MILL CREEK WATERSHED TMDL FOR BIOCHEMICAL OXYGEN-DEMAND SUBSTANCES

SUBSEGMENT 030104

TMDL Report

Engineering Section 2
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Louisiana Department of Environmental Quality

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EXECUTIVE SUMMARY

A TMDL for oxygen-demand pollutants has been developed for the Mill Creek Watershed based on hydrologic and water quality data available as of December 2000. This TMDL has been developed in accordance with the State's anti-degradation policy (LAC 33:IX.1109). Mill Creek was not on the 303(d) list but was found to not be meeting the dissolved oxygen standard during the 1999 ambient sampling. The suspected causes of impairment are organic enrichment/low DO. The suspected sources of impairment are municipal point sources, natural sources, and silviculture. The ambient monitoring samples for Mill Creek were obtained in 1999 during a period of extreme drought conditions with many dissolved oxygen samples falling below the dissolved oxygen criteria for this waterbody. Also, the water quality survey conducted in June 2000, again during a period of extreme drought conditions revealed dissolved oxygen levels well below criteria. Mill Creek was ranked as high priority (priority 1) for development of a total maximum daily load (TMDL) because it is located in the Calcasieu River Basin.

The Mill Creek watershed is subsegment 030104 of the Calcasieu River Basin (Basin 3). Subsegment 030104 is comprised of Mill Creek and all tributaries, including Alligator Bayou, Black Creek, and Little Mill Creek.

Mill Creek land use is 25% rangeland and 52% forestry. Mill Creek also has almost 18% wetlands. All of this makes the loading in this stream background in nature, containing constituents resulting primarily from leaf-fall. Rangeland and forestry are subject to implementation of Best Management Practices (BMPs) through the Nonpoint Source Management Program.

The survey conducted to provide data for this TMDL was conducted at severe drought conditions. No flows were obtainable during the survey. A minimum flow of 0.001 cfs was assumed during calibration since LAQUAL will not accept a 0.00 cfs flow. The dissolved oxygen levels at many sample sites were below 2.0 mg/l. The minimum dissolved oxygen level during model calibration was found to be 0.68 mg/l.

The current state standard requires a DO of 5.0 mg/L throughout the year. A UAA has been proposed changing the DO standard for Mill Creek to 2.5 mg/L July through October and 5.0 mg/L November through June. Therefore, model projections were performed at those particular seasons and DO criteria. In addition, projections were performed at the current year-round DO criterion of 5.0 mg/L using a summer season of May - October and a winter season of November - April. Projections show that compliance with the current dissolved oxygen criteria will require a 70% reduction of man-made nonpoint loading year-round. In order to meet the proposed DO criteria, a 20% reduction of man-made nonpoint loading is required year-round.

Two point sources fall within the subsegment; The Town of Elizabeth STP and Oak Hill High School. The High School was deemed to be a minor discharge and was found to not have a significant impact on Mill Creek. Limits for small facilities are generally set by state policy. The other point source, the Town of Elizabeth STP was included in this model.

Mill Creek was modeled from its headwaters to its confluence with the Calcasieu River. A survey was conducted June 14, 2000 during a period of severe drought conditions. The Mill Creek watershed was in a condition of low flow. There were no tributaries that had a velocity that could be measured with typical survey equipment. The nonpoint source loads included headwater loading and other nonpoint loading not associated with flow.

The various spreadsheets that were used in conjunction with the modeling program may be found in the appendices in the order in which they were used. Water quality calibration was also based on measurements taken during the survey. Projections were adjusted to meet the dissolved oxygen criteria by reducing man-made nonpoint source loads.

Land use in the Mill Creek watershed is fairly homogeneous. It is primarily forestry and rangeland. TMDLs have been calculated for Mill Creek and are presented in the following tables. Due to the many assumptions made while developing the model, the inherent error within the model algorithms, and the scale of a watershed-based model, the results of the model should be used only as an aid in making water quality based decisions.

	Summer season (Jul - Oct)		Winter season (Nov - June)	
To Meet Proposed Standard:	Load BOD (lbs/day)	% of TMDL	Load BOD (lbs/day)	% of TMDL
Headwater/Tributary Loads	165	28.2	454	51.7
Benthic Loads	214	36.5	179	20.4
Point Source Loads	37	20.6	37	13.8
Margin of Safety	64	14.7	102	14.1
Reduction of man-made nonpoint	20.0 %		20.0 %	
Total maximum daily load (TMDL)	480	100.0	772	100.0

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To Meet Current Standard:	Summer season (May - Oct)		Winter season (Nov - Apr)	
	Load BOD (lbs/day)	% of TMDL	Load BOD (lbs/day)	% of TMDL
Headwater/Tributary Loads	110	26.7	295	50.8
Benthic Loads	128	31.1	101	17.4
Point Source Loads	37	29.4	37	20.8
Margin of Safety	31	12.8	42	11.0
Reduction of man-made nonpoint	70.0 %		70.0 %	
Total maximum daily load (TMDL)	306	100	475	100

LDEQ will work with other agencies such as local Soil Conservation Districts to implement agricultural best management practices in the watershed through the 319 programs. LDEQ will also continue to monitor the waters to determine whether standards are being attained.

In accordance with Section 106 of the federal Clean Water Act and under the authority of the Louisiana Environmental Quality Act, the LDEQ has established a comprehensive program for monitoring the quality of the state's surface waters. The LDEQ Surveillance Section collects surface water samples at various locations, utilizing appropriate sampling methods and procedures for ensuring the quality of the data collected. The objectives of the surface water monitoring program are to determine the quality of the state's surface waters, to develop a long-term data base for water quality trend analysis, and to monitor the effectiveness of pollution controls. The data obtained through the surface water monitoring program is used to develop the state's biennial 305(b) report (*Water Quality Inventory*) and the 303(d) list of impaired waters. This information is also utilized in establishing priorities for the LDEQ nonpoint source program.

The LDEQ has implemented a watershed approach to surface water quality monitoring. Through this approach, the entire state is sampled over a five-year cycle with two targeted basins sampled each year. Long-term trend monitoring sites at various locations on the larger rivers and Lake Pontchartrain are sampled throughout the five-year cycle. Sampling is conducted on a monthly basis or more frequently if necessary to yield at least 12 samples per site each year. Sampling sites are located where they are considered to be representative of the waterbody. Under the current monitoring schedule, targeted basins follow the TMDL priorities. In this manner, the first TMDLs will have been implemented by the time the first priority basins will be monitored again in the second five-year cycle. This will allow the LDEQ to determine whether there has been any improvement in water quality following implementation of the TMDLs. As the monitoring results are evaluated at the end of each year, waterbodies may be added to or removed from the 303(d) list. The sampling schedule for the next five years is shown below.

2001 - Lake Pontchartrain Basin and Pearl River Basin
2002 - Red and Sabine River Basins
2003 - Mermentau and Vermilion-Teche River Basins
2004 - Calcasieu and Ouachita River Basins
2005 - Barataria and Terrebonne Basins
(Atchafalaya and Mississippi Rivers will be sampled continuously.)

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

1.0 Introduction

Mill Creek, Segment 030104 of the Calcasieu Basin, is not listed on the court ordered 303(d) list but was found to be impaired due to organic enrichment/low DO and requiring the development of a total maximum daily load (TMDL) for dissolved oxygen. The 1999 ambient water quality sampling of Mill Creek was done during a period of extreme drought conditions that significantly contributed to the low-flow, low-dissolved oxygen conditions found. A calibrated water quality model for the Mill Creek watershed was developed and projections were run to quantify the nonpoint source load allocations (LAs) required to meet established dissolved oxygen criteria. This report presents the model development and results.

2.0 Study Area Description

2.1 Calcasieu Basin

The Calcasieu River Basin is located in southwestern Louisiana and is positioned in a north-south direction. The drainage area of the Calcasieu Basin comprises approximately 3,910 square miles. Headwaters of the Calcasieu River are in the hills west of Alexandria. The river flows south for about 160 miles to the Gulf of Mexico. The mouth of the river is about 30 miles east of the Texas-Louisiana state line. The landscape in this basin varies from pine forested hills in the upper end to brackish and salt marshes in the lower reach around Calcasieu Lake. (LA DEQ, 1996).

2.2 Mill Creek Watershed, Subsegment 030104

This area is typical of the basin and is primarily used for forestry and rangeland as documented in Table 1 (LADEQ, 1999). Average annual precipitation in the segment, based on the nearest Louisiana Climatic Station, is 62 inches based on a 30-year period of record (LSU, 1999). Segment 030104 is comprised of Mill Creek as the main stem from Elizabeth to its confluence with the Calcasieu River. The modeled portion of Mill Creek receives intermittent flow from the following tributaries: Black Creek, Alligator Bayou, Little Mill Creek, and several unnamed tributaries.

Table 1. Land uses in Subsegment 030104 of the Calcasieu Basin

Land use	Acres	%
Urban	0	0
Rangeland	13,041	25.22
Agricultural	1,682	3.25
Forest Land	26,935	52.09
Water	808	1.56
Wetland	9,229	17.85

2.3 Water Quality Standards

Water quality standards and numerical criteria are shown in Table 2.

Table 2. Current Numerical Criteria for Mill Creek (LA DEQ, 1999)

Parameter	Criteria
Cl, mg/L	60
SO_4, mg/L	60
pH	6.0-8.5
BAC	1
Temperature, deg Celsius	32
TDS, mg/L	250

Table 3. Dissolved Oxygen Criteria, (mg/L)

Season	Current	Proposed
Summer	(May – Oct) 5.0	(Jul – Oct) 2.5
Winter	(Nov – Apr) 5.0	(Nov – Jun) 5.0

2.4 Discharger Inventory

The discharger inventory for the Mill Creek watershed was reviewed. There are only 2 dischargers listed in the LDEQ Permit Tracking System for subsegment 030104, the Town of Elizabeth and Oak Hill High School. Both of these facilities discharge directly into Mill Creek. These facilities were evaluated based on the volume of their discharge, their location with respect to the listed waterbody, any water quality data that demonstrated their impact or lack of impact, whether or not the NPS contribution included any small facilities, and best professional judgment. It is unlikely that Oak Hill High School will have an impact on the targeted waterbody due to the small load. It falls within one of several state or regional policies that govern permit limitations. This discharger will be given effluent limitations according to the state policy. The other facility, the Town of Elizabeth was included in this model. Current permit information and discharge monitoring reports were reviewed for both of these facilities.

Table 4. Facilities located in subsegment 030104.

Name	File Number	Waterbody	Expected Flow	Limits
Oak Hill High School	WG020449	Unnamed Ditch to Mill Creek	18,600 gpd	30/30
Town of Elizabeth	LA0046507	Unnamed Ditch to Mill Creek	49,999 gpd	20/20

2.5 Previous Studies and Other Data

The majority of the data used for this project was obtained during a watershed survey conducted on June 14, 2000. Discharge data, cross-section data, field data, and lab water quality data from the watershed survey are presented in Appendix C. The Ultimate BOD plots are also in Appendix C.

3.0 Documentation of Calibration Model

3.1 Model Description and Input Data Documention

3.1.1 Program Description

"Simulation models are used extensively in water quality planning and pollution control. Models are applied to answer a variety of questions, support watershed planning and analysis and develop total maximum daily loads (TMDLs). . . . Receiving water models simulate the movement and transformation of pollutants through lakes, streams, rivers, estuaries, or near shore ocean areas. . . . Receiving water models are used to examine the interactions between loadings and response, evaluate loading capacities (LCs), and test various loading scenarios. . . . A fundamental concept for the analysis of receiving waterbody response to point and nonpoint source inputs is the principle of mass balance (or continuity). Receiving water models typically develop a mass balance for one or more constituents, taking into account three factors: transport through the system, reactions within the system, and inputs into the system." (EPA841-B-97-006, pp. 1-30)

The model used for this TMDL was LA-QUAL, a steady-state one-dimensional water quality model. Its history dates back to the QUAL-I model developed by the Texas Water Development Board with Frank D. Masch & Associates in 1970 and 1971. William A. White wrote the original code.

In June 1972, the United States Environmental Protection Agency awarded Water Resources Engineers, Inc. (now Camp Dresser & McKee) a contract to modify QUAL-I for application to the Chattahoochee-Flint River, the Upper Mississippi River, the Iowa-Cedar River, and the Santee River. The modified version of QUAL-I was known as QUAL-II.

Over the next three years, several versions of the model evolved in response to specific client needs. In March 1976, the Southeast Michigan Council of Governments (SEMCOG) contracted with Water Resources Engineers, Inc. to make further modifications and to combine the best features of the existing versions of QUAL-II into a single model. That became known as the QUAL-II/SEMCOG version.

Between 1978 and 1984, Bruce L. Wiland with the Texas Department of Water Resources modified QUAL-II for application to the Houston Ship Channel estuarine system. Numerous modifications were made to enable modeling this very large and complex system including the addition of tidal dispersion, lower boundary conditions, nitrification inhibition, sensitivity analysis capability, branching tributaries, and various input/output changes. This model became known as QUAL-TX and was subsequently applied to streams throughout the State of Texas.

In 1999, the Louisiana Department of Environmental Quality and Wiland Consulting, Inc. developed LA-QUAL based on QUAL-TX Version 3.4. The program was converted from a DOS-based program to a Windows-based program with a graphical interface and enhanced graphic output. Other program modifications specific to the needs of Louisiana and the Louisiana DEQ were also made in 2000 and 2001. LA-QUAL is a user-oriented model and is intended to provide the basis for evaluating total maximum daily loads in the State of Louisiana.

The development of a TMDL for dissolved oxygen generally occurs in 3 stages. Stage 1 encompasses the data collection activities. These activities may include gathering such information as stream cross-sections, stream flow, stream water chemistry, stream temperature and dissolved oxygen and various locations on the stream, location of the stream centerline and the boundaries of the watershed which drains into the stream, and other physical and chemical factors which are associated with the stream. Additional data gathering activities include gathering all available information on each facility which discharges pollutants into the stream, gathering all available stream water quality chemistry and flow data from other agencies and groups, gathering population statistics for the watershed to assist in developing projections of future loadings to the water body, land use and crop rotation data where available, and any other information which may have some bearing on the quality of the waters within the watershed. During Stage 1, any data available from reference or least-impacted streams that can be used to gauge the relative health of the watershed is also collected.

Stage 2 involves organizing all of this data into one or more useable forms from which the input data required by the model can be obtained or derived. Water quality samples, field measurements, and historical data must be analyzed and statistically evaluated in order to determine a set of conditions that have actually been measured in the watershed. The findings are then input to the model. Best professional judgment is used to determine initial estimates for parameters that were not or could not be measured in the field. These estimated variables are adjusted in sequential runs of the model until the model reproduces the field conditions that were measured. In other words, the model produces a value of the dissolved oxygen, temperature, or other parameter that matches the measured value within an acceptable margin of error at the locations along the stream where the measurements were actually made. When this happens, the model is calibrated to the actual stream conditions. At this point, the model should confirm that there is an impairment and give some indications of the causes of the impairment. If a second set of measurements is available for slightly different conditions, the calibrated model is run with these conditions to see if the calibration holds for both sets of data. When this happens, the model is verified.

Stage 3 covers the projection modeling which results in the TMDL. The critical conditions of flow and temperature are determined for the waterbody and the maximum pollutant discharge conditions from the point sources are determined. These conditions are then substituted into the model along with any related condition changes that are required to perform worst case scenario predictions. At this point, the loadings from the point and nonpoint sources (increased by an acceptable margin of safety) are run at various levels and distributions until the model output shows that dissolved oxygen criteria are achieved. It is critical that a balanced distribution of the point and nonpoint source loads be made in order to predict any success in future achievement of water quality standards. At the end of Stage 3, a TMDL is produced which shows the point source permit limits and the amount of reduction in man-made nonpoint source pollution which must be achieved to attain water quality standards. The man-made portion of the NPS pollution is estimated from the difference between the calibration loads and the loads observed on reference or least-impacted streams.

3.1.2 Model Schematic or Vector Diagram

A vector diagram of the modeled area is presented in Appendix A. The vector diagram shows the reach/element design and the locations of major tributaries. The modeled segment consists of 6 reaches numbered in ascending order from headwater to confluence with the Calcasieu River. The modeled area is characterized by the 5 sample sites starting from the Calcasieu River and working up to the headwater of Mill Creek. A digitized map of the stream showing river kilometers, locations of cross-sections and June 14, 2000 survey sampling sites is included in Appendix F.

3.1.3 Hydrology and Stream Geometry and Sources

LADEQ had a monthly water quality sampling station on Mill Creek for a period of one year, 1999. Data collected during a Eularian survey conducted June 14, 2000, was used to establish the input for the model calibration and is presented in Appendix C.

The stream geometry at the headwater is shallow and narrow with no flow at site 5. The stream in general continues to widen and deepen until it reaches its confluence with the Calcasieu River. The second reach was set up to denote the beginning of the swamp where there was a change in geometry and water quality.

The reach and element design for the Mill Creek model was made using a 0.20 km element length. The total number of reaches and elements was within the limitations of the model. “The current version is dimensioned for a maximum of 200 reaches, 100 headwaters, 300 wasteloads and 3000 elements” (LA-QUAL User’s Manual). The final design incorporated 6 reaches, 1 headwater, and 189 elements. A simple spreadsheet was used to calculate the reach length, element length, and cumulative number of elements at the bottom of each reach. This spreadsheet is presented in Appendix A.

Rather than directly inputting the widths and depths of the stream, the model requires that the advective hydraulic characteristics (a modification of the Leopold Coefficients and Exponents) be entered. Since the measured widths and depths from the hydrologic survey were taken during zero flow conditions, they were input as the modified Leopold equation constants. The exponent and coefficient values were obtained from calibration.

3.1.4 Headwater

Since the survey was conducted during drought conditions, no measurable headwater flow was obtainable with the current instrumentation. Therefore, a minimum flow of 0.001 cms or 0.00353 cfs was used for headwater.

3.1.5 Water Quality Input Data and Their Sources

Water quality data collected during the June 14, 2000 survey on Mill Creek and its tributaries was entered in a spreadsheet for ease of analysis. The ultimate BOD, CBOD, NBOD, and corresponding decay rates were computed for each sample taken. A complete listing is presented in Appendix C. This data was the primary source for the model calibration input data for initial conditions, decay rates, headwater temperature, and headwater DO.

3.1.5.1 Temperature Correction of Kinetics, Data Type 4

The temperature values computed are used to correct the rate coefficients in the source/sink terms for the other water quality variables. These coefficients are input at 20 ^{o}C and are then corrected to temperature using the following equation:

$$X_T = X_{20} * \text{Theta}^{(T-20)}$$

Where:

X_T = the value of the coefficient at the local temperature T in degrees Celsius
X_{20} = the value of the coefficient at the standard temperature at 20 degrees Celsius
Theta = an empirical constant for each reaction coefficient
(QUAL2E Documentation and User Model, 1987)

In absence of specified values for data type 4, the model uses default values. A complete listing of these values can be found in the LA-QUAL for Windows User's Manual (LDEQ, 2001).

3.1.5.2 Initial Conditions, Data Type 11

The initial conditions are used to reduce the number of iterations required by the model. The values required for this model were temperature and DO by reach. The initial condition input values were determined from the June 14, 2000 survey stations located on Mill Creek. See Appendix C for a composite of the survey water quality data.

3.1.5.3 Reaeration Rates, Data Type 12

The Louisiana reaeration equation was used for reaeration.

3.1.5.4 Sediment Oxygen Demand, Data Type 12

Values of SOD from the Louisiana Technical Procedures Manual (LTP) were used in several preliminary calibration runs. These values have been established for wasteload allocation modeling of short stream reaches directly below treatment plant outfalls and were not suitable for a watershed level model. SOD values were therefore achieved through calibration.

3.1.5.5 Carbonaceous BOD Decay and Settling Rates, Data Type 12

These rates are labeled Aerobic BOD Decay and BOD Settling in LA-Qual. The CBOD bottle rates were used for decay rates in the model. The settling rates were achieved through calibration. The decay and settling rates used for each reach are shown in Appendix A.

3.1.5.6 Nitrogenous Decay and Settling Rates, Data Type 13

These rates are labeled NCM decay and NCM Settling in LA-QUAL. The Org-N decay and settling rates were used to simulate NBOD rates because the Org-N decay rate is the limiting rate in the nitrogen cycle and is the part of NBOD that is settleable. The NBOD bottle rates were used for decay rates in the model. The settling rates were achieved through calibration. The decay and settling rates used for each reach are shown in Appendix A.

3.1.5.7 Incremental Conditions, Data Types 16, 17, and 18

The incremental conditions are used in the calibration to represent nonpoint source loads associated with flows. No incremental inflow was determined to be present for the survey.

3.1.5.8 Nonpoint Sources, Data Type 19

Nonpoint source loads, which are not associated with a flow, are input into this part of the model. These loads are used to simulate loads from the stream bed that have been resuspended into the water column. The values used in the model were determined by calibration. The data and sources are presented in Appendix A.

3.1.5.9 Headwaters, Data Types 20, 21, and 22

A minimal flow of 0.001 cms or 0.00353 cfs was used for the headwater flow. The survey was conducted during severe drought conditions and could not determine any measureable headwater flow.

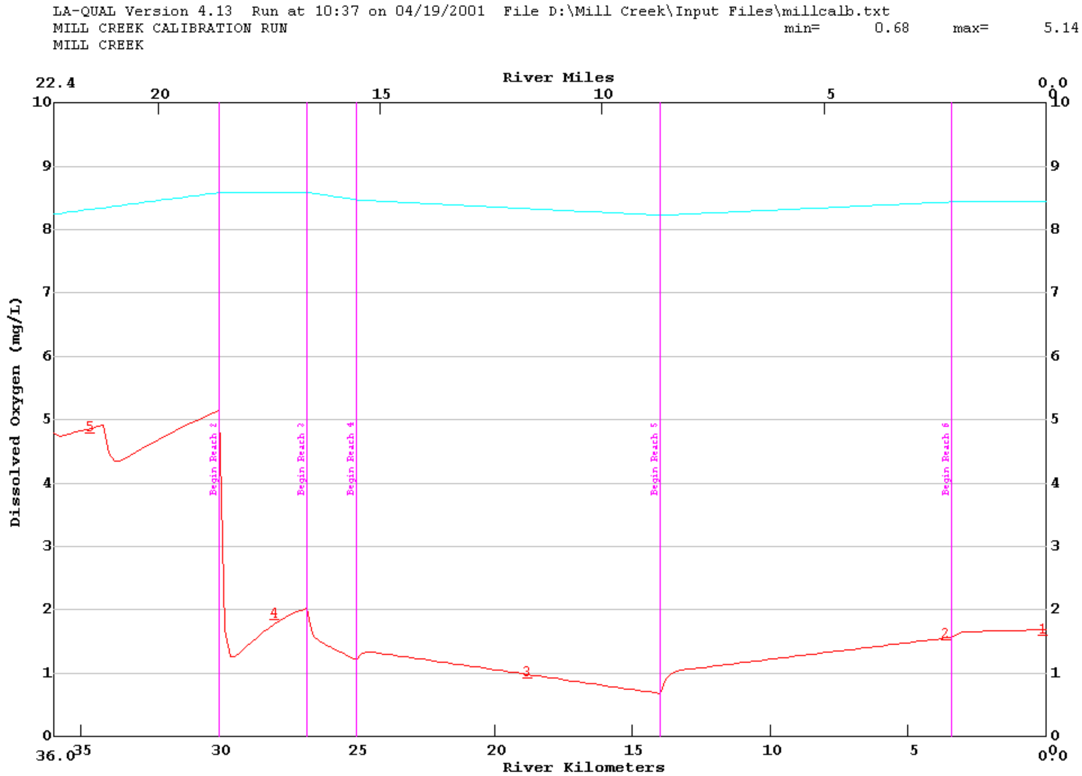
3.1.5.10 Wasteloads, Data Types 24, 25, and 26

The model uses wasteloads to represent treatment plant effluent or unmodeled tributaries. None of the tributaries were found to have measurable flow and therefore, not modeled. The Town of Elizabeth discharges directly into Mill Creek and was included in the model.

3.2 Model Discussion and Results

The calibration model input and output is presented in Appendix A. The overlay plotting option was used to determine if calibration had been achieved. A plot of the dissolved oxygen concentration versus river kilometer is presented in Figure 1. There is a sharp drop in dissolved oxygen at the beginning of reach 2 where the beginning of a swamp is noted. The sharp drop is due to the change in water quality and the very low flow which affects a high residence time in each element.

Figure 1. Calibration Model--Dissolved Oxygen versus River Kilometer



Mill Creek main stem extends from its headwaters to the confluence with the Calcasieu River and is represented by Reaches 1 - 6. The model simulates the measured values of DO adequately at the one meter depth. The survey data shows that in June 2000, the current DO standard of 5.0 mg/L was not being met on the modeled portion of Mill Creek. The calibration model went through the measured survey data values using reasonable model input values and was determined to be a reasonable calibration.

4.0 Water Quality Projections

The traditional summer and winter projections loading scenarios were performed for both the current and proposed DO standards. These scenarios were:

a. Current Summer Projection Scenario – Reduced man-made nonpoint loads at summer season critical conditions.
b. Current Winter Projection Scenario – Reduced man-made nonpoint loads at winter season critical conditions.
c. Proposed Summer Projection Scenario – Reduced man-made nonpoint loads at summer season critical conditions.

d. Proposed Winter Projection Scenario – Reduced man-made nonpoint loads at winter season critical conditions.

4.1 Critical Conditions

4.1.1 Seasonality and Margin of Safety

The Clean Water Act requires the consideration of seasonal variation of conditions affecting the constituent of concern, and the inclusion of a margin of safety (MOS) in the development of a TMDL. For the Mill Creek TMDL, an analysis of LDEQ ambient data has been employed to determine critical seasonal conditions and an appropriate margin of safety has been used.

Critical conditions for dissolved oxygen were determined for Mill Creek using water quality data from the station on the LDEQ Ambient Monitoring Network. The critical conditions for dissolved oxygen concentrations were those of nonpoint run-off and low stream flow combined with high temperature.

When the rainfall runoff (and nonpoint loading) and stream flow are high, turbulence is higher due to the higher flow and the temperature is lowered by the runoff. In addition, runoff coefficients are higher in cooler weather due to reduced evaporation and evapotranspiration, so that the high flow periods of the year tend to be the cooler periods. DO saturation rates are, of course, much higher when water temperatures are cooler, but BOD decay rates are much lower. For these reasons, periods of high loading are periods of higher reaeration and dissolved oxygen but not necessarily periods of high BOD decay.

This phenomenon was interpreted in TMDL modeling by assuming that the annual nonpoint loading, rather than loading for any particular day, is responsible for the accumulated benthic blanket of the bayou, which is, in turn, expressed as SOD and/or resuspended BOD in the model. This accumulated loading has its greatest impact on the bayou during periods of higher temperature and lower flow. The manmade portion of the NPS loading is the difference between the calibration load and the reference stream load where the calibration load is higher.

Critical summer conditions were simulated in the Mill Creek oxygen demand TMDL projection modeling by a seasonal 7Q10 for all headwaters as stated in the Louisiana Technical Procedures Manual and a 90th percentile temperature for the summer season. Incremental flow was not present. Critical winter conditions were simulated by using a seasonal 7Q10 as stated in the Louisiana Technical Procedures Manual and a 90th percentile temperature. The table below contains the parameters used for the various current and proposed seasons.

Table 4. Parameters used for various seasons.

Season	Seasonal 7Q10 (cfs)	90th percentile Temperature
Current Summer (May – Oct)	4.01	25.4
Current Winter (Nov – Apr)	4.62	19.9
Proposed Summer (Jul – Oct)	4.02	25.8
Proposed Winter (Nov – Jun)	4.76	21.6

In reality, the highest temperatures occur in July-August, the lowest stream flows occur in October-November, and the maximum point source discharges often occur following a significant rainfall, i.e., high-flow conditions. The model is established as if all these conditions happened at the same time. Other conservative assumptions regarding rates and loadings are also made during the modeling process. In addition to these conservative measures, an explicit MOS of 20% was used for both point and nonpoint loads to account for future growth, safety, model uncertainty and data inadequacies.

