. | 9209. | | 7314. | 529. | 451. |
| SUBREACH 14: HILL DIV - TRACY DIV ;NO RETURNS | | | | | | | | | | | | | | | | | |
| 40.76 | 260.5 | 0.92 | 1.115 | -0.021 | 0.006 | 0.014 | 0.006 | -0.005 | 0.000 | 0.000 | 1.114 | 7.47 | 6.36 | 85.1 | 4.98 | 0.27 | 0.29 |
| ENDING LOADS (LB/DAY): | | | | -30. | 8. | 20. | 9. | -7. | 0. | 0. | 1566. | 10503. | 8937. | | 7003. | 386. | 413. |
| SUBREACH 15: TRACY DIV - TRACY BRIDGE;NO RETURNS | | | | | | | | | | | | | | | | | |
| 40.62 | 256.8 | 0.92 | 1.009 | -0.047 | 0.002 | 0.005 | 0.002 | -0.002 | 0.000 | 0.000 | 0.969 | 7.47 | 6.51 | 87.0 | 4.98 | 0.27 | 0.29 |
| ENDING LOADS (LB/DAY): | | | | -65. | 3. | 7. | 3. | -2. | 0. | 0. | 1343. | 10354. | 9011. | | 6902. | 374. | 405. |
| SUBREACH 16: TRACY BR - CLARK BR ;HILL RETURNS | | | | | | | | | | | | | | | | | |
| 38.60 | 260.0 | 1.01 | 0.846 | -0.004 | 0.001 | 0.002 | 0.001 | -0.001 | 0.000 | 0.000 | 0.844 | 7.47 | 6.63 | 88.7 | 4.94 | 0.21 | 0.26 |
| ENDING LOADS (LB/DAY): | | | | -6. | 1. | 3. | 1. | -1. | 0. | 0. | 1184. | 10483. | 9299. | | 6935. | 297. | 367. |
| SUBREACH 17: CLARK BR - RM 37.1 ;NO DIVERSIONS OR RETURNS | | | | | | | | | | | | | | | | | |
| 37.10 | 260.0 | 1.11 | 0.645 | -0.028 | 0.007 | 0.010 | 0.006 | -0.006 | 0.000 | 0.000 | 0.633 | 7.47 | 6.84 | 91.5 | 4.84 | 0.17 | 0.23 |
| ENDING LOADS (LB/DAY): | | | | -40. | 9. | 15. | 8. | -9. | 0. | 0. | 888. | 10483. | 9595. | | 6790. | 235. | 322. |

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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 8.--RESULTS OF COMPUTATIONS. (RESULTS IN MG/L UNLESS OTHERWISE STATED.)

| | | | DISSOLVED-OXYGEN DEFICIT FACTORS | | | | | | | | | | FINAL CONCENTRATIONS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | INITIAL DEF. | REAER-ATION | CBOD | NH4-NO2 | NO2-NO3 | PHOTO-SYNTH. | RES-PIR. | BEN-THIC | TOTAL DEFICIT | SAT. D.O. | FINAL D.O. | % SAT | CBOD | NH4-N | NO2-N |
| SUBREACH 18: RM 37.1 - I-80 OXBOW ;NO DIVERSIONS OR RETURNS | | | | | | | | | | | | | | | | | |
| 35.60 | 260.0 | 1.21 | 0.606 | -0.013 | 0.007 | 0.009 | 0.005 | -0.006 | 0.000 | 0.000 | 0.607 | 7.40 | 6.79 | 91.8 | 4.74 | 0.13 | 0.20 |
| ENDING LOADS (LB/DAY): | | | | -18. | 9. | 12. | 7. | -9. | 0. | 0. | 852. | 10381. | 9530. | | 6645. | 185. | 275. |
| SUBREACH 19: I-80 OXBOW - DERBY DAM ;BACKWATER ABOVE DERBY DAM | | | | | | | | | | | | | | | | | |
| 34.88 | 260.0 | 1.25 | 0.688 | 0.000 | 0.001 | 0.002 | 0.001 | -0.001 | 0.000 | 0.000 | 0.690 | 7.40 | 6.71 | 90.7 | 4.69 | 0.12 | 0.18 |
| ENDING LOADS (LB/DAY): | | | | -1. | 2. | 2. | 1. | -2. | 0. | 0. | 968. | 10381. | 9413. | | 6576. | 166. | 253. |
| SUBREACH 20: DERBY DAM - GAGE CABLE ;TRUCKEE CANAL DIVERTS AT HEAD | | | | | | | | | | | | | | | | | |
| 34.52 | 40.4 | 1.31 | 0.370 | -0.046 | 0.010 | 0.010 | 0.007 | -0.019 | 0.000 | 0.000 | 0.333 | 7.33 | 7.00 | 95.5 | 4.68 | 0.10 | 0.16 |
| ENDING LOADS (LB/DAY): | | | | -10. | 2. | 2. | 1. | -4. | 0. | 0. | 73. | 1598. | 1525. | | 1020. | 22. | 35. |
| SUBREACH 21: GAGE CABLEWAY - WASHBRN ;NO DIVERSIONS OR RETURNS MODELED | | | | | | | | | | | | | | | | | |
| 31.28 | 44.0 | 1.83 | 0.160 | -0.003 | 0.007 | 0.003 | 0.002 | -0.013 | 0.000 | 0.000 | 0.155 | 7.33 | 7.18 | 97.9 | 4.58 | 0.04 | 0.06 |
| ENDING LOADS (LB/DAY): | | | | -1. | 2. | 1. | 0. | -3. | 0. | 0. | 37. | 1740. | 1703. | | 1088. | 10. | 14. |
| SUBREACH 22: WASHBURN -PAINTED ROCK ;WASHBURN & TRUCKEE CANAL RETURNS | | | | | | | | | | | | | | | | | |
| 29.97 | 43.6 | 2.04 | 0.067 | -0.006 | 0.017 | 0.006 | 0.003 | -0.033 | 0.000 | 0.000 | 0.055 | 7.32 | 7.27 | 99.2 | 4.57 | 0.04 | 0.05 |
| ENDING LOADS (LB/DAY): | | | | -1. | 4. | 2. | 1. | -8. | 0. | 0. | 13. | 1723. | 1710. | | 1075. | 9. | 11. |
| SUBREACH 23: PAINTED R - GREGORY-MONT;NO RETURNS | | | | | | | | | | | | | | | | | |
| 29.35 | 44.3 | 2.13 | 0.095 | -0.001 | 0.003 | 0.001 | 0.001 | -0.006 | 0.000 | 0.000 | 0.093 | 7.38 | 7.29 | 98.7 | 4.55 | 0.03 | 0.04 |
| ENDING LOADS (LB/DAY): | | | | -0. | 1. | 0. | 0. | -1. | 0. | 0. | 22. | 1764. | 1742. | | 1088. | 8. | 10. |
| SUBREACH 24: GREGORY-MONTE - RM 28.0 ;GREGORY-MONTEAND CANAL RETURNS | | | | | | | | | | | | | | | | | |
| 28.00 | 38.2 | 2.42 | 0.032 | -0.001 | 0.011 | 0.004 | 0.002 | -0.021 | 0.000 | 0.000 | 0.026 | 7.39 | 7.36 | 99.7 | 4.53 | 0.03 | 0.03 |
| ENDING LOADS (LB/DAY): | | | | -0. | 2. | 1. | 0. | -4. | 0. | 0. | 5. | 1523. | 1518. | | 933. | 7. | 7. |
| SUBREACH 25: RM 28.0 - HERMAN DIV ;HERMAN AND CANAL RETURNS | | | | | | | | | | | | | | | | | |
| 26.75 | 40.0 | 2.68 | 0.003 | 0.000 | 0.011 | 0.003 | 0.001 | -0.020 | 0.000 | 0.000 | -0.002 | 7.39 | 7.39 | 100.0 | 4.51 | 0.03 | 0.03 |
| ENDING LOADS (LB/DAY): | | | | 0. | 2. | 1. | 0. | -4. | 0. | 0. | -0. | 1595. | 1595. | | 974. | 7. | 6. |
| SUBREACH 26: HERMAN DIV - PIERSON DIV;HERMAN AND CANAL RETURNS | | | | | | | | | | | | | | | | | |

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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 8.--RESULTS OF COMPUTATIONS. (RESULTS IN MG/L UNLESS OTHERWISE STATED.)

| | | | DISSOLVED-OXYGEN DEFICIT FACTORS | | | | | | | | | FINAL CONCENTRATIONS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | INITIAL DEF. | REAER-ATION | CBOD | NH4-NO2 | NO2-NO3 | PHOTO-SYNTH. | RES-PIR. | BEN-THIC | TOTAL DEFICIT | SAT. D.O. | FINAL D.O. | % SAT | CBOD | NH4-N | NO2-N |
| 25.95 | 27.0 | 2.91 | -0.016 | 0.001 | 0.029 | 0.009 | 0.004 | -0.056 | 0.000 | 0.000 | -0.030 | 7.39 | 7.42 | 100.4 | 4.48 | 0.03 | 0.03 |
| ENDING LOADS (LB/DAY): | | | | 0. | 4. | 1. | 1. | -8. | 0. | 0. | -4. | 1076. | 1081. | | 653. | 4. | 4. |
| SUBREACH 27: PIERSON DIV - PROCTR DIV;HERMAN, PIERSON , & CANAL RETURNS | | | | | | | | | | | | | | | | | |
| 23.90 | 30.5 | 3.46 | -0.008 | 0.000 | 0.014 | 0.005 | 0.002 | -0.026 | 0.000 | 0.000 | -0.014 | 7.39 | 7.40 | 100.2 | 4.57 | 0.03 | 0.03 |
| ENDING LOADS (LB/DAY): | | | | 0. | 2. | 1. | 0. | -4. | 0. | 0. | -2. | 1216. | 1218. | | 753. | 5. | 5. |
| SUBREACH 28: PROCTOR - WADSWORTH ;FERNLEY AREA GROUND-WATER RETURNS | | | | | | | | | | | | | | | | | |
| 23.69 | 31.0 | 3.53 | 0.007 | -0.001 | 0.036 | 0.012 | 0.005 | -0.068 | 0.000 | 0.000 | -0.010 | 7.39 | 7.40 | 100.1 | 4.59 | 0.03 | 0.03 |
| ENDING LOADS (LB/DAY): | | | | -0. | 6. | 2. | 1. | -11. | 0. | 0. | -2. | 1236. | 1237. | | 767. | 5. | 5. |
| SUBREACH 29: WADSWORTH -FELLNAGLE DN ;FERNLEY AREA GROUND-WATER RETURNS | | | | | | | | | | | | | | | | | |
| 22.55 | 35.8 | 3.88 | -0.349 | 0.003 | 0.008 | 0.003 | 0.001 | -0.025 | 0.000 | 0.000 | -0.358 | 7.39 | 7.75 | 104.8 | 3.88 | 0.03 | 0.02 |
| ENDING LOADS (LB/DAY): | | | | 1. | 2. | 1. | 0. | -5. | 0. | 0. | -69. | 1427. | 1496. | | 750. | 5. | 4. |
| SUBREACH 30: FELLNAGLE - RM 21.4 ;OLINGHOUSE #1 & FELLNAGLE RETURNS | | | | | | | | | | | | | | | | | |
| 21.40 | 34.7 | 4.05 | -0.373 | 0.011 | 0.004 | 0.002 | 0.001 | -0.014 | 0.000 | 0.000 | -0.370 | 7.39 | 7.76 | 105.0 | 3.38 | 0.02 | 0.02 |
| ENDING LOADS (LB/DAY): | | | | 2. | 1. | 0. | 0. | -3. | 0. | 0. | -69. | 1383. | 1452. | | 634. | 4. | 3. |
| SUBREACH 31: RM 21.4 - S-BAR-S DIV ;OLINGHOUSE #1 & FELLNAGLE RETURNS | | | | | | | | | | | | | | | | | |
| 19.84 | 36.0 | 4.27 | -0.389 | 0.008 | 0.005 | 0.002 | 0.001 | -0.016 | 0.000 | 0.000 | -0.390 | 7.32 | 7.71 | 105.3 | 3.90 | 0.02 | 0.02 |
| ENDING LOADS (LB/DAY): | | | | 1. | 1. | 0. | 0. | -3. | 0. | 0. | -76. | 1421. | 1497. | | 758. | 4. | 4. |
| SUBREACH 32: S-S DAM - S-S PUMP ;S-S AND OLINGHOUSE #2 RETURNS | | | | | | | | | | | | | | | | | |
| 17.82 | 32.7 | 4.67 | -0.435 | 0.004 | 0.003 | 0.001 | 0.000 | -0.008 | 0.000 | 0.000 | -0.435 | 7.24 | 7.68 | 106.0 | 3.80 | 0.02 | 0.02 |
| ENDING LOADS (LB/DAY): | | | | 1. | 0. | 0. | 0. | -1. | 0. | 0. | -77. | 1278. | 1355. | | 671. | 4. | 3. |
| SUBREACH 33: S-BAR-S PUMP - RM 15.8 ;S-S DAM, S-S PUMP & OLINGH.#3 RETURNS | | | | | | | | | | | | | | | | | |
| 15.82 | 33.5 | 4.98 | -0.456 | 0.013 | 0.010 | 0.004 | 0.001 | -0.031 | 0.000 | 0.000 | -0.458 | 7.24 | 7.70 | 106.3 | 3.89 | 0.02 | 0.02 |
| ENDING LOADS (LB/DAY): | | | | 2. | 2. | 1. | 0. | -6. | 0. | 0. | -83. | 1309. | 1392. | | 704. | 4. | 3. |
| SUBREACH 34: RM 15.8 - DEAD OX WASH ;SALINE GROUND WATER INFLOWS | | | | | | | | | | | | | | | | | |
| 13.18 | 33.9 | 5.30 | -0.509 | 0.005 | 0.003 | 0.001 | 0.000 | -0.010 | 0.000 | 0.000 | -0.508 | 7.17 | 7.68 | 107.1 | 3.65 | 0.02 | 0.02 |
| ENDING LOADS (LB/DAY): | | | | 1. | 1. | 0. | 0. | -2. | 0. | 0. | -93. | 1312. | 1405. | | 668. | 3. | 3. |

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MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 8.--RESULTS OF COMPUTATIONS. (RESULTS IN MG/L UNLESS OTHERWISE STATED.)

| | | | DISSOLVED-OXYGEN DEFICIT FACTORS | | | | | | | | | FINAL CONCENTRATIONS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | INITIAL DEF. | REAER-ATION | CBOD | NH4-NO2 | NO2-NO3 | PHOTO-SYNTH. | RES-PIR. | BEN-THIC | TOTAL DEFICIT | SAT. D.O. | FINAL D.O. | % SAT | CBOD | NH4-N | NO2-N |
| SUBREACH 35: DEAD OX - RM 10.0 ;SALINE GROUND WATER INFLOWS | | | | | | | | | | | | | | | | | |
| 10.00 | 34.8 | 6.34 | -1.087 | 0.020 | 0.013 | 0.005 | 0.002 | -0.051 | 0.000 | 0.000 | -1.098 | 7.17 | 8.27 | 115.3 | 3.00 | 0.02 | 0.01 |
| ENDING LOADS (LB/DAY): | | | | 4. | 2. | 1. | 0. | -10. | 0. | 0. | -206. | 1347. | 1553. | | 564. | 3. | 2. |
| SUBREACH 36: RM 10.0 - RM 9.2 ;SALINE GROUND WATER INFLOWS | | | | | | | | | | | | | | | | | |
| 9.20 | 35.0 | 6.59 | -0.924 | 0.058 | 0.015 | 0.006 | 0.002 | -0.062 | 0.000 | 0.000 | -0.906 | 7.17 | 8.08 | 112.6 | 2.86 | 0.01 | 0.01 |
| ENDING LOADS (LB/DAY): | | | | 11. | 3. | 1. | 0. | -12. | 0. | 0. | -171. | 1355. | 1526. | | 540. | 3. | 2. |
| SUBREACH 37: RM9.2 - NUMANA DAM ;SALINE GROUND WATER INFLOWS | | | | | | | | | | | | | | | | | |
| 8.21 | 35.2 | 6.91 | -1.236 | 0.005 | 0.013 | 0.005 | 0.002 | -0.057 | 0.000 | 0.000 | -1.268 | 7.17 | 8.44 | 117.7 | 2.70 | 0.01 | 0.01 |
| ENDING LOADS (LB/DAY): | | | | 1. | 3. | 1. | 0. | -11. | 0. | 0. | -241. | 1363. | 1603. | | 513. | 3. | 2. |
| SUBREACH 38: NUMANA DAM - RM 7.6 ;NO RETURNS | | | | | | | | | | | | | | | | | |
| 7.60 | 22.4 | 7.03 | -0.860 | 0.101 | 0.010 | 0.004 | 0.001 | -0.041 | 0.000 | 0.000 | -0.785 | 7.10 | 7.89 | 111.1 | 2.63 | 0.01 | 0.01 |
| ENDING LOADS (LB/DAY): | | | | 12. | 1. | 0. | 0. | -5. | 0. | 0. | -95. | 859. | 954. | | 318. | 2. | 1. |
| SUBREACH 39: RM 7.6 - RM 6.8 ;NUMANA RETURNS | | | | | | | | | | | | | | | | | |
| 6.80 | 22.6 | 7.19 | -0.679 | 0.032 | 0.009 | 0.003 | 0.001 | -0.039 | 0.000 | 0.000 | -0.673 | 7.16 | 7.83 | 109.4 | 2.54 | 0.01 | 0.01 |
| ENDING LOADS (LB/DAY): | | | | 4. | 1. | 0. | 0. | -5. | 0. | 0. | -82. | 873. | 955. | | 310. | 2. | 1. |
| SUBREACH 40: RM 6.8 - RM 4.0 ;NUMANA RETURNS | | | | | | | | | | | | | | | | | |
| 4.00 | 28.4 | 7.69 | -0.386 | 0.011 | 0.011 | 0.005 | 0.002 | -0.036 | 0.000 | 0.000 | -0.392 | 7.16 | 7.55 | 105.5 | 3.59 | 0.02 | 0.02 |
| ENDING LOADS (LB/DAY): | | | | 2. | 2. | 1. | 0. | -5. | 0. | 0. | -60. | 1097. | 1157. | | 550. | 3. | 3. |
| SUBREACH 41: RM 4.0 - NIXON BRIDGE ;NUMANA RETURNS | | | | | | | | | | | | | | | | | |
| 3.22 | 30.0 | 7.82 | -0.288 | 0.011 | 0.009 | 0.004 | 0.002 | -0.026 | 0.000 | 0.000 | -0.288 | 7.16 | 7.45 | 104.0 | 3.79 | 0.02 | 0.02 |
| ENDING LOADS (LB/DAY): | | | | 2. | 1. | 1. | 0. | -4. | 0. | 0. | -47. | 1159. | 1206. | | 613. | 4. | 4. |
| SUBREACH 42: NIXON BRIDGE - RM 1.0 ;NUMANA RETURNS | | | | | | | | | | | | | | | | | |
| 1.00 | 30.7 | 8.88 | -0.152 | 0.001 | 0.005 | 0.002 | 0.001 | -0.010 | 0.000 | 0.000 | -0.153 | 7.30 | 7.45 | 102.1 | 3.12 | 0.02 | 0.01 |
| ENDING LOADS (LB/DAY): | | | | 0. | 1. | 0. | 0. | -2. | 0. | 0. | -25. | 1209. | 1234. | | 517. | 3. | 2. |
| SUBREACH 43: RM 1.0 - MARBLE BLUFF D ;NUMANA RETURNS, BACKWATER ABOVE DAM | | | | | | | | | | | | | | | | | |

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MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 8.--RESULTS OF COMPUTATIONS. (RESULTS IN MG/L UNLESS OTHERWISE STATED.)

| | | | DISSOLVED-OXYGEN DEFICIT FACTORS | | | | | | | | | FINAL CONCENTRATIONS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | INITIAL DEF. | REAER-ATION | CBOD | NH4-NO2 | NO2-NO3 | PHOTO-SYNTH. | RES-PIR. | BEN-THIC | TOTAL DEFICIT | SAT. D.O. | FINAL D.O. | % SAT | CBOD | NH4-N | NO2-N |
| 0.00 | 31.0 | 9.35 | -0.130 | 0.001 | 0.022 | 0.008 | 0.003 | -0.047 | 0.000 | 0.000 | -0.143 | 7.44 | 7.58 | 101.9 | 2.87 | 0.02 | 0.01 |
| ENDING LOADS (LB/DAY): | | | | 0. | 4. | 1. | 0. | -8. | 0. | 0. | -24. | 1244. | 1268. | | 480. | 3. | 2. |

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MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 9.--RESULTS OF COMPUTATIONS FOR NITROGEN SPECIES AND OTHER CONSTITUENTS.

| | | | NITROGEN CYCLE | | | | | UN-ION-IZED | | NONCONSERVATIVES | | CONSERVATIVES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | ORG-N (MG/L) | NH4-N (MG/L) | NO2-N (MG/L) | NO3-N (MG/L) | TOT-N (MG/L) | NH3-N (MG/L) | O-P-A (MG/L) | ORTH P-B (MG/L) | TOTAL P (MG/L) | SP COND (UMHOS ) | DS (MG/L) | I-N/O-P (M/M) |
| SUBREACH 1: MCCARRAN BR - N TRUCKEE ;NO DIVERSIONS OR RETURNS | | | | | | | | | | | | | | |
| 53.66 | 160.00 | 0.17 | 0.32 | 0.03 | 0.01 | 0.04 | 0.41 | 0.001 | 0.08 | 0.08 | 0.04 | 127.00 | 86.00 | 2.42 |
| ENDING LOADS (LB/DAY): | | | 280. | 29. | 9. | 34. | 352. | | 66. | 66. | 33. | 109602. | 74219. | 0. |
| SUBREACH 2: N TRUCKEE DR - STEAMBT ;N TRUCKEE DRAIN AT HEAD | | | | | | | | | | | | | | |
| 53.53 | 210.00 | 0.18 | 0.41 | 0.03 | 0.01 | 0.13 | 0.58 | 0.002 | 0.08 | 0.08 | 0.05 | 182.24 | 125.05 | 4.42 |
| ENDING LOADS (LB/DAY): | | | 463. | 35. | 12. | 144. | 653. | | 95. | 95. | 60. | 206421. | 141641. | 0. |
| SUBREACH 3: STEAMBOAT - VISTA ;STEAMBOAT C AT HEAD | | | | | | | | | | | | | | |
| 52.23 | 280.01 | 0.25 | 0.63 | 1.52 | 0.05 | 0.15 | 2.36 | 0.062 | 0.49 | 0.61 | 0.68 | 231.06 | 152.67 | 6.30 |
| ENDING LOADS (LB/DAY): | | | 959. | 2301. | 77. | 229. | 3565. | | 734. | 915. | 1028. | 348978. | 230585. | 0. |
| SUBREACH 4: VISTA - LARGOMARSINO DV ;NO DIVERSION | | | | | | | | | | | | | | |
| 51.25 | 280.01 | 0.31 | 0.57 | 1.52 | 0.06 | 0.18 | 2.32 | 0.032 | 0.48 | 0.60 | 0.67 | 231.06 | 152.67 | 6.49 |
| ENDING LOADS (LB/DAY): | | | 862. | 2289. | 84. | 274. | 3509. | | 723. | 901. | 1012. | 348978. | 230585. | 0. |
| SUBREACH 5: LARGOMARSINO DIVERSIONS ;NOCE AND MURPHY DIVERSIONS | | | | | | | | | | | | | | |
| 50.90 | 253.01 | 0.33 | 0.57 | 1.43 | 0.12 | 0.20 | 2.32 | 0.024 | 0.48 | 0.59 | 0.67 | 231.06 | 152.67 | 6.53 |
| ENDING LOADS (LB/DAY): | | | 777. | 1951. | 164. | 276. | 3169. | | 649. | 809. | 909. | 315328. | 208350. | 0. |
| SUBREACH 6: BELOW LARG. - LOCKWOOD ;NOCE AND MURPHY RETURNS | | | | | | | | | | | | | | |
| 50.05 | 256.01 | 0.39 | 0.57 | 1.22 | 0.21 | 0.31 | 2.31 | 0.017 | 0.47 | 0.58 | 0.66 | 231.60 | 153.03 | 6.59 |
| ENDING LOADS (LB/DAY): | | | 793. | 1686. | 290. | 422. | 3192. | | 647. | 805. | 905. | 319814. | 211314. | 0. |
| SUBREACH 7: LOCKWOOD - GROTON DIV ;L-NOCE & L-MURPHY RETURNS | | | | | | | | | | | | | | |
| 49.90 | 256.71 | 0.40 | 0.58 | 1.19 | 0.22 | 0.33 | 2.31 | 0.013 | 0.47 | 0.59 | 0.66 | 231.73 | 153.11 | 6.47 |
| ENDING LOADS (LB/DAY): | | | 798. | 1644. | 302. | 454. | 3197. | | 647. | 821. | 921. | 320860. | 212006. | 0. |
| SUBREACH 8: GROTON DV - MUSTANG BR#1;GROTON & L-MURPHY RETURNS | | | | | | | | | | | | | | |
| 48.25 | 262.81 | 0.47 | 0.60 | 0.94 | 0.23 | 0.51 | 2.28 | 0.013 | 0.46 | 0.70 | 0.77 | 233.48 | 154.27 | 5.33 |
| ENDING LOADS (LB/DAY): | | | 849. | 1332. | 330. | 720. | 3231. | | 651. | 989. | 1090. | 330964. | 218682. | 0. |

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MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 9.--RESULTS OF COMPUTATIONS FOR NITROGEN SPECIES AND OTHER CONSTITUENTS.

| | | | NITROGEN CYCLE | | | | | UN-ION-IZED | | NONCONSERVATIVES | | CONSERVATIVES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | ORG-N (MG/L) | NH4-N (MG/L) | NO2-N (MG/L) | NO3-N (MG/L) | TOT-N (MG/L) | NH3-N (MG/L) | O-P-A (MG/L) | ORTH P-B (MG/L) | TOTAL P (MG/L) | SP COND (UMHOS ) | DS (MG/L) | I-N/O-P (M/M) |
| SUBREACH 9: MUSTANG BR - LAST RET. ;L-MURPHY RETURNS | | | | | | | | | | | | | | |
| 46.68 | 269.91 | 0.55 | 0.61 | 0.74 | 0.27 | 0.63 | 2.25 | 0.013 | 0.45 | 0.79 | 0.86 | 234.62 | 155.03 | 4.59 |
| ENDING LOADS (LB/DAY): | | | 891. | 1078. | 395. | 914. | 3277. | | 655. | 1150. | 1253. | 341581. | 225697. | 0. |
| SUBREACH 10: MCCARRAN POOL ;BACKWATER ABOVE MCCARRAN DAM | | | | | | | | | | | | | | |
| 46.35 | 269.91 | 0.57 | 0.61 | 0.71 | 0.27 | 0.66 | 2.25 | 0.015 | 0.45 | 0.81 | 0.88 | 234.62 | 155.03 | 4.48 |
| ENDING LOADS (LB/DAY): | | | 889. | 1031. | 397. | 954. | 3272. | | 652. | 1177. | 1280. | 341581. | 225697. | 0. |
| SUBREACH 11: MCCARRAN DV - PATRICK B ;NO RETURNS | | | | | | | | | | | | | | |
| 44.92 | 258.22 | 0.64 | 0.61 | 0.58 | 0.28 | 0.75 | 2.23 | 0.016 | 0.44 | 0.90 | 0.97 | 234.86 | 155.18 | 3.99 |
| ENDING LOADS (LB/DAY): | | | 846. | 811. | 395. | 1048. | 3100. | | 611. | 1250. | 1346. | 327102. | 216131. | 0. |
| SUBREACH 12: PATRICK BR - SP RR BR ;MCCARRAN RETURNS | | | | | | | | | | | | | | |
| 42.88 | 266.02 | 0.76 | 0.62 | 0.42 | 0.31 | 0.83 | 2.18 | 0.012 | 0.43 | 0.86 | 0.92 | 236.23 | 156.09 | 4.03 |
| ENDING LOADS (LB/DAY): | | | 889. | 600. | 452. | 1190. | 3131. | | 611. | 1229. | 1327. | 338957. | 223964. | 0. |
| SUBREACH 13: SP RR BR - HILL DIV ;BACKWATER ABOVE HILL DAM | | | | | | | | | | | | | | |
| 42.02 | 266.02 | 0.80 | 0.62 | 0.37 | 0.31 | 0.87 | 2.17 | 0.010 | 0.42 | 0.84 | 0.91 | 236.23 | 156.09 | 4.06 |
| ENDING LOADS (LB/DAY): | | | 884. | 529. | 451. | 1246. | 3110. | | 603. | 1212. | 1308. | 338957. | 223964. | 0. |
| SUBREACH 14: HILL DIV - TRACY DIV ;NO RETURNS | | | | | | | | | | | | | | |
| 40.76 | 260.52 | 0.92 | 0.61 | 0.27 | 0.29 | 0.95 | 2.13 | 0.008 | 0.41 | 0.82 | 0.88 | 236.32 | 156.15 | 4.12 |
| ENDING LOADS (LB/DAY): | | | 856. | 386. | 413. | 1338. | 2994. | | 571. | 1147. | 1238. | 332075. | 219417. | 0. |
| SUBREACH 15: TRACY DIV - TRACY BRIDGE;NO RETURNS | | | | | | | | | | | | | | |
| 40.62 | 256.82 | 0.92 | 0.61 | 0.27 | 0.29 | 0.96 | 2.13 | 0.008 | 0.41 | 0.81 | 0.88 | 236.38 | 156.19 | 4.12 |
| ENDING LOADS (LB/DAY): | | | 845. | 374. | 405. | 1325. | 2948. | | 562. | 1128. | 1218. | 327435. | 216351. | 0. |
| SUBREACH 16: TRACY BR - CLARK BR ;HILL RETURNS | | | | | | | | | | | | | | |
| 38.60 | 260.01 | 1.01 | 0.61 | 0.21 | 0.26 | 1.01 | 2.09 | 0.006 | 0.40 | 0.79 | 0.85 | 236.96 | 156.57 | 4.15 |
| ENDING LOADS (LB/DAY): | | | 858. | 297. | 367. | 1412. | 2934. | | 556. | 1107. | 1195. | 332329. | 219585. | 0. |

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MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 9.--RESULTS OF COMPUTATIONS FOR NITROGEN SPECIES AND OTHER CONSTITUENTS.

| | | | NITROGEN CYCLE | | | | | UN-ION-IZED | | NONCONSERVATIVES | | CONSERVATIVES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | ORG-N (MG/L) | NH4-N (MG/L) | NO2-N (MG/L) | NO3-N (MG/L) | TOT-N (MG/L) | NH3-N (MG/L) | O-P-A (MG/L) | ORTH P-B (MG/L) | TOTAL P (MG/L) | SP COND (UMHOS ) | DS (MG/L) | I-N/O-P (M/M) |
| SUBREACH 17: CLARK BR - RM 37.1 ;NO DIVERSIONS OR RETURNS | | | | | | | | | | | | | | |
| 37.10 | 260.01 | 1.11 | 0.60 | 0.17 | 0.23 | 1.06 | 2.06 | 0.005 | 0.39 | 0.77 | 0.83 | 236.96 | 156.57 | 4.19 |
| ENDING LOADS (LB/DAY): | | | 848. | 235. | 322. | 1480. | 2884. | | 540. | 1075. | 1162. | 332329. | 219585. | 0. |
| SUBREACH 18: RM 37.1 - I-80 OXBOW ;NO DIVERSIONS OR RETURNS | | | | | | | | | | | | | | |
| 35.60 | 260.01 | 1.21 | 0.60 | 0.13 | 0.20 | 1.09 | 2.02 | 0.005 | 0.37 | 0.74 | 0.80 | 236.96 | 156.57 | 4.22 |
| ENDING LOADS (LB/DAY): | | | 838. | 185. | 275. | 1533. | 2830. | | 524. | 1044. | 1127. | 332329. | 219585. | 0. |
| SUBREACH 19: I-80 OXBOW - DERBY DAM ;BACKWATER ABOVE DERBY DAM | | | | | | | | | | | | | | |
| 34.88 | 260.01 | 1.25 | 0.59 | 0.12 | 0.18 | 1.03 | 1.93 | 0.005 | 0.37 | 0.73 | 0.79 | 236.96 | 156.57 | 4.02 |
| ENDING LOADS (LB/DAY): | | | 833. | 166. | 253. | 1450. | 2702. | | 517. | 1029. | 1111. | 332329. | 219585. | 0. |
| SUBREACH 20: DERBY DAM - GAGE CABLE ;TRUCKEE CANAL DIVERTS AT HEAD | | | | | | | | | | | | | | |
| 34.52 | 40.41 | 1.31 | 0.60 | 0.10 | 0.16 | 0.92 | 1.78 | 0.005 | 0.36 | 0.72 | 0.78 | 237.43 | 156.88 | 3.63 |
| ENDING LOADS (LB/DAY): | | | 130. | 22. | 35. | 200. | 387. | | 79. | 156. | 169. | 51756. | 34198. | 0. |
| SUBREACH 21: GAGE CABLEWAY - WASHBRN ;NO DIVERSIONS OR RETURNS MODELED | | | | | | | | | | | | | | |
| 31.28 | 44.01 | 1.83 | 0.61 | 0.04 | 0.06 | 0.33 | 1.05 | 0.002 | 0.32 | 0.59 | 0.65 | 241.31 | 159.45 | 1.61 |
| ENDING LOADS (LB/DAY): | | | 146. | 10. | 14. | 78. | 249. | | 76. | 141. | 154. | 57288. | 37853. | 0. |
| SUBREACH 22: WASHBURN -PAINTED ROCK ;WASHBURN & TRUCKEE CANAL RETURNS | | | | | | | | | | | | | | |
| 29.97 | 43.61 | 2.04 | 0.62 | 0.04 | 0.05 | 0.23 | 0.93 | 0.002 | 0.31 | 0.55 | 0.60 | 243.08 | 160.62 | 1.23 |
| ENDING LOADS (LB/DAY): | | | 147. | 9. | 11. | 53. | 219. | | 72. | 130. | 142. | 57184. | 37784. | 0. |
| SUBREACH 23: PAINTED R - GREGORY-MONT;NO RETURNS | | | | | | | | | | | | | | |
| 29.35 | 44.31 | 2.13 | 0.63 | 0.03 | 0.04 | 0.19 | 0.89 | 0.002 | 0.30 | 0.54 | 0.59 | 243.85 | 161.12 | 1.10 |
| ENDING LOADS (LB/DAY): | | | 150. | 8. | 10. | 46. | 214. | | 71. | 128. | 140. | 58285. | 38511. | 0. |
| SUBREACH 24: GREGORY-MONTE - RM 28.0 ;GREGORY-MONTEAND CANAL RETURNS | | | | | | | | | | | | | | |
| 28.00 | 38.21 | 2.42 | 0.64 | 0.03 | 0.03 | 0.12 | 0.83 | 0.002 | 0.28 | 0.49 | 0.54 | 246.28 | 162.72 | 0.86 |
| ENDING LOADS (LB/DAY): | | | 131. | 7. | 7. | 26. | 170. | | 58. | 100. | 110. | 50761. | 33540. | 0. |

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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 9.--RESULTS OF COMPUTATIONS FOR NITROGEN SPECIES AND OTHER CONSTITUENTS.

| | | | NITROGEN CYCLE | | | | | UN-ION-IZED | | NONCONSERVATIVES | | CONSERVATIVES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | ORG-N (MG/L) | NH4-N (MG/L) | NO2-N (MG/L) | NO3-N (MG/L) | TOT-N (MG/L) | NH3-N (MG/L) | O-P-A (MG/L) | ORTH P-B (MG/L) | TOTAL P (MG/L) | SP COND (UMHOS ) | DS (MG/L) | I-N/O-P (M/M) |
| SUBREACH 25: RM 28.0 - HERMAN DIV ;HERMAN AND CANAL RETURNS | | | | | | | | | | | | | | |
| 26.75 | 40.01 | 2.68 | 0.65 | 0.03 | 0.03 | 0.09 | 0.80 | 0.002 | 0.27 | 0.45 | 0.50 | 248.49 | 164.19 | 0.76 |
| ENDING LOADS (LB/DAY): | | | 139. | 7. | 6. | 20. | 173. | | 58. | 97. | 107. | 53631. | 35436. | 0. |
| SUBREACH 26: HERMAN DIV - PIERSON DIV;HERMAN AND CANAL RETURNS | | | | | | | | | | | | | | |
| 25.95 | 27.01 | 2.91 | 0.65 | 0.03 | 0.03 | 0.08 | 0.79 | 0.002 | 0.26 | 0.42 | 0.46 | 250.33 | 165.40 | 0.72 |
| ENDING LOADS (LB/DAY): | | | 95. | 4. | 4. | 11. | 115. | | 38. | 61. | 68. | 36475. | 24100. | 0. |
| SUBREACH 27: PIERSON DIV - PROCTR DIV;HERMAN, PIERSON , & CANAL RETURNS | | | | | | | | | | | | | | |
| 23.90 | 30.51 | 3.46 | 0.68 | 0.03 | 0.03 | 0.07 | 0.81 | 0.002 | 0.24 | 0.36 | 0.41 | 256.07 | 169.20 | 0.78 |
| ENDING LOADS (LB/DAY): | | | 112. | 5. | 5. | 11. | 133. | | 40. | 60. | 67. | 42145. | 27847. | 0. |
| SUBREACH 28: PROCTOR - WADSWORTH ;FERNLEY AREA GROUND-WATER RETURNS | | | | | | | | | | | | | | |
| 23.69 | 31.01 | 3.53 | 0.68 | 0.03 | 0.03 | 0.07 | 0.81 | 0.002 | 0.24 | 0.36 | 0.40 | 256.90 | 169.74 | 0.79 |
| ENDING LOADS (LB/DAY): | | | 114. | 5. | 5. | 11. | 136. | | 41. | 60. | 67. | 42974. | 28395. | 0. |
| SUBREACH 29: WADSWORTH -FELLNAGLE DN ;FERNLEY AREA GROUND-WATER RETURNS | | | | | | | | | | | | | | |
| 22.55 | 35.81 | 3.88 | 0.57 | 0.03 | 0.02 | 0.20 | 0.81 | 0.001 | 0.20 | 0.29 | 0.32 | 320.31 | 219.37 | 1.86 |
| ENDING LOADS (LB/DAY): | | | 109. | 5. | 4. | 38. | 156. | | 39. | 56. | 62. | 61873. | 42375. | 0. |
| SUBREACH 30: FELLNAGLE - RM 21.4 ;OLINGHOUSE #1 & FELLNAGLE RETURNS | | | | | | | | | | | | | | |
| 21.40 | 34.71 | 4.05 | 0.48 | 0.02 | 0.02 | 0.32 | 0.84 | 0.002 | 0.18 | 0.25 | 0.28 | 378.14 | 264.62 | 3.21 |
| ENDING LOADS (LB/DAY): | | | 89. | 4. | 3. | 60. | 156. | | 33. | 46. | 52. | 70800. | 49547. | 0. |
| SUBREACH 31: RM 21.4 - S-BAR-S DIV ;OLINGHOUSE #1 & FELLNAGLE RETURNS | | | | | | | | | | | | | | |
| 19.84 | 36.01 | 4.27 | 0.48 | 0.02 | 0.02 | 0.19 | 0.72 | 0.002 | 0.17 | 0.24 | 0.27 | 384.34 | 269.21 | 2.20 |
| ENDING LOADS (LB/DAY): | | | 94. | 4. | 4. | 38. | 140. | | 34. | 46. | 52. | 74657. | 52294. | 0. |
| SUBREACH 32: S-S DAM - S-S PUMP ;S-S AND OLINGHOUSE #2 RETURNS | | | | | | | | | | | | | | |
| 17.82 | 32.71 | 4.67 | 0.46 | 0.02 | 0.02 | 0.08 | 0.58 | 0.002 | 0.15 | 0.21 | 0.23 | 393.55 | 276.20 | 1.31 |
| ENDING LOADS (LB/DAY): | | | 81. | 4. | 3. | 15. | 103. | | 27. | 37. | 41. | 69441. | 48734. | 0. |

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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 9.--RESULTS OF COMPUTATIONS FOR NITROGEN SPECIES AND OTHER CONSTITUENTS.