4.1.2 Hydrology and Stream Geometry and Sources

The headwater flows used in all the projection scenarios were based on the seasonal 7Q10 summer and winter defaults as per the Louisiana Technical Procedures Manual (LTP). Rather than directly inputting the widths and depths of the stream, the model requires that the advective hydraulic characteristics (a modification of the Leopold Coefficients and Exponents) be entered. Since the velocity was zero for the 2000 survey, the measured widths and depths from the hydrologic survey were input as the modified Leopold equation constants. The coefficients and exponents used were the same as calibration.

4.1.3 Water Quality Input Data and Their Sources

The initial condition temperatures were set to the 90th percentile critical season temperature in accordance with the LTP. Critical temperatures for each season were determined from the temperature data collected by LADEQ as part of its current ambient monitoring strategy. The 90th percentile temperature for each season was computed for LADEQ water quality ambient station #0821 on Mill Creek from January to December 1999. This represents one year of record which is all that was available. The temperature analysis spreadsheet is shown in Appendix B. The dissolved oxygen values for the initial conditions were set at 90% of the DO saturation at the 90th percentile temperature for the season.

The CBOD decay and settling rates as well as the NBOD decay and settling rates, were held constant at the calibration rates. The reaeration rates determined from calibration were used in the projections. The data and calculations are shown in Appendix B.

The headwater UCBOD and UNBOD used in all the projection scenarios were taken from the June 2000 survey data. The temperature used was the 90th percentile critical season temperature determined from the LADEQ ambient monitoring station on Mill Creek (Site # 0821). The DO was 90% of the DO saturation at the 90th percentile temperature for the season determined from the same site. The period of record used was January to December 1999.

4.1.3.1 Sediment Oxygen Demand, Data Type 12

In the summer and winter projections, the man-made SOD was reduced based on the dissolved oxygen criteria set for the projection. These reductions were determined using the calibrated values for SOD and the total benthic natural loading of 2.0 gm O2/m2/day. A percentage of each loading component was calculated by comparison to the total calibration benthic value. The natural benthic value was subtracted from the total calibration benthic load to determine the man-made benthic loading value. These percentages were then applied to the percentage of man-made loading value, and the SOD loading portion of the reduced man-made benthic loading were determined by adding the SOD portion of the man-made benthic loading to the SOD portion of the background benthic loading.

4.1.3.2 Nonpoint Sources, Data Type 19

The total CBOD and NBOD loading was reduced by 70% in the summer projection scenario to meet the current summer water quality criterion of 5.0 mg/L for dissolved oxygen. The stream is projected to meet criteria during the winter season. These reductions were determined using the calibrated values for Nonpoint CBOD & NBOD and the total benthic natural loading of 2.0 gm O2/m2/day. A percentage of each loading component was calculated by comparison to the total calibration benthic value. The natural benthic value was subtracted from the total calibration benthic load to determine the man-made benthic loading value. These percentages were then applied to the 70% of total loading value, and the CBOD and NBOD loading portions of the reduced man-made benthic loading were determined by adding the CBOD and NBOD portions of the man-made benthic loading to the CBOD and NBOD portions, respectfully, of the background benthic loading. These calculations are shown in Appendix B. The value and sources of CBOD and NBOD for each projection run are presented in Appendix B.

4.1.3.3 Wasteloads, Data Types 24, 25, and 26

The Town of Elizabeth was included in the model. Alligator Bayou, Black Creek, and Little Mill Creek were added as wasteloads to the mainstem.

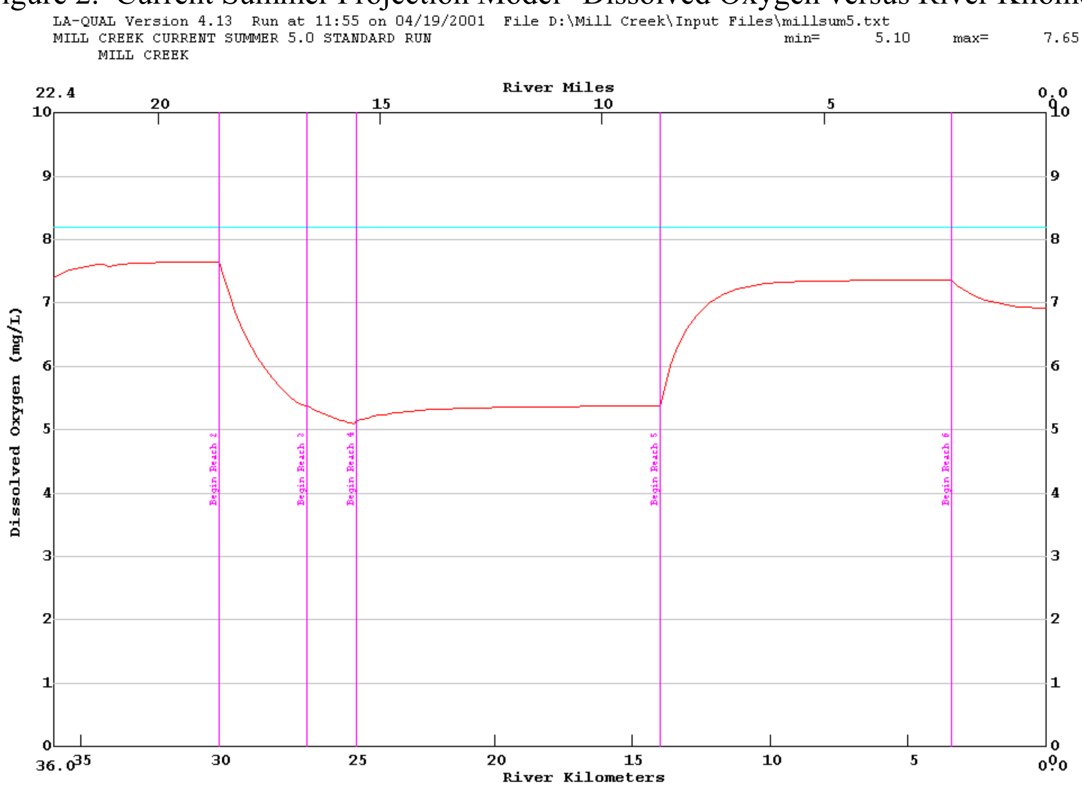
4.2 Projection Model Discussion and Results

The projection model inputs and output data sets are presented in Appendix B. An additional no-discharge summer projection was run that revealed the Town of Elizabeth had minimal on dissolved oxygen in the stream.

4.2.1 Summer Projections

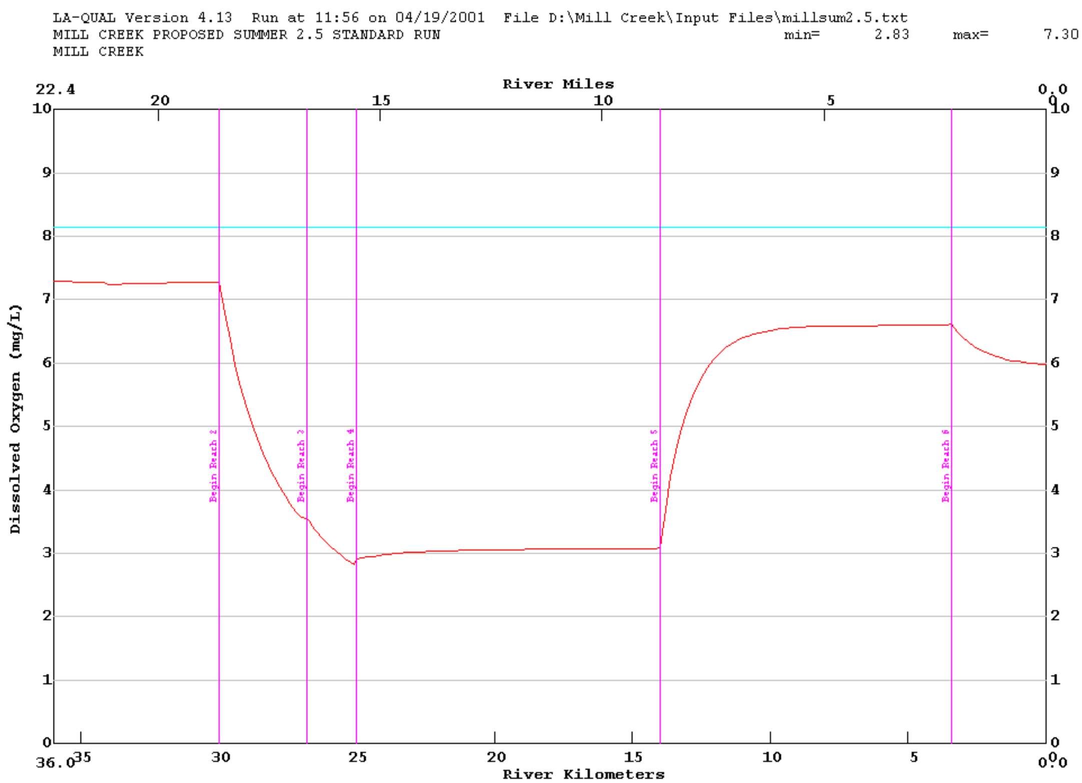
Summer projections were run for both the current standard of 5.0 mg/L May-October and the proposed standard of 2.5 mg/L July – October. In order to meet the 5.0 mg/L standard, a 70% reduction of man-made nonpoint loading is necessary. As shown in the output graph, the bayou meets the dissolved oxygen criterion. The minimum DO on the main stem is 5.10 mg/L. A graph of the dissolved oxygen concentration versus river kilometer for the summer projection is presented in Figure 2.

Figure 2. Current Summer Projection Model--Dissolved Oxygen versus River Kilometer



In order to meet the proposed 2.5 mg/L standard, a 20.0% reduction of man-made nonpoint sources is necessary. As shown in the output graph, Mill Creek meets the proposed dissolved oxygen criterion. The minimum DO on the main stem is 2.83 mg/L. A graph of the dissolved oxygen concentration versus river kilometer for the summer projection is presented in Figure 3.

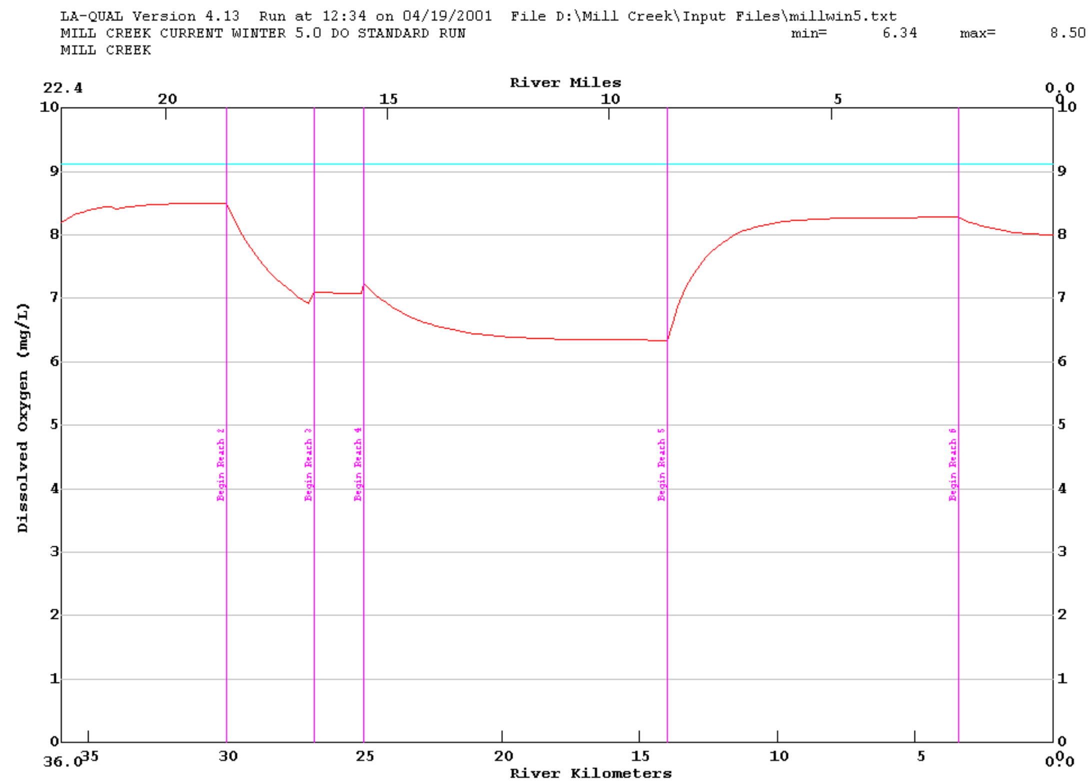
Figure 3. Proposed Summer Projection Model--Dissolved Oxygen versus River Kilometer



4.2.2 Winter Projection

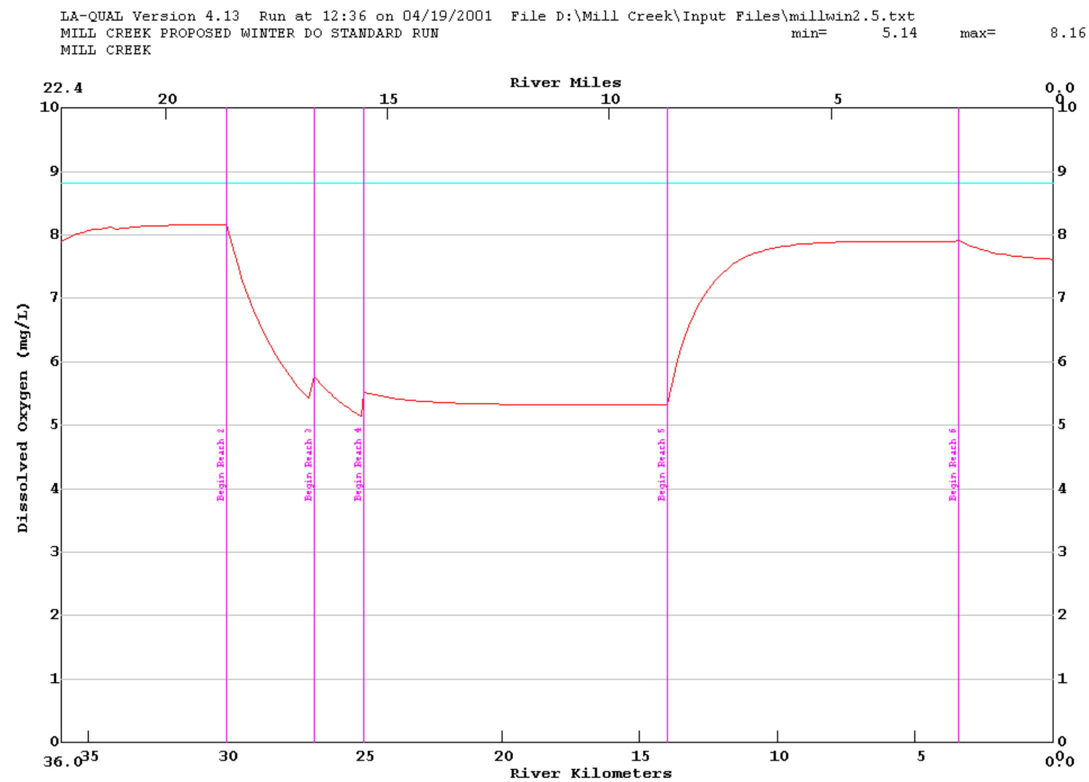
Winter projections were run at both the current and proposed standard. The current standard is 5.0 mg/L November - April. As shown in the output graph, the bayou meets the DO criterion with a 70% reduction in man-made loading. The minimum DO on the main stem is 6.34 mg/L. A graph of the projected winter dissolved oxygen concentration versus river kilometer is presented in Figure 4.

Figure 4. Current Winter Projection Model--Dissolved Oxygen versus River Kilometer



The proposed standard is 5.0 mg/L November - June. As shown in the output graph, the bayou meets the proposed winter DO criterion with a 20% reduction in man-made loading. The minimum DO on the main stem is 5.14 mg/L. A graph of the projected winter dissolved oxygen concentration versus river kilometer is presented in Figure 5.

Figure 5. Proposed Winter Projection Model--Dissolved Oxygen versus River Kilometer



4.3 Calculated TMDLs, WLAs and LAs

TMDLs have been calculated for the summer and winter projection runs. They are presented in Appendix E. A summary of the loads is presented in Table 4.

TMDLs have been calculated for the current and proposed summer and winter projection runs. They are presented in Appendix E. A summary of the loads for the current summer and winter projections is presented in Table 5. A summary of the loads for the proposed summer and winter projections is presented in Table 6.

Table 5. Seasonal Total Maximum Daily Load Summaries—Current Criteria

ALLOCATION	SUMMER (MAY-OCT) DO criterion=5.0 mg/L BOD (lbs/day)	WINTER (NOV-APR) DO criterion=5.0 mg/L BOD (lbs/day)
Point Source WLA	37	37
Headwater/Tributary Loads	110	295
Benthic Loads	128	101
Incremental Loads	0	0
Margin of Safety	31	42
TMDL = WLA + LA + MOS	306	475

Table 6. Seasonal Total Maximum Daily Load Summaries—Proposed Criteria

ALLOCATION	SUMMER (JUL-OCT) DO criterion=2.5 mg/L BOD (lbs/day)	WINTER (NOV-JUN) DO criterion=5.0 mg/L BOD (lbs/day)
Point Source WLA	37	37
Headwater/Tributary Loads	165	454
Benthic Loads	214	179
Incremental Loads	0	0
Margin of Safety	64	102
TMDL = WLA + LA + MOS	480	772

4.3.1 Outline of TMDL calculations

An outline of the TMDL calculations is provided to assist in understanding the calculations in the Appendices. Slight variances may occur based on individual cases.

- ➢ The natural background benthic loading was estimated from reference stream NBOD, CBOD, and SOD data.
- ➢ The calibration anthropogenic (man-made) benthic loading was determined as follows:
  - Calibration nonpoint CBOD and NBOD (resuspension), and SOD were summed for each reach as gm O_2/m^2-day to get the total calibration benthic loading.
  - The natural background benthic loading was subtracted from the total calibration benthic loading to get the total anthropogenic (man-made) calibration benthic loading.
- ➢ Projection runs were made with:
  - Point sources represented at 125% of design flow (based on Department of Health design criteria) to provide an explicit 20% margin of safety for point source loading.
  - Headwater flows at seasonal 7Q10 or 0.1(summer)/1.0(winter) cfs, whichever was greater.

- Headwater concentrations of CBOD, NBOD, and DO at calibration levels.
- For each reach, the nonpoint CBOD and NBOD (resuspension) were adjusted to bring the projected in-stream dissolved oxygen into compliance with criteria. No additional explicit margin of safety was employed for nonpoint loading. The loading capacity and percent reduction of nonpoint were calculated as follows:
  - The total projection benthic loading at 20°C was calculated as the sum of projection NBOD, CBOD, and SOD expressed as gm O_2/m^2-day.
  - The natural background benthic loading was subtracted from the total projection benthic loading to get the total anthropogenic (man-made) projection benthic loading.
  - The total anthropogenic projection benthic loading was subtracted from the total calibration anthropogenic benthic loading and that number divided by the total calibration anthropogenic benthic loading to obtain the percent reduction of nonpoint loading needed to achieve the in-stream dissolved oxygen criteria.
- The total projection benthic loading for each reach was calculated as follows:
  - The projection SOD at 20°C was adjusted to stream critical temperature.
  - The projection CBOD, NBOD, and SOD were summed to get the total benthic loading at critical stream temperature in lb/d for each reach.
- The total stream loading capacity at critical stream temperature was calculated as the sum of:
  - Headwater CBOD and NBOD loading in lb/d.
  - Projection benthic loading for all reaches of the stream in lb/d.
  - Total point source CBOD and NBOD loading in lb/d.
  - The facility margin of safety.

The TMDL for the Mill Creek watershed was set equal to the total stream loading capacity.

5.0 Sensitivity Analyses

All modeling studies necessarily involve uncertainty and some degree of approximation. It is therefore of value to consider the sensitivity of the model output to changes in model coefficients, and in the hypothesized relationships among the parameters of the model. The LA-QUAL model allows multiple parameters to be varied with a single run. The model adjusts each parameter up or down by the percentage given in the input set. The rest of the parameters listed in the sensitivity section are held at their original value. Thus the sensitivity of each parameter is reviewed separately. A sensitivity analysis was performed on the calibration. The sensitivity of the model's minimum DO to these parameters is presented in Table 6. Parameters were varied by +/- 30%, except temperature, which was adjusted +/- 2 degrees Centigrade. The calibration minimum DO was 0.68 mg/L.

Table 7. Summary of Calibration Model Sensitivity Analysis

	Positive Changes in parameter			**Negative Changes in parameter**		
Parameter	% change	Minimum DO (mg/l)	Percentage Difference	% change	Minimum DO (mg/l)	Percentage Difference
Stream Reaeration	-30.0	0.00	-100.0	30.0	0.76	**211.3**
Benthal Demand	-30.0	0.70	**185.5**	30.0	0.00	-100.0
Initial Temperature	-2 deg C	0.44	**80.3**	2 deg C	0.00	-100.0
BOD Decay Rate	-30.0	0.27	**10.8**	30.0	0.23	-7.5
BOD Settling Rate	-30.0	0.24	-2.0	30.0	0.25	1.8
Nonconservative Settling	-30.0	0.24	-2.4	30.0	0.25	2.5
Nonconservative Decay	-30.0	0.29	**17.1**	30.0	0.22	-9.5
Headwater Flow	-30.0	0.22	**-8.5**	30.0	0.26	5.9
Wasteload Flow	-30.0	0.23	**-6.8**	30.0	0.27	12.4

As shown in the summary table, reaeration is the parameter to which DO is most sensitive (211.3% to –100.0%). The other parameters creating major variations in the minimum DO values are Benthal Demand 185.5% to –100.0%), and Initial Temperature 80.3% to –100.0%). BOD and Nonconservative Decay, BOD and Nonconservative Settling, and Headwater and Wasteload Flows are moderately sensitive with variations ranging from –9.5% to 17.1%.

6.0 Conclusions

This TMDL has been developed in accordance with the State's anti-degradation policy (LAC 33:IX.1109). The results of the current summer projections show that the current water quality standard for dissolved oxygen for Mill Creek (WQ Subsegment 030104) of 5.0 mg/L can be maintained during the summer critical season, (May – October) with a 70% reduction in man-made loading.

The results of the current winter projection model show that the water quality criterion for dissolved oxygen for Mill Creek of 5.0 mg/L can be maintained during the winter critical season, (November – April). To achieve the current summer standard, a 70% reduction in man-made loading is needed.

The results of the proposed summer projections show that the proposed water quality standard for dissolved oxygen for Mill Creek (WQ Subsegment 030104) of 2.5 mg/L can be maintained during the summer critical season, (July – October) with a 20% reduction in man-made loading.

The results of the proposed winter projection model show that the water quality criterion for dissolved oxygen for Mill Creek of 5.0 mg/L can be maintained during the proposed winter critical season, (November – June). To achieve the current summer standard, a 20% reduction in man-made loading is required.

LDEQ will work with other agencies such as local Soil Conservation Districts to implement agricultural best management practices in the watershed through the 319 programs. LDEQ will also continue to monitor the waters to determine whether standards are being attained.

In accordance with Section 106 of the federal Clean Water Act and under the authority of the Louisiana Environmental Quality Act, the LDEQ has established a comprehensive program for monitoring the quality of the state's surface waters. The LDEQ Surveillance Section collects surface water samples at various locations, utilizing appropriate sampling methods and procedures for ensuring the quality of the data collected. The objectives of the surface water monitoring program are to determine the quality of the state's surface waters, to develop a long-term data base for water quality trend analysis, and to monitor the effectiveness of pollution controls. The data obtained through the surface water monitoring program is used to develop the state's biennial 305(b) report (*Water Quality Inventory*) and the 303(d) list of impaired waters. This information is also utilized in establishing priorities for the LDEQ nonpoint source program.

The LDEQ has implemented a watershed approach to surface water quality monitoring. Through this approach, the entire state is sampled over a five-year cycle with two targeted basins sampled each year. Long-term trend monitoring sites at various locations on the larger rivers and Lake Pontchartrain are sampled throughout the five-year cycle. Sampling is conducted on a monthly basis or more frequently if necessary to yield at least 12 samples per site each year. Sampling sites are located where they are considered to be representative of the waterbody. Under the current monitoring schedule, targeted basins follow the TMDL priorities. In this manner, the first TMDLs will have been implemented by the time the first priority basins will be monitored again in the second five-year cycle. This will allow the LDEQ to determine whether there has been any improvement in water quality following implementation of the TMDLs. As the monitoring results are evaluated at the end of each year, waterbodies may be added to or removed from the 303(d) list. The sampling schedule for the next five years is shown below.

2001 - Lake Pontchartrain Basin and Pearl River Basin
2002 - Red and Sabine River Basins
2003 - Mermentau and Vermilion-Teche River Basins
2004 - Calcasieu and Ouachita River Basins
2005 - Barataria and Terrebonne Basins
(Atchafalaya and Mississippi Rivers will be sampled continuously.)