| | | | NITROGEN CYCLE | | | | | UN-ION-IZED | | NONCONSERVATIVES | | CONSERVATIVES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | ORG-N (MG/L) | NH4-N (MG/L) | NO2-N (MG/L) | NO3-N (MG/L) | TOT-N (MG/L) | NH3-N (MG/L) | O-P-A (MG/L) | ORTH P-B (MG/L) | TOTAL P (MG/L) | SP COND (UMHOS) | DS (MG/L) | I-N/O-P (M/M) |
| SUBREACH 33: S-BAR-S PUMP - RM 15.8 ;S-S DAM, S-S PUMP & OLINGH.#3 RETURNS | | | | | | | | | | | | | | |
| 15.82 | 33.51 | 4.98 | 0.45 | 0.02 | 0.02 | 0.06 | 0.54 | 0.002 | 0.14 | 0.19 | 0.21 | 400.87 | 281.71 | 1.08 |
| ENDING LOADS (LB/DAY): | | | 81. | 4. | 3. | 10. | 98. | | 26. | 34. | 38. | 72462. | 50922. | 0. |
| SUBREACH 34: RM 15.8 - DEAD OX WASH ;SALINE GROUND WATER INFLOWS | | | | | | | | | | | | | | |
| 13.18 | 33.91 | 5.30 | 0.42 | 0.02 | 0.02 | 0.04 | 0.50 | 0.002 | 0.13 | 0.17 | 0.19 | 408.88 | 287.82 | 0.98 |
| ENDING LOADS (LB/DAY): | | | 77. | 3. | 3. | 7. | 91. | | 23. | 31. | 34. | 74791. | 52648. | 0. |
| SUBREACH 35: DEAD OX - RM 10.0 ;SALINE GROUND WATER INFLOWS | | | | | | | | | | | | | | |
| 10.00 | 34.81 | 6.34 | 0.35 | 0.02 | 0.01 | 0.02 | 0.40 | 0.002 | 0.09 | 0.11 | 0.13 | 456.48 | 323.56 | 0.97 |
| ENDING LOADS (LB/DAY): | | | 66. | 3. | 2. | 4. | 76. | | 16. | 21. | 24. | 85713. | 60754. | 0. |
| SUBREACH 36: RM 10.0 - RM 9.2 ;SALINE GROUND WATER INFLOWS | | | | | | | | | | | | | | |
| 9.20 | 35.01 | 6.59 | 0.34 | 0.01 | 0.01 | 0.02 | 0.39 | 0.002 | 0.08 | 0.10 | 0.12 | 466.72 | 331.25 | 1.01 |
| ENDING LOADS (LB/DAY): | | | 64. | 3. | 2. | 4. | 73. | | 15. | 19. | 22. | 88140. | 62556. | 0. |
| SUBREACH 37: RM9.2 - NUMANA DAM ;SALINE GROUND WATER INFLOWS | | | | | | | | | | | | | | |
| 8.21 | 35.21 | 6.91 | 0.32 | 0.01 | 0.01 | 0.02 | 0.37 | 0.002 | 0.07 | 0.09 | 0.10 | 476.85 | 338.85 | 1.07 |
| ENDING LOADS (LB/DAY): | | | 61. | 3. | 2. | 4. | 69. | | 13. | 17. | 19. | 90567. | 64357. | 0. |
| SUBREACH 38: NUMANA DAM - RM 7.6 ;NO RETURNS | | | | | | | | | | | | | | |
| 7.60 | 22.41 | 7.03 | 0.31 | 0.01 | 0.01 | 0.03 | 0.36 | 0.002 | 0.07 | 0.09 | 0.10 | 479.56 | 341.00 | 1.27 |
| ENDING LOADS (LB/DAY): | | | 38. | 2. | 1. | 3. | 44. | | 8. | 11. | 12. | 57972. | 41223. | 0. |
| SUBREACH 39: RM 7.6 - RM 6.8 ;NUMANA RETURNS | | | | | | | | | | | | | | |
| 6.80 | 22.61 | 7.19 | 0.30 | 0.01 | 0.01 | 0.03 | 0.35 | 0.002 | 0.06 | 0.08 | 0.09 | 482.21 | 343.12 | 1.41 |
| ENDING LOADS (LB/DAY): | | | 37. | 2. | 1. | 3. | 43. | | 8. | 10. | 11. | 58814. | 41848. | 0. |
| SUBREACH 40: RM 6.8 - RM 4.0 ;NUMANA RETURNS | | | | | | | | | | | | | | |
| 4.00 | 28.41 | 7.69 | 0.45 | 0.02 | 0.02 | 0.06 | 0.56 | 0.003 | 0.12 | 0.14 | 0.16 | 506.29 | 360.81 | 1.75 |
| ENDING LOADS (LB/DAY): | | | 68. | 3. | 3. | 10. | 85. | | 19. | 21. | 25. | 77588. | 55294. | 0. |

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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM — TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

TABLE 9.--RESULTS OF COMPUTATIONS FOR NITROGEN SPECIES AND OTHER CONSTITUENTS.

| | | | NITROGEN CYCLE | | | | | UN-ION-IZED | | NONCONSERVATIVES | | CONSERVATIVES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RIVER MILE | DISCHARGE (CFS) | DAYS TRAVEL | ORG-N (MG/L) | NH4-N (MG/L) | NO2-N (MG/L) | NO3-N (MG/L) | TOT-N (MG/L) | NH3-N (MG/L) | O-P-A (MG/L) | ORTH P-B (MG/L) | TOTAL P (MG/L) | SP COND (UMHOS ) | DS (MG/L) | I-N/O-P (M/M) |
| SUBREACH 41: RM 4.0 - NIXON BRIDGE ;NUMANA RETURNS | | | | | | | | | | | | | | |
| 3.22 | 30.01 | 7.82 | 0.47 | 0.02 | 0.02 | 0.07 | 0.59 | 0.003 | 0.14 | 0.15 | 0.17 | 511.34 | 364.53 | 1.74 |
| ENDING LOADS (LB/DAY): | | | 77. | 4. | 4. | 11. | 96. | | 22. | 24. | 28. | 82775. | 59010. | 0. |
| SUBREACH 42: NIXON BRIDGE - RM 1.0 ;NUMANA RETURNS | | | | | | | | | | | | | | |
| 1.00 | 30.71 | 8.88 | 0.40 | 0.02 | 0.01 | 0.03 | 0.46 | 0.003 | 0.09 | 0.10 | 0.12 | 517.46 | 369.44 | 1.42 |
| ENDING LOADS (LB/DAY): | | | 66. | 3. | 2. | 5. | 77. | | 15. | 17. | 19. | 85720. | 61200. | 0. |
| SUBREACH 43: RM 1.0 - MARBLE BLUFF D ;NUMANA RETURNS, BACKWATER ABOVE DAM | | | | | | | | | | | | | | |
| 0.00 | 31.01 | 9.35 | 0.37 | 0.02 | 0.01 | 0.03 | 0.43 | 0.004 | 0.08 | 0.09 | 0.10 | 535.77 | 383.18 | 1.51 |
| ENDING LOADS (LB/DAY): | | | 62. | 3. | 2. | 5. | 72. | | 13. | 15. | 17. | 89619. | 64096. | 0. |

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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

REVISED TABLE 4A.--SUMMARY OF INPUTS TO SUBREACHES: CONCENTRATIONS.

| SUBREACH | | DIS-CHARGE | DO | % SAT | DO DEF | CBODU | ORG-N | NH4-N | NO2-N | NO3-N | TOT-N | O-P-A | SP COND | DS | ORTH P-B | TOTAL P | DIVERTED SUBR NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UPSTREAM: | | 160.0 | 7.6 | 99. | 0.0 | 2.40 | 0.33 | 0.03 | 0.01 | 0.04 | 0.41 | 0.08 | 127.00 | 86.00 | 0.08 | 0.04 | |
| 2 | MT | 50.0 | 7.0 | 91. | 0.7 | 3.89 | 0.68 | 0.02 | 0.01 | 0.41 | 1.12 | 0.11 | 359.00 | 250.00 | 0.11 | 0.10 | |
| 3 | MT | 70.0 | 5.7 | 79. | 1.5 | 18.79 | 1.70 | 6.02 | 0.12 | 0.09 | 7.93 | 1.73 | 377.57 | 235.57 | 1.73 | 2.13 | |
| 3 | GW | 0.0 | 0.0 | 0. | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3400.00 | 3400.00 | |
| 5 | PS | -27.0 | | | | | | | | | | | | | | | |
| 6 | SR | 3.0 | 4.7 | 819. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 277.28 | 183.21 | 0.50 | 0.60 | 5 |
| 7 | SR | 0.7 | 4.7 | 819. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 277.28 | 183.21 | 0.50 | 0.60 | 5 |
| 7 | GW | 0.0 | 0.0 | 0. | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10000.00 | 10000.00 | |
| 8 | PS | -4.0 | | | | | | | | | | | | | | | |
| 8 | SR | 10.1 | 4.7 | 819. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 277.28 | 183.21 | 0.50 | 0.60 | 5 |
| 8 | GW | 0.0 | 0.0 | 0. | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10000.00 | 10000.00 | |
| 9 | SR | 7.1 | 4.7 | 819. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 277.28 | 183.21 | 0.50 | 0.60 | 5 |
| 9 | GW | 0.0 | 0.0 | 0. | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10000.00 | 10000.00 | |
| 10 | GW | 0.0 | 0.0 | 0. | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10000.00 | 10000.00 | |
| 11 | PS | -13.0 | | | | | | | | | | | | | | | |
| 11 | SR | 1.3 | 4.2 | 742. | 8.2 | 10.00 | 1.00 | 0.10 | 0.10 | 0.30 | 1.50 | 0.50 | 281.55 | 186.03 | 0.50 | 0.60 | 0 |
| 11 | GW | 0.0 | 0.0 | 0. | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10000.00 | 10000.00 | |
| 12 | SR | 7.8 | 4.6 | 822. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 281.83 | 186.22 | 0.50 | 0.60 | 11 |
| 14 | PS | -6.0 | | | | | | | | | | | | | | | |
| 14 | SR | 0.5 | 4.5 | 804. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 283.48 | 187.31 | 0.50 | 0.60 | 0 |
| 15 | PS | -4.0 | | | | | | | | | | | | | | | |
| 15 | SR | 0.3 | 4.5 | 797. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 283.59 | 187.38 | 0.50 | 0.60 | 14 |
| 16 | SR | 3.2 | 4.5 | 797. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 283.59 | 187.38 | 0.50 | 0.60 | 14 |
| 20 | PS | -220.0 | | | | | | | | | | | | | | | |
| 20 | SR | 0.4 | 4.7 | 849. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 284.35 | 187.88 | 0.50 | 0.60 | 0 |
| 21 | SR | 3.6 | 4.9 | 894. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 284.92 | 188.26 | 0.50 | 0.60 | 0 |
| 22 | PS | -2.0 | | | | | | | | | | | | | | | |
| 22 | SR | 1.6 | 5.0 | 916. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 289.58 | 191.33 | 0.50 | 0.60 | 0 |

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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

REVISED TABLE 4A.--SUMMARY OF INPUTS TO SUBREACHES: CONCENTRATIONS.

| SUBREACH | | DIS-CHARGE | DO | % SAT | DO DEF | CBODU | ORG-N | NH4-N | NO2-N | NO3-N | TOT-N | O-P-A | SP COND | DS | ORTH P-B | TOTAL P | DIVERTED SUBR NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | SR | 0.7 | 5.1 | 922. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 291.70 | 192.74 | 0.50 | 0.60 | 0 |
| 24 | PS | -8.0 | | | | | | | | | | | | | | | |
| 24 | SR | 1.9 | 5.1 | 917. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 292.62 | 193.35 | 0.50 | 0.60 | 0 |
| 25 | SR | 1.8 | 5.2 | 926. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 295.53 | 195.27 | 0.50 | 0.60 | 0 |
| 26 | PS | -14.0 | | | | | | | | | | | | | | | |
| 26 | SR | 1.0 | 5.2 | 929. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 298.19 | 197.03 | 0.50 | 0.60 | 0 |
| 27 | SR | 3.5 | 5.2 | 933. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 300.40 | 198.48 | 0.50 | 0.60 | 0 |
| 28 | SR | 0.5 | 5.2 | 931. | 8.2 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 307.29 | 203.04 | 0.50 | 0.60 | 0 |
| 29 | GW | 4.8 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 1.80 | 1.80 | 0.10 | 730.00 | 540.00 | 0.10 | 0.10 | |
| 30 | PS | -6.0 | | | | | | | | | | | | | | | |
| 30 | GW | 4.9 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 1.80 | 1.80 | 0.10 | 730.00 | 540.00 | 0.10 | 0.10 | |
| 31 | SR | 1.1 | 5.4 | 975. | 8.2 | 25.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 453.76 | 317.55 | 0.50 | 0.60 | 30 |
| 31 | GW | 0.2 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.50 | 0.10 | 1080.00 | 800.00 | 0.10 | 0.10 | |
| 32 | PS | -4.0 | | | | | | | | | | | | | | | |
| 32 | SR | 0.3 | 5.4 | 978. | 8.2 | 25.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 461.21 | 323.06 | 0.50 | 0.60 | 0 |
| 32 | GW | 0.4 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.50 | 0.10 | 1080.00 | 800.00 | 0.10 | 0.10 | |
| 33 | SR | 0.5 | 5.4 | 985. | 8.2 | 25.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 472.26 | 331.44 | 0.50 | 0.60 | 32 |
| 33 | GW | 0.3 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.50 | 0.10 | 1080.00 | 800.00 | 0.10 | 0.10 | |
| 34 | GW | 0.4 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.50 | 0.10 | 1080.00 | 800.00 | 0.10 | 0.10 | |
| 35 | GW | 0.9 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 | 0.10 | 2250.00 | 1670.00 | 0.10 | 0.10 | |
| 36 | GW | 0.2 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 | 0.10 | 2250.00 | 1670.00 | 0.10 | 0.10 | |
| 37 | GW | 0.2 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 | 0.10 | 2250.00 | 1670.00 | 0.10 | 0.10 | |
| 38 | PS | -13.0 | | | | | | | | | | | | | | | |
| 38 | GW | 0.2 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.10 | 780.00 | 580.00 | 0.10 | 0.10 | |
| 39 | GW | 0.2 | 0.5 | 6. | 7.9 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.10 | 780.00 | 580.00 | 0.10 | 0.10 | |
| 40 | SR | 5.1 | 5.5 | 1024. | 8.3 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 575.47 | 409.20 | 0.50 | 0.60 | 38 |
| 40 | GW | 0.7 | 0.5 | 6. | 7.9 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.10 | 780.00 | 580.00 | 0.10 | 0.10 | |
| 41 | SR | 1.4 | 5.5 | 1024. | 8.3 | 10.00 | 1.30 | 0.10 | 0.10 | 0.30 | 1.80 | 0.50 | 575.47 | 409.20 | 0.50 | 0.60 | 38 |
| 41 | GW | 0.2 | 0.5 | 6. | 7.9 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.10 | 780.00 | 580.00 | 0.10 | 0.10 | |
| 42 | GW | 0.7 | 0.5 | 6. | 7.9 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.10 | 780.00 | 580.00 | 0.10 | 0.10 | |
| 43 | GW | 0.3 | 0.5 | 6. | 7.8 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.10 | 2410.00 | 1790.00 | 0.10 | 0.10 | |

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

REVISED TABLE 4B.--SUMMARY OF INPUTS SUBREACHES: LOADS.

| SUBREACH | DO | DO DEF | CBOD | ORG-N | NH4-N | NO2-N | NO3-N | TOT-N | O-P-A | SP COND | DS | ORTH P-B | TOTAL P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UPSTREAM: | 6559. | 0. | 2071. | 285. | 26. | 9. | 35. | 354. | 69. | 109602. | 74219. | 69. | 35. |
| 2 M TRIB: | 1890. | 197. | 1050. | 183. | 6. | 3. | 110. | 302. | 30. | 96819. | 67422. | 30. | 27. |
| 3 M TRIB: | 2143. | 575. | 7095. | 640. | 2274. | 45. | 33. | 2993. | 654. | 142558. | 88944. | 654. | 805. |
| 3 GW RET: | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 183. | 183. |
| 6 S RET: | 76. | 132. | 162. | 21. | 2. | 2. | 5. | 29. | 8. | 4487. | 2965. | 8. | 10. |
| 7 S RET: | 18. | 31. | 38. | 5. | 0. | 0. | 1. | 7. | 2. | 1047. | 692. | 2. | 2. |
| 7 GW RET: | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 16. | 16. |
| 8 S RET: | 254. | 445. | 545. | 71. | 5. | 5. | 16. | 98. | 27. | 15105. | 9981. | 27. | 33. |
| 8 GW RET: | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 173. | 173. |
| 9 S RET: | 179. | 313. | 383. | 50. | 4. | 4. | 11. | 69. | 19. | 10619. | 7016. | 19. | 23. |
| 9 GW RET: | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 167. | 167. |
| 10 GW RET: | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 32. | 32. |
| 11 S RET: | 29. | 57. | 70. | 7. | 1. | 1. | 2. | 11. | 4. | 1974. | 1304. | 4. | 4. |
| 11 GW RET: | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 151. | 151. |
| 12 S RET: | 195. | 344. | 421. | 55. | 4. | 4. | 13. | 76. | 21. | 11857. | 7834. | 21. | 25. |
| 14 S RET: | 12. | 22. | 27. | 4. | 0. | 0. | 1. | 5. | 1. | 765. | 505. | 1. | 2. |
| 15 S RET: | 7. | 13. | 16. | 2. | 0. | 0. | 0. | 3. | 1. | 459. | 303. | 1. | 1. |
| 16 S RET: | 77. | 141. | 173. | 22. | 2. | 2. | 5. | 31. | 9. | 4895. | 3234. | 9. | 10. |
| 20 S RET: | 10. | 18. | 22. | 3. | 0. | 0. | 1. | 4. | 1. | 613. | 405. | 1. | 1. |
| 21 S RET: | 95. | 159. | 194. | 25. | 2. | 2. | 6. | 35. | 10. | 5532. | 3655. | 10. | 12. |

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TRUCKEE RIVER, MCCARRAN BRIDGE TO MARBLE BLUFF DAM TUE, SEP 29 1987
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

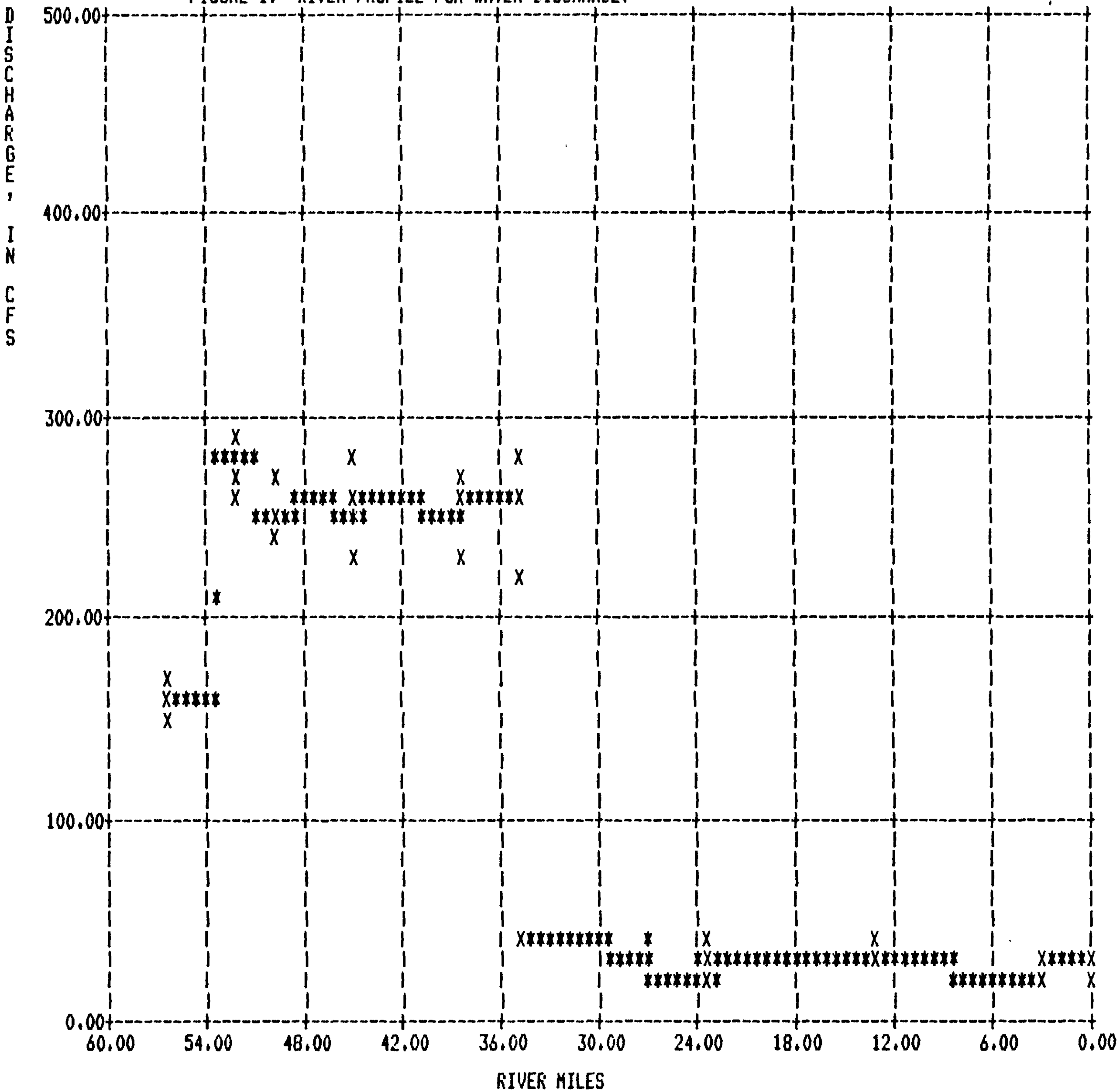
REVISED TABLE 4B.--SUMMARY OF INPUTS SUBREACHES: LOADS.