7.0 List of References

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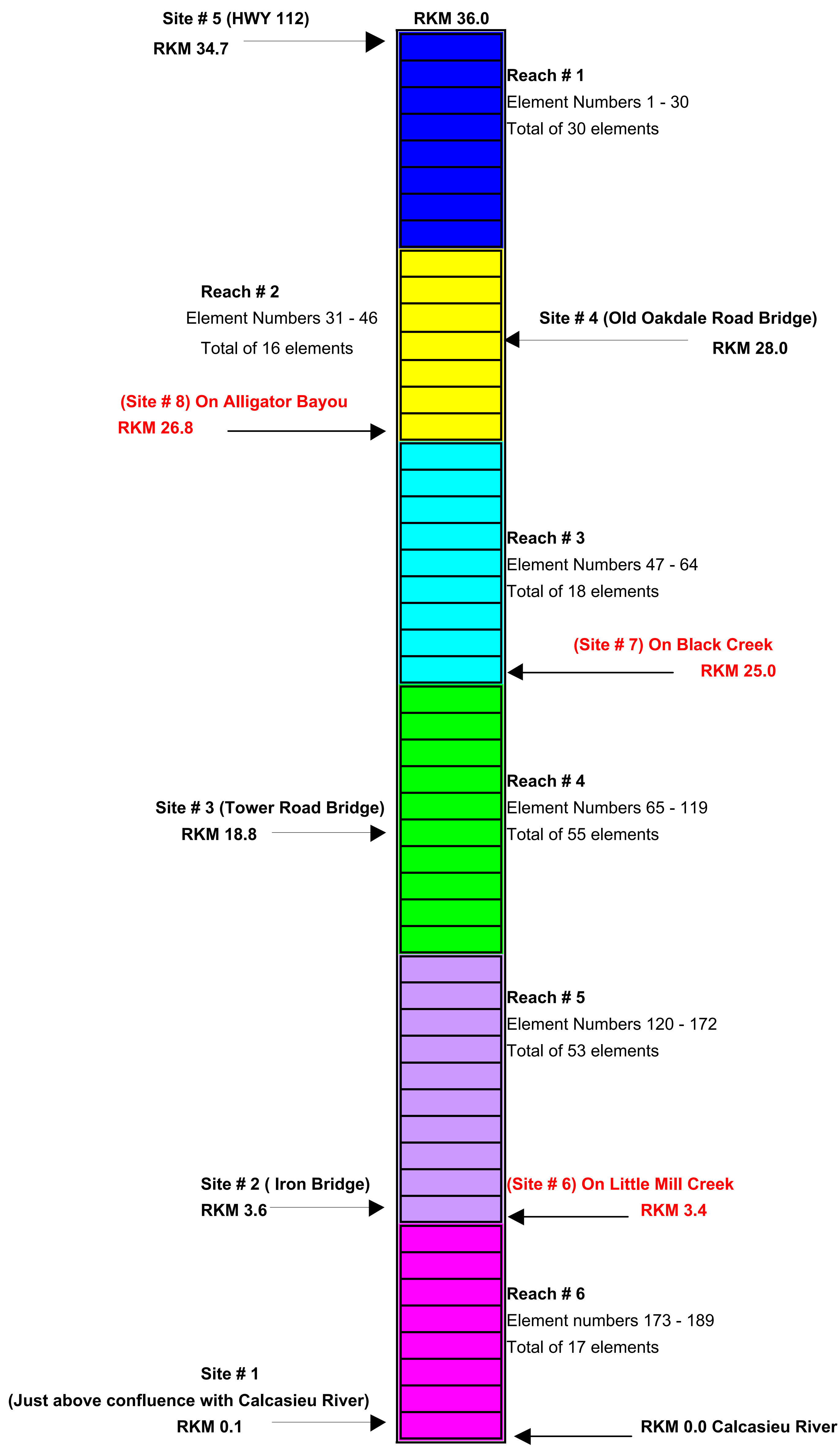
Appendix A

Calibration Model Development

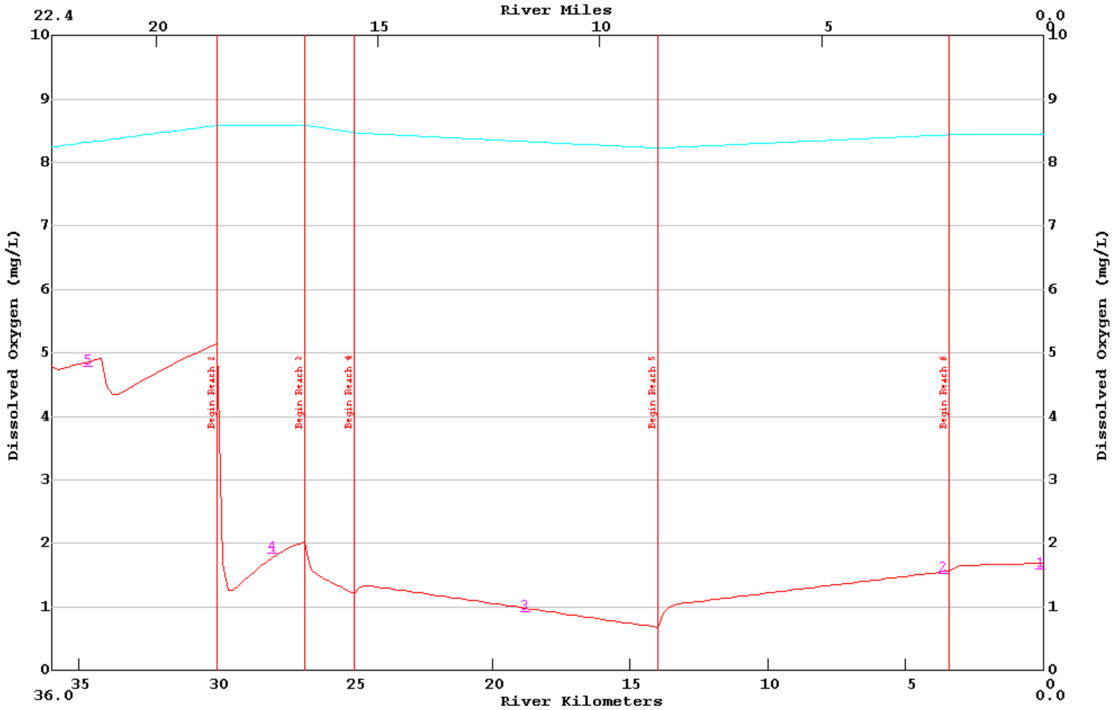
Mill Creek Model Layout



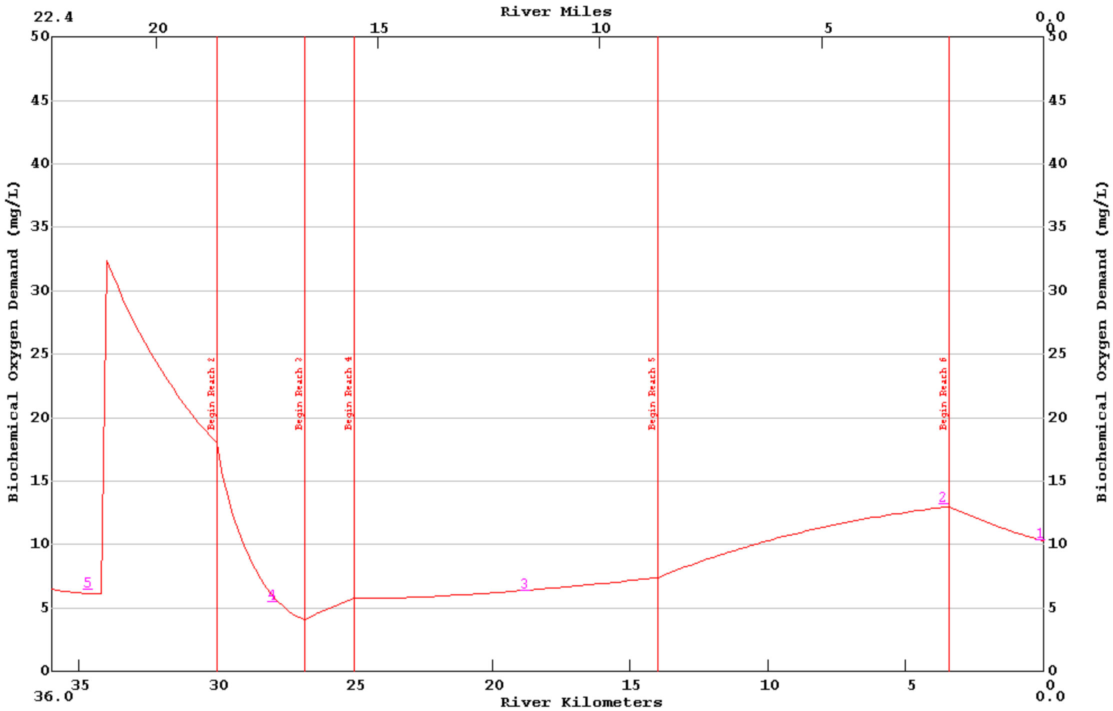
Date: 2/27/2002

Reach #	Description	Headwater Yes/No	Starting modeled Kilometer	Ending modeled Kilometer	Modeled Length kilometers	Element Length kilometers	Element Count	Cumulative Elements	Begin Element #	End Element #
1	Mill Creek to RKM 30.0	Yes	36	30	6.00	0.200	30	30	1	30
2	Mill Creek from RKM 30.0 to conf of Alligator Bayou	No	30	26.8	3.20	0.200	16	46	31	46
3	Mill Creek from conf. Of Alligator Bayou to conf. With Black Creek	No	26.8	25	1.80	0.100	18	64	47	64
4	Mill Creek from conf. Of Black Creek to RKM 14	No	25	14	11.00	0.200	55	119	65	119
5	Mill Creek from RKM 14 to conf. With Little Mill Creek	No	14	3.4	10.60	0.200	53	172	120	172
6	Mill Creek from conf. With Little Mill Creek to its conf. With Calcasieu River	No	3.4	0	3.40	0.200	17	189	173	189

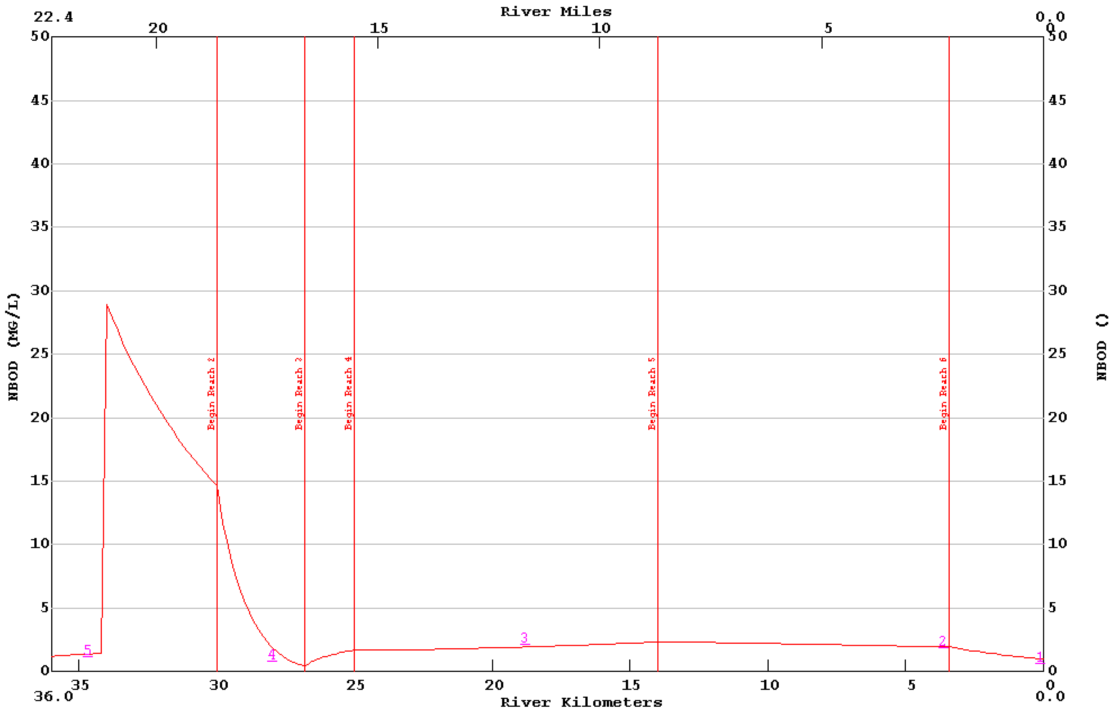
LA-QUAL Version 5.02 Run at 06:33 on 02/28/2002 File D:\Mill Creek\Input Files\millcalb.txt
MILL CREEK CALIBRATION RUN min= 0.68 max= 5.14
MILL CREEK



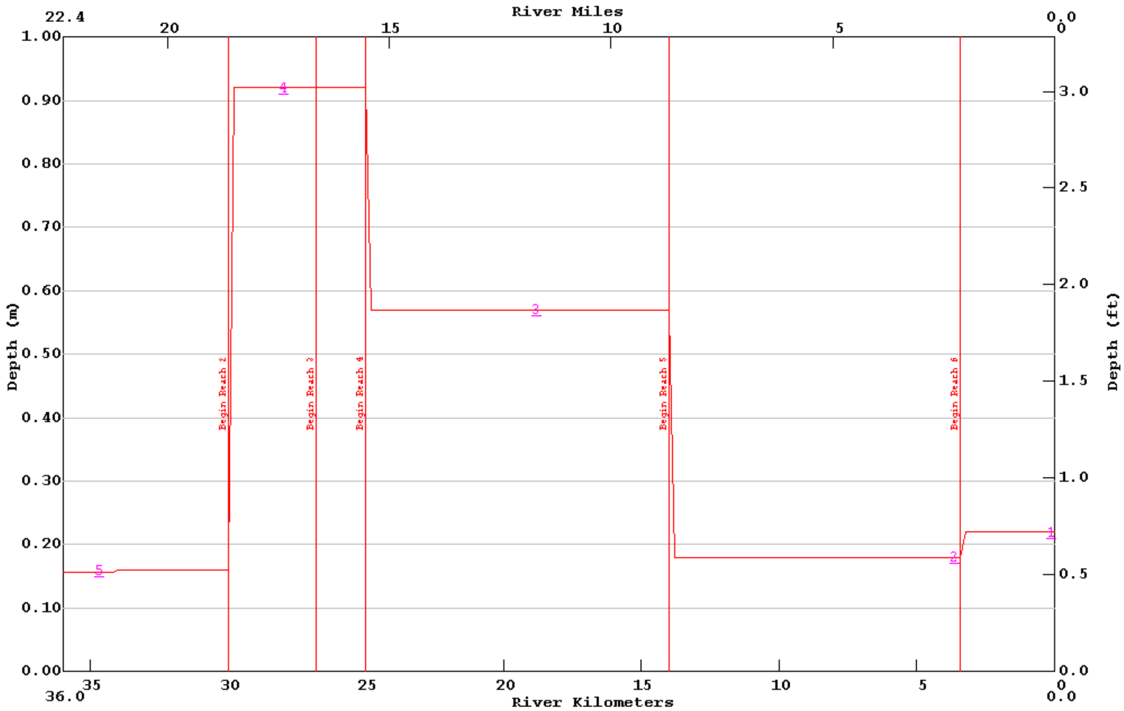
LA-QUAL Version 5.02 Run at 06:33 on 02/28/2002 File D:\Mill Creek\Input Files\millcalb.txt
MILL CREEK CALIBRATION RUN min= 4.06 max= 32.42
MILL CREEK



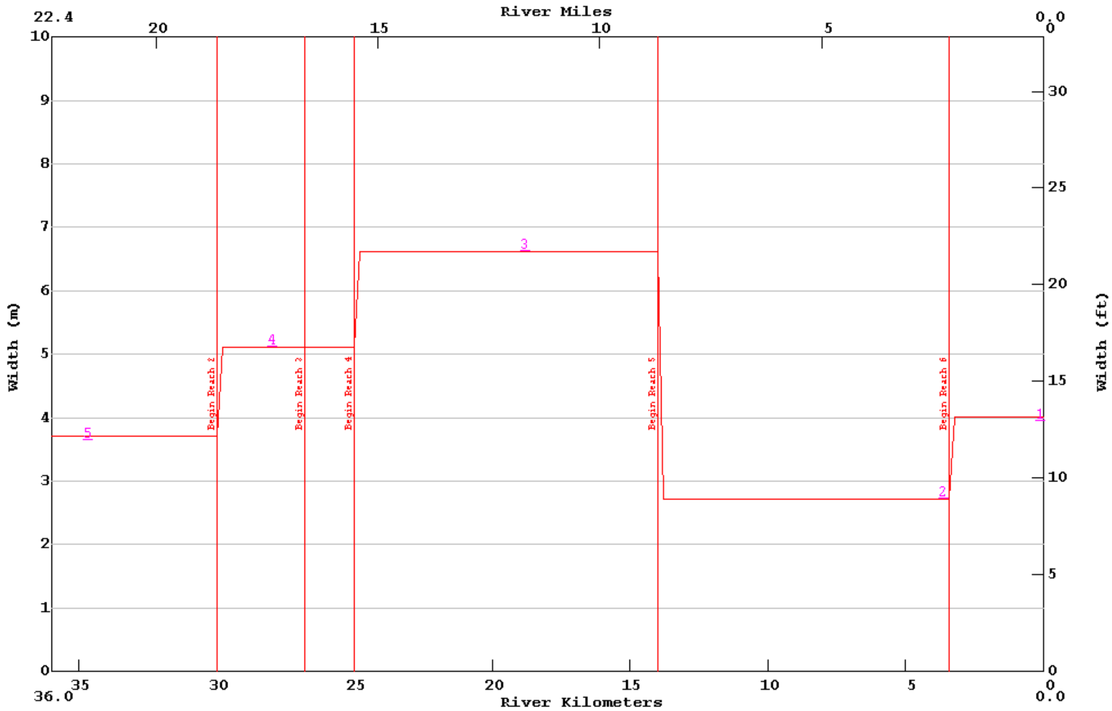
LA-QUAL Version 5.02 Run at 06:33 on 02/28/2002 File D:\Mill Creek\Input Files\millcalb.txt
MILL CREEK CALIBRATION RUN   min= 0.44   max= 28.92
MILL CREEK



LA-QUAL Version 5.02 Run at 06:33 on 02/28/2002 File D:\Mill Creek\Input Files\millcalb.txt
MILL CREEK CALIBRATION RUN min= 0.16 max= 0.92
MILL CREEK



LA-QUAL Version 5.02 Run at 06:33 on 02/28/2002 File D:\Mill Creek\Input Files\millcalb.txt
MILL CREEK CALIBRATION RUN min= 2.71 max= 6.61
MILL CREEK



```
LA-QUAL Version 5.02
Louisiana Department of Environmental Quality

Input file is D:\Mill Creek\Input Files\millcalb.txt
Output produced at 06:33 on 02/28/2002

$$$ DATA TYPE 1 (TITLES AND CONTROL CARDS) $$$

CARD TYPE       CONTROL TITLES

TITLE01         MILL CREEK WATERSHED MODEL
TITLE02         MILL CREEK CALIBRATION RUN
CNTROL04  YES   METRIC UNITS
CNTROL05  YES   OXYGEN DEPENDENT RATES
ENDATA01

$$$ DATA TYPE 2 (MODEL OPTIONS) $$$

CARD TYPE       MODEL OPTION

MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL  I = CHLORIDES                  IN MG/L
MODOPT04  YES   CONSERVATIVE MATERIAL II = SULFATES                   IN MG/L
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BIOCHEMICAL OXYGEN DEMAND
MODOPT07   NO   NITROGEN
MODOPT08   NO   PHOSPHORUS
MODOPT09   NO   CHLOROPHYLL A
MODOPT10   NO   MACROPHYTES
MODOPT11   NO   COLIFORM
MODOPT12  YES   NONCONSERVATIVE MATERIAL = NBOD                       IN MG/L
ENDATA02

$$$ DATA TYPE 3 (PROGRAM CONSTANTS) $$$

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

PROGRAM         MAXIMUM ITERATION LIMIT            =       200.00000
PROGRAM         KL MINIMUM                         =         0.70000 meters/day
PROGRAM         NCM OXYGEN UPTAKE RATE             =         1.00000 mg O/mg NCM
PROGRAM         INHIBITION CONTROL VALUE           =         3.00000
PROGRAM         OCEAN EXCHANGE RATIO               =         0.00000
PROGRAM         K2 MAXIMUM                         =        25.00000 per day
PROGRAM         HYDRAULIC CALCULATION METHOD       =         2.00000 (widths and depths)
PROGRAM         SETTLING RATE UNITS                =         2.00000 (per day)
ENDATA03

$$$ DATA TYPE 4 (TEMPERATURE CORRECTION CONSTANTS FOR RATE COEFFICIENTS) $$$
```

CARD TYPE	RATE CODE	THETA VALUE

ENDATA04

$$$ CONSTANTS TYPE 5 (TEMPERATURE DATA) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA05

$$$ DATA TYPE 6 (ALGAE CONSTANTS) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA06

$$$ DATA TYPE 7 (MACROPHYTE CONSTANTS) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA07

$$$ DATA TYPE 8 (REACH IDENTIFICATION DATA) $$$

CARD TYPE	REACH	ID	NAME	BEGIN REACH km		END REACH km	ELEM LENGTH km	REACH LENGTH km	ELEMS PER RCH	BEGIN ELEM NUM	END ELEM NUM
REACH ID	1	MC	HEADWATER - RKM 30.0	36.00	TO	30.00	0.2000	6.00	30	1	30
REACH ID	2	MC	RKM 30.0 - ALLIGATOR BAYOU	30.00	TO	26.80	0.2000	3.20	16	31	46
REACH ID	3	MC	ALLIGATOR BAYOU - BLACK CR	26.80	TO	25.00	0.1000	1.80	18	47	64
REACH ID	4	MC	BLACK CREEK - RKM 14.0	25.00	TO	14.00	0.2000	11.00	55	65	119
REACH ID	5	MC	RKM 14.0 - LITTLE MILL CR	14.00	TO	3.40	0.2000	10.60	53	120	172
REACH ID	6	MC	LITTLE MILL - CALCASIEU	3.40	TO	0.00	0.2000	3.40	17	173	189

ENDATA08

$$$ DATA TYPE 9 (ADVECTIVE HYDRAULIC COEFFICIENTS) $$$

CARD TYPE	REACH	ID	WIDTH "A"	WIDTH "B"	WIDTH "C"	DEPTH "D"	DEPTH "E"	DEPTH "F"	SLOPE	MANNINGS "N"
HYDR-1	1	MC	0.100	0.400	3.700	0.100	0.400	0.150	0.00000	0.040
HYDR-1	2	MC	0.100	0.400	5.100	0.100	0.400	0.910	0.00000	0.040
HYDR-1	3	MC	0.100	0.400	5.100	0.100	0.400	0.910	0.00000	0.040
HYDR-1	4	MC	0.100	0.400	6.600	0.100	0.400	0.560	0.00000	0.040
HYDR-1	5	MC	0.100	0.400	2.700	0.100	0.400	0.170	0.00000	0.040
HYDR-1	6	MC	0.100	0.400	4.000	0.100	0.400	0.210	0.00000	0.040

ENDATA09

$$$ DATA TYPE 10 (DISPERSIVE HYDRAULIC COEFFICIENTS) $$$

CARD TYPE	REACH	ID	TIDAL RANGE	DISPERSION "A"	DISPERSION "B"	DISPERSION "C"	DISPERSION "D"

ENDATA10

$$$ DATA TYPE 11 (INITIAL CONDITIONS) $$$

CARD TYPE	REACH	ID	TEMP	SALIN	DO	NH3	NO3+2	PHOS	CHL A	MACRO
INITIAL	1	MC	25.11	0.00	4.79	0.00	0.00	0.00	0.00	0.00
INITIAL	2	MC	22.94	0.00	1.85	0.00	0.00	0.00	0.00	0.00
INITIAL	3	MC	22.94	0.00	1.85	0.00	0.00	0.00	0.00	0.00
INITIAL	4	MC	23.67	0.00	0.92	0.00	0.00	0.00	0.00	0.00
INITIAL	5	MC	25.23	0.00	1.53	0.00	0.00	0.00	0.00	0.00
INITIAL	6	MC	23.87	0.00	1.60	0.00	0.00	0.00	0.00	0.00

ENDATA11

$$$ DATA TYPE 12 (REAERATION, SEDIMENT OXYGEN DEMAND, BOD COEFFICIENTS) $$$

CARD TYPE	REACH	ID	K2 OPT	K2 "A"	K2 "B"	K2 "C"	BKGRND SOD $g/m^2/d$	AEROB BOD DECAY per day	BOD SETT m/d	BOD CONV TO SOD	ANAER BOD DECAY
COEF-1	1	MC	15 LOUISIANA	0.000	0.000	0.000	1.900	0.070	0.010	0.000	0.000
COEF-1	2	MC	15 LOUISIANA	0.000	0.000	0.000	3.800	0.060	0.010	0.000	0.000
COEF-1	3	MC	15 LOUISIANA	0.000	0.000	0.000	4.100	0.060	0.010	0.000	0.000
COEF-1	4	MC	15 LOUISIANA	0.000	0.000	0.000	4.100	0.040	0.010	0.000	0.000
COEF-1	5	MC	15 LOUISIANA	0.000	0.000	0.000	4.300	0.040	0.010	0.000	0.000
COEF-1	6	MC	15 LOUISIANA	0.000	0.000	0.000	4.000	0.040	0.010	0.000	0.000

ENDATA12

$$$ DATA TYPE 13 (NITROGEN AND PHOSPHORUS COEFFICIENTS) $$$

CARD TYPE	REACH	ID	ORG-N DECA	ORG-N SETT	ORGN CONV TO NH3 SRCE	NH3 DECA	NH3 SRCE	PHOS SRCE	DENIT RATE

ENDATA13

$$$ DATA TYPE 14 (ALGAE AND MACROPHYTE COEFFICIENTS) $$$

CARD TYPE	REACH	ID	SECCHI DEPTH	ALGAE: CHL A	ALGAE SETT	ALG CONV TO SOD	ALGAE GROW	ALGAE RESP	MACRO GROW	MACRO RESP

ENDATA14

$$$ DATA TYPE 15 (COLIFORM AND NONCONSERVATIVE COEFFICIENTS) $$$

CARD TYPE	REACH	ID	COLIFORM DIE-OFF	NCM DECAY	NCM SETT	NCM CONV TO SOD

COEF-4	1	MC	0.00	0.06	0.01	0.00
COEF-4	2	MC	0.00	0.06	0.01	0.00
COEF-4	3	MC	0.00	0.06	0.01	0.00
COEF-4	4	MC	0.00	0.09	0.01	0.00
COEF-4	5	MC	0.00	0.08	0.01	0.00
COEF-4	6	MC	0.00	0.05	0.01	0.00

ENDATA15

$$$ DATA TYPE 16 (INCREMENTAL DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) $$$

CARD TYPE	REACH	ID	OUTFLOW	INFLOW	TEMP	SALIN	CM-I	CM-II	IN/DIST	OUT/DIST

ENDATA16

$$$ DATA TYPE 17 (INCREMENTAL DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	REACH	ID	DO	BOD	ORG-N	NH3	NO3+2

ENDATA17

$$$ DATA TYPE 18 (INCREMENTAL DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	REACH	ID	PHOS	CHL A	COLI	NCM

ENDATA18

$$$ DATA TYPE 19 (NONPOINT SOURCE DATA) $$$

CARD TYPE	REACH	ID	BOD	ORG-N	COLI	NCM	DO
NONPOINT	1	MC	2.00	0.00	0.00	0.50	0.00
NONPOINT	2	MC	4.00	0.00	0.00	0.00	0.00
NONPOINT	3	MC	3.00	0.00	0.00	1.00	0.00
NONPOINT	4	MC	10.00	0.00	0.00	6.00	0.00
NONPOINT	5	MC	4.00	0.00	0.00	0.80	0.00
NONPOINT	6	MC	1.00	0.00	0.00	0.00	0.00

ENDATA19

$$$ DATA TYPE 20 (HEADWATER FOR FLOW, TEMPERATURE, SALINITY AND CONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	UNIT	FLOW	FLOW	TEMP	SALIN	CM-I	CM-II
				m^3/s	cfs	deg C	ppt	MG/L	MG/L
HDWTR-1	1	HEADWATER	0	0.00100	0.035	25.11	0.00	3.400	3.100

ENDATA20

$$$ DATA TYPE 21 (HEADWATER DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	ELEMENT	NAME	DO	BOD	ORG-N	NH3	NO3+2

HDWTR-2	1	HEADWATER	4.79	6.49	0.00	0.00	0.00

ENDATA21

$$$ DATA TYPE 22 (HEADWATER DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	PHOS	CHL A	COLI	NCM
HDWTR-3	1	HEADWATER	0.00	0.00	0.00	1.20

ENDATA22

$$$ DATA TYPE 23 (JUNCTION DATA) $$$

CARD TYPE	JUNCTION ELEMENT	UPSTRM ELEMENT	RIVER KILOM	NAME

ENDATA23

$$$ DATA TYPE 24 (WASTELOAD DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) $$$

CARD TYPE	ELEMENT	RKILO	NAME	FLOW m^3/s	FLOW cfs	FLOW MGD	TEMP deg C	SALIN ppt	CM-I MG/L	CM-II MG/L
WSTLD-1	10	34.20	TOWN OF ELIZABETH	0.00220	0.07768	0.050	25.10	0.00	3.400	3.100

ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	ELEMENT	NAME	DO	BOD	% BOD RMVL	ORG-N	NH3	% NITRIF	NO3+2
WSTLD-2	10	TOWN OF ELIZABETH	5.00	46.00	0.00	0.00	0.00	0.00	0.00

ENDATA25

$$$ DATA TYPE 26 (WASTELOAD DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	PHOS	CHL A	COLI	NCM
WSTLD-3	10	TOWN OF ELIZABETH	0.00	0.00	0.00	43.00

ENDATA26

$$$ DATA TYPE 27 (LOWER BOUNDARY CONDITIONS) $$$

CARD TYPE	CONSTITUENT	CONCENTRATION

ENDATA27

$$$ DATA TYPE 28 (DAM DATA) $$$

CARD TYPE	ELEMENT	NAME	EQN	"A"	"B"	"H"