| SUBREACH | DO | DO DEF | CBOD | ORG-N | NH4-N | NO2-N | NO3-N | TOT-N | O-P-A | SP COND | DS | ORTH P-B | TOTAL P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22 S RET: | 43. | 71. | 86. | 11. | 1. | 1. | 3. | 16. | 4. | 2499. | 1651. | 4. | 5. |
| 23 S RET: | 19. | 31. | 38. | 5. | 0. | 0. | 1. | 7. | 2. | 1101. | 728. | 2. | 2. |
| 24 S RET: | 52. | 84. | 102. | 13. | 1. | 1. | 3. | 18. | 5. | 2999. | 1981. | 5. | 6. |
| 25 S RET: | 50. | 80. | 97. | 13. | 1. | 1. | 3. | 17. | 5. | 2869. | 1896. | 5. | 6. |
| 26 S RET: | 28. | 44. | 54. | 7. | 1. | 1. | 2. | 10. | 3. | 1608. | 1063. | 3. | 3. |
| 27 S RET: | 98. | 155. | 189. | 25. | 2. | 2. | 6. | 34. | 9. | 5671. | 3747. | 9. | 11. |
| 28 S RET: | 14. | 22. | 27. | 4. | 0. | 0. | 1. | 5. | 1. | 829. | 548. | 1. | 2. |
| 29 GW RET: | 13. | 203. | 26. | 0. | 0. | 0. | 47. | 47. | 3. | 18900. | 13981. | 3. | 3. |
| 30 GW RET: | 13. | 207. | 26. | 0. | 0. | 0. | 48. | 48. | 3. | 19294. | 14272. | 3. | 3. |
| 31 S RET: | 32. | 49. | 148. | 8. | 1. | 1. | 2. | 11. | 3. | 2692. | 1884. | 3. | 4. |
| 31 GW RET: | 1. | 8. | 1. | 0. | 0. | 0. | 1. | 1. | 0. | 1165. | 863. | 0. | 0. |
| 32 S RET: | 9. | 13. | 40. | 2. | 0. | 0. | 0. | 3. | 1. | 746. | 523. | 1. | 1. |
| 32 GW RET: | 1. | 17. | 2. | 0. | 0. | 0. | 1. | 1. | 0. | 2330. | 1726. | 0. | 0. |
| 33 S RET: | 14. | 22. | 67. | 4. | 0. | 0. | 1. | 5. | 1. | 1274. | 894. | 1. | 2. |
| 33 GW RET: | 1. | 13. | 2. | 0. | 0. | 0. | 1. | 1. | 0. | 1748. | 1295. | 0. | 0. |
| 34 GW RET: | 1. | 17. | 2. | 0. | 0. | 0. | 1. | 1. | 0. | 2330. | 1726. | 0. | 0. |
| 35 GW RET: | 2. | 38. | 5. | 0. | 0. | 0. | 0. | 0. | 0. | 10922. | 8107. | 0. | 0. |
| 36 GW RET: | 1. | 8. | 1. | 0. | 0. | 0. | 0. | 0. | 0. | 2427. | 1802. | 0. | 0. |
| 37 GW RET: | 1. | 8. | 1. | 0. | 0. | 0. | 0. | 0. | 0. | 2427. | 1802. | 0. | 0. |
| 38 GW RET: | 1. | 8. | 1. | 0. | 0. | 0. | 1. | 1. | 0. | 841. | 626. | 0. | 0. |
| 39 GW RET: | 1. | 9. | 1. | 0. | 0. | 0. | 1. | 1. | 0. | 841. | 626. | 0. | 0. |
| 40 S RET: | 152. | 228. | 275. | 36. | 3. | 3. | 8. | 50. | 14. | 15830. | 11257. | 14. | 17. |
| 40 GW RET: | 2. | 30. | 4. | 0. | 0. | 0. | 4. | 4. | 0. | 2945. | 2190. | 0. | 0. |
| 41 S RET: | 42. | 63. | 76. | 10. | 1. | 1. | 2. | 14. | 4. | 4346. | 3090. | 4. | 5. |
| 41 GW RET: | 1. | 9. | 1. | 0. | 0. | 0. | 1. | 1. | 0. | 841. | 626. | 0. | 0. |
| 42 GW RET: | 2. | 30. | 4. | 0. | 0. | 0. | 4. | 4. | 0. | 2945. | 2190. | 0. | 0. |
| 43 GW RET: | 1. | 13. | 2. | 0. | 0. | 0. | 2. | 2. | 0. | 3900. | 2896. | 0. | 0. |

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (RB79.PUB MEAN DO)

FIGURE 1.--RIVER PROFILE FOR WATER DISCHARGE.

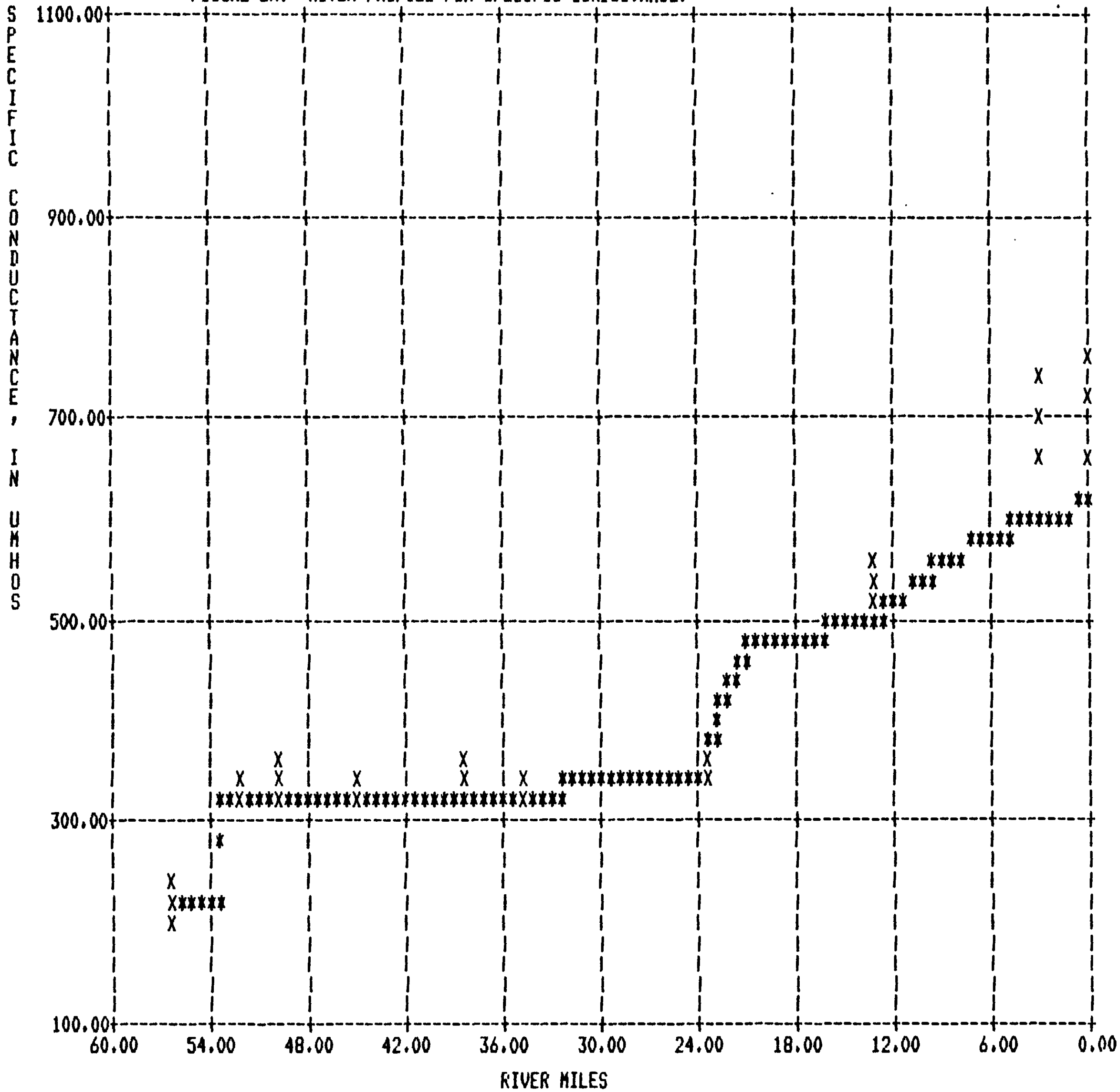



EXPLANATION: * = CALCULATED VALUES, X = OBSERVED.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

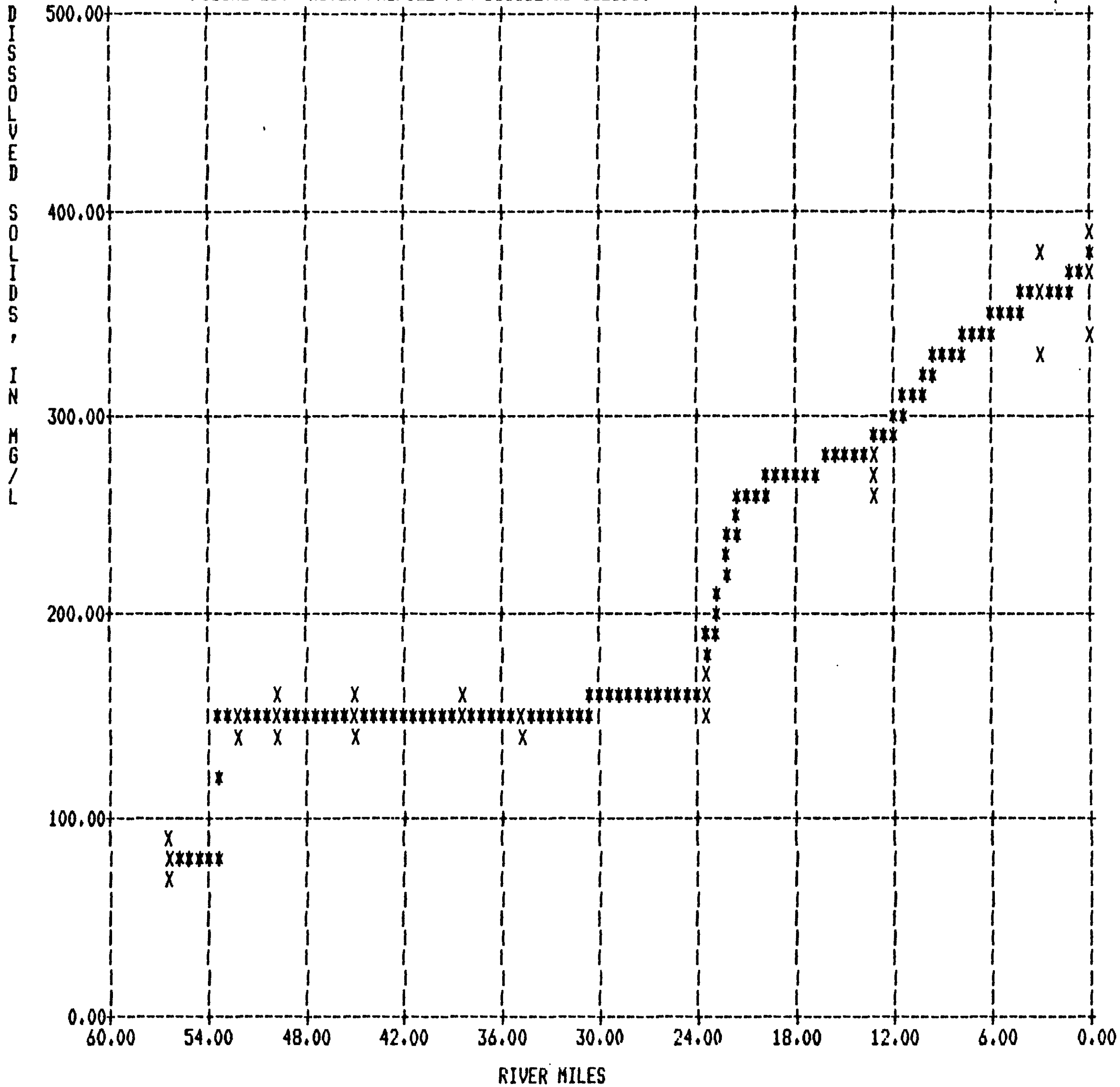
FIGURE 2A.--RIVER PROFILE FOR SPECIFIC CONDUCTANCE.




EXPLANATION: * = CALCULATED VALUES, X = OBSERVED.

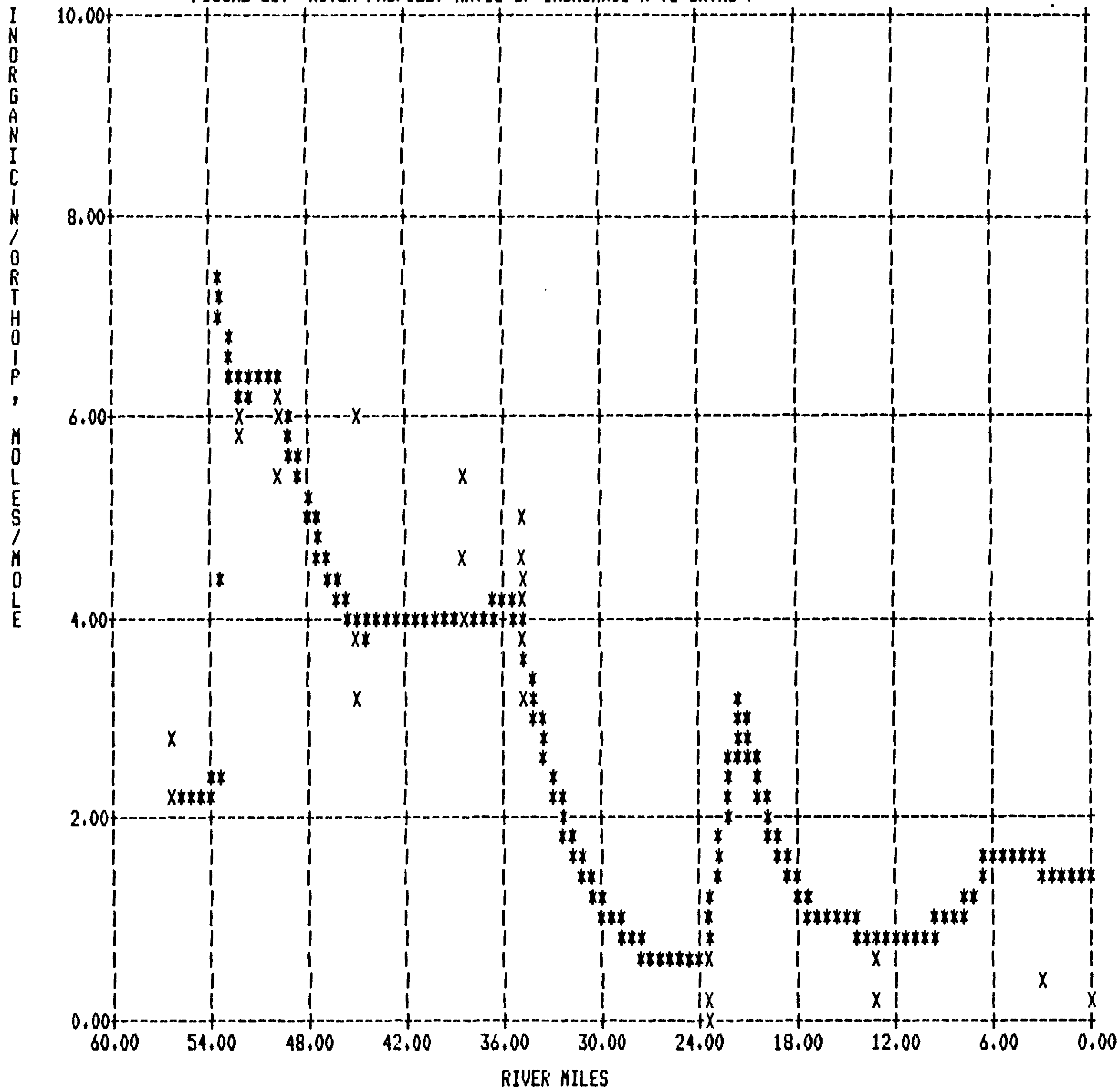
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

FIGURE 2B.--RIVER PROFILE FOR DISSOLVED SOLIDS.




EXPLANATION: * = CALCULATED VALUES, X = OBSERVED.

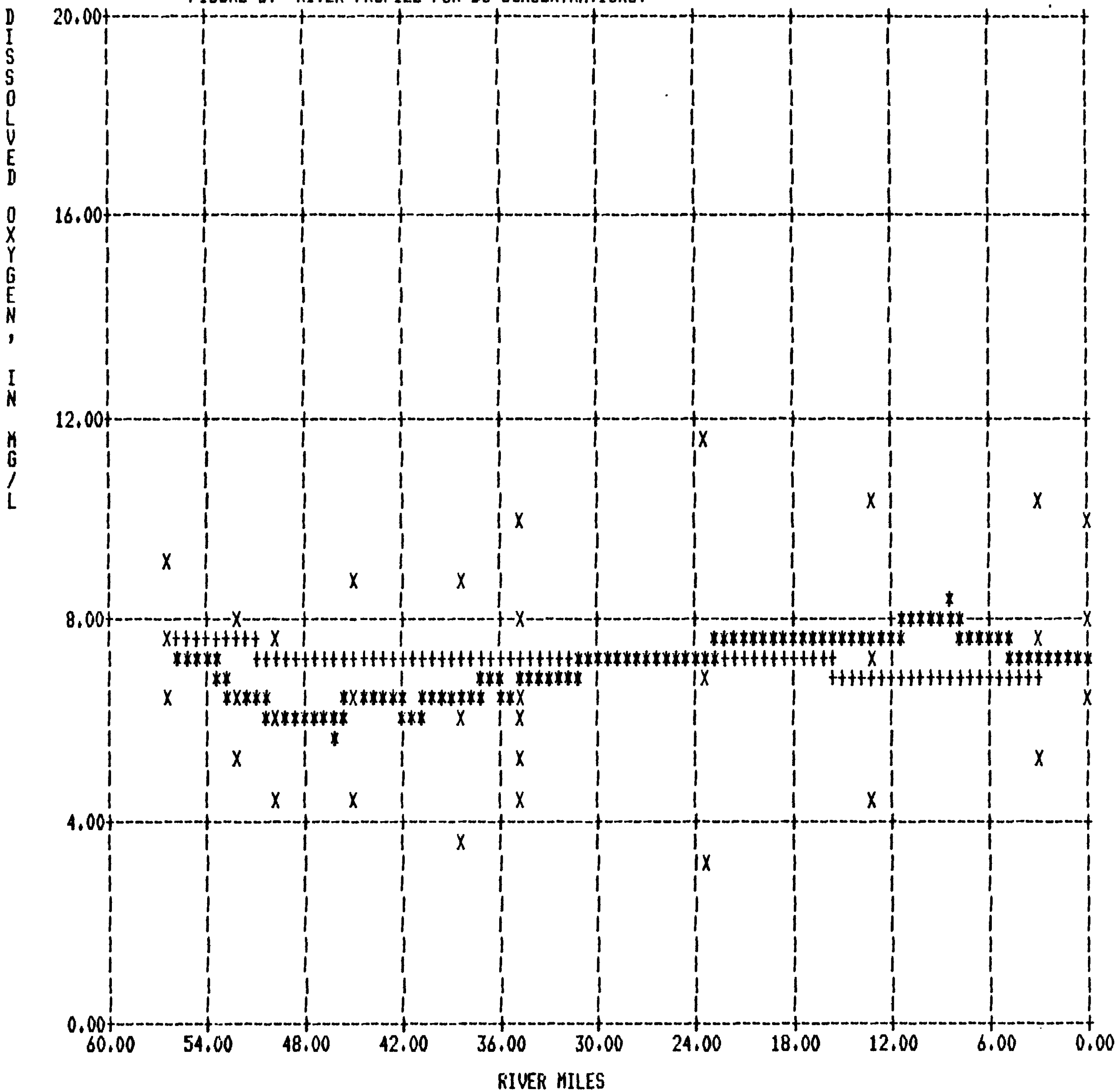
MAINSTEM TRUCKEE RIVER (RB79.PUB MEAN DO)
FIGURE 2C.--RIVER PROFILE, RATIO OF INORGANIC-N TO ORTHO-P




EXPLANATION: * = CALCULATED VALUES, X = OBSERVED.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)
FIGURE 3.--RIVER PROFILE FOR DO CONCENTRATIONS.




EXPLANATION: + = 100% DO SATURATION, * = CALCULATED DO SATURATION, X = OBSERVED.

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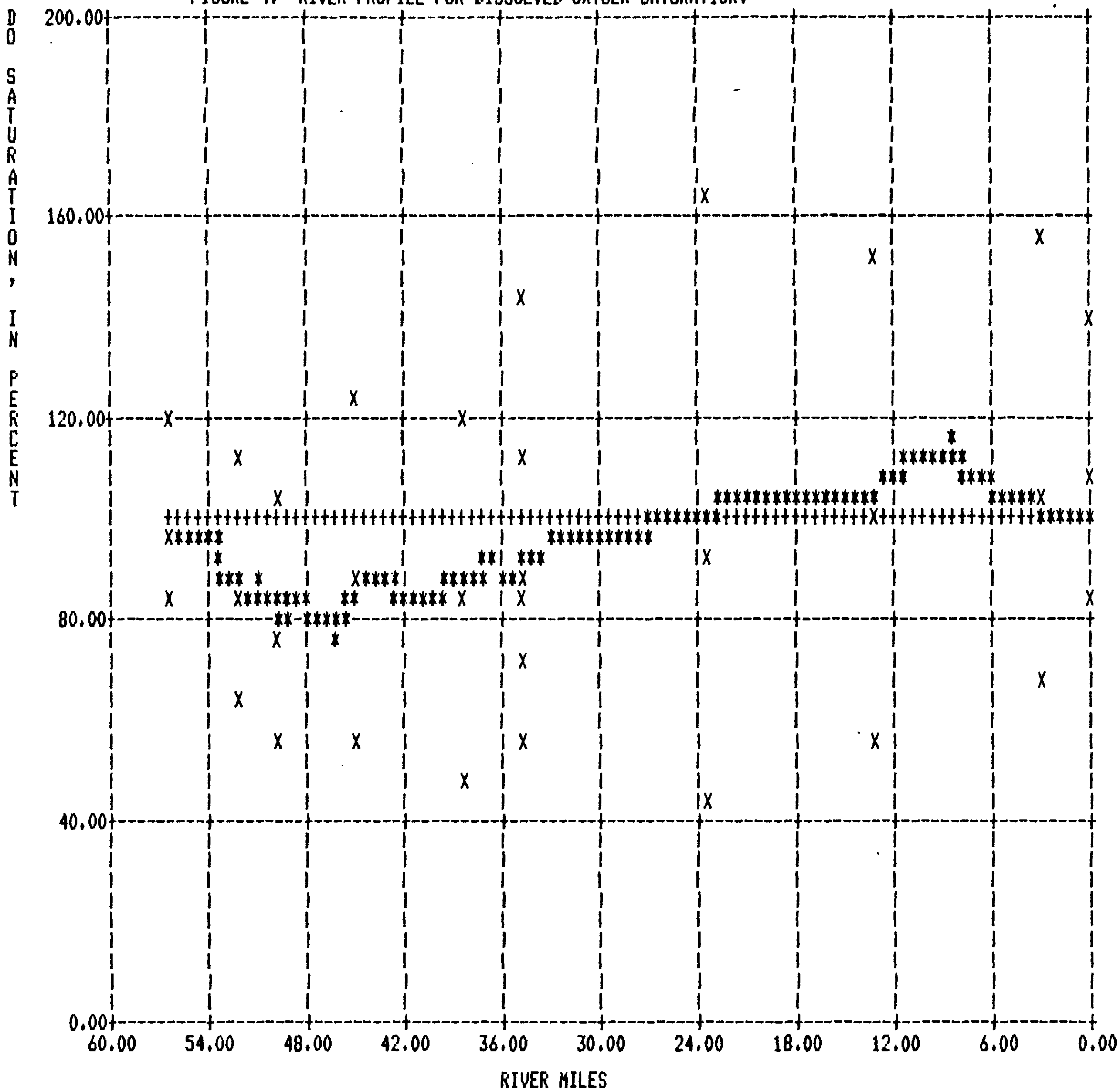
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

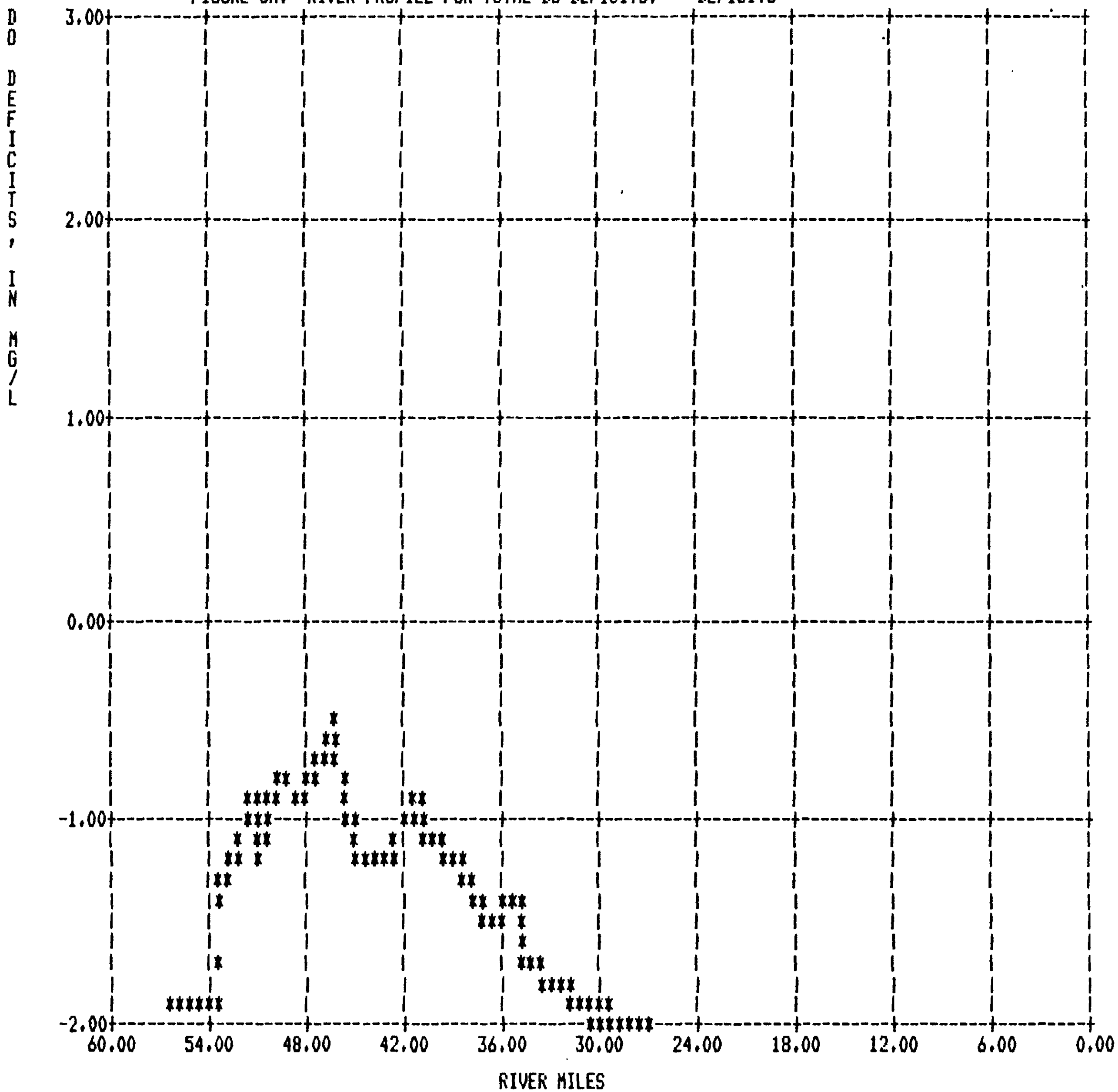
FIGURE 4.--RIVER PROFILE FOR DISSOLVED-OXYGEN SATURATION.




EXPLANATION: + = 100% DO SATURATION, * = CALCULATED DO SATURATION, X = OBSERVED.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)
FIGURE 5A.--RIVER PROFILE FOR TOTAL DO DEFICITS. DEFICITS

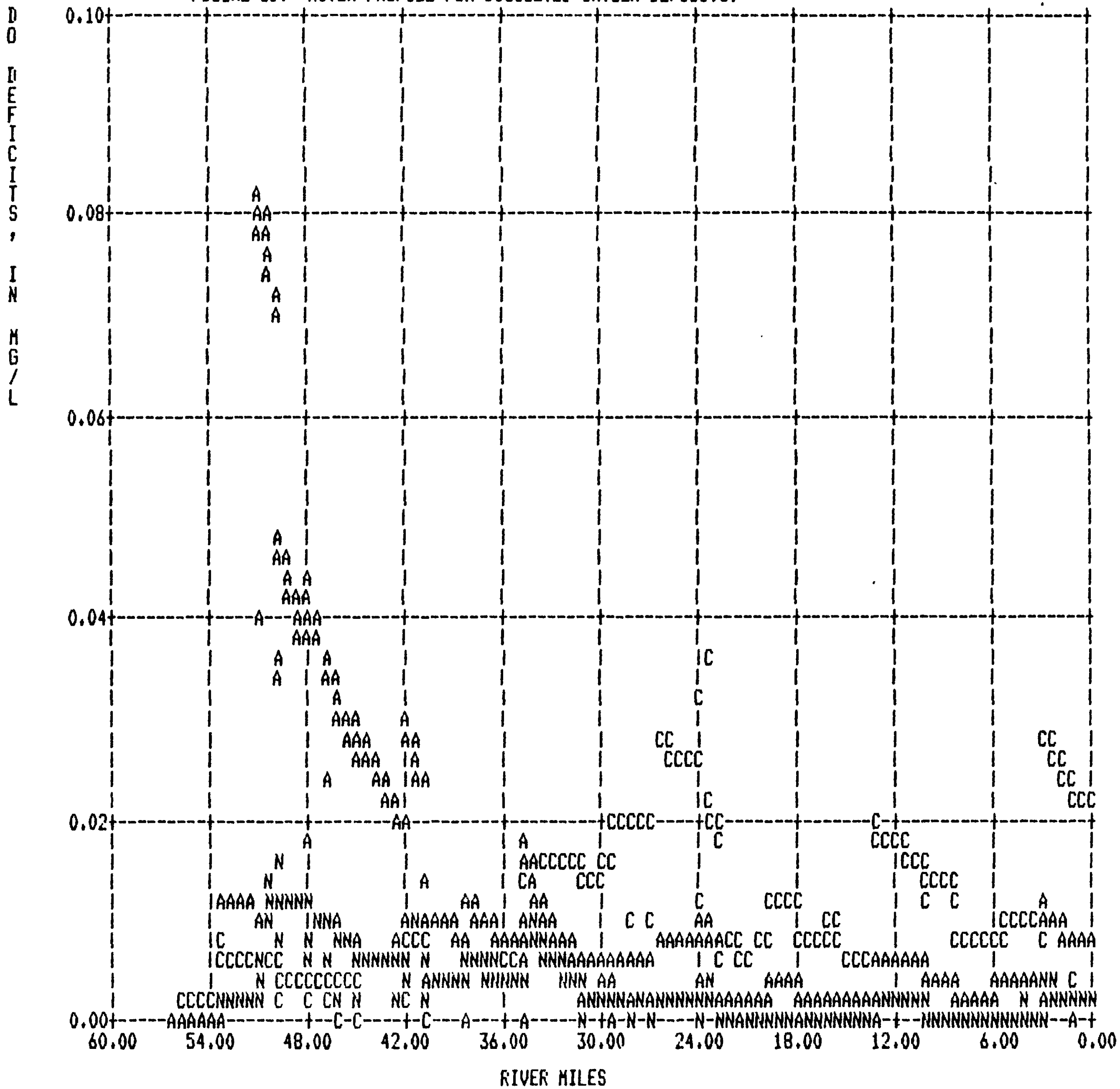



EXPLANATION: * = CALCULATED VALUES.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

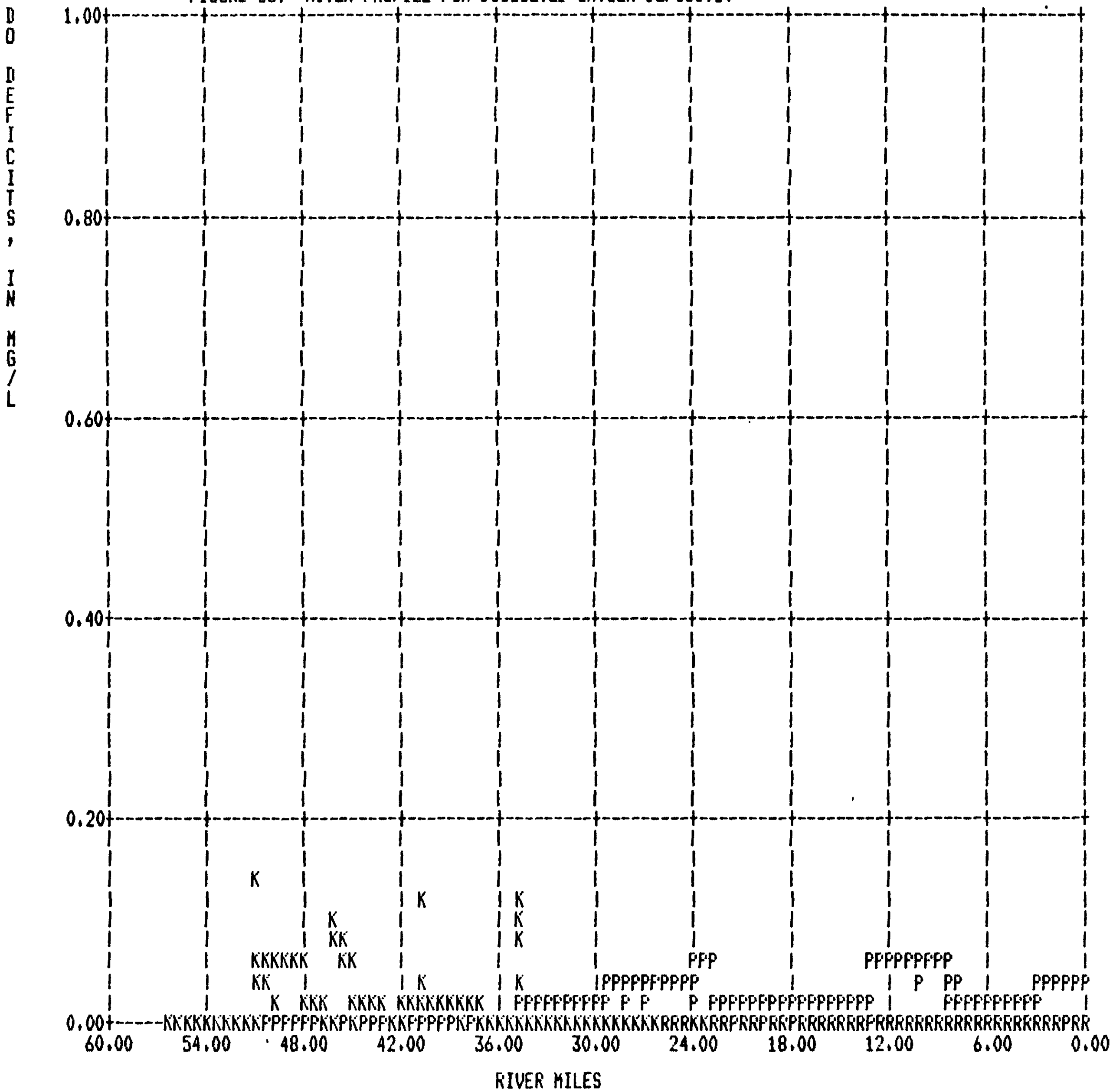
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

FIGURE 5B.--RIVER PROFILE FOR DISSOLVED-OXYGEN DEFICITS.



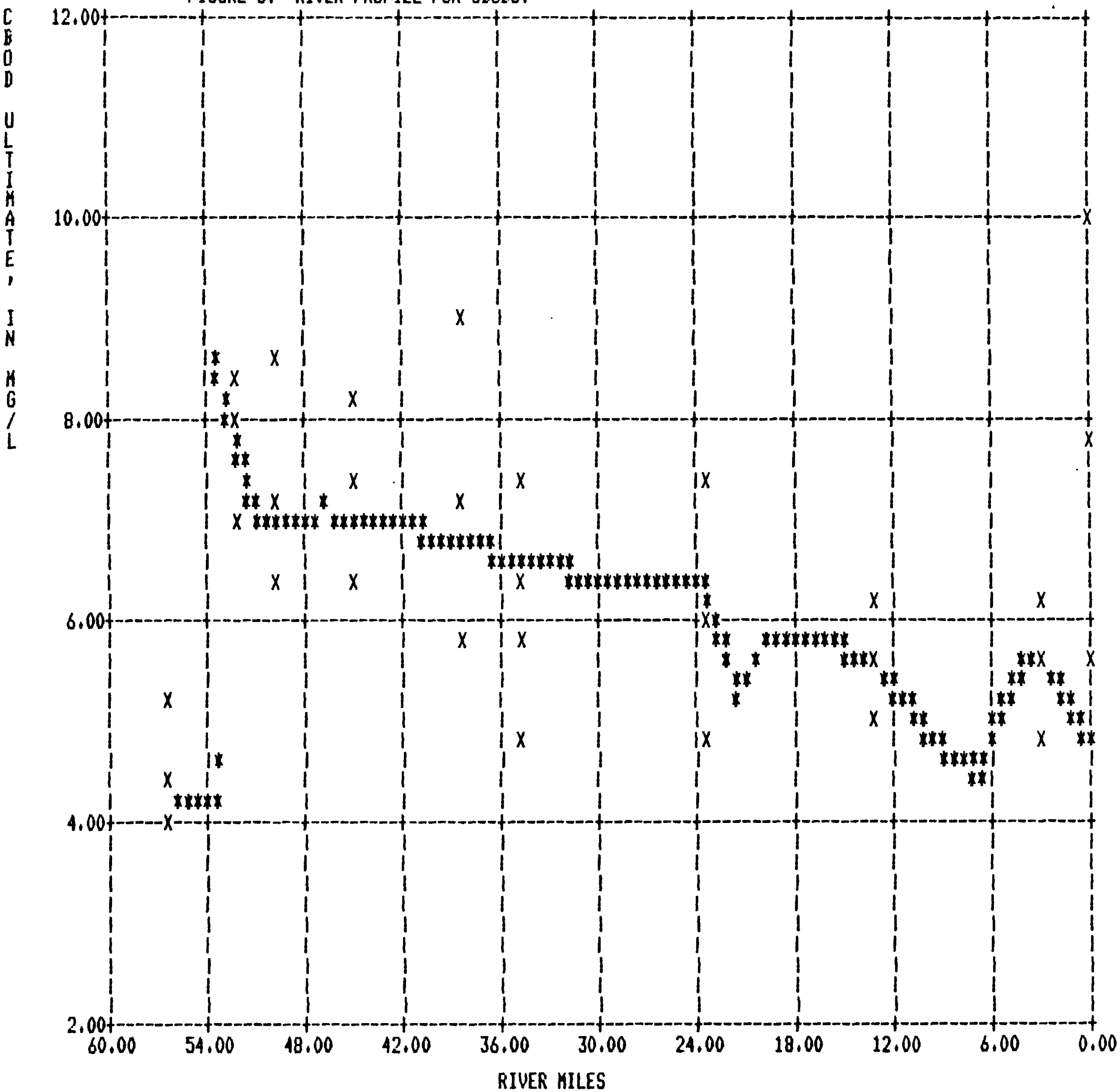

EXPLANATION: C= DO DEFICIT DUE TO CBOD, A = DEFICIT DUE TO NH4 OXIDATION, N = DEFICIT DUE TO NO2 OXIDATION
D= TOTAL DEFICIT

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)
FIGURE 5C.--RIVER PROFILE FOR DISSOLVED-OXYGEN DEFICITS.