ENDATA28

$$$ DATA TYPE 29 (SENSITIVITY ANALYSIS DATA) $$$

CARD TYPE	PARAMETER	COL 1	COL 2	COL 3	COL 4	COL 5	COL 6	COL 7	COL 8

ENDATA29

$$$ DATA TYPE 30 (PLOT CONTROL CARDS) $$$

NUMBER OF PLOTS = 1
NUMBER OF REACHES IN PLOT 1 = 6
PLOT RCH 1 2 3 4 5 6
ENDATA30

$$$ DATA TYPE 31 (OVERLAY PLOT DATA) $$$

OVERLAY NUMBER OF OVERLAY SETS = 1
OVERLAY SET 1 BASEPLOT 1, DATAFILE mcovl.txt :MILL CREEK
ENDATA31

.....NO ERRORS DETECTED IN INPUT DATA
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN 8 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED
.....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 11

FINAL REPORT HEADWATER MILL CREEK WATERSHED MODEL
REACH NO. 1 HEADWATER - RKM 30.0 MILL CREEK CALIBRATION RUN

** REACH INPUTS **

ELEM NO.	TYPE	FLOW $m^3/$	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
1	HDWTR	0.00100	25.11	0.00	3.40	3.10	4.79	6.49	6.49	0.00	0.00	0.00	0.00	0.00	0.00	1.20
10	WSTLD	0.00220	25.10	0.00	3.40	3.10	5.00	46.00	46.00	0.00	0.00	0.00	0.00	0.00	0.00	43.00

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW $m^3/$	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s

1	36.00	35.80	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
2	35.80	35.60	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
3	35.60	35.40	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
4	35.40	35.20	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
5	35.20	35.00	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
6	35.00	34.80	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
7	34.80	34.60	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
8	34.60	34.40	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
9	34.40	34.20	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
10	34.20	34.00	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
11	34.00	33.80	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
12	33.80	33.60	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
13	33.60	33.40	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
14	33.40	33.20	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
15	33.20	33.00	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
16	33.00	32.80	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
17	32.80	32.60	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
18	32.60	32.40	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
19	32.40	32.20	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
20	32.20	32.00	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
21	32.00	31.80	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
22	31.80	31.60	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
23	31.60	31.40	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
24	31.40	31.20	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
25	31.20	31.00	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
26	31.00	30.80	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
27	30.80	30.60	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
28	30.60	30.40	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
29	30.40	30.20	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
30	30.20	30.00	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
TOT						21.09			3536.69	22253.56					
AVG					0.00329		0.16	3.71			0.59				
CUM						21.09									

*** BIOLOGICAL AND PHYSICAL COEFFICIENTS ***

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
1	35.800	8.26	4.93	0.09	0.01	0.00	2.61	2.61	2.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
2	35.600	8.27	4.92	0.09	0.01	0.00	2.60	2.60	2.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01

3	35.400	8.28	4.92	0.09	0.01	0.00	2.59	2.59	2.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
4	35.200	8.29	4.91	0.09	0.01	0.00	2.57	2.57	2.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
5	35.000	8.30	4.90	0.09	0.01	0.00	2.56	2.56	2.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
6	34.800	8.31	4.90	0.09	0.01	0.00	2.55	2.55	2.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
7	34.600	8.32	4.89	0.09	0.01	0.00	2.54	2.54	2.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
8	34.400	8.34	4.88	0.09	0.01	0.00	2.53	2.53	2.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
9	34.200	8.35	4.88	0.09	0.01	0.00	2.52	2.52	2.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
10	34.000	8.36	5.04	0.09	0.01	0.00	2.50	2.50	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
11	33.800	8.37	5.03	0.09	0.01	0.00	2.49	2.49	2.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
12	33.600	8.38	5.02	0.09	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
13	33.400	8.39	5.02	0.08	0.01	0.00	2.47	2.47	2.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
14	33.200	8.40	5.01	0.08	0.01	0.00	2.46	2.46	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
15	33.000	8.41	5.00	0.08	0.01	0.00	2.45	2.45	2.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
16	32.800	8.43	5.00	0.08	0.01	0.00	2.44	2.44	2.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
17	32.600	8.44	4.99	0.08	0.01	0.00	2.43	2.43	2.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
18	32.400	8.45	4.98	0.08	0.01	0.00	2.41	2.41	2.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
19	32.200	8.46	4.98	0.08	0.01	0.00	2.40	2.40	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
20	32.000	8.47	4.97	0.08	0.01	0.00	2.39	2.39	2.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
21	31.800	8.48	4.96	0.08	0.01	0.00	2.38	2.38	2.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
22	31.600	8.49	4.96	0.08	0.01	0.00	2.37	2.37	2.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
23	31.400	8.51	4.95	0.08	0.01	0.00	2.36	2.36	2.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
24	31.200	8.52	4.94	0.08	0.01	0.00	2.35	2.35	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
25	31.000	8.53	4.94	0.08	0.01	0.00	2.34	2.34	2.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
26	30.800	8.54	4.93	0.08	0.01	0.00	2.33	2.33	2.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
27	30.600	8.55	4.92	0.08	0.01	0.00	2.32	2.32	2.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01

28	30.400	8.56	4.92	0.08	0.01	0.00	2.31	2.31	2.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
29	30.200	8.58	4.91	0.08	0.01	0.00	2.30	2.30	2.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
30	30.000	8.59	4.90	0.08	0.01	0.00	2.29	2.29	2.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
20 DEG C RATE				0.07		0.00	1.90			0.00		0.00	0.00	0.00	0.00			0.00	0.06	
AVG 20 DEG C RATE			4.58		0.01						0.00									0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
1	35.800	25.04	0.00	3.40	3.10	4.74	6.41	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23
2	35.600	24.97	0.00	3.40	3.10	4.76	6.34	6.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27
3	35.400	24.89	0.00	3.40	3.10	4.78	6.28	6.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29
4	35.200	24.82	0.00	3.40	3.10	4.80	6.22	6.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32
5	35.000	24.75	0.00	3.40	3.10	4.82	6.18	6.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
6	34.800	24.68	0.00	3.40	3.10	4.85	6.15	6.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
7	34.600	24.60	0.00	3.40	3.10	4.87	6.12	6.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
8	34.400	24.53	0.00	3.40	3.10	4.89	6.09	6.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
9	34.200	24.46	0.00	3.40	3.10	4.91	6.11	6.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46
10	34.000	24.39	0.00	3.40	3.10	4.47	32.42	32.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.92
11	33.800	24.31	0.00	3.40	3.10	4.35	31.36	31.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.89
12	33.600	24.24	0.00	3.40	3.10	4.35	30.35	30.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.90
13	33.400	24.17	0.00	3.40	3.10	4.39	29.38	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.95
14	33.200	24.10	0.00	3.40	3.10	4.44	28.45	28.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.04
15	33.000	24.03	0.00	3.40	3.10	4.49	27.57	27.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.17
16	32.800	23.95	0.00	3.40	3.10	4.54	26.72	26.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.33
17	32.600	23.88	0.00	3.40	3.10	4.59	25.91	25.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.53
18	32.400	23.81	0.00	3.40	3.10	4.64	25.13	25.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.76
19	32.200	23.74	0.00	3.40	3.10	4.69	24.39	24.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.03
20	32.000	23.66	0.00	3.40	3.10	4.73	23.67	23.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.32
21	31.800	23.59	0.00	3.40	3.10	4.78	22.99	22.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.64
22	31.600	23.52	0.00	3.40	3.10	4.82	22.34	22.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.99
23	31.400	23.45	0.00	3.40	3.10	4.86	21.71	21.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.37
24	31.200	23.37	0.00	3.40	3.10	4.91	21.12	21.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.77
25	31.000	23.30	0.00	3.40	3.10	4.95	20.54	20.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.20
26	30.800	23.23	0.00	3.40	3.10	4.99	19.99	19.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.65
27	30.600	23.16	0.00	3.40	3.10	5.03	19.47	19.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.12
28	30.400	23.08	0.00	3.40	3.10	5.07	18.96	18.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.61
29	30.200	23.01	0.00	3.40	3.10	5.11	18.48	18.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.13
30	30.000	22.94	0.00	3.40	3.10	5.14	18.02	18.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.66

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = NBOD MG/L

** g/m^3

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL

REACH NO. 2   RKM 30.0 - ALLIGATOR BAYOU   MILL CREEK CALIBRATION RUN

******* REACH INPUTS *******

ELEM NO.	TYPE	FLOW $m^3/$	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
31	UPR RCH	0.00320	22.94	0.00	3.40	3.10	5.14	18.02	18.02	0.00	0.00	0.00	0.00	0.00	0.00	14.66

******* HYDRAULIC PARAMETER VALUES *******

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW $m^3/$	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
31	30.00	29.80	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
32	29.80	29.60	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
33	29.60	29.40	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
34	29.40	29.20	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
35	29.20	29.00	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
36	29.00	28.80	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
37	28.80	28.60	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
38	28.60	28.40	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
39	28.40	28.20	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
40	28.20	28.00	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
41	28.00	27.80	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
42	27.80	27.60	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
43	27.60	27.40	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
44	27.40	27.20	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
45	27.20	27.00	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
46	27.00	26.80	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
TOT						54.42			15044.75	16352.15					
AVG					0.00068		0.92	5.11			4.70				
CUM						75.50									

******* BIOLOGICAL AND PHYSICAL COEFFICIENTS *******

ELEM NO.	ENDING DIST	SAT D.O.	REAER RATE	CBOD DECAY	CBOD SETT	ANBOD DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY

																				SETT
		mg/L	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
31	29.800	8.59	0.81	0.06	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
32	29.600	8.59	0.81	0.04	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
33	29.400	8.59	0.81	0.04	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
34	29.200	8.59	0.81	0.05	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
35	29.000	8.59	0.81	0.05	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
36	28.800	8.59	0.81	0.05	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
37	28.600	8.59	0.81	0.05	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
38	28.400	8.59	0.81	0.06	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
39	28.200	8.59	0.81	0.06	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
40	28.000	8.59	0.81	0.06	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
41	27.800	8.59	0.81	0.06	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
42	27.600	8.59	0.81	0.06	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
43	27.400	8.59	0.81	0.07	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
44	27.200	8.59	0.81	0.07	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
45	27.000	8.59	0.81	0.07	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
46	26.800	8.59	0.81	0.07	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
20 DEG C RATE				0.06		0.00	3.80			0.00		0.00	0.00	0.00	0.00			0.00	0.06	
AVG 20 DEG C RATE			0.76		0.01						0.00									0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
31	29.800	22.94	0.00	3.40	3.10	1.68	15.35	15.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.76

32	29.600	22.94	0.00	3.40	3.10	1.26	13.72	13.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.85
33	29.400	22.94	0.00	3.40	3.10	1.27	12.34	12.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.24
34	29.200	22.94	0.00	3.40	3.10	1.34	11.09	11.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.84
35	29.000	22.94	0.00	3.40	3.10	1.41	9.97	9.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.63
36	28.800	22.94	0.00	3.40	3.10	1.49	8.96	8.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.60
37	28.600	22.94	0.00	3.40	3.10	1.57	8.07	8.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.73
38	28.400	22.94	0.00	3.40	3.10	1.65	7.29	7.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00
39	28.200	22.94	0.00	3.40	3.10	1.71	6.61	6.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39
40	28.000	22.94	0.00	3.40	3.10	1.78	6.03	6.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
41	27.800	22.94	0.00	3.40	3.10	1.83	5.54	5.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
42	27.600	22.94	0.00	3.40	3.10	1.88	5.12	5.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18
43	27.400	22.94	0.00	3.40	3.10	1.93	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92
44	27.200	22.94	0.00	3.40	3.10	1.96	4.49	4.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72
45	27.000	22.94	0.00	3.40	3.10	2.00	4.25	4.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56
46	26.800	22.94	0.00	3.40	3.10	2.02	4.06	4.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = NBOD MG/L

** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL

REACH NO. 3   ALLIGATOR BAYOU - BLACK CR   MILL CREEK CALIBRATION RUN

** REACH INPUTS **

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
47	UPR RCH	0.00320	22.94	0.00	3.40	3.10	2.02	4.06	4.06	0.00	0.00	0.00	0.00	0.00	0.00	0.44

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
47	26.80	26.70	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
48	26.70	26.60	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
49	26.60	26.50	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
50	26.50	26.40	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
51	26.40	26.30	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
52	26.30	26.20	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
53	26.20	26.10	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
54	26.10	26.00	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
55	26.00	25.90	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
56	25.90	25.80	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
57	25.80	25.70	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001

58	25.70	25.60	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
59	25.60	25.50	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
60	25.50	25.40	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
61	25.40	25.30	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
62	25.30	25.20	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
63	25.20	25.10	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
64	25.10	25.00	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
TOT						30.61			8462.67	9198.09					
AVG					0.00068		0.92	5.11			4.70				
CUM						106.11									

*** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
47	26.700	8.58	0.81	0.06	0.01	0.00	4.95	4.95	4.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
48	26.600	8.57	0.81	0.06	0.01	0.00	4.96	4.96	4.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
49	26.500	8.57	0.81	0.05	0.01	0.00	4.97	4.97	4.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
50	26.400	8.56	0.81	0.05	0.01	0.00	4.98	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
51	26.300	8.55	0.81	0.05	0.01	0.00	5.00	5.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
52	26.200	8.55	0.81	0.05	0.01	0.00	5.01	5.01	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
53	26.100	8.54	0.81	0.05	0.01	0.00	5.02	5.02	5.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
54	26.000	8.54	0.81	0.05	0.01	0.00	5.04	5.04	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
55	25.900	8.53	0.81	0.05	0.01	0.00	5.05	5.05	5.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
56	25.800	8.52	0.81	0.05	0.01	0.00	5.06	5.06	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
57	25.700	8.52	0.81	0.05	0.01	0.00	5.07	5.07	5.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
58	25.600	8.51	0.81	0.05	0.01	0.00	5.09	5.09	5.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
59	25.500	8.50	0.81	0.05	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
60	25.400	8.50	0.81	0.05	0.01	0.00	5.11	5.11	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01

61	25.300	8.49	0.81	0.04	0.01	0.00	5.13	5.13	5.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
62	25.200	8.48	0.82	0.04	0.01	0.00	5.14	5.14	5.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
63	25.100	8.48	0.82	0.04	0.01	0.00	5.15	5.15	5.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
64	25.000	8.47	0.82	0.04	0.01	0.00	5.17	5.17	5.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
20 DEG C RATE				0.06		0.00	4.10			0.00		0.00	0.00	0.00	0.00			0.00	0.06	
AVG 20 DEG C RATE			0.76		0.01						0.00									0.01

* g/m²/d   ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
47	26.700	22.98	0.00	3.40	3.10	1.75	4.16	4.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57
48	26.600	23.02	0.00	3.40	3.10	1.63	4.28	4.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
49	26.500	23.06	0.00	3.40	3.10	1.57	4.39	4.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79
50	26.400	23.10	0.00	3.40	3.10	1.53	4.51	4.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89
51	26.300	23.14	0.00	3.40	3.10	1.50	4.61	4.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98
52	26.200	23.18	0.00	3.40	3.10	1.47	4.72	4.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06
53	26.100	23.22	0.00	3.40	3.10	1.44	4.82	4.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14
54	26.000	23.26	0.00	3.40	3.10	1.42	4.92	4.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21
55	25.900	23.31	0.00	3.40	3.10	1.40	5.01	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27
56	25.800	23.35	0.00	3.40	3.10	1.37	5.11	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
57	25.700	23.39	0.00	3.40	3.10	1.35	5.20	5.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
58	25.600	23.43	0.00	3.40	3.10	1.33	5.28	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44
59	25.500	23.47	0.00	3.40	3.10	1.31	5.37	5.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49
60	25.400	23.51	0.00	3.40	3.10	1.29	5.45	5.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
61	25.300	23.55	0.00	3.40	3.10	1.27	5.53	5.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58
62	25.200	23.59	0.00	3.40	3.10	1.25	5.61	5.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
63	25.100	23.63	0.00	3.40	3.10	1.23	5.69	5.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.65
64	25.000	23.67	0.00	3.40	3.10	1.21	5.77	5.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = NBOD MG/L

** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 4   BLACK CREEK - RKM 14.0   MILL CREEK CALIBRATION RUN

** REACH INPUTS **

ELEM NO.	TYPE	FLOW $m^3/$	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
65	UPR RCH	0.00320	23.67	0.00	3.40	3.10	1.21	5.77	5.77	0.00	0.00	0.00	0.00	0.00	0.00	1.69

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW $m^3/$	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
65	25.00	24.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
66	24.80	24.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
67	24.60	24.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
68	24.40	24.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
69	24.20	24.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
70	24.00	23.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
71	23.80	23.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
72	23.60	23.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
73	23.40	23.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
74	23.20	23.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
75	23.00	22.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
76	22.80	22.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
77	22.60	22.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
78	22.40	22.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
79	22.20	22.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
80	22.00	21.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
81	21.80	21.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
82	21.60	21.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
83	21.40	21.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
84	21.20	21.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
85	21.00	20.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
86	20.80	20.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
87	20.60	20.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
88	20.40	20.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
89	20.20	20.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
90	20.00	19.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
91	19.80	19.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
92	19.60	19.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
93	19.40	19.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
94	19.20	19.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
95	19.00	18.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
96	18.80	18.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
97	18.60	18.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
98	18.40	18.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
99	18.20	18.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
100	18.00	17.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
101	17.80	17.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001

102	17.60	17.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
103	17.40	17.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
104	17.20	17.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
105	17.00	16.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
106	16.80	16.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
107	16.60	16.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
108	16.40	16.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
109	16.20	16.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
110	16.00	15.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
111	15.80	15.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
112	15.60	15.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
113	15.40	15.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
114	15.20	15.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
115	15.00	14.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
116	14.80	14.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
117	14.60	14.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
118	14.40	14.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
119	14.20	14.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
TOT						149.91			41448.45	72710.48					
AVG					0.00085		0.57	6.61			3.77				
CUM						256.03									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS ***

ELEM NO.	ENDING DIST	SAT D.O.	REAER RATE	CBOD DECAY	CBOD SETT	ANBOD DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	NCM SETT
		mg/L	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
65	24.800	8.47	1.32	0.03	0.01	0.00	5.18	5.18	5.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
66	24.600	8.46	1.32	0.03	0.01	0.00	5.18	5.18	5.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
67	24.400	8.46	1.32	0.03	0.01	0.00	5.19	5.19	5.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
68	24.200	8.45	1.32	0.03	0.01	0.00	5.20	5.20	5.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
69	24.000	8.45	1.32	0.03	0.01	0.00	5.21	5.21	5.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
70	23.800	8.44	1.32	0.03	0.01	0.00	5.22	5.22	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
71	23.600	8.44	1.32	0.03	0.01	0.00	5.23	5.23	5.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
72	23.400	8.43	1.32	0.03	0.01	0.00	5.24	5.24	5.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
73	23.200	8.43	1.32	0.03	0.01	0.00	5.25	5.25	5.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	

0.01																				
74	23.000	8.43	1.33	0.03	0.01	0.00	5.26	5.26	5.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
75	22.800	8.42	1.33	0.03	0.01	0.00	5.27	5.27	5.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
76	22.600	8.42	1.33	0.03	0.01	0.00	5.28	5.28	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
77	22.400	8.41	1.33	0.03	0.01	0.00	5.29	5.29	5.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
78	22.200	8.41	1.33	0.03	0.01	0.00	5.30	5.30	5.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
79	22.000	8.40	1.33	0.03	0.01	0.00	5.31	5.31	5.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
80	21.800	8.40	1.33	0.03	0.01	0.00	5.32	5.32	5.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
81	21.600	8.39	1.33	0.03	0.01	0.00	5.33	5.33	5.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
82	21.400	8.39	1.33	0.03	0.01	0.00	5.33	5.33	5.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
83	21.200	8.39	1.33	0.03	0.01	0.00	5.34	5.34	5.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
84	21.000	8.38	1.33	0.03	0.01	0.00	5.35	5.35	5.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
85	20.800	8.38	1.33	0.03	0.01	0.00	5.36	5.36	5.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
86	20.600	8.37	1.33	0.03	0.01	0.00	5.37	5.37	5.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
87	20.400	8.37	1.33	0.03	0.01	0.00	5.38	5.38	5.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
88	20.200	8.36	1.33	0.03	0.01	0.00	5.39	5.39	5.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
89	20.000	8.36	1.34	0.03	0.01	0.00	5.40	5.40	5.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
90	19.800	8.35	1.34	0.03	0.01	0.00	5.41	5.41	5.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
91	19.600	8.35	1.34	0.03	0.01	0.00	5.42	5.42	5.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
92	19.400	8.35	1.34	0.03	0.01	0.00	5.43	5.43	5.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
93	19.200	8.34	1.34	0.03	0.01	0.00	5.44	5.44	5.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
94	19.000	8.34	1.34	0.02	0.01	0.00	5.45	5.45	5.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
95	18.800	8.33	1.34	0.02	0.01	0.00	5.46	5.46	5.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
96	18.600	8.33	1.34	0.02	0.01	0.00	5.47	5.47	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
97	18.400	8.32	1.34	0.02	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
98	18.200	8.32	1.34	0.02	0.01	0.00	5.49	5.49	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	

0.01

99	18.000	8.31	1.34	0.02	0.01	0.00	5.50	5.50	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
100	17.800	8.31	1.34	0.02	0.01	0.00	5.51	5.51	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
101	17.600	8.31	1.34	0.02	0.01	0.00	5.52	5.52	5.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
102	17.400	8.30	1.34	0.02	0.01	0.00	5.53	5.53	5.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
103	17.200	8.30	1.35	0.02	0.01	0.00	5.54	5.54	5.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
104	17.000	8.29	1.35	0.02	0.01	0.00	5.55	5.55	5.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
105	16.800	8.29	1.35	0.02	0.01	0.00	5.56	5.56	5.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
106	16.600	8.28	1.35	0.02	0.01	0.00	5.57	5.57	5.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
107	16.400	8.28	1.35	0.02	0.01	0.00	5.58	5.58	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
108	16.200	8.28	1.35	0.02	0.01	0.00	5.59	5.59	5.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
109	16.000	8.27	1.35	0.02	0.01	0.00	5.60	5.60	5.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
110	15.800	8.27	1.35	0.02	0.01	0.00	5.61	5.61	5.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
111	15.600	8.26	1.35	0.02	0.01	0.00	5.62	5.62	5.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
112	15.400	8.26	1.35	0.02	0.01	0.00	5.63	5.63	5.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
113	15.200	8.25	1.35	0.02	0.01	0.00	5.64	5.64	5.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
114	15.000	8.25	1.35	0.02	0.01	0.00	5.65	5.65	5.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
115	14.800	8.25	1.35	0.02	0.01	0.00	5.66	5.66	5.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
116	14.600	8.24	1.35	0.02	0.01	0.00	5.67	5.67	5.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
117	14.400	8.24	1.36	0.02	0.01	0.00	5.68	5.68	5.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
118	14.200	8.23	1.36	0.02	0.01	0.00	5.69	5.69	5.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
119	14.000	8.23	1.36	0.02	0.01	0.00	5.70	5.70	5.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
20 DEG C RATE				0.04		0.00	4.10			0.00		0.00	0.00	0.00	0.00			0.00	0.09	
AVG 20 DEG C RATE			1.23		0.01						0.00									0.01

* g/m²/d ** mg/L/day

*** WATER QUALITY CONSTITUENT VALUES ***

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
65	24.800	23.70	0.00	3.40	3.10	1.32	5.77	5.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69
66	24.600	23.73	0.00	3.40	3.10	1.33	5.77	5.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69
67	24.400	23.76	0.00	3.40	3.10	1.33	5.77	5.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68
68	24.200	23.78	0.00	3.40	3.10	1.32	5.77	5.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68
69	24.000	23.81	0.00	3.40	3.10	1.30	5.78	5.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69
70	23.800	23.84	0.00	3.40	3.10	1.29	5.78	5.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69
71	23.600	23.87	0.00	3.40	3.10	1.28	5.79	5.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69
72	23.400	23.90	0.00	3.40	3.10	1.27	5.81	5.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70
73	23.200	23.93	0.00	3.40	3.10	1.26	5.82	5.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70
74	23.000	23.95	0.00	3.40	3.10	1.24	5.83	5.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71
75	22.800	23.98	0.00	3.40	3.10	1.23	5.85	5.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72
76	22.600	24.01	0.00	3.40	3.10	1.22	5.87	5.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73
77	22.400	24.04	0.00	3.40	3.10	1.21	5.89	5.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74
78	22.200	24.07	0.00	3.40	3.10	1.19	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74
79	22.000	24.10	0.00	3.40	3.10	1.18	5.93	5.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75
80	21.800	24.12	0.00	3.40	3.10	1.17	5.95	5.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76
81	21.600	24.15	0.00	3.40	3.10	1.16	5.98	5.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.77
82	21.400	24.18	0.00	3.40	3.10	1.14	6.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78
83	21.200	24.21	0.00	3.40	3.10	1.13	6.03	6.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
84	21.000	24.24	0.00	3.40	3.10	1.12	6.05	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80
85	20.800	24.27	0.00	3.40	3.10	1.11	6.08	6.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81
86	20.600	24.29	0.00	3.40	3.10	1.09	6.11	6.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83
87	20.400	24.32	0.00	3.40	3.10	1.08	6.14	6.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84
88	20.200	24.35	0.00	3.40	3.10	1.07	6.17	6.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85
89	20.000	24.38	0.00	3.40	3.10	1.06	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86
90	19.800	24.41	0.00	3.40	3.10	1.04	6.23	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87
91	19.600	24.44	0.00	3.40	3.10	1.03	6.26	6.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88
92	19.400	24.46	0.00	3.40	3.10	1.02	6.29	6.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
93	19.200	24.49	0.00	3.40	3.10	1.01	6.33	6.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91
94	19.000	24.52	0.00	3.40	3.10	0.99	6.36	6.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92
95	18.800	24.55	0.00	3.40	3.10	0.98	6.39	6.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93
96	18.600	24.58	0.00	3.40	3.10	0.97	6.43	6.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95
97	18.400	24.61	0.00	3.40	3.10	0.96	6.46	6.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96
98	18.200	24.63	0.00	3.40	3.10	0.94	6.50	6.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98
99	18.000	24.66	0.00	3.40	3.10	0.93	6.54	6.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99
100	17.800	24.69	0.00	3.40	3.10	0.92	6.57	6.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
101	17.600	24.72	0.00	3.40	3.10	0.91	6.61	6.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02
102	17.400	24.75	0.00	3.40	3.10	0.89	6.65	6.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.03
103	17.200	24.78	0.00	3.40	3.10	0.88	6.69	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.05
104	17.000	24.80	0.00	3.40	3.10	0.87	6.73	6.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.06
105	16.800	24.83	0.00	3.40	3.10	0.86	6.77	6.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08
106	16.600	24.86	0.00	3.40	3.10	0.84	6.81	6.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09
107	16.400	24.89	0.00	3.40	3.10	0.83	6.85	6.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.11
108	16.200	24.92	0.00	3.40	3.10	0.82	6.89	6.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13

109	16.000	24.95	0.00	3.40	3.10	0.80	6.93	6.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.14
110	15.800	24.97	0.00	3.40	3.10	0.79	6.98	6.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.16
111	15.600	25.00	0.00	3.40	3.10	0.78	7.02	7.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.18
112	15.400	25.03	0.00	3.40	3.10	0.77	7.06	7.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20
113	15.200	25.06	0.00	3.40	3.10	0.75	7.11	7.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.22
114	15.000	25.09	0.00	3.40	3.10	0.74	7.16	7.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.23
115	14.800	25.12	0.00	3.40	3.10	0.73	7.20	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25
116	14.600	25.14	0.00	3.40	3.10	0.72	7.25	7.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27
117	14.400	25.17	0.00	3.40	3.10	0.70	7.30	7.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.29
118	14.200	25.20	0.00	3.40	3.10	0.69	7.35	7.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.31
119	14.000	25.23	0.00	3.40	3.10	0.68	7.40	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.33

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = NBOD MG/L

** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 5   RKM 14.0 - LITTLE MILL CR   MILL CREEK CALIBRATION RUN

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
120	UPR RCH	0.00320	25.23	0.00	3.40	3.10	0.68	7.40	7.40	0.00	0.00	0.00	0.00	0.00	0.00	2.33

*** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
120	14.00	13.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
121	13.80	13.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
122	13.60	13.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
123	13.40	13.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
124	13.20	13.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
125	13.00	12.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
126	12.80	12.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
127	12.60	12.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
128	12.40	12.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
129	12.20	12.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
130	12.00	11.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
131	11.80	11.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
132	11.60	11.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
133	11.40	11.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
134	11.20	11.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007

135	11.00	10.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
136	10.80	10.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
137	10.60	10.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
138	10.40	10.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
139	10.20	10.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
140	10.00	9.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
141	9.80	9.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
142	9.60	9.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
143	9.40	9.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
144	9.20	9.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
145	9.00	8.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
146	8.80	8.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
147	8.60	8.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
148	8.40	8.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
149	8.20	8.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
150	8.00	7.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
151	7.80	7.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
152	7.60	7.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
153	7.40	7.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
154	7.20	7.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
155	7.00	6.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
156	6.80	6.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
157	6.60	6.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
158	6.40	6.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
159	6.20	6.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
160	6.00	5.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
161	5.80	5.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
162	5.60	5.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
163	5.40	5.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
164	5.20	5.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
165	5.00	4.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
166	4.80	4.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
167	4.60	4.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
168	4.40	4.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
169	4.20	4.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
170	4.00	3.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
171	3.80	3.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
172	3.60	3.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
TOT						18.71			5172.13	28726.52					
AVG					0.00656		0.18	2.71			0.49				
CUM						274.74									

*** BIOLOGICAL AND PHYSICAL COEFFICIENTS ***

ELEM	ENDING	SAT	REAER	CBOD	CBOD	ANBOD	BKGD	FULL	CORR	ORGN	ORGN	NH3	NH3	DENIT	PO4	ALG	MAC	COLI	NCM	NCM
NO.	DIST	D.O.	RATE	DECAY	SETT	DECAY	SOD	SOD	SOD	DECAY	SETT	DECAY	SRCE	RATE	SRCE	PROD	PROD	DECAY	DECAY	SETT

		mg/L	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
120	13.800	8.23	4.65	0.02	0.01	0.00	5.97	5.97	5.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
121	13.600	8.24	4.65	0.03	0.01	0.00	5.96	5.96	5.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
122	13.400	8.24	4.64	0.03	0.01	0.00	5.95	5.95	5.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
123	13.200	8.24	4.64	0.03	0.01	0.00	5.94	5.94	5.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
124	13.000	8.25	4.64	0.03	0.01	0.00	5.93	5.93	5.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
125	12.800	8.25	4.64	0.03	0.01	0.00	5.92	5.92	5.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
126	12.600	8.26	4.63	0.03	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
127	12.400	8.26	4.63	0.03	0.01	0.00	5.90	5.90	5.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
128	12.200	8.26	4.63	0.03	0.01	0.00	5.89	5.89	5.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
129	12.000	8.27	4.63	0.03	0.01	0.00	5.88	5.88	5.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
130	11.800	8.27	4.63	0.03	0.01	0.00	5.87	5.87	5.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
131	11.600	8.27	4.62	0.03	0.01	0.00	5.86	5.86	5.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
132	11.400	8.28	4.62	0.03	0.01	0.00	5.85	5.85	5.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
133	11.200	8.28	4.62	0.03	0.01	0.00	5.84	5.84	5.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
134	11.000	8.29	4.62	0.03	0.01	0.00	5.83	5.83	5.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
135	10.800	8.29	4.62	0.03	0.01	0.00	5.82	5.82	5.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
136	10.600	8.29	4.61	0.03	0.01	0.00	5.82	5.82	5.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
137	10.400	8.30	4.61	0.03	0.01	0.00	5.81	5.81	5.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
138	10.200	8.30	4.61	0.03	0.01	0.00	5.80	5.80	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
139	10.000	8.31	4.61	0.03	0.01	0.00	5.79	5.79	5.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
140	9.800	8.31	4.60	0.03	0.01	0.00	5.78	5.78	5.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
141	9.600	8.31	4.60	0.03	0.01	0.00	5.77	5.77	5.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
142	9.400	8.32	4.60	0.03	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
143	9.200	8.32	4.60	0.03	0.01	0.00	5.75	5.75	5.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	

0.01																			
144	9.000	8.33	4.60	0.03	0.01	0.00	5.74	5.74	5.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
0.01																			
145	8.800	8.33	4.59	0.03	0.01	0.00	5.73	5.73	5.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
0.01																			
146	8.600	8.33	4.59	0.03	0.01	0.00	5.72	5.72	5.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
0.01																			
147	8.400	8.34	4.59	0.03	0.01	0.00	5.71	5.71	5.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
0.01																			
148	8.200	8.34	4.59	0.03	0.01	0.00	5.70	5.70	5.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
0.01																			
149	8.000	8.35	4.58	0.03	0.01	0.00	5.69	5.69	5.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
0.01																			
150	7.800	8.35	4.58	0.03	0.01	0.00	5.69	5.69	5.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
0.01																			
151	7.600	8.35	4.58	0.03	0.01	0.00	5.68	5.68	5.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
0.01																			
152	7.400	8.36	4.58	0.03	0.01	0.00	5.67	5.67	5.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
0.01																			
153	7.200	8.36	4.58	0.03	0.01	0.00	5.66	5.66	5.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
0.01																			
154	7.000	8.37	4.57	0.03	0.01	0.00	5.65	5.65	5.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
0.01																			
155	6.800	8.37	4.57	0.03	0.01	0.00	5.64	5.64	5.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
156	6.600	8.37	4.57	0.03	0.01	0.00	5.63	5.63	5.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
157	6.400	8.38	4.57	0.03	0.01	0.00	5.62	5.62	5.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
158	6.200	8.38	4.56	0.03	0.01	0.00	5.61	5.61	5.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
159	6.000	8.39	4.56	0.04	0.01	0.00	5.60	5.60	5.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
160	5.800	8.39	4.56	0.04	0.01	0.00	5.59	5.59	5.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
161	5.600	8.39	4.56	0.04	0.01	0.00	5.59	5.59	5.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
162	5.400	8.40	4.56	0.04	0.01	0.00	5.58	5.58	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
163	5.200	8.40	4.55	0.04	0.01	0.00	5.57	5.57	5.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
164	5.000	8.41	4.55	0.04	0.01	0.00	5.56	5.56	5.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
165	4.800	8.41	4.55	0.04	0.01	0.00	5.55	5.55	5.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
166	4.600	8.41	4.55	0.04	0.01	0.00	5.54	5.54	5.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
167	4.400	8.42	4.55	0.04	0.01	0.00	5.53	5.53	5.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
168	4.200	8.42	4.54	0.04	0.01	0.00	5.52	5.52	5.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08

																				0.01
169	4.000	8.43	4.54	0.04	0.01	0.00	5.51	5.51	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
170	3.800	8.43	4.54	0.04	0.01	0.00	5.50	5.50	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
171	3.600	8.43	4.54	0.04	0.01	0.00	5.50	5.50	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
172	3.400	8.44	4.53	0.04	0.01	0.00	5.49	5.49	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
20 DEG C RATE				0.04		0.00	4.30			0.00		0.00	0.00	0.00	0.00			0.00	0.08	
AVG 20 DEG C RATE			4.21		0.01						0.00									0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
120	13.800	25.20	0.00	3.40	3.10	0.90	7.58	7.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.33
121	13.600	25.18	0.00	3.40	3.10	0.99	7.75	7.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.33
122	13.400	25.15	0.00	3.40	3.10	1.03	7.91	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.33
123	13.200	25.13	0.00	3.40	3.10	1.05	8.07	8.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.32
124	13.000	25.10	0.00	3.40	3.10	1.06	8.23	8.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.32
125	12.800	25.08	0.00	3.40	3.10	1.07	8.39	8.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.31
126	12.600	25.05	0.00	3.40	3.10	1.08	8.54	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30
127	12.400	25.02	0.00	3.40	3.10	1.09	8.69	8.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30
128	12.200	25.00	0.00	3.40	3.10	1.10	8.84	8.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.29
129	12.000	24.97	0.00	3.40	3.10	1.11	8.99	8.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.28
130	11.800	24.95	0.00	3.40	3.10	1.13	9.13	9.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.28
131	11.600	24.92	0.00	3.40	3.10	1.14	9.27	9.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27
132	11.400	24.90	0.00	3.40	3.10	1.15	9.41	9.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.26
133	11.200	24.87	0.00	3.40	3.10	1.16	9.54	9.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.26
134	11.000	24.85	0.00	3.40	3.10	1.17	9.67	9.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25
135	10.800	24.82	0.00	3.40	3.10	1.18	9.80	9.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.24
136	10.600	24.79	0.00	3.40	3.10	1.19	9.93	9.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.23
137	10.400	24.77	0.00	3.40	3.10	1.20	10.05	10.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.23
138	10.200	24.74	0.00	3.40	3.10	1.21	10.18	10.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.22
139	10.000	24.72	0.00	3.40	3.10	1.22	10.30	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.21
140	9.800	24.69	0.00	3.40	3.10	1.23	10.41	10.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20
141	9.600	24.67	0.00	3.40	3.10	1.24	10.53	10.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20
142	9.400	24.64	0.00	3.40	3.10	1.25	10.64	10.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19
143	9.200	24.61	0.00	3.40	3.10	1.26	10.75	10.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.18
144	9.000	24.59	0.00	3.40	3.10	1.27	10.86	10.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17
145	8.800	24.56	0.00	3.40	3.10	1.28	10.96	10.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.16
146	8.600	24.54	0.00	3.40	3.10	1.29	11.06	11.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.15
147	8.400	24.51	0.00	3.40	3.10	1.30	11.16	11.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.15

148	8.200	24.49	0.00	3.40	3.10	1.31	11.26	11.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.14
149	8.000	24.46	0.00	3.40	3.10	1.32	11.36	11.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13
150	7.800	24.43	0.00	3.40	3.10	1.34	11.45	11.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12
151	7.600	24.41	0.00	3.40	3.10	1.35	11.54	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.11
152	7.400	24.38	0.00	3.40	3.10	1.36	11.63	11.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.10
153	7.200	24.36	0.00	3.40	3.10	1.37	11.72	11.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09
154	7.000	24.33	0.00	3.40	3.10	1.38	11.80	11.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09
155	6.800	24.31	0.00	3.40	3.10	1.39	11.89	11.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08
156	6.600	24.28	0.00	3.40	3.10	1.40	11.97	11.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07
157	6.400	24.25	0.00	3.40	3.10	1.41	12.04	12.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.06
158	6.200	24.23	0.00	3.40	3.10	1.42	12.12	12.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.05
159	6.000	24.20	0.00	3.40	3.10	1.43	12.19	12.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.04
160	5.800	24.18	0.00	3.40	3.10	1.44	12.27	12.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.03
161	5.600	24.15	0.00	3.40	3.10	1.45	12.34	12.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02
162	5.400	24.13	0.00	3.40	3.10	1.46	12.41	12.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
163	5.200	24.10	0.00	3.40	3.10	1.47	12.47	12.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
164	5.000	24.08	0.00	3.40	3.10	1.48	12.54	12.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
165	4.800	24.05	0.00	3.40	3.10	1.49	12.60	12.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99
166	4.600	24.02	0.00	3.40	3.10	1.50	12.66	12.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98
167	4.400	24.00	0.00	3.40	3.10	1.52	12.72	12.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97
168	4.200	23.97	0.00	3.40	3.10	1.53	12.78	12.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96
169	4.000	23.95	0.00	3.40	3.10	1.54	12.83	12.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95
170	3.800	23.92	0.00	3.40	3.10	1.55	12.89	12.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95
171	3.600	23.90	0.00	3.40	3.10	1.56	12.94	12.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94
172	3.400	23.87	0.00	3.40	3.10	1.57	12.99	12.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = NBOD MG/L

** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 6   LITTLE MILL - CALCASIEU   MILL CREEK CALIBRATION RUN

** REACH INPUTS **

ELEM NO.	TYPE	FLOW $m^3/$	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
173	UPR RCH	0.00320	23.87	0.00	3.40	3.10	1.57	12.99	12.99	0.00	0.00	0.00	0.00	0.00	0.00	1.93

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW $m^3/$	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
173	3.40	3.20	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004

174	3.20	3.00	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
175	3.00	2.80	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
176	2.80	2.60	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
177	2.60	2.40	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
178	2.40	2.20	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
179	2.20	2.00	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
180	2.00	1.80	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
181	1.80	1.60	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
182	1.60	1.40	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
183	1.40	1.20	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
184	1.20	1.00	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
185	1.00	0.80	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
186	0.80	0.60	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
187	0.60	0.40	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
188	0.40	0.20	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
189	0.20	0.00	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
TOT						10.85			3000.16	13634.16					
AVG					0.00363		0.22	4.01			0.88				
CUM						285.59									

*** BIOLOGICAL AND PHYSICAL COEFFICIENTS ***

ELEM	ENDING	SAT	REAER	CBOD	CBOD	ANBOD	BKGD	FULL	CORR	ORGN	ORGN	NH3	NH3	DENIT	PO4	ALG	MAC	COLI	NCM	NCM
NO.	DIST	D.O.	RATE	DECAY	SETT	DECAY	SOD	SOD	SOD	DECAY	SETT	DECAY	SRCE	RATE	SRCE	PROD	PROD	DECAY	DECAY	SETT
		mg/L	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
173	3.200	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
174	3.000	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
175	2.800	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
176	2.600	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
177	2.400	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
178	2.200	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
179	2.000	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
180	1.800	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
181	1.600	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
182	1.400	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	

																				0.01
183	1.200	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
184	1.000	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
185	0.800	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
186	0.600	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
187	0.400	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
188	0.200	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
189	0.000	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
20 DEG C RATE				0.04		0.00	4.00			0.00		0.00	0.00	0.00	0.00			0.00	0.05	
AVG 20 DEG C RATE			3.25		0.01						0.00									0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
173	3.200	23.87	0.00	3.40	3.10	1.63	12.79	12.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85
174	3.000	23.87	0.00	3.40	3.10	1.64	12.60	12.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78
175	2.800	23.87	0.00	3.40	3.10	1.65	12.41	12.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71
176	2.600	23.87	0.00	3.40	3.10	1.66	12.23	12.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.64
177	2.400	23.87	0.00	3.40	3.10	1.66	12.06	12.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58
178	2.200	23.87	0.00	3.40	3.10	1.66	11.88	11.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51
179	2.000	23.87	0.00	3.40	3.10	1.66	11.72	11.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45
180	1.800	23.87	0.00	3.40	3.10	1.67	11.56	11.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
181	1.600	23.87	0.00	3.40	3.10	1.67	11.40	11.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
182	1.400	23.87	0.00	3.40	3.10	1.67	11.25	11.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29
183	1.200	23.87	0.00	3.40	3.10	1.67	11.10	11.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23
184	1.000	23.87	0.00	3.40	3.10	1.68	10.96	10.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18
185	0.800	23.87	0.00	3.40	3.10	1.68	10.82	10.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14
186	0.600	23.87	0.00	3.40	3.10	1.68	10.68	10.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09
187	0.400	23.87	0.00	3.40	3.10	1.68	10.55	10.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05
188	0.200	23.87	0.00	3.40	3.10	1.68	10.42	10.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01
189	0.000	23.87	0.00	3.40	3.10	1.69	10.30	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM = NBOD MG/L

** g/m³

STREAM SUMMARY
HEADWATER

MILL CREEK WATERSHED MODEL
MILL CREEK CALIBRATION RUN

TRAVEL TIME = 285.59 DAYS

MAXIMUM EFFLUENT = 68.75 PERCENT

FLOW	=	0.00100	TO	0.00320	m^3/s
DISPERSION	=	0.0003	TO	0.0012	m^2/s
VELOCITY	=	0.00068	TO	0.00656	m/s
DEPTH	=	0.16	TO	0.92	m
WIDTH	=	2.71	TO	6.61	m
BOD DECAY	=	0.02	TO	0.09	per day
NH3 DECAY	=	0.00	TO	0.00	per day
SDMNT OXYGEN DMND	=	2.29	TO	5.97	$g/m^2/d$
NH3 SOURCE	=	0.00	TO	0.00	$g/m^2/d$
REAERATION	=	0.81	TO	5.04	per day
BOD SETTLING	=	0.01	TO	0.01	per day
ORGN DECAY	=	0.00	TO	0.00	per day
ORGN SETTLING	=	0.00	TO	0.00	per day
TEMPERATURE	=	22.94	TO	25.23	deg C
DISSOLVED OXYGEN	=	0.68	TO	5.14	mg/L

.....EXECUTION COMPLETED

Mill Creek Water Quality Calibration Model Input Description

DATA TYPE 3, Program Constants			
Description of Constant	**Value**	**Result**	**Source/Justification**
Maximum iteration limit	200.0		Standard
KL Minimum	0.7	Minimum KL to be used.	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
Inhibition control value	3.0	Inhibits all decay rate except SOD for low DO.	Standard LA modeling procedure.
Ocean exchange ratio	0.0	Set 0% tidal exchange at lower boundary.	This was done to allow dispersion in the model but not to force the bottom element through the boundary conditions.
Hydraulic calculation method	2.0	Sets the Hydraulic calc. to width and depth coef.	The low slopes in this waterbody cause a substantial amount of water to be present during critical flow conditions, making the Leopold relationships inaccurate. This method allows the model to predict a more accurate depth and width during low flow conditions.
Settled rate units.	2.0	Sets the settled rate to a velocity (m/day).	By making the settling rate a velocity the rate becomes dependent upon the depth.
K2 Max	25.0	Max K2 at 20 C allowed for any computational element	EPA Policy in the absence of a measured value.
NCM Oxygen Uptake	1.0	Oxygen Uptake Rate per Unit of NBOD decay.	Standard LA modeling procedure

Mill Creek Water Quality Calibration Model Input Description

DATA TYPE 9, Advective Hydraulic Coefficients					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	3.70	Zero flow cross sectioı
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.15	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
2	Mill Creek, RKM 30.0 to Alligator Bayou	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	5.10	Zero flow cross sectioı
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.91	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
3	Mill Creek, Alligator Bayou to Black Creek	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	5.10	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.91	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
4	Mill Creek, Black Creek to RKM 14.0	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	6.60	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.56	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
5	Mill Creek, RKM 14.0 to Little Mill Creek	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	2.70	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.17	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
6	Mill Creek, Little Mill Creek to Calcasieu River	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	4.00	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
			Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.21	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.

Mill Creek Water Quality Calibration Model Input Description

DATA TYPE 11, INITIAL CONDITIONS					
Reach #	**REACH DESCRIPTION**	**Initial Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Temperature	^{o}Celcius	25.11	Site 5
		Dissolved O_2	mg/l	4.79	Site 5
2	Mill Creek, RKM 30.0 to Alligator Bayou	Temperature	^{o}Celcius	22.94	Site 4
		Dissolved O_2	mg/l	1.85	Site 4
3	Mill Creek, Alligator Bayou to Black Creek	Temperature	^{o}Celcius	22.94	Site 4
		Dissolved O_2	mg/l	1.85	Site 4
4	Mill Creek, Black Creek to RKM 14.0	Temperature	^{o}Celcius	23.67	Site 3
		Dissolved O_2	mg/l	0.92	Site 3
5	Mill Creek, RKM 14.0 to Little Mill Creek	Temperature	^{o}Celcius	25.23	Site 2
		Dissolved O_2	mg/l	1.53	Site 2
6	Mill Creek, Little Mill Creek to Calcasieu River	Temperature	^{o}Celcius	23.87	Site 1
		Dissolved O_2	mg/l	1.6	Site 1

Mill Creek Water Quality Calibration Model Input Description

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer Coefficient	m/day		
		Background SOD	g/m^2-day	1.90	Calibration
		Aerobic BOD decay	1/day	0.07	Bottle Rate for Site 5
		BOD Settling rate	m/day	0.01	Calibration
2	Mill Creek, RKM 30.0 to Alligator Bayou	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer Coefficient	m/day		
		Background SOD	g/m2-day	3.80	Calibration
		Aerobic BOD decay	1/day	0.06	Bottle Rate for Site 4
		BOD Settling rate	m/day	0.01	Calibration
3	Mill Creek, Alligator Bayou to Black Creek	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer Coefficient	m/day		
		Background SOD	g/m2-day	4.10	Calibration
		Aerobic BOD decay	1/day	0.06	Bottle Rate for Site 4
		BOD Settling rate	m/day	0.01	Calibration
4	Mill Creek, Black Creek to RKM 14.0	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer Coefficient	m/day		
		Background SOD	g/m2-day	4.10	Calibration
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 3
		BOD Settling rate	m/day	0.01	Calibration
5	Mill Creek, RKM 14.0 to Little Mill Creek	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer Coefficient	m/day		
		Background SOD	g/m^2-day	4.30	Calibration
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 2
		BOD Settling rate	m/day	0.01	Calibration
6	Mill Creek, Little Mill Creek to Calcasieu River	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer Coefficient	m/day		
		Background SOD	g/m2-day	4.00	Calibration
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 1
		BOD Settling rate	m/day	0.01	Calibration

Mill Creek Water Quality Calibration Model Input Description

DATA TYPE 15, Coliform and Nonconservative Coefficents					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	NCM Decay	1/day	0.06	Bottle Rate Site 5
		NCM Settling Rate	m/day	0.01	Calibration
2	Mill Creek, RKM 30.0 to Alligator Bayou	NCM Decay	1/day	0.06	Bottle Rate Site 4
		NCM Settling Rate	m/day	0.01	Calibration
3	Mill Creek, Alligator Bayou to Black Creek	NCM Decay	1/day	0.06	Bottle Rate Site 4
		NCM Settling Rate	m/day	0.01	Calibration
4	Mill Creek, Black Creek to RKM 14.0	NCM Decay	1/day	0.09	Bottle Rate Site 3
		NCM Settling Rate	m/day	0.01	Calibration
5	Mill Creek, RKM 14.0 to Little Mill Creek	NCM Decay	1/day	0.08	Bottle Rate Site 2
		NCM Settling Rate	m/day	0.01	Calibration
6	Mill Creek, Little Mill Creek to Calcasieu River	NCM Decay	1/day	0.05	Bottle Rate Site 1
		NCM Settling Rate	m/day	0.01	Calibration

Mill Creek Water Quality Calibration Model Input Description

DATA TYPE 19, Nonpoint Source Data					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	BOD	kg/day	2	Calibration
		Nonconservative matl.		0.5	Calibration
2	Mill Creek, RKM 30.0 to Alligator Bayou	BOD	kg/day	4	Calibration
		Nonconservative matl.		0	Calibration
3	Mill Creek, Alligator Bayou to Black Creek	BOD	kg/day	3	Calibration
		Nonconservative matl.		1	Calibration
4	Mill Creek, Black Creek to RKM 14.0	BOD	kg/day	10	Calibration
		Nonconservative matl.		6	Calibration
5	Mill Creek, RKM 14.0 to Little Mill Creek	BOD	kg/day	4	Calibration
		Nonconservative matl.		0.8	Calibration
6	Mill Creek, Little Mill Creek to Calcasieu River	BOD	kg/day	1	Calibration
		Nonconservative matl.		0	Calibration

Mill Creek Water Quality Calibration Model Input Description

DATA TYPE 20, Headwater Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Headwater - Mill Creek	Element # of input		1	
		Headwater name		Castor Creek	
		Headwater flow	cms	0.0010	
		Temperature	^{o}Celcius	25.11	Site 5
		Conservative Matl. I	mg/l	3.40	Site 5
		Conservative Matl. II	mg/l	3.10	Site 5

Mill Creek Water Quality Calibration Model Input Description

DATA TYPE 21, Headwater Data for DO, BOD, and Nitrogen					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Headwater - Mill Creek	Element # of input		1	
		Dissolved O_2	mg/l	4.79	Site 5
		BOD	mg/l	6.49	Site 5

Mill Creek Water Quality Calibration Model Input Description

DATA TYPE 22, Headwater Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Headwater - Mill Creek	Element # of input		1	
		NCM	mg/l	1.2	Site 5

Mill Creek Water Qualtity Calibration Model Input Description

DATA TYPE 24, Wastewater Data for Flow, Temperature, Salinity, and Conservatives

Reach #	NAME	Parameter	Units	Value	Source/Justification
1	Town of Elizabeth	Element # of input		10	
		Wasteload description		STP	
		Wasteload inflow	cms	0.0022	
		Temperature	^{o}Celcius	25.1	Site 5
		Salinity	ppt		
		Conservative Matl. I	mg/l	3.4	Site 5
		Conservative Matl. II		3.1	Site 5

Mill Creek Water Qualtity Calibration Model Input Description

DATA TYPE 25, Wastewater Data for DO, BOD, and Nitrogen					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Town of Elizabeth	Element # of input		10	
		Wasteload description		STP	
		Dissolved O_2	mg/l	5	Permit Limit
		BOD	mg/l	46	Permit Limit

Calibration Model Non-Point Load Equivalent Calculations:

Modeled stream or water body:	Mill Creek - Current Standards

Shaded cells are input values for calculations.

REACH NUMBER & DESCRIPTION	Calibration Model Reach Length (km)	Calibration Model Average Reach Width (meters)	Calibration Model UCBOD Nonpoint loading (kg/day)	Calibration Model UNBOD Nonpoint loading (kg/day)	Calibration Model UCBOD Nonpoint loading (gm O_2/m^2/day)	Calibration Model UNBOD Nonpoint loading (gm O_2/m^2/day)	Calibration Model SOD (gm O_2/m^2/day)	Calibration Model TOTAL Benthic Load (gm O_2/m^2/day)
	A	**B**	**C**	**D**	**E = C / (A x B)**	**F = D / (A x B)**	**G**	**H = E + F + G**
Reach 1 - Headwater to RKM 30.0	6.00	0.15	2	0.50	2.222	0.556	1.90	**4.68**
Reach 2 - RKM 30.0 - Alligator Bayou	3.20	0.91	4	0	1.374	0.000	3.80	**5.17**
Reach 3 - Alligator Bayou - Black Creek	1.80	0.91	3	1	1.832	0.611	4.10	**6.54**
Reach 4 - Black Creek - RKM 14.0	11.00	0.56	10	6	1.623	0.974	4.10	**6.70**
Reach 5 - RKM 14.0 -Little Mill Creek	10.60	0.17	4	1	2.220	0.444	4.30	**6.96**
Reach 6 - Little Mill Creek - Calcasieu	3.40	0.21	1	0	1.401	0.000	4.00	**5.40**

```
LA-QUAL Version 5.02
Louisiana Department of Environmental Quality

Input file is D:\Mill Creek\Input Files\millsensi.txt
Output produced at 06:47 on 02/28/2002

$$$ DATA TYPE 1 (TITLES AND CONTROL CARDS) $$$

CARD TYPE       CONTROL TITLES

TITLE01         MILL CREEK WATERSHED MODEL
TITLE02         MILL CREEK SENSITIVITY RUN
CNTROL12  YES   METRIC UNITS
CNTROL13  YES   OXYGEN DEPENDENT RATES
ENDATA01

$$$ DATA TYPE 2 (MODEL OPTIONS) $$$

CARD TYPE       MODEL OPTION

MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL  I = CHLORIDES                   IN MG/L
MODOPT04  YES   CONSERVATIVE MATERIAL II = SULFATES                    IN MG/L
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BIOCHEMICAL OXYGEN DEMAND
MODOPT07   NO   NITROGEN
MODOPT08   NO   PHOSPHORUS
MODOPT09   NO   CHLOROPHYLL A
MODOPT10   NO   MACROPHYTES
MODOPT11   NO   COLIFORM
MODOPT12  YES   NONCONSERVATIVE MATERIAL
ENDATA02

$$$ DATA TYPE 3 (PROGRAM CONSTANTS) $$$

CARD TYPE       DESCRIPTION OF CONSTANT                         VALUE

PROGRAM         MAXIMUM ITERATION LIMIT            =       200.00000
PROGRAM         KL MINIMUM                         =         0.70000 meters/day
PROGRAM         NCM OXYGEN UPTAKE RATE             =         1.00000 mg O/mg NCM
PROGRAM         INHIBITION CONTROL VALUE           =         3.00000
PROGRAM         OCEAN EXCHANGE RATIO               =         0.00000
PROGRAM         K2 MAXIMUM                         =        25.00000 per day
PROGRAM         HYDRAULIC CALCULATION METHOD       =         2.00000 (widths and depths)
PROGRAM         SETTLING RATE UNITS                =         2.00000 (per day)
PROGRAM         SPECIAL REPORT TYPE                =        11.00000
ENDATA03

$$$ DATA TYPE 4 (TEMPERATURE CORRECTION CONSTANTS FOR RATE COEFFICIENTS) $$$

 CARD TYPE     RATE CODE     THETA VALUE

ENDATA04
```

$$$ CONSTANTS TYPE 5 (TEMPERATURE DATA) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA05

$$$ DATA TYPE 6 (ALGAE CONSTANTS) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA06

$$$ DATA TYPE 7 (MACROPHYTE CONSTANTS) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA07

$$$ DATA TYPE 8 (REACH IDENTIFICATION DATA) $$$

CARD TYPE	REACH	ID	NAME	BEGIN REACH km		END REACH km	ELEM LENGTH km	REACH LENGTH km	ELEMS PER RCH	BEGIN ELEM NUM	END ELEM NUM
REACH ID	1	MC	HEADWATER - RKM 30.0	36.00	TO	30.00	0.2000	6.00	30	1	30
REACH ID	2	MC	RKM 30.0 - ALLIGATOR BAYOU	30.00	TO	26.80	0.2000	3.20	16	31	46
REACH ID	3	MC	ALLIGATOR BAYOU - BLACK CR	26.80	TO	25.00	0.1000	1.80	18	47	64
REACH ID	4	MC	BLACK CREEK - RKM 14.0	25.00	TO	14.00	0.2000	11.00	55	65	119
REACH ID	5	MC	RKM 14.0 - LITTLE MILL CR	14.00	TO	3.40	0.2000	10.60	53	120	172
REACH ID	6	MC	LITTLE MILL - CALCASIEU	3.40	TO	0.00	0.2000	3.40	17	173	189

ENDATA08

$$$ DATA TYPE 9 (ADVECTIVE HYDRAULIC COEFFICIENTS) $$$

CARD TYPE	REACH	ID	WIDTH "A"	WIDTH "B"	WIDTH "C"	DEPTH "D"	DEPTH "E"	DEPTH "F"	SLOPE	MANNINGS "N"
HYDR-1	1	MC	0.100	0.400	3.700	0.100	0.400	0.150	0.00000	0.040
HYDR-1	2	MC	0.100	0.400	5.100	0.100	0.400	0.910	0.00000	0.040
HYDR-1	3	MC	0.100	0.400	5.100	0.100	0.400	0.910	0.00000	0.040
HYDR-1	4	MC	0.100	0.400	6.600	0.100	0.400	0.560	0.00000	0.040
HYDR-1	5	MC	0.100	0.400	2.700	0.100	0.400	0.170	0.00000	0.040
HYDR-1	6	MC	0.100	0.400	4.000	0.100	0.400	0.210	0.00000	0.040

ENDATA09

$$$ DATA TYPE 10 (DISPERSIVE HYDRAULIC COEFFICIENTS) $$$

CARD TYPE	REACH	ID	TIDAL RANGE	DISPERSION "A"	DISPERSION "B"	DISPERSION "C"	DISPERSION "D"

ENDATA10

$$$ DATA TYPE 11 (INITIAL CONDITIONS) $$$

CARD TYPE	REACH	ID	TEMP	SALIN	DO	NH3	NO3+2	PHOS	CHL A	MACRO
INITIAL	1	MC	25.11	0.00	4.79	0.00	0.00	0.00	0.00	0.00
INITIAL	2	MC	22.94	0.00	1.85	0.00	0.00	0.00	0.00	0.00
INITIAL	3	MC	22.94	0.00	1.85	0.00	0.00	0.00	0.00	0.00
INITIAL	4	MC	23.67	0.00	0.92	0.00	0.00	0.00	0.00	0.00
INITIAL	5	MC	25.23	0.00	1.53	0.00	0.00	0.00	0.00	0.00
INITIAL	6	MC	23.87	0.00	1.60	0.00	0.00	0.00	0.00	0.00

ENDATA11

$$$ DATA TYPE 12 (REAERATION, SEDIMENT OXYGEN DEMAND, BOD COEFFICIENTS) $$$

CARD TYPE	REACH	ID	K2 OPT	K2 "A"	K2 "B"	K2 "C"	BKGRND SOD $g/m^2/d$	AEROB BOD DECAY per day	BOD SETT m/d	BOD CONV TO SOD	ANAER BOD DECAY
COEF-1	1	MC	15 LOUISIANA	0.000	0.000	0.000	1.900	0.070	0.010	0.000	0.000
COEF-1	2	MC	15 LOUISIANA	0.000	0.000	0.000	3.800	0.060	0.010	0.000	0.000
COEF-1	3	MC	15 LOUISIANA	0.000	0.000	0.000	4.100	0.060	0.010	0.000	0.000
COEF-1	4	MC	15 LOUISIANA	0.000	0.000	0.000	4.100	0.040	0.010	0.000	0.000
COEF-1	5	MC	15 LOUISIANA	0.000	0.000	0.000	4.200	0.040	0.010	0.000	0.000
COEF-1	6	MC	15 LOUISIANA	0.000	0.000	0.000	4.000	0.040	0.010	0.000	0.000

ENDATA12

$$$ DATA TYPE 13 (NITROGEN AND PHOSPHORUS COEFFICIENTS) $$$

CARD TYPE	REACH	ID	ORG-N DECA	ORG-N SETT	ORGN CONV TO NH3 SRCE	NH3 DECA	NH3 SRCE	PHOS SRCE	DENIT RATE

ENDATA13

$$$ DATA TYPE 14 (ALGAE AND MACROPHYTE COEFFICIENTS) $$$

CARD TYPE	REACH	ID	SECCHI DEPTH	ALGAE: CHL A	ALGAE SETT	ALG CONV TO SOD	ALGAE GROW	ALGAE RESP	MACRO GROW	MACRO RESP

ENDATA14

$$$ DATA TYPE 15 (COLIFORM AND NONCONSERVATIVE COEFFICIENTS) $$$

CARD TYPE	REACH	ID	COLIFORM DIE-OFF	NCM DECAY	NCM SETT	NCM CONV TO SOD
COEF-4	1	MC	0.00	0.06	0.01	0.00
COEF-4	2	MC	0.00	0.06	0.01	0.00
COEF-4	3	MC	0.00	0.06	0.01	0.00
COEF-4	4	MC	0.00	0.09	0.01	0.00
COEF-4	5	MC	0.00	0.08	0.01	0.00
COEF-4	6	MC	0.00	0.05	0.01	0.00

ENDATA15

$$$ DATA TYPE 16 (INCREMENTAL DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) $$$

CARD TYPE	REACH	ID	OUTFLOW	INFLOW	TEMP	SALIN	CM-I	CM-II	IN/DIST	OUT/DIST

ENDATA16

$$$ DATA TYPE 17 (INCREMENTAL DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	REACH	ID	DO	BOD	ORG-N	NH3	NO3+2

ENDATA17

$$$ DATA TYPE 18 (INCREMENTAL DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	REACH	ID	PHOS	CHL A	COLI	NCM

ENDATA18

$$$ DATA TYPE 19 (NONPOINT SOURCE DATA) $$$

CARD TYPE	REACH	ID	BOD	ORG-N	COLI	NCM	DO
NONPOINT	1	MC	2.00	0.00	0.00	0.50	0.00
NONPOINT	2	MC	3.00	0.00	0.00	0.00	0.00
NONPOINT	3	MC	20.00	0.00	0.00	28.00	0.00
NONPOINT	4	MC	6.00	0.00	0.00	1.00	0.00
NONPOINT	5	MC	5.50	0.00	0.00	1.00	0.00
NONPOINT	6	MC	0.70	0.00	0.00	0.00	0.00

ENDATA19

$$$ DATA TYPE 20 (HEADWATER FOR FLOW, TEMPERATURE, SALINITY AND CONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	UNIT	FLOW m^3/s	FLOW cfs	TEMP deg C	SALIN ppt	CM-I MG/L	CM-II MG/L
HDWTR-1	1	HEADWATER	0	0.00100	0.035	25.11	0.00	3.400	3.100

ENDATA20

$$$ DATA TYPE 21 (HEADWATER DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	ELEMENT	NAME	DO	BOD	ORG-N	NH3	NO3+2
HDWTR-2	1	HEADWATER	4.79	6.49	0.00	0.00	0.00

ENDATA21

$$$ DATA TYPE 22 (HEADWATER DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	PHOS	CHL A	COLI	NCM
HDWTR-3	1	HEADWATER	0.00	0.00	0.00	1.20

ENDATA22

$$$ DATA TYPE 23 (JUNCTION DATA) $$$

CARD TYPE	JUNCTION ELEMENT	UPSTRM ELEMENT	RIVER KILOM	NAME

ENDATA23

$$$ DATA TYPE 24 (WASTELOAD DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) $$$

CARD TYPE	ELEMENT	RKILO	NAME	FLOW m^3/s	FLOW cfs	FLOW MGD	TEMP deg C	SALIN ppt	CM-I MG/L	CM-II MG/L
WSTLD-1	10	34.20	TOWN OF ELIZABETH	0.00220	0.07768	0.050	25.10	0.00	3.400	3.100

ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	ELEMENT	NAME	DO	BOD	% BOD RMVL	ORG-N	NH3	% NITRIF	NO3+2
WSTLD-2	10	TOWN OF ELIZABETH	5.00	46.00	0.00	0.00	0.00	0.00	0.00

ENDATA25

$$$ DATA TYPE 26 (WASTELOAD DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	PHOS	CHL A	COLI	NCM
WSTLD-3	10	TOWN OF ELIZABETH	0.00	0.00	0.00	43.00

ENDATA26

$$$ DATA TYPE 27 (LOWER BOUNDARY CONDITIONS) $$$

CARD TYPE	CONSTITUENT	CONCENTRATION

ENDATA27

$$$ DATA TYPE 28 (DAM DATA) $$$

CARD TYPE	ELEMENT	NAME	EQN	"A"	"B"	"H"

ENDATA28

$$$ DATA TYPE 29 (SENSITIVITY ANALYSIS DATA) $$$

CARD TYPE	PARAMETER	COL 1	COL 2	COL 3	COL 4	COL 5	COL 6	COL 7	COL 8
	BASEFLOW	-30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0
	DEPTH	-30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0
	REAERATI	-30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0
	BOD DECA	-30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0
	BOD SETT	-30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0
	BENTHAL	-30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0
	NCM DECA	-30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0
	TEMPERAT	-2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
	NCM SETT	-30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0
	HDW FLOW	-30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0
	HDW TEMP	-2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
	HDW DO	-30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0
	HDW BOD	-30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0
	HDW NCM	-30.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0

```
                 WSL FLOW     -30.0      30.0       0.0       0.0       0.0       0.0       0.0       0.0
                 WSL TEMP      -2.0       2.0       0.0       0.0       0.0       0.0       0.0       0.0
                 WSL DO       -30.0      30.0       0.0       0.0       0.0       0.0       0.0       0.0
                 WSL BOD      -30.0      30.0       0.0       0.0       0.0       0.0       0.0       0.0
                 WSL NCM      -30.0      30.0       0.0       0.0       0.0       0.0       0.0       0.0
ENDATA29

$$$ DATA TYPE 30 (PLOT CONTROL CARDS) $$$


NUMBER OF PLOTS =  1
NUMBER OF REACHES IN PLOT 1 =   6
PLOT RCH  1  2  3  4  5  6
ENDATA30

$$$ DATA TYPE 31 (OVERLAY PLOT DATA) $$$


OVERLAY  NUMBER OF OVERLAY SETS =   1
OVERLAY SET 1 BASEPLOT  1, DATAFILE  mcovl.txt  :MILL CREEK
ENDATA31



     .....NO ERRORS DETECTED IN INPUT DATA
     .....HYDRAULIC CALCULATIONS COMPLETED
     .....TRIDIAGONAL MATRIX TERMS INITIALIZED
     .....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
     .....CONSTITUENT CALCULATIONS COMPLETED
     .....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 21


FINAL REPORT    HEADWATER                                       MILL CREEK WATERSHED MODEL
REACH NO.  1    HEADWATER  - RKM 30.0                           MILL CREEK SENSITIVITY RUN


 ********************************************************** REACH INPUTS
**********************************************************

 ELEM  TYPE        FLOW     TEMP     SALN     CM-I    CM-II    DO     BOD    EBOD   ORGN    NH3  NO3+2   PHOS  CHL A     COLI
NCM
 NO.               m³/     DEG C      PPT       *        *    mg/L   mg/L   mg/L   mg/L   mg/L   mg/L   mg/L   µg/L    #/100mL
*

    1   HDWTR     0.00100   25.11     0.00     3.40     3.10   4.79   6.49   6.49   0.00   0.00   0.00   0.00   0.00      0.00
1.20
   10   WSTLD     0.00220   25.10     0.00     3.40     3.10   5.00  46.00  46.00   0.00   0.00   0.00   0.00   0.00      0.00
43.00


 *************************************************** HYDRAULIC PARAMETER VALUES
***************************************************

 ELEM   BEGIN  ENDING       FLOW   PCT   ADVCTV    TRAVEL   DEPTH  WIDTH   VOLUME    SURFACE  X-SECT     TIDAL  TIDAL   DISPRSN
```

NO.	DIST km	DIST km	m^3/	EFF	VELO m/s	TIME days	m	m	m^3	AREA m^2	AREA m^2	PRISM m^3	VELO m/s	m^2/s	MEAN VELO m/s
1	36.00	35.80	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
2	35.80	35.60	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
3	35.60	35.40	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
4	35.40	35.20	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
5	35.20	35.00	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
6	35.00	34.80	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
7	34.80	34.60	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
8	34.60	34.40	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
9	34.40	34.20	0.00100	0.00	0.00173	1.34	0.16	3.71	115.87	741.26	0.58	0.00	0.000	0.000	0.002
10	34.20	34.00	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
11	34.00	33.80	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
12	33.80	33.60	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
13	33.60	33.40	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
14	33.40	33.20	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
15	33.20	33.00	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
16	33.00	32.80	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
17	32.80	32.60	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
18	32.60	32.40	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
19	32.40	32.20	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
20	32.20	32.00	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
21	32.00	31.80	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
22	31.80	31.60	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
23	31.60	31.40	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
24	31.40	31.20	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005

25	31.20	31.00	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
26	31.00	30.80	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
27	30.80	30.60	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
28	30.60	30.40	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
29	30.40	30.20	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
30	30.20	30.00	0.00320	68.75	0.00539	0.43	0.16	3.71	118.76	742.01	0.59	0.00	0.000	0.001	0.005
TOT						21.09			3536.69	22253.56					
AVG					0.00329		0.16	3.71			0.59				
CUM						21.09									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O.	REAER RATE	CBOD DECAY	CBOD SETT	ANBOD DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	NCM SETT
		mg/L	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
1	35.800	8.26	4.93	0.09	0.01	0.00	2.61	2.61	2.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
2	35.600	8.27	4.92	0.09	0.01	0.00	2.60	2.60	2.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
3	35.400	8.28	4.92	0.09	0.01	0.00	2.59	2.59	2.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
4	35.200	8.29	4.91	0.09	0.01	0.00	2.57	2.57	2.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
5	35.000	8.30	4.90	0.09	0.01	0.00	2.56	2.56	2.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
6	34.800	8.31	4.90	0.09	0.01	0.00	2.55	2.55	2.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
7	34.600	8.32	4.89	0.09	0.01	0.00	2.54	2.54	2.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
8	34.400	8.34	4.88	0.09	0.01	0.00	2.53	2.53	2.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
9	34.200	8.35	4.88	0.09	0.01	0.00	2.52	2.52	2.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
10	34.000	8.36	5.04	0.09	0.01	0.00	2.50	2.50	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
11	33.800	8.37	5.03	0.09	0.01	0.00	2.49	2.49	2.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
12	33.600	8.38	5.02	0.09	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
13	33.400	8.39	5.02	0.08	0.01	0.00	2.47	2.47	2.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01

14	33.200	8.40	5.01	0.08	0.01	0.00	2.46	2.46	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
15	33.000	8.41	5.00	0.08	0.01	0.00	2.45	2.45	2.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
16	32.800	8.43	5.00	0.08	0.01	0.00	2.44	2.44	2.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
17	32.600	8.44	4.99	0.08	0.01	0.00	2.43	2.43	2.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
18	32.400	8.45	4.98	0.08	0.01	0.00	2.41	2.41	2.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
19	32.200	8.46	4.98	0.08	0.01	0.00	2.40	2.40	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
20	32.000	8.47	4.97	0.08	0.01	0.00	2.39	2.39	2.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
21	31.800	8.48	4.96	0.08	0.01	0.00	2.38	2.38	2.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
22	31.600	8.49	4.96	0.08	0.01	0.00	2.37	2.37	2.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
23	31.400	8.51	4.95	0.08	0.01	0.00	2.36	2.36	2.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
24	31.200	8.52	4.94	0.08	0.01	0.00	2.35	2.35	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
25	31.000	8.53	4.94	0.08	0.01	0.00	2.34	2.34	2.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
26	30.800	8.54	4.93	0.08	0.01	0.00	2.33	2.33	2.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
27	30.600	8.55	4.92	0.08	0.01	0.00	2.32	2.32	2.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
28	30.400	8.56	4.92	0.08	0.01	0.00	2.31	2.31	2.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
29	30.200	8.58	4.91	0.08	0.01	0.00	2.30	2.30	2.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
30	30.000	8.59	4.90	0.08	0.01	0.00	2.29	2.29	2.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
20 DEG C RATE				0.07		0.00	1.90			0.00		0.00	0.00	0.00	0.00			0.00	0.06	
AVG 20 DEG C RATE			4.58		0.01						0.00								0.01	

* $g/m^2/d$ ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
1	35.800	25.04	0.00	3.40	3.10	4.74	6.41	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23
2	35.600	24.97	0.00	3.40	3.10	4.76	6.34	6.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

																	1.27
3	35.400	24.89	0.00	3.40	3.10	4.78	6.28	6.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29
4	35.200	24.82	0.00	3.40	3.10	4.80	6.22	6.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32
5	35.000	24.75	0.00	3.40	3.10	4.82	6.18	6.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
6	34.800	24.68	0.00	3.40	3.10	4.85	6.15	6.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
7	34.600	24.60	0.00	3.40	3.10	4.87	6.12	6.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
8	34.400	24.53	0.00	3.40	3.10	4.89	6.09	6.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
9	34.200	24.46	0.00	3.40	3.10	4.91	6.11	6.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46
10	34.000	24.39	0.00	3.40	3.10	4.47	32.42	32.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.92
11	33.800	24.31	0.00	3.40	3.10	4.35	31.36	31.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.89
12	33.600	24.24	0.00	3.40	3.10	4.35	30.35	30.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.90
13	33.400	24.17	0.00	3.40	3.10	4.39	29.38	29.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.95
14	33.200	24.10	0.00	3.40	3.10	4.44	28.45	28.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.04
15	33.000	24.03	0.00	3.40	3.10	4.49	27.57	27.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.17
16	32.800	23.95	0.00	3.40	3.10	4.54	26.72	26.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.33
17	32.600	23.88	0.00	3.40	3.10	4.59	25.91	25.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.53
18	32.400	23.81	0.00	3.40	3.10	4.64	25.13	25.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.76
19	32.200	23.74	0.00	3.40	3.10	4.69	24.39	24.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.03
20	32.000	23.66	0.00	3.40	3.10	4.73	23.67	23.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.32
21	31.800	23.59	0.00	3.40	3.10	4.78	22.99	22.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.64
22	31.600	23.52	0.00	3.40	3.10	4.82	22.34	22.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.99
23	31.400	23.45	0.00	3.40	3.10	4.86	21.71	21.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.37
24	31.200	23.37	0.00	3.40	3.10	4.91	21.12	21.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.77
25	31.000	23.30	0.00	3.40	3.10	4.95	20.54	20.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.20
26	30.800	23.23	0.00	3.40	3.10	4.99	19.99	19.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.65
27	30.600	23.16	0.00	3.40	3.10	5.03	19.47	19.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.12
28	30.400	23.08	0.00	3.40	3.10	5.07	18.96	18.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.61
29	30.200	23.01	0.00	3.40	3.10	5.11	18.48	18.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

15.13
30 30.000 22.94 0.00 3.40 3.10 5.14 18.02 18.02 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
14.66

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =
** g/m^3

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 2   RKM 30.0 - ALLIGATOR BAYOU   MILL CREEK SENSITIVITY RUN

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW $m^3/$	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
31	UPR RCH	0.00320	22.94	0.00	3.40	3.10	5.14	18.02	18.02	0.00	0.00	0.00	0.00	0.00	0.00	14.66

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW $m^3/$	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
31	30.00	29.80	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
32	29.80	29.60	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
33	29.60	29.40	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
34	29.40	29.20	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
35	29.20	29.00	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
36	29.00	28.80	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
37	28.80	28.60	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
38	28.60	28.40	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
39	28.40	28.20	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
40	28.20	28.00	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	

															0.001
41	28.00	27.80	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
42	27.80	27.60	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
43	27.60	27.40	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
44	27.40	27.20	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
45	27.20	27.00	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
46	27.00	26.80	0.00320	68.75	0.00068	3.40	0.92	5.11	940.30	1022.01	4.70	0.00	0.000	0.000	0.001
TOT						54.42			15044.75	16352.15					
AVG					0.00068		0.92	5.11			4.70				
CUM						75.50									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
31	29.800	8.59	0.81	0.06	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
32	29.600	8.59	0.81	0.04	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
33	29.400	8.59	0.81	0.04	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
34	29.200	8.59	0.81	0.05	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
35	29.000	8.59	0.81	0.05	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
36	28.800	8.59	0.81	0.05	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
37	28.600	8.59	0.81	0.06	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
38	28.400	8.59	0.81	0.06	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
39	28.200	8.59	0.81	0.06	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
40	28.000	8.59	0.81	0.06	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
41	27.800	8.59	0.81	0.07	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
42	27.600	8.59	0.81	0.07	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
43	27.400	8.59	0.81	0.07	0.01	0.00	4.57	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

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0.07  0.01
  44   27.200  8.59    0.81   0.07  0.01   0.00  4.57  4.57  4.57   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  45   27.000  8.59    0.81   0.07  0.01   0.00  4.57  4.57  4.57   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  46   26.800  8.59    0.81   0.07  0.01   0.00  4.57  4.57  4.57   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01

 20 DEG C RATE                0.06         0.00  3.80               0.00         0.00  0.00   0.00  0.00               0.00
0.06
 AVG 20 DEG C RATE     0.76         0.01                                  0.00
0.01

 * g/m²/d              ** mg/L/day


 ************************************************ WATER QUALITY CONSTITUENT VALUES
************************************************

 ELEM  ENDING   TEMP  SALN     CM-I    CM-II    DO     BOD    EBOD    ORGN    NH3  NO3+2   TOTN   PHOS  CHL A   MACRO     COLI
NCM
 NO.     DIST  DEG C   PPT       *        *    mg/L   mg/L   mg/L    mg/L   mg/L   mg/L   mg/L   mg/L   µg/L     **     #/100mL
*

  31   29.800  22.94  0.00     3.40     3.10   1.69  15.16  15.16   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
11.75
  32   29.600  22.94  0.00     3.40     3.10   1.27  13.36  13.36   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
9.83
  33   29.400  22.94  0.00     3.40     3.10   1.28  11.82  11.82   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
8.21
  34   29.200  22.94  0.00     3.40     3.10   1.36  10.45  10.45   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
6.81
  35   29.000  22.94  0.00     3.40     3.10   1.44   9.22   9.22   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
5.59
  36   28.800  22.94  0.00     3.40     3.10   1.53   8.13   8.13   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
4.55
  37   28.600  22.94  0.00     3.40     3.10   1.61   7.18   7.18   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
3.67
  38   28.400  22.94  0.00     3.40     3.10   1.69   6.35   6.35   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
2.93
  39   28.200  22.94  0.00     3.40     3.10   1.77   5.65   5.65   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
2.33
  40   28.000  22.94  0.00     3.40     3.10   1.84   5.05   5.05   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
1.84
  41   27.800  22.94  0.00     3.40     3.10   1.90   4.55   4.55   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
1.44
  42   27.600  22.94  0.00     3.40     3.10   1.95   4.13   4.13   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
1.13
  43   27.400  22.94  0.00     3.40     3.10   2.00   3.79   3.79   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
0.88
  44   27.200  22.94  0.00     3.40     3.10   2.04   3.52   3.52   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
0.68
  45   27.000  22.94  0.00     3.40     3.10   2.08   3.31   3.31   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
0.53
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46	26.800	22.94	0.00	3.40	3.10	2.10	3.16	3.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.43																

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL

REACH NO. 3   ALLIGATOR BAYOU - BLACK CR   MILL CREEK SENSITIVITY RUN

** REACH INPUTS **

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
47	UPR RCH	0.00320	22.94	0.00	3.40	3.10	2.10	3.16	3.16	0.00	0.00	0.00	0.00	0.00	0.00	0.43

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
47	26.80	26.70	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
48	26.70	26.60	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
49	26.60	26.50	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
50	26.50	26.40	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
51	26.40	26.30	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
52	26.30	26.20	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
53	26.20	26.10	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
54	26.10	26.00	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
55	26.00	25.90	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
56	25.90	25.80	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001

57	25.80	25.70	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
58	25.70	25.60	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
59	25.60	25.50	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
60	25.50	25.40	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
61	25.40	25.30	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
62	25.30	25.20	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
63	25.20	25.10	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
64	25.10	25.00	0.00320	68.75	0.00068	1.70	0.92	5.11	470.15	511.00	4.70	0.00	0.000	0.000	0.001
TOT						30.61			8462.67	9198.09					
AVG					0.00068		0.92	5.11			4.70				
CUM						106.11									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
47	26.700	8.58	0.81	0.05	0.01	0.00	4.95	4.95	4.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
48	26.600	8.57	0.81	0.04	0.01	0.00	4.96	4.96	4.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01
49	26.500	8.57	0.81	0.03	0.01	0.00	4.97	4.97	4.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01
50	26.400	8.56	0.81	0.03	0.01	0.00	4.98	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01
51	26.300	8.55	0.81	0.02	0.01	0.00	5.00	5.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
52	26.200	8.55	0.81	0.02	0.01	0.00	5.01	5.01	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
53	26.100	8.54	0.81	0.02	0.01	0.00	5.02	5.02	5.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
54	26.000	8.54	0.81	0.02	0.01	0.00	5.04	5.04	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
55	25.900	8.53	0.81	0.02	0.01	0.00	5.05	5.05	5.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
56	25.800	8.52	0.81	0.01	0.01	0.00	5.06	5.06	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
57	25.700	8.52	0.81	0.01	0.01	0.00	5.07	5.07	5.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01

58	25.600	8.51	0.81	0.01	0.01	0.00	5.09	5.09	5.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
59	25.500	8.50	0.81	0.01	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
60	25.400	8.50	0.81	0.01	0.01	0.00	5.11	5.11	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
61	25.300	8.49	0.81	0.01	0.01	0.00	5.13	5.13	5.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
62	25.200	8.48	0.82	0.01	0.01	0.00	5.14	5.14	5.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
63	25.100	8.48	0.82	0.01	0.01	0.00	5.15	5.15	5.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
64	25.000	8.47	0.82	0.01	0.01	0.00	5.17	5.17	5.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
20 DEG C RATE				0.06		0.00	4.10			0.00		0.00	0.00	0.00	0.00			0.00	0.06	
AVG 20 DEG C RATE			0.76		0.01						0.00								0.01	