EXPLANATION: B = DO DEFICIT DUE TO BENTHIC DEPOSITS, R = DEFICIT DUE TO RESPIRATION,
P = DEFICIT DUE TO PHOTOSYNTHESIS, K= DEFICIT DUE TO REAERATION
D= TOTAL DEFICIT

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)
FIGURE 6.--RIVER PROFILE FOR CBODU.

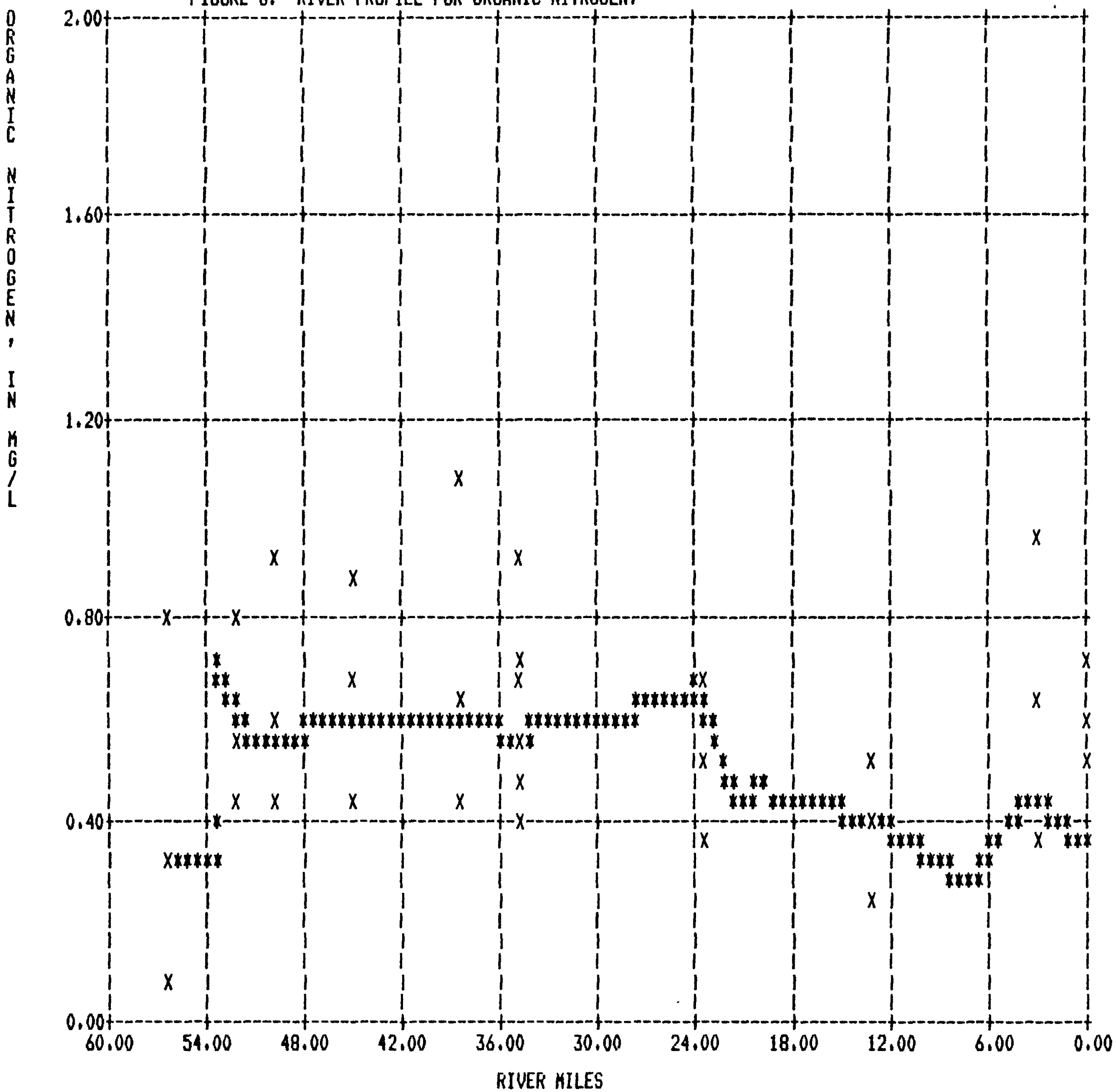



EXPLANATION: * = CALCULATED VALUES, X = OBSERVED.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

FIGURE 8.--RIVER PROFILE FOR ORGANIC NITROGEN.

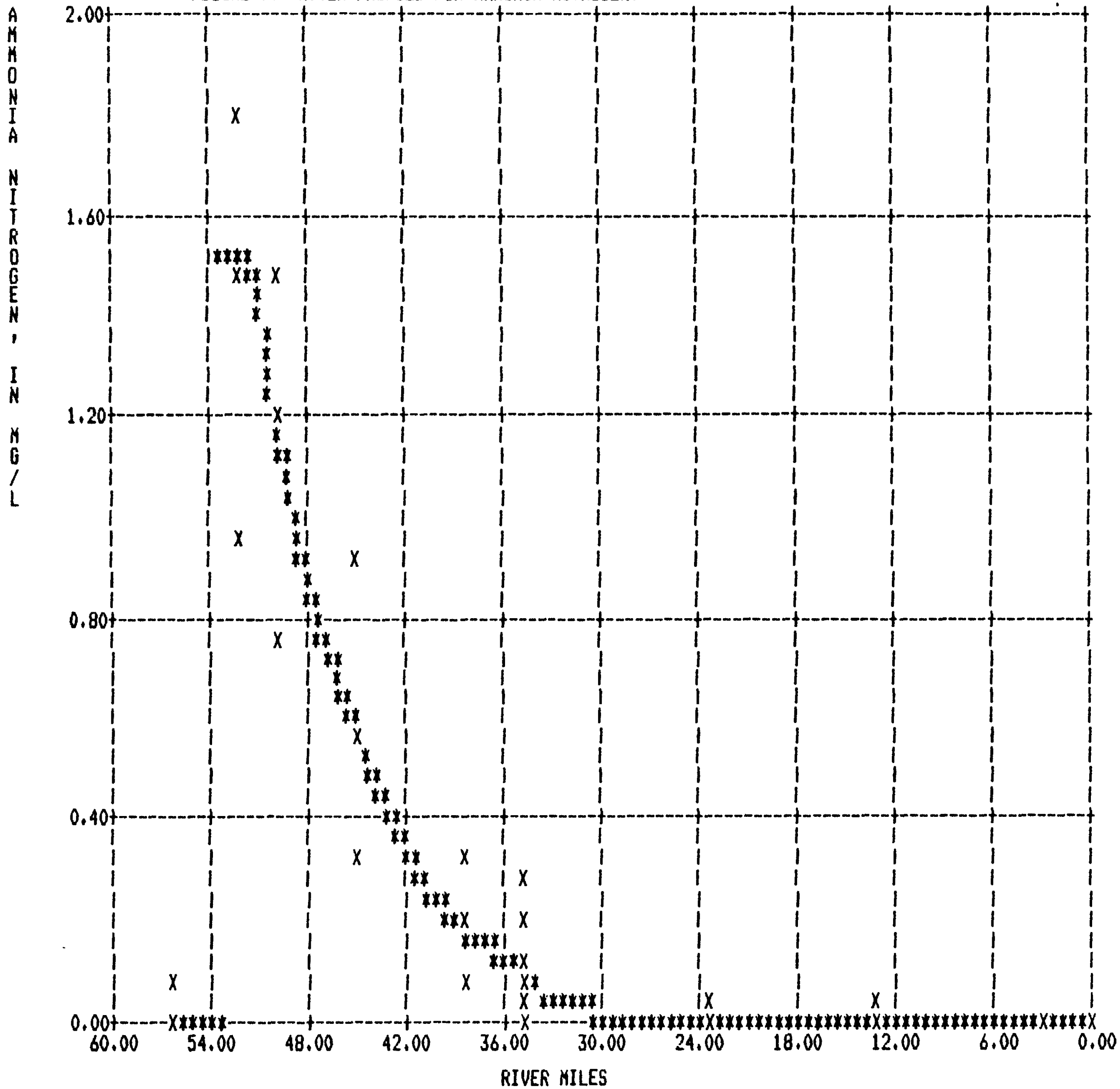



EXPLANATION: * = CALCULATED VALUES, X = OBSERVED.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

FIGURE 9.--RIVER PROFILE FOR AMMONIA NITROGEN.

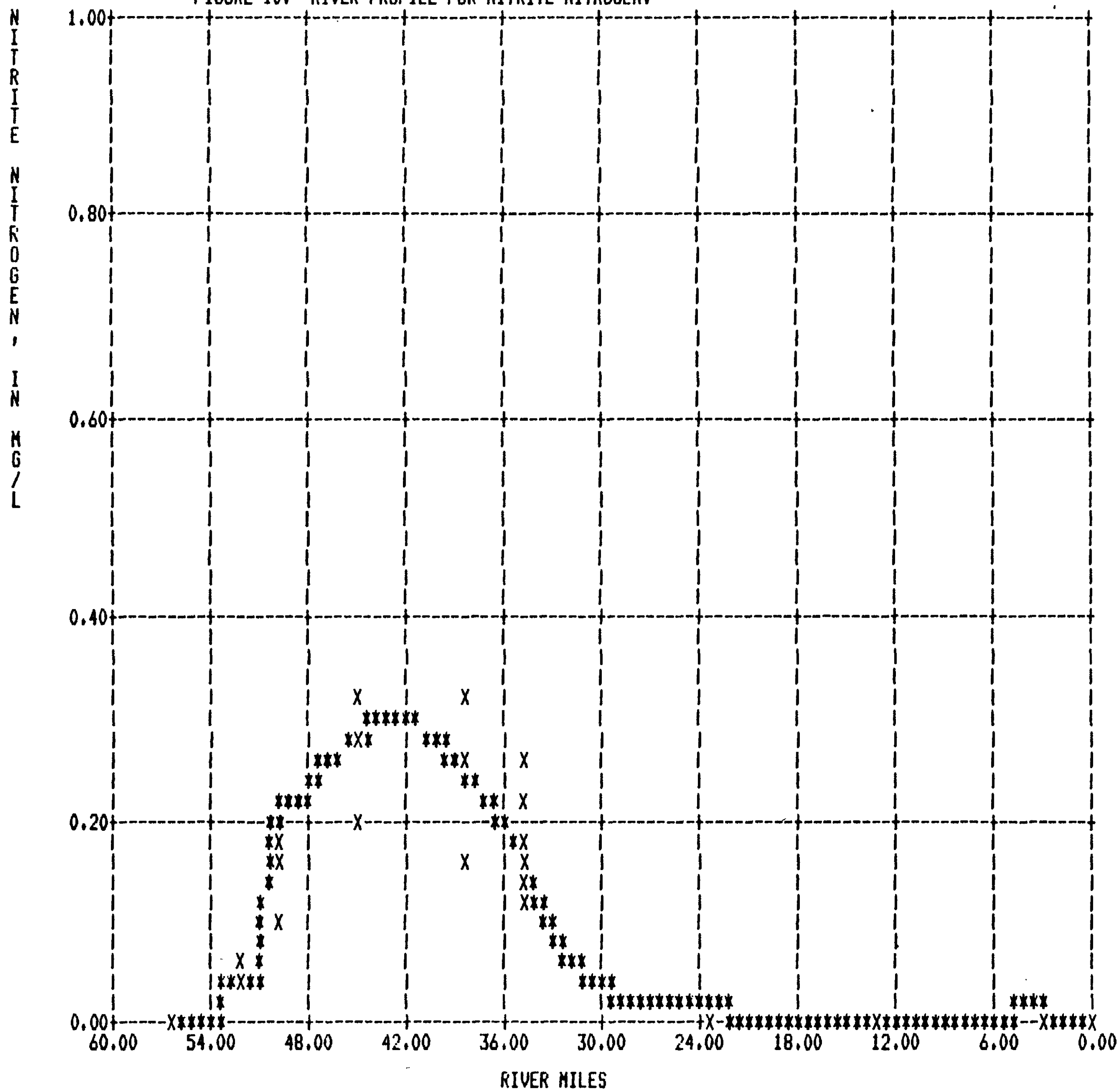



EXPLANATION: * = CALCULATED VALUES, X = OBSERVED.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

FIGURE 10.--RIVER PROFILE FOR NITRITE NITROGEN.

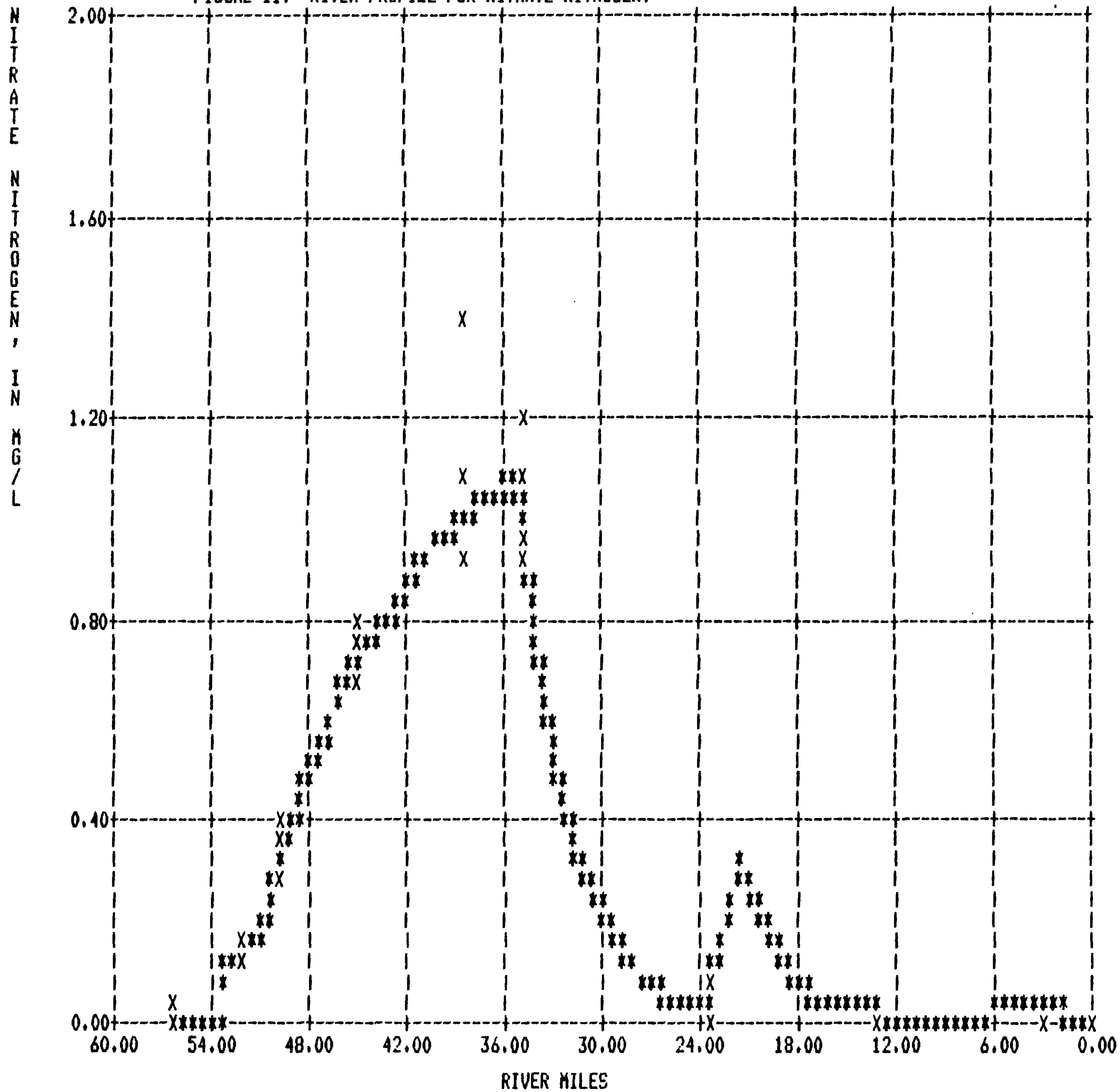



EXPLANATION: * = CALCULATED VALUES, X = OBSERVED.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

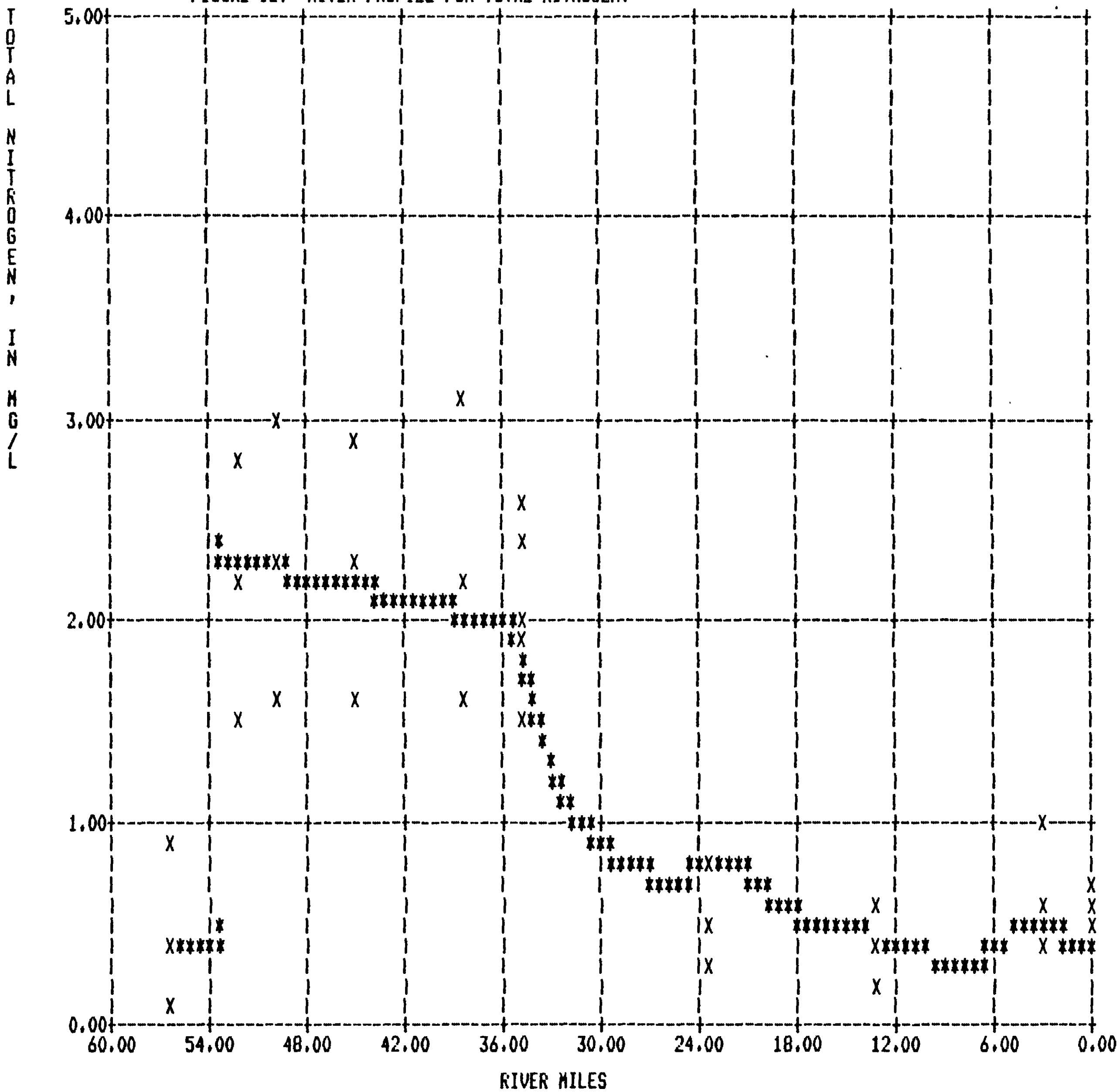
FIGURE 11.--RIVER PROFILE FOR NITRATE NITROGEN.




EXPLANATION: * = CALCULATED VALUES, X = OBSERVED.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)
FIGURE 12.--RIVER PROFILE FOR TOTAL NITROGEN.

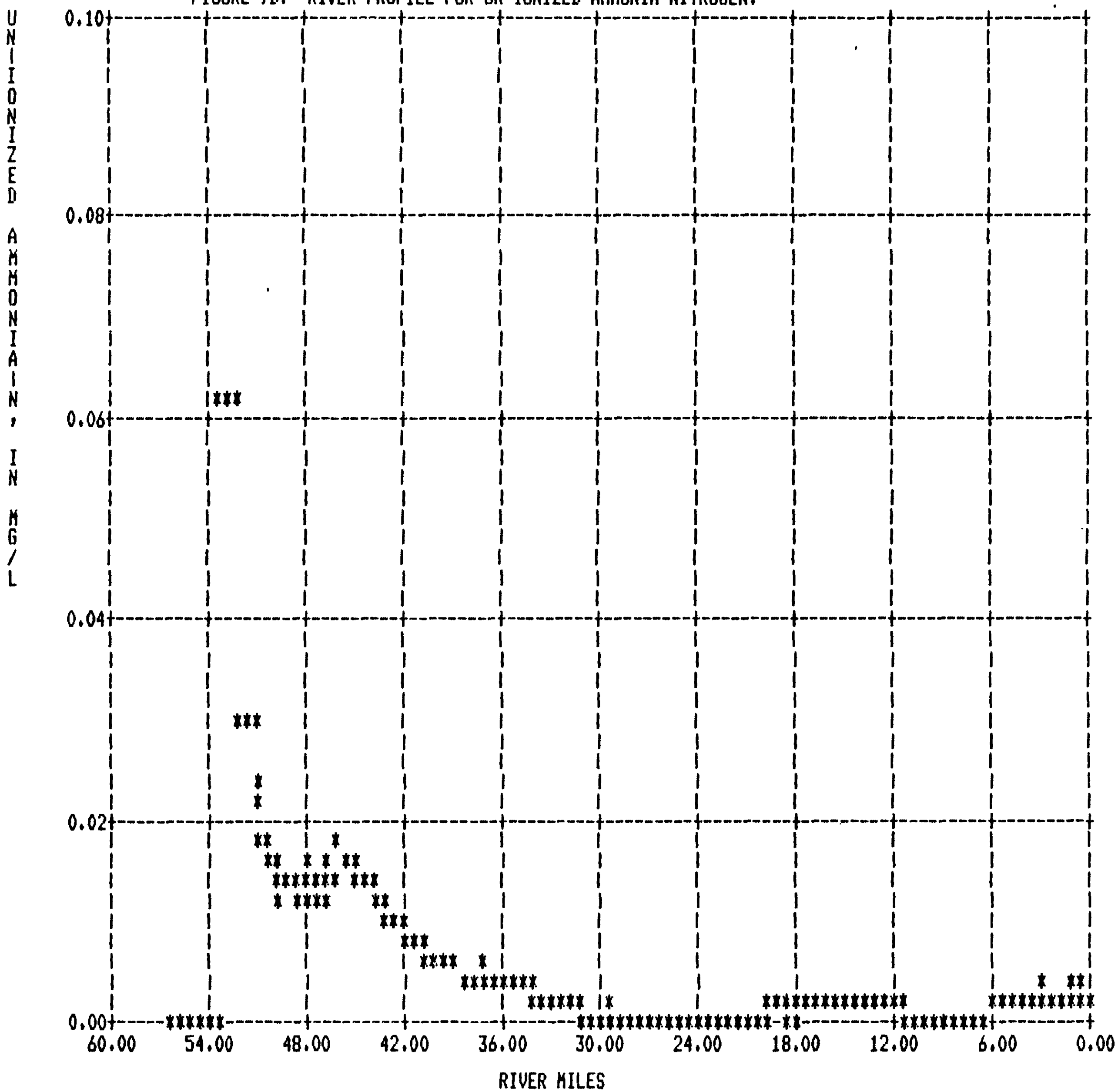



EXPLANATION: * = CALCULATED VALUES, X = OBSERVED.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

FIGURE 9B.--RIVER PROFILE FOR UN-IONIZED AMMONIA NITROGEN.

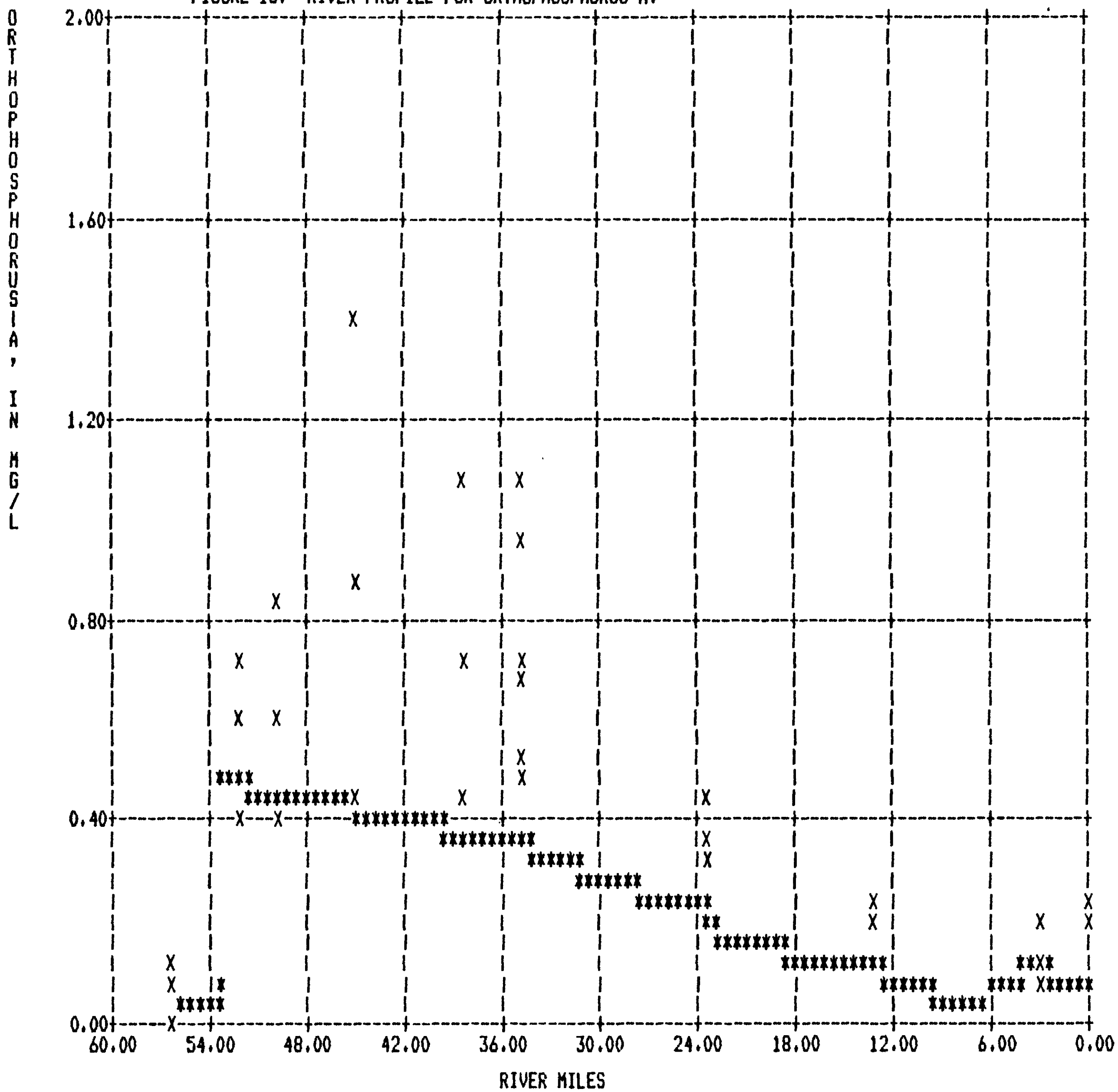



EXPLANATION: * = CALCULATED VALUES.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

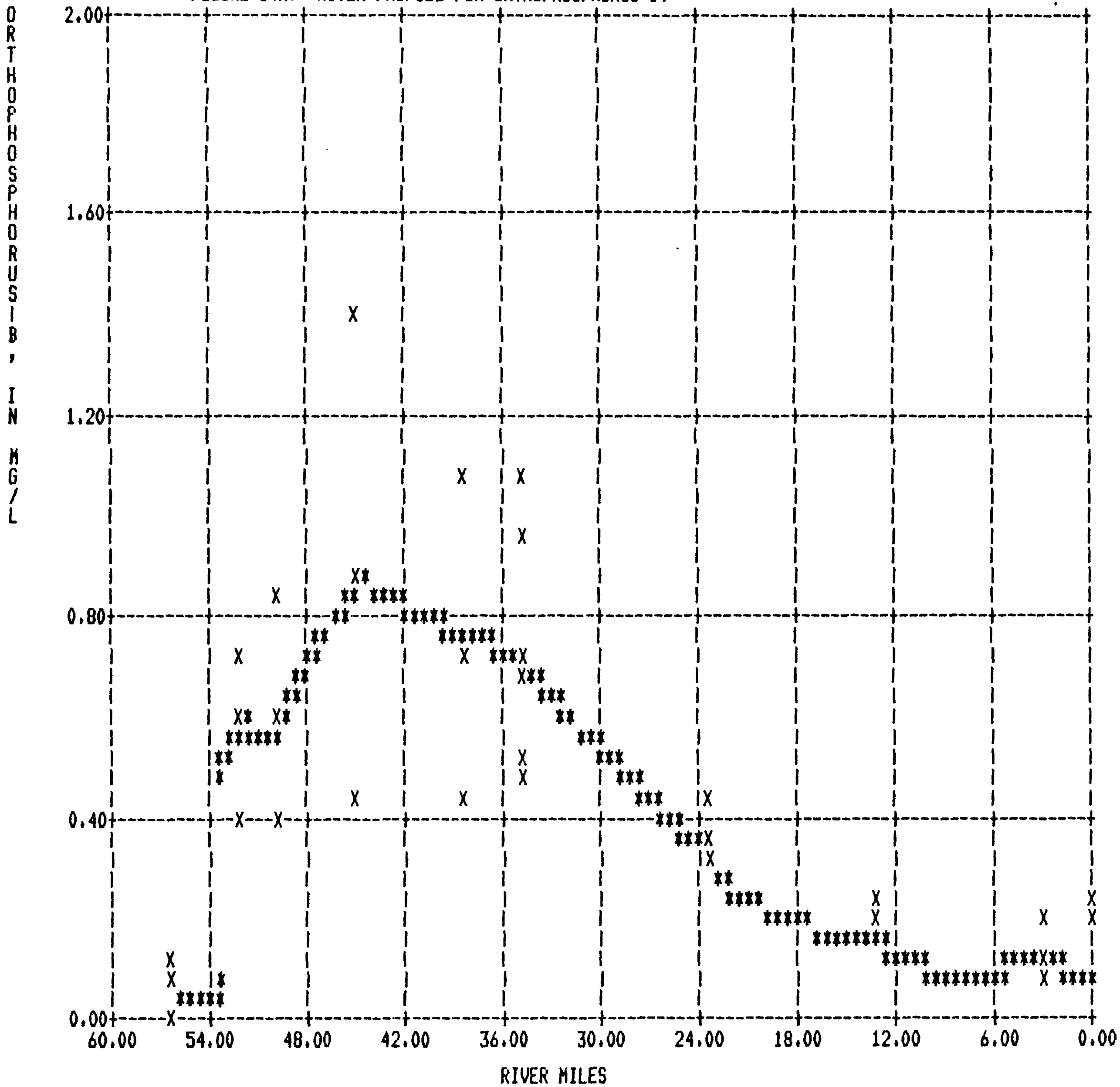
FIGURE 13.--RIVER PROFILE FOR ORTHOPHOSPHORUS-A.




EXPLANATION: * = CALCULATED VALUES, X = OBSERVED.

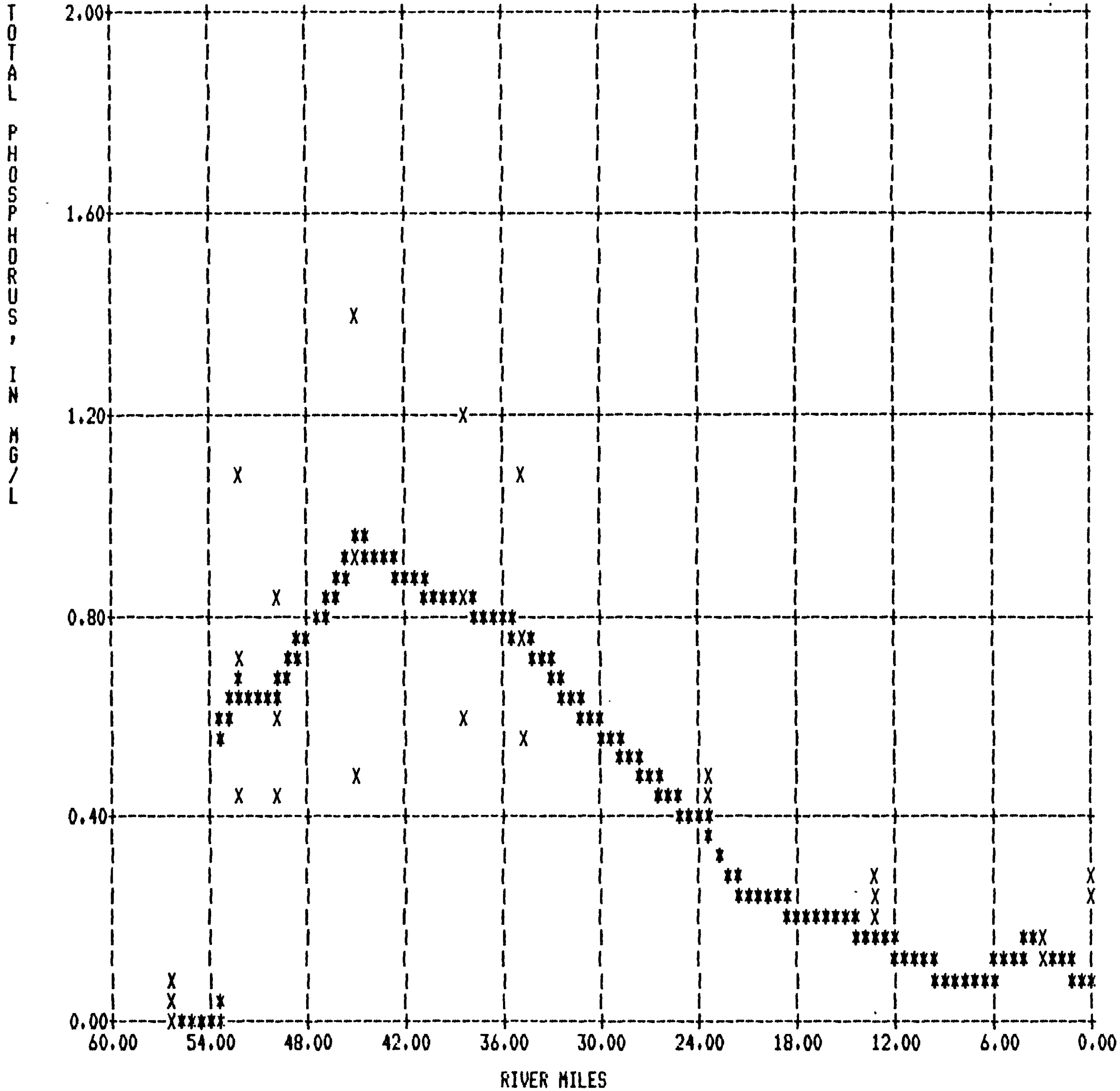
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)
FIGURE 14A.--RIVER PROFILE FOR ORTHOPHOSPHORUS-B.




EXPLANATION: * = CALCULATED VALUES, X = OBSERVED.

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)
FIGURE 14B.--RIVER PROFILE FOR TOTAL PHOSPHORUS

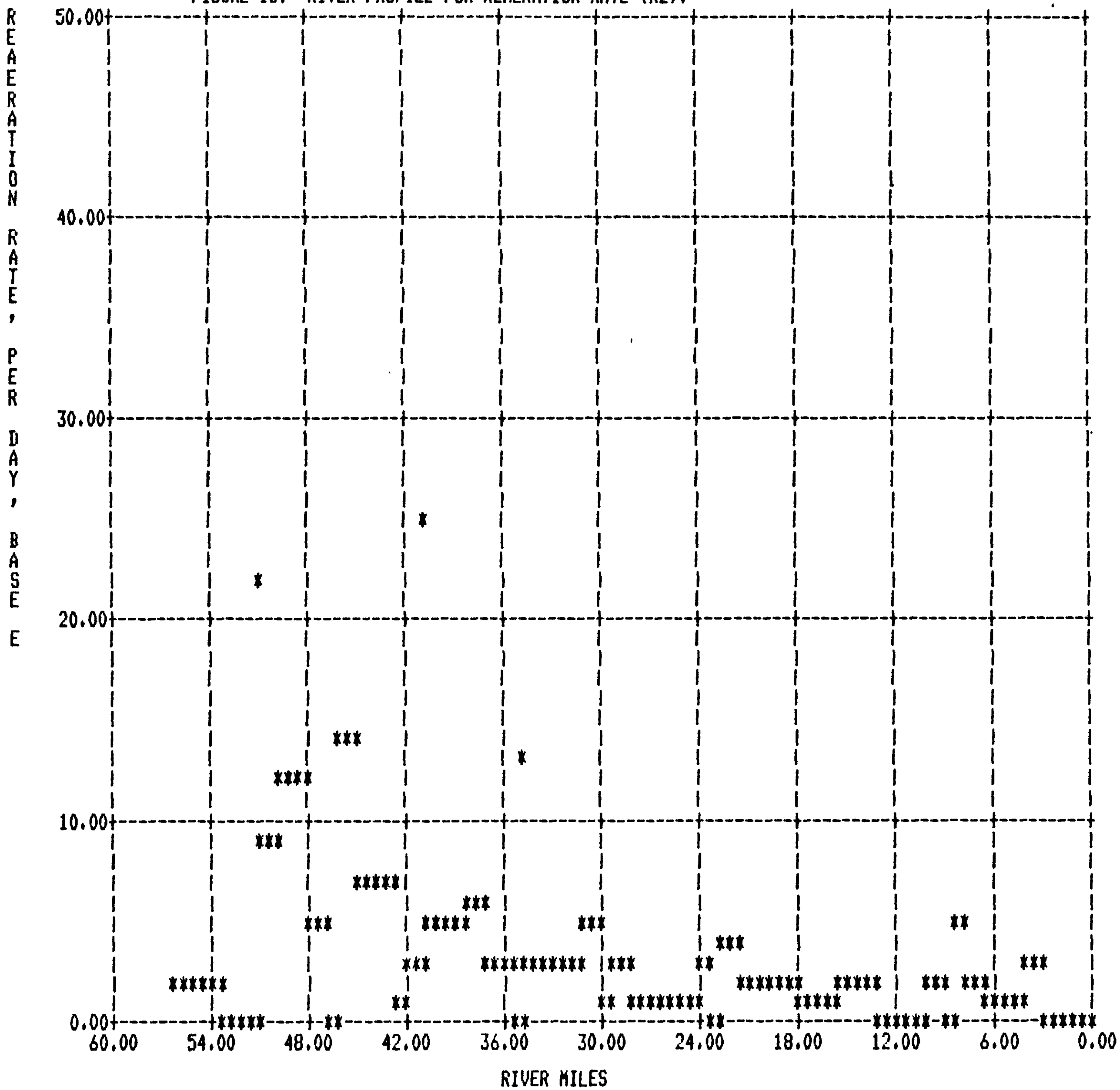



EXPLANATION: * = CALCULATED VALUES, X = OBSERVED.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

FIGURE 16.--RIVER PROFILE FOR REAERATION RATE (K2).