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
47	26.700	22.98	0.00	3.40	3.10	1.52	6.48	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.45
48	26.600	23.02	0.00	3.40	3.10	1.15	9.67	9.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.15
49	26.500	23.06	0.00	3.40	3.10	0.92	12.76	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.66
50	26.400	23.10	0.00	3.40	3.10	0.77	15.77	15.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.01
51	26.300	23.14	0.00	3.40	3.10	0.67	18.71	18.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.23
52	26.200	23.18	0.00	3.40	3.10	0.59	21.58	21.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.34
53	26.100	23.22	0.00	3.40	3.10	0.53	24.39	24.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.34
54	26.000	23.26	0.00	3.40	3.10	0.48	27.14	27.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.24
55	25.900	23.31	0.00	3.40	3.10	0.44	29.83	29.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.06
56	25.800	23.35	0.00	3.40	3.10	0.40	32.47	32.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.79
57	25.700	23.39	0.00	3.40	3.10	0.37	35.06	35.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.44
58	25.600	23.43	0.00	3.40	3.10	0.35	37.61	37.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

50.03

59	25.500	23.47	0.00	3.40	3.10	0.33	40.10	40.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53.54																
60	25.400	23.51	0.00	3.40	3.10	0.31	42.55	42.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56.98																
61	25.300	23.55	0.00	3.40	3.10	0.29	44.96	44.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.36																
62	25.200	23.59	0.00	3.40	3.10	0.27	47.33	47.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
63.68																
63	25.100	23.63	0.00	3.40	3.10	0.26	49.66	49.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66.94																
64	25.000	23.67	0.00	3.40	3.10	0.24	51.92	51.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70.11																

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =
** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 4   BLACK CREEK - RKM 14.0   MILL CREEK SENSITIVITY RUN

** REACH INPUTS **

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
65	UPR RCH	0.00320	23.67	0.00	3.40	3.10	0.24	51.92	51.92	0.00	0.00	0.00	0.00	0.00	0.00	70.11

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
65	25.00	24.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
66	24.80	24.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
67	24.60	24.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
68	24.40	24.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
69	24.20	24.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	

0.001

70	24.00	23.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
71	23.80	23.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
72	23.60	23.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
73	23.40	23.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
74	23.20	23.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
75	23.00	22.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
76	22.80	22.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
77	22.60	22.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
78	22.40	22.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
79	22.20	22.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
80	22.00	21.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
81	21.80	21.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
82	21.60	21.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
83	21.40	21.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
84	21.20	21.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
85	21.00	20.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
86	20.80	20.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
87	20.60	20.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
88	20.40	20.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
89	20.20	20.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
90	20.00	19.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
91	19.80	19.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
92	19.60	19.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
93	19.40	19.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
94	19.20	19.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
95	19.00	18.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
96	18.80	18.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	

0.001

97	18.60	18.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
98	18.40	18.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
99	18.20	18.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
100	18.00	17.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
101	17.80	17.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
102	17.60	17.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
103	17.40	17.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
104	17.20	17.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
105	17.00	16.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
106	16.80	16.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
107	16.60	16.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
108	16.40	16.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
109	16.20	16.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
110	16.00	15.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
111	15.80	15.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
112	15.60	15.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
113	15.40	15.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
114	15.20	15.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
115	15.00	14.80	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
116	14.80	14.60	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
117	14.60	14.40	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
118	14.40	14.20	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
119	14.20	14.00	0.00320	68.75	0.00085	2.73	0.57	6.61	753.61	1322.01	3.77	0.00	0.000	0.000	0.001
TOT						149.91			41448.45	72710.48					
AVG					0.00085		0.57	6.61			3.77				
CUM						256.03									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS

****

ELEM NO.	ENDING DIST	SAT D.O.	REAER RATE	CBOD DECAY	CBOD SETT	ANBOD DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	NCM SETT
		mg/L	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
65	24.800	8.47	1.32	0.01	0.01	0.00	5.18	5.18	5.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
66	24.600	8.46	1.32	0.01	0.01	0.00	5.18	5.18	5.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
67	24.400	8.46	1.32	0.01	0.01	0.00	5.19	5.19	5.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
68	24.200	8.45	1.32	0.01	0.01	0.00	5.20	5.20	5.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
69	24.000	8.45	1.32	0.01	0.01	0.00	5.21	5.21	5.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
70	23.800	8.44	1.32	0.01	0.01	0.00	5.22	5.22	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
71	23.600	8.44	1.32	0.01	0.01	0.00	5.23	5.23	5.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01
72	23.400	8.43	1.32	0.01	0.01	0.00	5.24	5.24	5.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01
73	23.200	8.43	1.32	0.01	0.01	0.00	5.25	5.25	5.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01
74	23.000	8.43	1.33	0.01	0.01	0.00	5.26	5.26	5.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01
75	22.800	8.42	1.33	0.01	0.01	0.00	5.27	5.27	5.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01
76	22.600	8.42	1.33	0.01	0.01	0.00	5.28	5.28	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01
77	22.400	8.41	1.33	0.01	0.01	0.00	5.29	5.29	5.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01
78	22.200	8.41	1.33	0.01	0.01	0.00	5.30	5.30	5.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01
79	22.000	8.40	1.33	0.02	0.01	0.00	5.31	5.31	5.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01
80	21.800	8.40	1.33	0.02	0.01	0.00	5.32	5.32	5.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01
81	21.600	8.39	1.33	0.02	0.01	0.00	5.33	5.33	5.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01
82	21.400	8.39	1.33	0.02	0.01	0.00	5.33	5.33	5.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01
83	21.200	8.39	1.33	0.02	0.01	0.00	5.34	5.34	5.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
84	21.000	8.38	1.33	0.02	0.01	0.00	5.35	5.35	5.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
85	20.800	8.38	1.33	0.02	0.01	0.00	5.36	5.36	5.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
86	20.600	8.37	1.33	0.02	0.01	0.00	5.37	5.37	5.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
87	20.400	8.37	1.33	0.02	0.01	0.00	5.38	5.38	5.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

																			0.05	0.01
88	20.200	8.36	1.33	0.02	0.01	0.00	5.39	5.39	5.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
89	20.000	8.36	1.34	0.02	0.01	0.00	5.40	5.40	5.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
90	19.800	8.35	1.34	0.02	0.01	0.00	5.41	5.41	5.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
91	19.600	8.35	1.34	0.02	0.01	0.00	5.42	5.42	5.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
92	19.400	8.35	1.34	0.02	0.01	0.00	5.43	5.43	5.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
93	19.200	8.34	1.34	0.02	0.01	0.00	5.44	5.44	5.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
94	19.000	8.34	1.34	0.02	0.01	0.00	5.45	5.45	5.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
95	18.800	8.33	1.34	0.02	0.01	0.00	5.46	5.46	5.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
96	18.600	8.33	1.34	0.02	0.01	0.00	5.47	5.47	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
97	18.400	8.32	1.34	0.02	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
98	18.200	8.32	1.34	0.02	0.01	0.00	5.49	5.49	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
99	18.000	8.31	1.34	0.02	0.01	0.00	5.50	5.50	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
100	17.800	8.31	1.34	0.02	0.01	0.00	5.51	5.51	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
101	17.600	8.31	1.34	0.02	0.01	0.00	5.52	5.52	5.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
102	17.400	8.30	1.34	0.02	0.01	0.00	5.53	5.53	5.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
103	17.200	8.30	1.35	0.02	0.01	0.00	5.54	5.54	5.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
104	17.000	8.29	1.35	0.02	0.01	0.00	5.55	5.55	5.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
105	16.800	8.29	1.35	0.02	0.01	0.00	5.56	5.56	5.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
106	16.600	8.28	1.35	0.02	0.01	0.00	5.57	5.57	5.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
107	16.400	8.28	1.35	0.02	0.01	0.00	5.58	5.58	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
108	16.200	8.28	1.35	0.02	0.01	0.00	5.59	5.59	5.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
109	16.000	8.27	1.35	0.02	0.01	0.00	5.60	5.60	5.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
110	15.800	8.27	1.35	0.02	0.01	0.00	5.61	5.61	5.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
111	15.600	8.26	1.35	0.02	0.01	0.00	5.62	5.62	5.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
112	15.400	8.26	1.35	0.02	0.01	0.00	5.63	5.63	5.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
113	15.200	8.25	1.35	0.02	0.01	0.00	5.64	5.64	5.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
114	15.000	8.25	1.35	0.02	0.01	0.00	5.65	5.65	5.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

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0.06  0.01
 115   14.800  8.25    1.35   0.02  0.01   0.00  5.66  5.66  5.66   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.05  0.01
 116   14.600  8.24    1.35   0.02  0.01   0.00  5.67  5.67  5.67   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.05  0.01
 117   14.400  8.24    1.36   0.02  0.01   0.00  5.68  5.68  5.68   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.05  0.01
 118   14.200  8.23    1.36   0.02  0.01   0.00  5.69  5.69  5.69   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.05  0.01
 119   14.000  8.23    1.36   0.02  0.01   0.00  5.70  5.70  5.70   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.05  0.01

 20 DEG C RATE                0.04         0.00  4.10              0.00         0.00  0.00   0.00  0.00               0.00
0.09
 AVG 20 DEG C RATE     1.23         0.01                                 0.00
0.01

 * g/m²/d              ** mg/L/day


 ************************************************ WATER QUALITY CONSTITUENT VALUES
************************************************

 ELEM  ENDING   TEMP  SALN     CM-I    CM-II    DO     BOD   EBOD   ORGN    NH3  NO3+2   TOTN   PHOS  CHL A   MACRO     COLI
NCM
 NO.     DIST  DEG C   PPT       *        *    mg/L   mg/L   mg/L   mg/L   mg/L   mg/L   mg/L   mg/L   µg/L     **     #/100mL
*

  65   24.800  23.70  0.00     3.40     3.10   0.33  49.78  49.78   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
64.89
  66   24.600  23.73  0.00     3.40     3.10   0.35  47.68  47.68   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
59.87
  67   24.400  23.76  0.00     3.40     3.10   0.37  45.63  45.63   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
55.11
  68   24.200  23.78  0.00     3.40     3.10   0.38  43.64  43.64   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
50.60
  69   24.000  23.81  0.00     3.40     3.10   0.40  41.71  41.71   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
46.33
  70   23.800  23.84  0.00     3.40     3.10   0.42  39.82  39.82   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
42.30
  71   23.600  23.87  0.00     3.40     3.10   0.44  37.99  37.99   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
38.50
  72   23.400  23.90  0.00     3.40     3.10   0.46  36.20  36.20   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
34.93
  73   23.200  23.93  0.00     3.40     3.10   0.48  34.47  34.47   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
31.59
  74   23.000  23.95  0.00     3.40     3.10   0.51  32.78  32.78   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
28.46
  75   22.800  23.98  0.00     3.40     3.10   0.53  31.14  31.14   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
25.55
  76   22.600  24.01  0.00     3.40     3.10   0.55  29.55  29.55   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
22.85
  77   22.400  24.04  0.00     3.40     3.10   0.57  28.01  28.01   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
20.35
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78	22.200	24.07	0.00	3.40	3.10	0.60	26.52	26.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.04
79	22.000	24.10	0.00	3.40	3.10	0.62	25.07	25.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.93
80	21.800	24.12	0.00	3.40	3.10	0.64	23.67	23.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.00
81	21.600	24.15	0.00	3.40	3.10	0.67	22.33	22.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.25
82	21.400	24.18	0.00	3.40	3.10	0.70	21.03	21.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.68
83	21.200	24.21	0.00	3.40	3.10	0.72	19.80	19.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.27
84	21.000	24.24	0.00	3.40	3.10	0.75	18.62	18.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.02
85	20.800	24.27	0.00	3.40	3.10	0.77	17.50	17.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.92
86	20.600	24.29	0.00	3.40	3.10	0.80	16.45	16.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.95
87	20.400	24.32	0.00	3.40	3.10	0.82	15.46	15.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.11
88	20.200	24.35	0.00	3.40	3.10	0.85	14.52	14.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.38
89	20.000	24.38	0.00	3.40	3.10	0.87	13.65	13.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.76
90	19.800	24.41	0.00	3.40	3.10	0.88	12.85	12.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.22
91	19.600	24.44	0.00	3.40	3.10	0.90	12.10	12.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.76
92	19.400	24.46	0.00	3.40	3.10	0.91	11.40	11.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.37
93	19.200	24.49	0.00	3.40	3.10	0.92	10.76	10.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.04
94	19.000	24.52	0.00	3.40	3.10	0.93	10.17	10.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76
95	18.800	24.55	0.00	3.40	3.10	0.94	9.64	9.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
96	18.600	24.58	0.00	3.40	3.10	0.94	9.14	9.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
97	18.400	24.61	0.00	3.40	3.10	0.94	8.69	8.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17
98	18.200	24.63	0.00	3.40	3.10	0.94	8.28	8.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
99	18.000	24.66	0.00	3.40	3.10	0.94	7.90	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92
100	17.800	24.69	0.00	3.40	3.10	0.94	7.56	7.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82
101	17.600	24.72	0.00	3.40	3.10	0.94	7.25	7.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74
102	17.400	24.75	0.00	3.40	3.10	0.93	6.97	6.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67
103	17.200	24.78	0.00	3.40	3.10	0.93	6.71	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62
104	17.000	24.80	0.00	3.40	3.10	0.92	6.48	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57

105	16.800	24.83	0.00	3.40	3.10	0.92	6.28	6.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53
106	16.600	24.86	0.00	3.40	3.10	0.91	6.09	6.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50
107	16.400	24.89	0.00	3.40	3.10	0.90	5.92	5.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48
108	16.200	24.92	0.00	3.40	3.10	0.89	5.77	5.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46
109	16.000	24.95	0.00	3.40	3.10	0.88	5.63	5.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44
110	15.800	24.97	0.00	3.40	3.10	0.87	5.51	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
111	15.600	25.00	0.00	3.40	3.10	0.86	5.40	5.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
112	15.400	25.03	0.00	3.40	3.10	0.85	5.30	5.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40
113	15.200	25.06	0.00	3.40	3.10	0.84	5.21	5.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40
114	15.000	25.09	0.00	3.40	3.10	0.83	5.14	5.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39
115	14.800	25.12	0.00	3.40	3.10	0.82	5.07	5.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
116	14.600	25.14	0.00	3.40	3.10	0.81	5.01	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
117	14.400	25.17	0.00	3.40	3.10	0.80	4.96	4.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
118	14.200	25.20	0.00	3.40	3.10	0.78	4.91	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
119	14.000	25.23	0.00	3.40	3.10	0.77	4.87	4.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 5   RKM 14.0 - LITTLE MILL CR   MILL CREEK SENSITIVITY RUN

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
120	UPR RCH	0.00320	25.23	0.00	3.40	3.10	0.77	4.87	4.87	0.00	0.00	0.00	0.00	0.00	0.00	0.38

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW $m^3/$	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
120	14.00	13.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
121	13.80	13.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
122	13.60	13.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
123	13.40	13.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
124	13.20	13.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
125	13.00	12.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
126	12.80	12.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
127	12.60	12.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
128	12.40	12.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
129	12.20	12.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
130	12.00	11.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
131	11.80	11.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
132	11.60	11.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
133	11.40	11.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
134	11.20	11.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
135	11.00	10.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
136	10.80	10.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
137	10.60	10.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
138	10.40	10.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
139	10.20	10.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
140	10.00	9.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
141	9.80	9.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
142	9.60	9.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007

143	9.40	9.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
144	9.20	9.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
145	9.00	8.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
146	8.80	8.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
147	8.60	8.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
148	8.40	8.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
149	8.20	8.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
150	8.00	7.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
151	7.80	7.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
152	7.60	7.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
153	7.40	7.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
154	7.20	7.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
155	7.00	6.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
156	6.80	6.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
157	6.60	6.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
158	6.40	6.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
159	6.20	6.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
160	6.00	5.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
161	5.80	5.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
162	5.60	5.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
163	5.40	5.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
164	5.20	5.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
165	5.00	4.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
166	4.80	4.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
167	4.60	4.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
168	4.40	4.20	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
169	4.20	4.00	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007

170	4.00	3.80	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
171	3.80	3.60	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
172	3.60	3.40	0.00320	68.75	0.00656	0.35	0.18	2.71	97.59	542.01	0.49	0.00	0.000	0.001	0.007
TOT						18.71			5172.13	28726.52					
AVG					0.00656		0.18	2.71			0.49				
CUM						274.74									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
120	13.800	8.23	4.65	0.03	0.01	0.00	5.83	5.83	5.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
121	13.600	8.24	4.65	0.03	0.01	0.00	5.82	5.82	5.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
122	13.400	8.24	4.64	0.03	0.01	0.00	5.81	5.81	5.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
123	13.200	8.24	4.64	0.03	0.01	0.00	5.80	5.80	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
124	13.000	8.25	4.64	0.03	0.01	0.00	5.79	5.79	5.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
125	12.800	8.25	4.64	0.03	0.01	0.00	5.78	5.78	5.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
126	12.600	8.26	4.63	0.03	0.01	0.00	5.77	5.77	5.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
127	12.400	8.26	4.63	0.03	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
128	12.200	8.26	4.63	0.03	0.01	0.00	5.75	5.75	5.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
129	12.000	8.27	4.63	0.03	0.01	0.00	5.74	5.74	5.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
130	11.800	8.27	4.63	0.03	0.01	0.00	5.74	5.74	5.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
131	11.600	8.27	4.62	0.03	0.01	0.00	5.73	5.73	5.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
132	11.400	8.28	4.62	0.03	0.01	0.00	5.72	5.72	5.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
133	11.200	8.28	4.62	0.03	0.01	0.00	5.71	5.71	5.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
134	11.000	8.29	4.62	0.03	0.01	0.00	5.70	5.70	5.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
135	10.800	8.29	4.62	0.03	0.01	0.00	5.69	5.69	5.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01

136	10.600	8.29	4.61	0.03	0.01	0.00	5.68	5.68	5.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
137	10.400	8.30	4.61	0.03	0.01	0.00	5.67	5.67	5.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
138	10.200	8.30	4.61	0.03	0.01	0.00	5.66	5.66	5.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
139	10.000	8.31	4.61	0.03	0.01	0.00	5.65	5.65	5.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
140	9.800	8.31	4.60	0.03	0.01	0.00	5.64	5.64	5.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
141	9.600	8.31	4.60	0.04	0.01	0.00	5.63	5.63	5.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
142	9.400	8.32	4.60	0.04	0.01	0.00	5.63	5.63	5.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
143	9.200	8.32	4.60	0.04	0.01	0.00	5.62	5.62	5.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
144	9.000	8.33	4.60	0.04	0.01	0.00	5.61	5.61	5.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
145	8.800	8.33	4.59	0.04	0.01	0.00	5.60	5.60	5.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
146	8.600	8.33	4.59	0.04	0.01	0.00	5.59	5.59	5.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
147	8.400	8.34	4.59	0.04	0.01	0.00	5.58	5.58	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
148	8.200	8.34	4.59	0.04	0.01	0.00	5.57	5.57	5.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
149	8.000	8.35	4.58	0.04	0.01	0.00	5.56	5.56	5.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
150	7.800	8.35	4.58	0.04	0.01	0.00	5.55	5.55	5.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
151	7.600	8.35	4.58	0.04	0.01	0.00	5.54	5.54	5.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
152	7.400	8.36	4.58	0.04	0.01	0.00	5.54	5.54	5.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
153	7.200	8.36	4.58	0.04	0.01	0.00	5.53	5.53	5.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
154	7.000	8.37	4.57	0.04	0.01	0.00	5.52	5.52	5.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
155	6.800	8.37	4.57	0.04	0.01	0.00	5.51	5.51	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
156	6.600	8.37	4.57	0.04	0.01	0.00	5.50	5.50	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
157	6.400	8.38	4.57	0.04	0.01	0.00	5.49	5.49	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
158	6.200	8.38	4.56	0.04	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
159	6.000	8.39	4.56	0.04	0.01	0.00	5.47	5.47	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
160	5.800	8.39	4.56	0.04	0.01	0.00	5.46	5.46	5.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
161	5.600	8.39	4.56	0.04	0.01	0.00	5.46	5.46	5.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
162	5.400	8.40	4.56	0.04	0.01	0.00	5.45	5.45	5.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01

163	5.200	8.40	4.55	0.04	0.01	0.00	5.44	5.44	5.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
164	5.000	8.41	4.55	0.04	0.01	0.00	5.43	5.43	5.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
165	4.800	8.41	4.55	0.04	0.01	0.00	5.42	5.42	5.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
166	4.600	8.41	4.55	0.04	0.01	0.00	5.41	5.41	5.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
167	4.400	8.42	4.55	0.04	0.01	0.00	5.40	5.40	5.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
168	4.200	8.42	4.54	0.04	0.01	0.00	5.39	5.39	5.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
169	4.000	8.43	4.54	0.04	0.01	0.00	5.39	5.39	5.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
170	3.800	8.43	4.54	0.04	0.01	0.00	5.38	5.38	5.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
171	3.600	8.43	4.54	0.04	0.01	0.00	5.37	5.37	5.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
172	3.400	8.44	4.53	0.04	0.01	0.00	5.36	5.36	5.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
20 DEG C RATE				0.04		0.00	4.20			0.00		0.00	0.00	0.00	0.00			0.00	0.08	
AVG 20 DEG C RATE			4.21		0.01						0.00								0.01	

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
120	13.800	25.20	0.00	3.40	3.10	1.06	5.18	5.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43
121	13.600	25.18	0.00	3.40	3.10	1.17	5.47	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49
122	13.400	25.15	0.00	3.40	3.10	1.21	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54
123	13.200	25.13	0.00	3.40	3.10	1.24	6.04	6.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59
124	13.000	25.10	0.00	3.40	3.10	1.25	6.32	6.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
125	12.800	25.08	0.00	3.40	3.10	1.26	6.60	6.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69
126	12.600	25.05	0.00	3.40	3.10	1.27	6.86	6.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74
127	12.400	25.02	0.00	3.40	3.10	1.28	7.13	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78
128	12.200	25.00	0.00	3.40	3.10	1.29	7.39	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

																0.82
129	12.000	24.97	0.00	3.40	3.10	1.30	7.64	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 0.87
130	11.800	24.95	0.00	3.40	3.10	1.31	7.89	7.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 0.91
131	11.600	24.92	0.00	3.40	3.10	1.32	8.14	8.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 0.95
132	11.400	24.90	0.00	3.40	3.10	1.33	8.38	8.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 0.98
133	11.200	24.87	0.00	3.40	3.10	1.33	8.62	8.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.02
134	11.000	24.85	0.00	3.40	3.10	1.34	8.85	8.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.06
135	10.800	24.82	0.00	3.40	3.10	1.35	9.08	9.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.09
136	10.600	24.79	0.00	3.40	3.10	1.36	9.31	9.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.13
137	10.400	24.77	0.00	3.40	3.10	1.37	9.53	9.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.16
138	10.200	24.74	0.00	3.40	3.10	1.38	9.75	9.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.19
139	10.000	24.72	0.00	3.40	3.10	1.39	9.96	9.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.22
140	9.800	24.69	0.00	3.40	3.10	1.40	10.17	10.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.25
141	9.600	24.67	0.00	3.40	3.10	1.41	10.38	10.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.28
142	9.400	24.64	0.00	3.40	3.10	1.42	10.58	10.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.30
143	9.200	24.61	0.00	3.40	3.10	1.43	10.78	10.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.33
144	9.000	24.59	0.00	3.40	3.10	1.44	10.97	10.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.35
145	8.800	24.56	0.00	3.40	3.10	1.44	11.16	11.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.38
146	8.600	24.54	0.00	3.40	3.10	1.45	11.35	11.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.40
147	8.400	24.51	0.00	3.40	3.10	1.46	11.53	11.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.42
148	8.200	24.49	0.00	3.40	3.10	1.47	11.71	11.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.45
149	8.000	24.46	0.00	3.40	3.10	1.48	11.88	11.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.47
150	7.800	24.43	0.00	3.40	3.10	1.49	12.05	12.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.49
151	7.600	24.41	0.00	3.40	3.10	1.50	12.22	12.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.51
152	7.400	24.38	0.00	3.40	3.10	1.51	12.39	12.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.52
153	7.200	24.36	0.00	3.40	3.10	1.52	12.55	12.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.54
154	7.000	24.33	0.00	3.40	3.10	1.53	12.71	12.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 1.56
155	6.800	24.31	0.00	3.40	3.10	1.54	12.86	12.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

																	1.57
156	6.600	24.28	0.00	3.40	3.10	1.55	13.01	13.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
157	6.400	24.25	0.00	3.40	3.10	1.56	13.16	13.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
158	6.200	24.23	0.00	3.40	3.10	1.57	13.30	13.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
159	6.000	24.20	0.00	3.40	3.10	1.58	13.44	13.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63
160	5.800	24.18	0.00	3.40	3.10	1.58	13.58	13.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.65
161	5.600	24.15	0.00	3.40	3.10	1.59	13.72	13.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66
162	5.400	24.13	0.00	3.40	3.10	1.60	13.85	13.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67
163	5.200	24.10	0.00	3.40	3.10	1.61	13.98	13.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68
164	5.000	24.08	0.00	3.40	3.10	1.62	14.10	14.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69
165	4.800	24.05	0.00	3.40	3.10	1.63	14.23	14.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70
166	4.600	24.02	0.00	3.40	3.10	1.64	14.35	14.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71
167	4.400	24.00	0.00	3.40	3.10	1.65	14.46	14.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72
168	4.200	23.97	0.00	3.40	3.10	1.66	14.58	14.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73
169	4.000	23.95	0.00	3.40	3.10	1.67	14.69	14.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74
170	3.800	23.92	0.00	3.40	3.10	1.68	14.80	14.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74
171	3.600	23.90	0.00	3.40	3.10	1.69	14.90	14.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75
172	3.400	23.87	0.00	3.40	3.10	1.70	15.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM =

** g/m³

FINAL REPORT HEADWATER MILL CREEK WATERSHED MODEL
REACH NO. 6 LITTLE MILL - CALCASIEU MILL CREEK SENSITIVITY RUN

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
173	UPR RCH	0.00320	23.87	0.00	3.40	3.10	1.70	15.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00	

1.76

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
173	3.40	3.20	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
174	3.20	3.00	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
175	3.00	2.80	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
176	2.80	2.60	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
177	2.60	2.40	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
178	2.40	2.20	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
179	2.20	2.00	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
180	2.00	1.80	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
181	1.80	1.60	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
182	1.60	1.40	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
183	1.40	1.20	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
184	1.20	1.00	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
185	1.00	0.80	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
186	0.80	0.60	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
187	0.60	0.40	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
188	0.40	0.20	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
189	0.20	0.00	0.00320	68.75	0.00363	0.64	0.22	4.01	176.48	802.01	0.88	0.00	0.000	0.001	0.004
TOT						10.85			3000.16	13634.16					
AVG					0.00363		0.22	4.01			0.88				
CUM						285.59									

*** BIOLOGICAL AND PHYSICAL COEFFICIENTS

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ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
173	3.200	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
174	3.000	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
175	2.800	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
176	2.600	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
177	2.400	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
178	2.200	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
179	2.000	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
180	1.800	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
181	1.600	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
182	1.400	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
183	1.200	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
184	1.000	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
185	0.800	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
186	0.600	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
187	0.400	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
188	0.200	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
189	0.000	8.44	3.50	0.04	0.01	0.00	5.10	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
20 DEG C RATE				0.04		0.00	4.00			0.00		0.00	0.00	0.00	0.00			0.00	0.05	
AVG 20 DEG C RATE			3.25		0.01						0.00									0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES
****