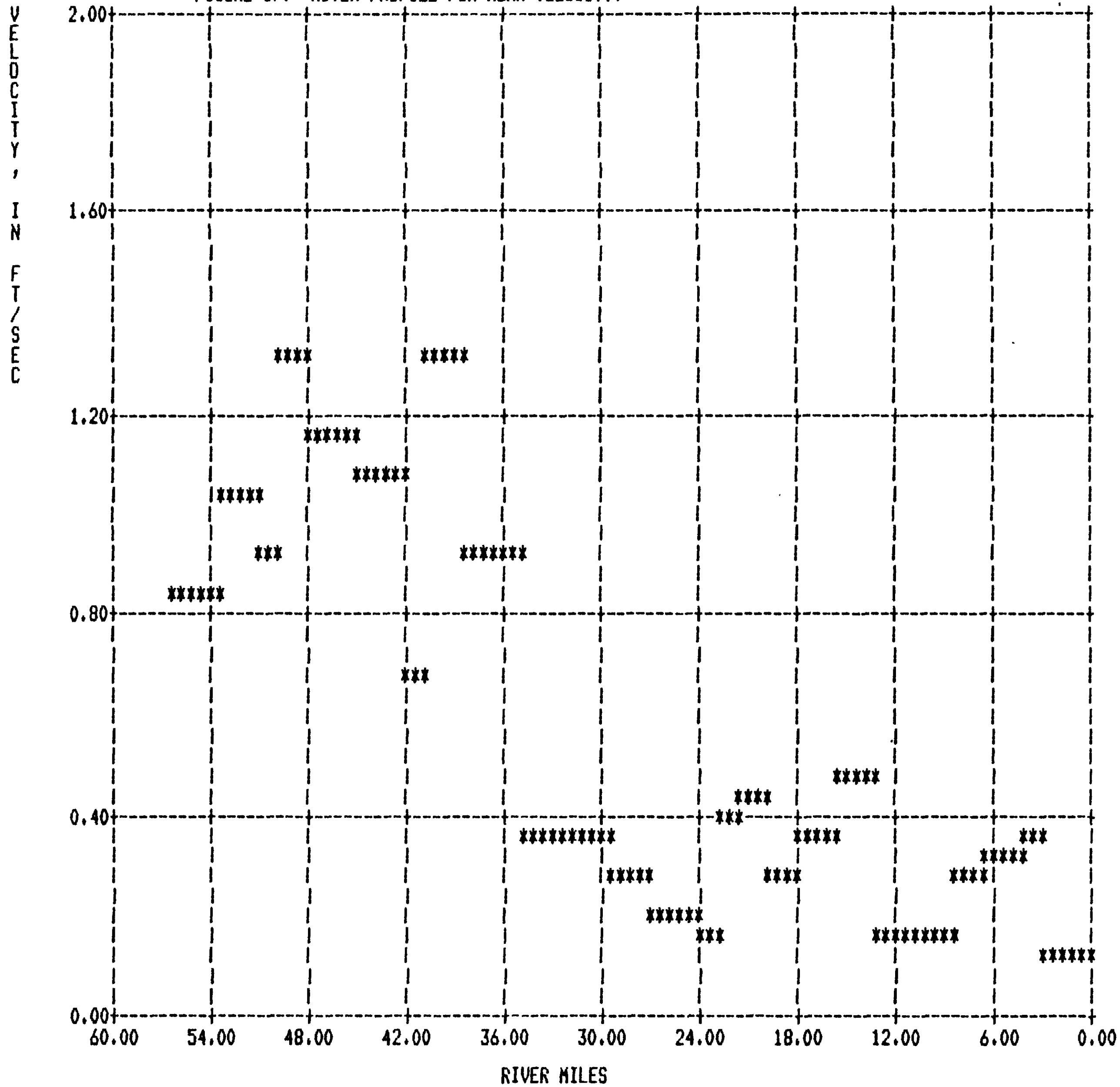



EXPLANATION: * = CALCULATED VALUES.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

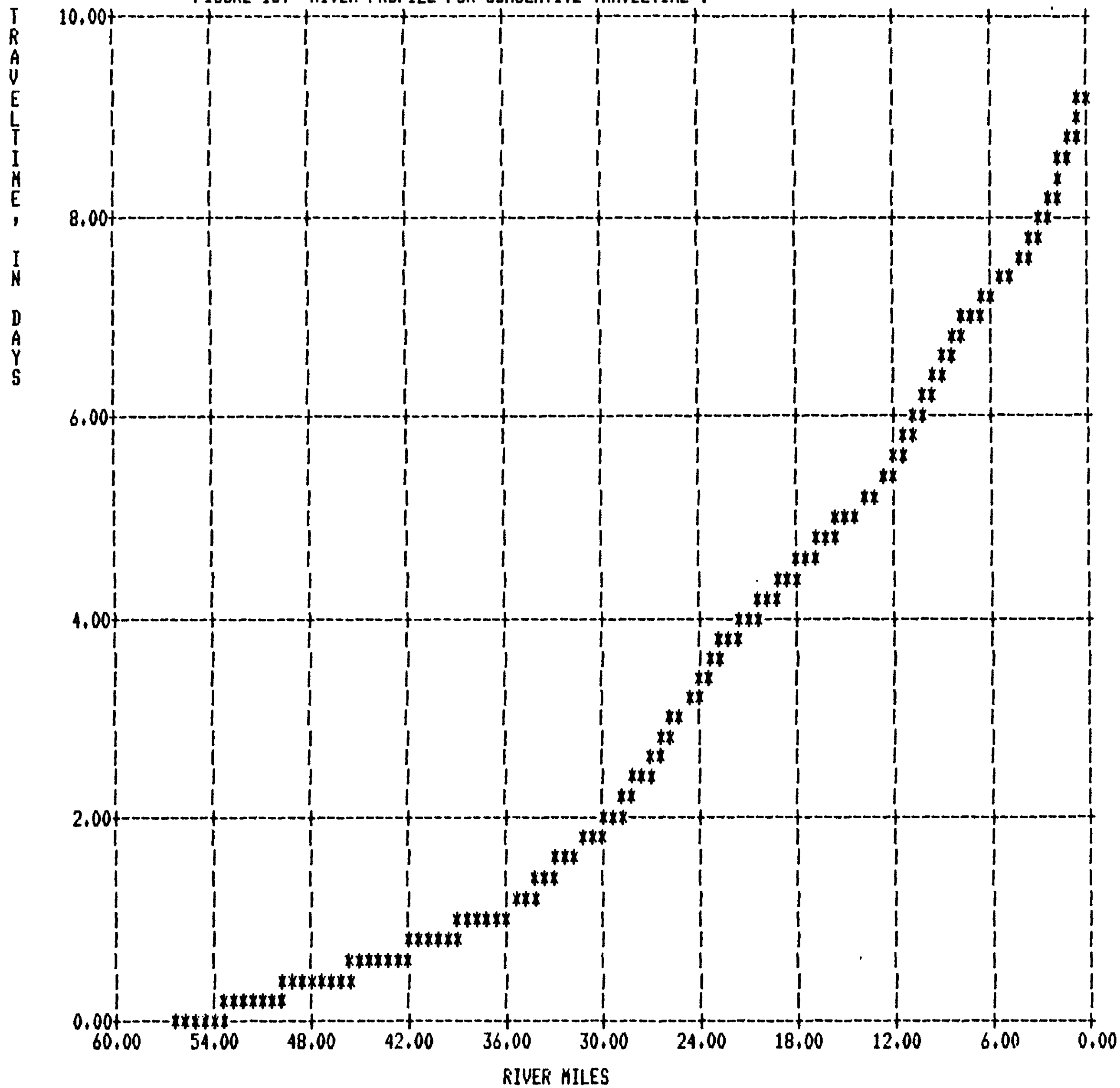
FIGURE 17.--RIVER PROFILE FOR MEAN VELOCITY.




EXPLANATION: * = CALCULATED VALUES.

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION: TRUCKEE RIVER WATER-QUALITY MODEL [REV 87.9]

MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)
FIGURE 18.--RIVER PROFILE FOR CUMULATIVE TRAVELTIME .




EXPLANATION: * = CALCULATED VALUES.

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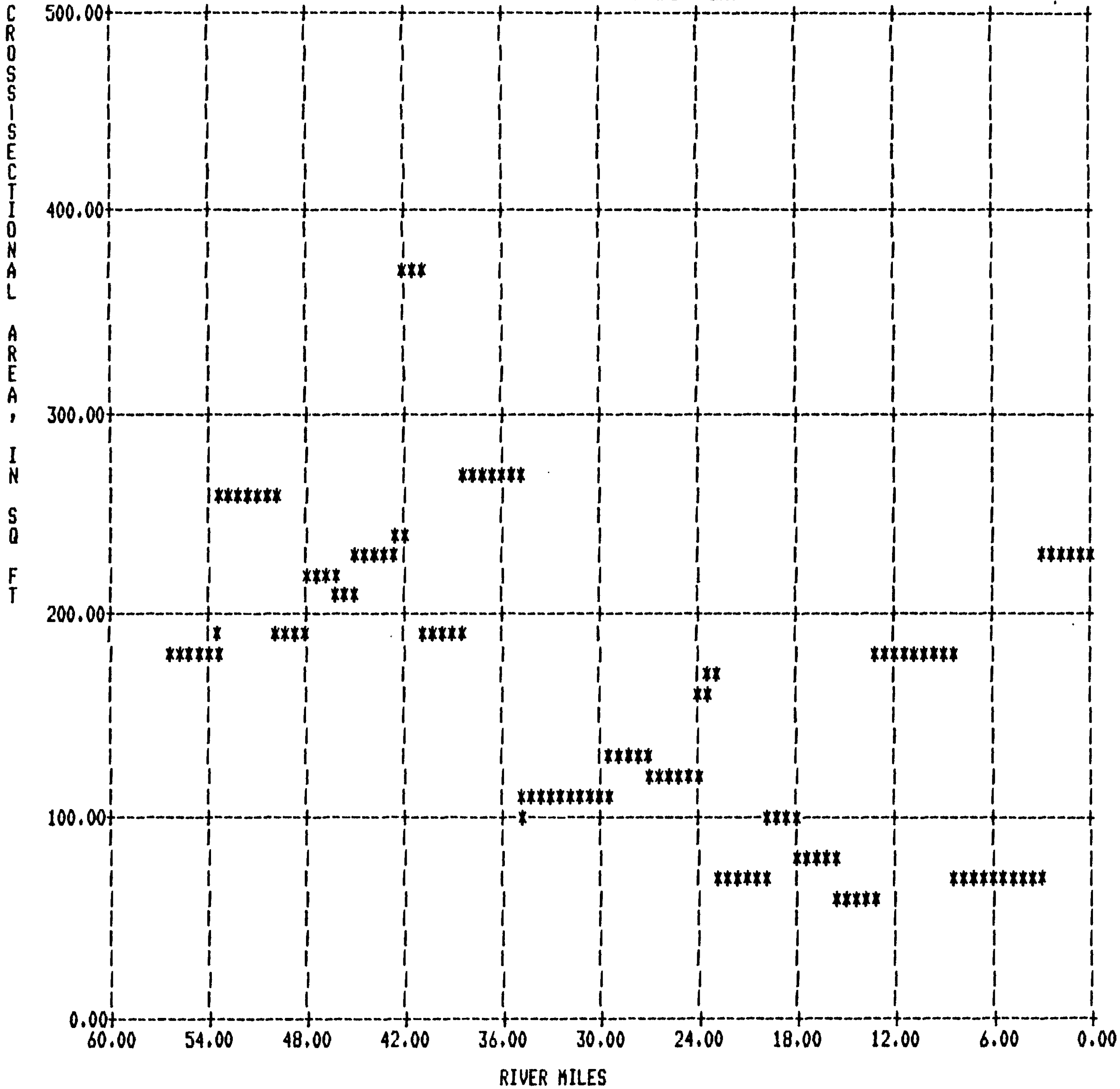
FIGURE 19.--RIVER PROFILE FOR MEAN CROSS-SECTIONAL AREA.




EXPLANATION: * = CALCULATED VALUES.

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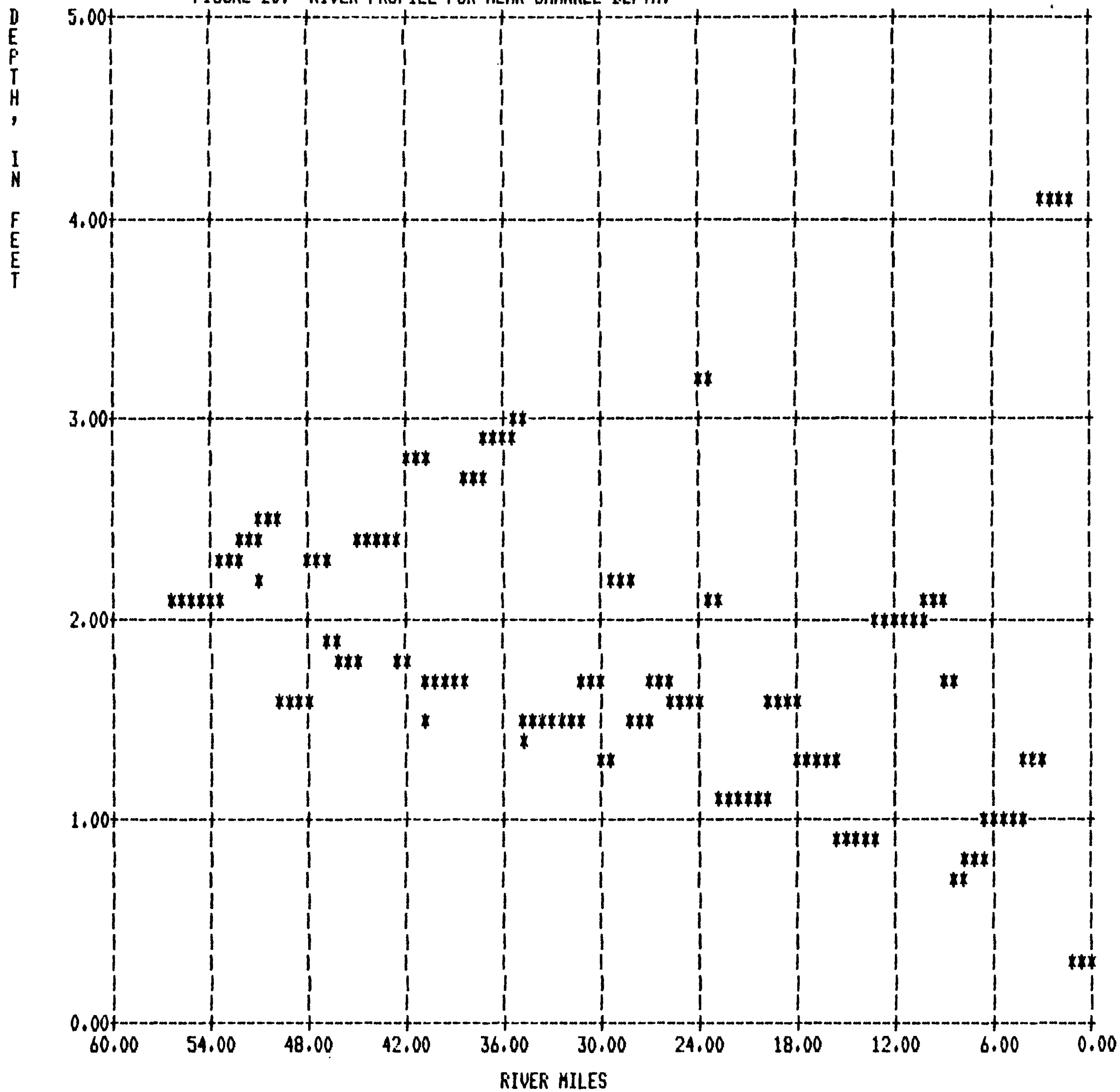
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)
FIGURE 20.--RIVER PROFILE FOR MEAN CHANNEL DEPTH.




EXPLANATION: * = CALCULATED VALUES.

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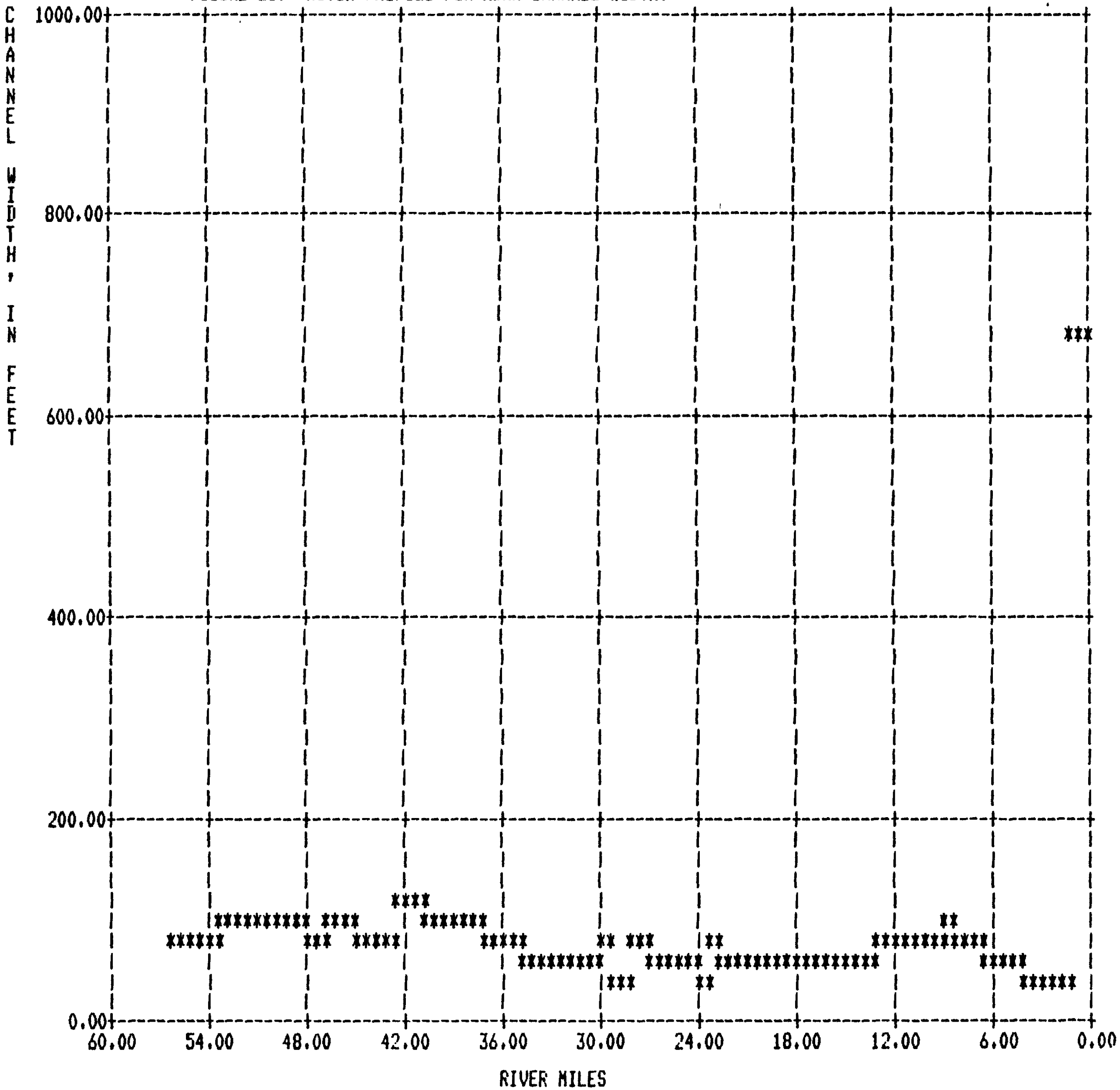
MAINSTEM TRUCKEE RIVER (R879.PUB MEAN DO)

FIGURE 21.--RIVER PROFILE FOR MEAN CHANNEL WIDTH.




EXPLANATION: * = CALCULATED VALUES.