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
173	3.200	23.87	0.00	3.40	3.10	1.65	14.68	14.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69
174	3.000	23.87	0.00	3.40	3.10	1.64	14.37	14.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
175	2.800	23.87	0.00	3.40	3.10	1.64	14.07	14.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
176	2.600	23.87	0.00	3.40	3.10	1.64	13.78	13.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
177	2.400	23.87	0.00	3.40	3.10	1.65	13.49	13.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44
178	2.200	23.87	0.00	3.40	3.10	1.65	13.22	13.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
179	2.000	23.87	0.00	3.40	3.10	1.65	12.95	12.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
180	1.800	23.87	0.00	3.40	3.10	1.66	12.69	12.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27
181	1.600	23.87	0.00	3.40	3.10	1.66	12.44	12.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22
182	1.400	23.87	0.00	3.40	3.10	1.66	12.19	12.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17
183	1.200	23.87	0.00	3.40	3.10	1.67	11.95	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13
184	1.000	23.87	0.00	3.40	3.10	1.67	11.72	11.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08
185	0.800	23.87	0.00	3.40	3.10	1.67	11.50	11.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
186	0.600	23.87	0.00	3.40	3.10	1.68	11.28	11.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
187	0.400	23.87	0.00	3.40	3.10	1.68	11.07	11.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96
188	0.200	23.87	0.00	3.40	3.10	1.68	10.86	10.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92
189	0.000	23.87	0.00	3.40	3.10	1.68	10.67	10.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m³

STREAM SUMMARY
HEADWATER

MILL CREEK WATERSHED MODEL
MILL CREEK SENSITIVITY RUN

TRAVEL TIME = 285.59 DAYS

MAXIMUM EFFLUENT = 68.75 PERCENT

FLOW = 0.00100 TO 0.00320 m³/s

```
DISPERSION       =   0.0003  TO    0.0012  m²/s
VELOCITY         =   0.00068 TO    0.00656 m/s
DEPTH            =   0.16    TO    0.92    m
WIDTH            =   2.71    TO    6.61    m

BOD DECAY        =    0.01   TO    0.09    per day
NH3 DECAY        =    0.00   TO    0.00    per day
SDMNT OXYGEN DMND=    2.29   TO    5.83    g/m²/d
NH3 SOURCE       =    0.00   TO    0.00    g/m²/d
REAERATION       =    0.81   TO    5.04    per day
BOD SETTLING     =    0.01   TO    0.01    per day
ORGN DECAY       =    0.00   TO    0.00    per day
ORGN SETTLING    =    0.00   TO    0.00    per day

TEMPERATURE      =   22.94   TO   25.23    deg C
DISSOLVED OXYGEN =    0.24   TO    5.14    mg/L



    .....BEGIN SENSITIVITY RUN  1 ON PARAMETER SET  1 AND COLUMN  1
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED



    .....BEGIN SENSITIVITY RUN  2 ON PARAMETER SET  1 AND COLUMN  2
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED



    .....BEGIN SENSITIVITY RUN  3 ON PARAMETER SET  2 AND COLUMN  1
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED



    .....BEGIN SENSITIVITY RUN  4 ON PARAMETER SET  2 AND COLUMN  2
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED
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    .....BEGIN SENSITIVITY RUN  5 ON PARAMETER SET  3 AND COLUMN  1
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN  30 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED
***** WARNING:  NEGATIVE CONCENTRATIONS SET TO ZERO FOR Dissolved Oxygen



    .....BEGIN SENSITIVITY RUN  6 ON PARAMETER SET  3 AND COLUMN  2
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED



    .....BEGIN SENSITIVITY RUN  7 ON PARAMETER SET  4 AND COLUMN  1
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED



    .....BEGIN SENSITIVITY RUN  8 ON PARAMETER SET  4 AND COLUMN  2
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED



    .....BEGIN SENSITIVITY RUN  9 ON PARAMETER SET  5 AND COLUMN  1
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED



    .....BEGIN SENSITIVITY RUN 10 ON PARAMETER SET  5 AND COLUMN  2
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED
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    .....BEGIN SENSITIVITY RUN 11 ON PARAMETER SET  6 AND COLUMN  1
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED



    .....BEGIN SENSITIVITY RUN 12 ON PARAMETER SET  6 AND COLUMN  2
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN  16 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED
***** WARNING:  NEGATIVE CONCENTRATIONS SET TO ZERO FOR Dissolved Oxygen



    .....BEGIN SENSITIVITY RUN 13 ON PARAMETER SET  7 AND COLUMN  1
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   7 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED



    .....BEGIN SENSITIVITY RUN 14 ON PARAMETER SET  7 AND COLUMN  2
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED



    .....BEGIN SENSITIVITY RUN 15 ON PARAMETER SET  8 AND COLUMN  1
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   7 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED



    .....BEGIN SENSITIVITY RUN 16 ON PARAMETER SET  8 AND COLUMN  2
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN  11 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED
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***** WARNING:  NEGATIVE CONCENTRATIONS SET TO ZERO FOR Dissolved Oxygen


    .....BEGIN SENSITIVITY RUN 17 ON PARAMETER SET  9 AND COLUMN  1
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED


    .....BEGIN SENSITIVITY RUN 18 ON PARAMETER SET  9 AND COLUMN  2
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED


    .....BEGIN SENSITIVITY RUN 19 ON PARAMETER SET 10 AND COLUMN  1
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED


    .....BEGIN SENSITIVITY RUN 20 ON PARAMETER SET 10 AND COLUMN  2
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED


    .....BEGIN SENSITIVITY RUN 21 ON PARAMETER SET 11 AND COLUMN  1
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED


    .....BEGIN SENSITIVITY RUN 22 ON PARAMETER SET 11 AND COLUMN  2
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
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.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 23 ON PARAMETER SET 12 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 24 ON PARAMETER SET 12 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 25 ON PARAMETER SET 13 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 26 ON PARAMETER SET 13 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 27 ON PARAMETER SET 14 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 28 ON PARAMETER SET 14 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
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.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 29 ON PARAMETER SET 15 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 30 ON PARAMETER SET 15 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 31 ON PARAMETER SET 16 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 32 ON PARAMETER SET 16 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 33 ON PARAMETER SET 17 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 34 ON PARAMETER SET 17 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
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.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 35 ON PARAMETER SET 18 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 36 ON PARAMETER SET 18 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 37 ON PARAMETER SET 19 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 38 ON PARAMETER SET 19 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   8 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED


.....EXECUTION COMPLETED
```

SENSITIVITY ANALYSIS SUMMARY

MILL CREEK
MILL CREEK SENSITIVITY RUN

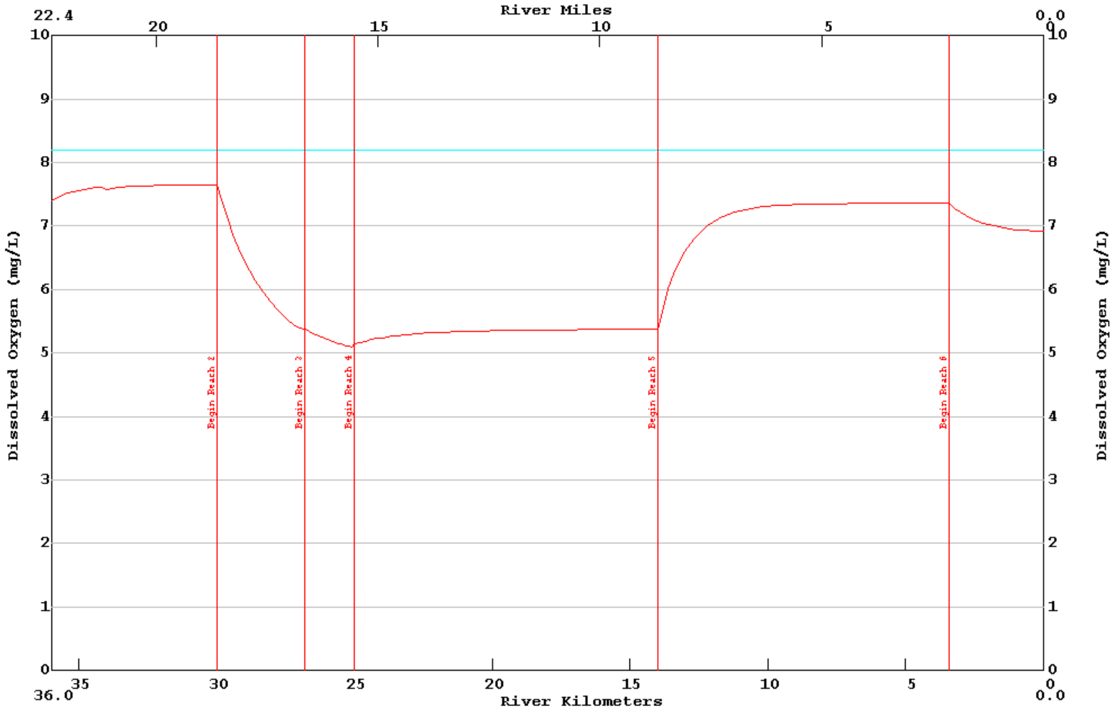
Plot 1 Base Model Minimum DO = 0.24

Parameter	%Param Chg	Min D.O.	%D.O. Chg	%Param Chg	Min D.O.	%D.O. Chg
Stream Baseflow	-30.	0.22	-8.5	30.	0.26	5.9
Stream Depth	-30.	0.31	25.2	30.	0.22	-10.3
Stream Reaeration	-30.	0.00	-100.0	30.	0.76	211.3
BOD Decay Rate	-30.	0.27	10.8	30.	0.23	-7.5
BOD Settling Rate	-30.	0.24	-2.0	30.	0.25	1.8
Benthal Demand	-30.	0.70	185.5	30.	0.00	-100.0
Nonconservative Decay	-30.	0.29	17.1	30.	0.22	-9.5
Initial Temperature	-2.	0.44	80.3	2.	0.00	-100.0
Nonconservative Settling	-30.	0.24	-2.4	30.	0.25	2.5
Headwater Flow	-30.	0.22	-8.5	30.	0.26	5.9
Headwater Temperature	-2.	0.24	0.0	2.	0.24	0.0
Headwater DO	-30.	0.24	0.0	30.	0.24	0.0
Headwater BOD	-30.	0.24	0.0	30.	0.24	0.0
Headwater Nonconservative	-30.	0.24	0.0	30.	0.24	0.0
Wasteload Flow	-30.	0.23	-6.8	30.	0.27	12.4
Wasteload Temperature	-2.	0.24	0.0	2.	0.24	0.0
Wasteload DO	-30.	0.24	0.0	30.	0.24	0.0
Wasteload BOD	-30.	0.24	0.1	30.	0.24	-0.1
Wasteload Nonconservative	-30.	0.24	0.1	30.	0.24	-0.1

Appendix B

Projection Model Development

LA-QUAL Version 5.02 Run at 06:57 on 02/28/2002 File D:\Mill Creek\Input Files\millsum5.txt
MILL CREEK CURRENT SUMMER 5.0 STANDARD RUN   min= 5.10   max= 7.65
MILL CREEK



```
LA-QUAL Version 5.02
Louisiana Department of Environmental Quality

Input file is D:\Mill Creek\Input Files\millsum5.txt
Output produced at 06:57 on 02/28/2002

$$$ DATA TYPE 1 (TITLES AND CONTROL CARDS) $$$

CARD TYPE       CONTROL TITLES

TITLE01         MILL CREEK WATERSHED MODEL
TITLE02         MILL CREEK CURRENT SUMMER 5.0 STANDARD RUN
CNTROL12  YES   METRIC UNITS
CNTROL13  YES   OXYGEN DEPENDENT RATES
ENDATA01

$$$ DATA TYPE 2 (MODEL OPTIONS) $$$

CARD TYPE       MODEL OPTION

MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL  I = CHLORIDES                  IN MG/L
MODOPT04  YES   CONSERVATIVE MATERIAL II = SULFATES                   IN MG/L
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BIOCHEMICAL OXYGEN DEMAND
MODOPT07   NO   NITROGEN
MODOPT08   NO   PHOSPHORUS
MODOPT09   NO   CHLOROPHYLL A
MODOPT10   NO   MACROPHYTES
MODOPT11   NO   COLIFORM
MODOPT12  YES   NONCONSERVATIVE MATERIAL
ENDATA02

$$$ DATA TYPE 3 (PROGRAM CONSTANTS) $$$

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

PROGRAM         MAXIMUM ITERATION LIMIT            =       200.00000
PROGRAM         KL MINIMUM                         =         0.70000 meters/day
PROGRAM         NCM OXYGEN UPTAKE RATE             =         1.00000 mg O/mg NCM
PROGRAM         INHIBITION CONTROL VALUE           =         3.00000
PROGRAM         OCEAN EXCHANGE RATIO               =         0.00000
PROGRAM         K2 MAXIMUM                         =        25.00000 per day
PROGRAM         HYDRAULIC CALCULATION METHOD       =         2.00000 (widths and depths)
PROGRAM         SETTLING RATE UNITS                =         2.00000 (per day)
ENDATA03

$$$ DATA TYPE 4 (TEMPERATURE CORRECTION CONSTANTS FOR RATE COEFFICIENTS) $$$
```

CARD TYPE	RATE CODE	THETA VALUE

ENDATA04

$$$ CONSTANTS TYPE 5 (TEMPERATURE DATA) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA05

$$$ DATA TYPE 6 (ALGAE CONSTANTS) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA06

$$$ DATA TYPE 7 (MACROPHYTE CONSTANTS) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA07

$$$ DATA TYPE 8 (REACH IDENTIFICATION DATA) $$$

CARD TYPE	REACH	ID	NAME	BEGIN REACH km		END REACH km	ELEM LENGTH km	REACH LENGTH km	ELEMS PER RCH	BEGIN ELEM NUM	END ELEM NUM
REACH ID	1	MC	HEADWATER - RKM 30.0	36.00	TO	30.00	0.2000	6.00	30	1	30
REACH ID	2	MC	RKM 30.0 - ALLIGATOR BAYOU	30.00	TO	26.80	0.2000	3.20	16	31	46
REACH ID	3	MC	ALLIGATOR BAYOU - BLACK CR	26.80	TO	25.00	0.1000	1.80	18	47	64
REACH ID	4	MC	BLACK CREEK - RKM 14.0	25.00	TO	14.00	0.2000	11.00	55	65	119
REACH ID	5	MC	RKM 14.0 - LITTLE MILL CR	14.00	TO	3.40	0.2000	10.60	53	120	172
REACH ID	6	MC	LITTLE MILL - CALCASIEU	3.40	TO	0.00	0.2000	3.40	17	173	189

ENDATA08

$$$ DATA TYPE 9 (ADVECTIVE HYDRAULIC COEFFICIENTS) $$$

CARD TYPE	REACH	ID	WIDTH "A"	WIDTH "B"	WIDTH "C"	DEPTH "D"	DEPTH "E"	DEPTH "F"	SLOPE	MANNINGS "N"
HYDR-1	1	MC	0.100	0.400	3.700	0.100	0.400	0.150	0.00000	0.040
HYDR-1	2	MC	0.100	0.400	5.100	0.100	0.400	0.910	0.00000	0.040
HYDR-1	3	MC	0.100	0.400	5.100	0.100	0.400	0.910	0.00000	0.040
HYDR-1	4	MC	0.100	0.400	6.600	0.100	0.400	0.560	0.00000	0.040
HYDR-1	5	MC	0.100	0.400	2.700	0.100	0.400	0.170	0.00000	0.040
HYDR-1	6	MC	0.100	0.400	4.000	0.100	0.400	0.210	0.00000	0.040

ENDATA09

$$$ DATA TYPE 10 (DISPERSIVE HYDRAULIC COEFFICIENTS) $$$

CARD TYPE	REACH	ID	TIDAL RANGE	DISPERSION "A"	DISPERSION "B"	DISPERSION "C"	DISPERSION "D"

ENDATA10

$$$ DATA TYPE 11 (INITIAL CONDITIONS) $$$

CARD TYPE	REACH	ID	TEMP	SALIN	DO	NH3	NO3+2	PHOS	CHL A	MACRO
INITIAL	1	MC	25.40	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	2	MC	25.40	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	3	MC	25.40	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	4	MC	25.40	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	5	MC	25.40	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	6	MC	25.40	0.00	5.00	0.00	0.00	0.00	0.00	0.00

ENDATA11

$$$ DATA TYPE 12 (REAERATION, SEDIMENT OXYGEN DEMAND, BOD COEFFICIENTS) $$$

CARD TYPE	REACH	ID	K2 OPT	K2 "A"	K2 "B"	K2 "C"	BKGRND SOD g/m²/d	AEROB BOD DECAY per day	BOD SETT m/d	BOD CONV TO SOD	ANAER BOD DECAY
COEF-1	1	MC	15 LOUISIANA	0.000	0.000	0.000	1.220	0.070	0.010	0.000	0.000
COEF-1	2	MC	15 LOUISIANA	0.000	0.000	0.000	2.340	0.060	0.010	0.000	0.000
COEF-1	3	MC	15 LOUISIANA	0.000	0.000	0.000	2.320	0.060	0.010	0.000	0.000
COEF-1	4	MC	15 LOUISIANA	0.000	0.000	0.000	2.300	0.040	0.010	0.000	0.000
COEF-1	5	MC	15 LOUISIANA	0.000	0.000	0.000	2.380	0.040	0.010	0.000	0.000
COEF-1	6	MC	15 LOUISIANA	0.000	0.000	0.000	2.430	0.040	0.010	0.000	0.000

ENDATA12

$$$ DATA TYPE 13 (NITROGEN AND PHOSPHORUS COEFFICIENTS) $$$

CARD TYPE	REACH	ID	ORG-N DECA	ORG-N SETT	ORGN CONV TO NH3 SRCE	NH3 DECA	NH3 SRCE	PHOS SRCE	DENIT RATE

ENDATA13

$$$ DATA TYPE 14 (ALGAE AND MACROPHYTE COEFFICIENTS) $$$

CARD TYPE	REACH	ID	SECCHI DEPTH	ALGAE: CHL A	ALGAE SETT	ALG CONV TO SOD	ALGAE GROW	ALGAE RESP	MACRO GROW	MACRO RESP

ENDATA14

$$$ DATA TYPE 15 (COLIFORM AND NONCONSERVATIVE COEFFICIENTS) $$$

CARD TYPE	REACH	ID	COLIFORM DIE-OFF	NCM DECAY	NCM SETT	NCM CONV TO SOD

```
COEF-4            1   MC        0.00      0.06      0.01      0.00
COEF-4            2   MC        0.00      0.06      0.01      0.00
COEF-4            3   MC        0.00      0.06      0.01      0.00
COEF-4            4   MC        0.00      0.09      0.01      0.00
COEF-4            5   MC        0.00      0.08      0.01      0.00
COEF-4            6   MC        0.00      0.05      0.01      0.00
ENDATA15

$$$ DATA TYPE 16 (INCREMENTAL DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) $$$

CARD TYPE      REACH  ID       OUTFLOW      INFLOW      TEMP     SALIN      CM-I     CM-II   IN/DIST  OUT/DIST

ENDATA16

$$$ DATA TYPE 17 (INCREMENTAL DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE      REACH  ID          DO       BOD     ORG-N       NH3     NO3+2

ENDATA17

$$$ DATA TYPE 18 (INCREMENTAL DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

 CARD TYPE      REACH  ID        PHOS     CHL A      COLI       NCM

ENDATA18

$$$ DATA TYPE 19 (NONPOINT SOURCE DATA) $$$

CARD TYPE      REACH  ID         BOD     ORG-N      COLI       NCM        DO

NONPOINT          1   MC        1.00      0.00      0.00      0.00      0.00
NONPOINT          2   MC        2.00      0.00      0.00      0.00      0.00
NONPOINT          3   MC        2.00      0.00      0.00      1.00      0.00
NONPOINT          4   MC        6.00      0.00      0.00      3.00      0.00
NONPOINT          5   MC        2.00      0.00      0.00      0.00      0.00
NONPOINT          6   MC        1.00      0.00      0.00      0.00      0.00
ENDATA19

$$$ DATA TYPE 20 (HEADWATER FOR FLOW, TEMPERATURE, SALINITY AND CONSERVATIVES) $$$

CARD TYPE     ELEMENT   NAME                  UNIT     FLOW     FLOW    TEMP    SALIN      CM-I     CM-II
                                                       m³/s      cfs   deg C      ppt  MG/L      MG/L

HDWTR-1           1     HEADWATER                0   0.11360    4.011   25.40     0.00     3.400     3.100
ENDATA20

$$$ DATA TYPE 21 (HEADWATER DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE     ELEMENT   NAME                             DO       BOD     ORG-N       NH3     NO3+2
```

HDWTR-2	1	HEADWATER	7.40	3.77	0.00	0.00	0.00

ENDATA21

$$$ DATA TYPE 22 (HEADWATER DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	PHOS	CHL A	COLI	NCM
HDWTR-3	1	HEADWATER	0.00	0.00	0.00	1.20

ENDATA22

$$$ DATA TYPE 23 (JUNCTION DATA) $$$

CARD TYPE	JUNCTION ELEMENT	UPSTRM ELEMENT	RIVER KILOM	NAME

ENDATA23

$$$ DATA TYPE 24 (WASTELOAD DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) $$$

CARD TYPE	ELEMENT	RKILO	NAME	FLOW m^3/s	FLOW cfs	FLOW MGD	TEMP deg C	SALIN ppt	CM-I MG/L	CM-II MG/L
WSTLD-1	10	34.20	TOWN OF ELIZABETH	0.00220	0.07768	0.050	25.40	0.00	3.400	3.100
WSTLD-1	46	27.00	ALLIGATOR BAYOU	0.00280	0.09887	0.064	25.40	0.00	14.900	9.500
WSTLD-1	64	25.10	BLACK BAYOU	0.00280	0.09887	0.064	25.40	0.00	3.800	1.900
WSTLD-1	172	3.60	LITTLE MILL CREEK	0.00280	0.09887	0.064	25.40	0.00	13.700	3.200

ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	ELEMENT	NAME	DO	BOD	% BOD RMVL	ORG-N	NH3	% NITRIF	NO3+2
WSTLD-2	10	TOWN OF ELIZABETH	5.00	46.00	0.00	0.00	0.00	0.00	0.00
WSTLD-2	46	ALLIGATOR BAYOU	7.40	3.40	0.00	0.00	0.00	0.00	0.00
WSTLD-2	64	BLACK BAYOU	7.40	7.50	0.00	0.00	0.00	0.00	0.00
WSTLD-2	172	LITTLE MILL CREEK	7.40	6.30	0.00	0.00	0.00	0.00	0.00

ENDATA25

$$$ DATA TYPE 26 (WASTELOAD DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	PHOS	CHL A	COLI	NCM
WSTLD-3	10	TOWN OF ELIZABETH	0.00	0.00	0.00	43.00
WSTLD-3	46	ALLIGATOR BAYOU	0.00	0.00	0.00	0.80
WSTLD-3	64	BLACK BAYOU	0.00	0.00	0.00	2.18
WSTLD-3	172	LITTLE MILL CREEK	0.00	0.00	0.00	1.84

ENDATA26

$$$ DATA TYPE 27 (LOWER BOUNDARY CONDITIONS) $$$

```
CARD TYPE    CONSTITUENT                    CONCENTRATION

ENDATA27

$$$ DATA TYPE 28 (DAM DATA) $$$

CARD TYPE     ELEMENT   NAME                  EQN      "A"       "B"       "H"

ENDATA28

$$$ DATA TYPE 29 (SENSITIVITY ANALYSIS DATA) $$$

CARD TYPE       PARAMETER     COL 1     COL 2     COL 3     COL 4     COL 5     COL 6     COL 7     COL 8

ENDATA29

$$$ DATA TYPE 30 (PLOT CONTROL CARDS) $$$


NUMBER OF PLOTS =  2
NUMBER OF REACHES IN PLOT 1 =   6
PLOT RCH  1  2  3  4  5  6
NUMBER OF REACHES IN PLOT 1 =   1
PLOT RCH  1
ENDATA30

$$$ DATA TYPE 31 (OVERLAY PLOT DATA) $$$


OVERLAY  NUMBER OF OVERLAY SETS =   1
OVERLAY SET 1 BASEPLOT  1, DATAFILE  mcproj.txt       MILL CREEK
ENDATA31


     .....NO ERRORS DETECTED IN INPUT DATA
     .....HYDRAULIC CALCULATIONS COMPLETED
     .....TRIDIAGONAL MATRIX TERMS INITIALIZED
     .....OXYGEN DEPENDENT RATES CONVERGENT IN   1 ITERATIONS
     .....CONSTITUENT CALCULATIONS COMPLETED
     .....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 11
     .....GRAPHICS DATA FOR PLOT 2 WRITTEN TO UNIT 12


FINAL REPORT    HEADWATER                                       MILL CREEK WATERSHED MODEL
REACH NO.  1    HEADWATER  - RKM 30.0                           MILL CREEK CURRENT SUMMER 5.0 STANDARD RUN

 *********************************************************** REACH INPUTS ***********************************************************
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ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
1	HDWTR	0.11360	25.40	0.00	3.40	3.10	7.40	3.77	3.77	0.00	0.00	0.00	0.00	0.00	0.00	1.20
10	WSTLD	0.00220	25.40	0.00	3.40	3.10	5.00	46.00	46.00	0.00	0.00	0.00	0.00	0.00	0.00	43.00

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
1	36.00	35.80	0.11360	0.00	0.15821	0.01	0.19	3.74	143.61	748.38	0.72	0.00	0.000	0.030	0.158
2	35.80	35.60	0.11360	0.00	0.15821	0.01	0.19	3.74	143.61	748.38	0.72	0.00	0.000	0.030	0.158
3	35.60	35.40	0.11360	0.00	0.15821	0.01	0.19	3.74	143.61	748.38	0.72	0.00	0.000	0.030	0.158
4	35.40	35.20	0.11360	0.00	0.15821	0.01	0.19	3.74	143.61	748.38	0.72	0.00	0.000	0.030	0.158
5	35.20	35.00	0.11360	0.00	0.15821	0.01	0.19	3.74	143.61	748.38	0.72	0.00	0.000	0.030	0.158
6	35.00	34.80	0.11360	0.00	0.15821	0.01	0.19	3.74	143.61	748.38	0.72	0.00	0.000	0.030	0.158
7	34.80	34.60	0.11360	0.00	0.15821	0.01	0.19	3.74	143.61	748.38	0.72	0.00	0.000	0.030	0.158
8	34.60	34.40	0.11360	0.00	0.15821	0.01	0.19	3.74	143.61	748.38	0.72	0.00	0.000	0.030	0.158
9	34.40	34.20	0.11360	0.00	0.15821	0.01	0.19	3.74	143.61	748.38	0.72	0.00	0.000	0.030	0.158
10	34.20	34.00	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
11	34.00	33.80	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
12	33.80	33.60	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
13	33.60	33.40	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
14	33.40	33.20	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
15	33.20	33.00	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
16	33.00	32.80	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
17	32.80	32.60	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
18	32.60	32.40	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
19	32.40	32.20	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
20	32.20	32.00	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
21	32.00	31.80	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
22	31.80	31.60	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
23	31.60	31.40	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
24	31.40	31.20	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
25	31.20	31.00	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
26	31.00	30.80	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
27	30.80	30.60	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
28	30.60	30.40	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
29	30.40	30.20	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
30	30.20	30.00	0.11580	1.90	0.16099	0.01	0.19	3.74	143.86	748.44	0.72	0.00	0.000	0.030	0.161
TOT						0.43			4313.61	22452.72					
AVG					0.16014		0.19	3.74			0.72				
CUM						0.43									

*** BIOLOGICAL AND PHYSICAL COEFFICIENTS ***

ELEM NO.	ENDING DIST	SAT D.O.	REAER RATE	CBOD DECAY	CBOD SETT	ANBOD DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	NCM SETT
		mg/L	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
1	35.800	8.20	16.89	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
2	35.600	8.20	16.89	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
3	35.400	8.20	16.89	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
4	35.200	8.20	16.89	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
5	35.000	8.20	16.89	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
6	34.800	8.20	16.89	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
7	34.600	8.20	16.89	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
8	34.400	8.20	16.89	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
9	34.200	8.20	16.89	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
10	34.000	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
11	33.800	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
12	33.600	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
13	33.400	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
14	33.200	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
15	33.000	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
16	32.800	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
17	32.600	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
18	32.400	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
19	32.200	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
20	32.000	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
21	31.800	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01

22	31.600	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
23	31.400	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
24	31.200	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
25	31.000	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
26	30.800	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
27	30.600	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
28	30.400	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
29	30.200	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
30	30.000	8.20	17.09	0.09	0.01	0.00	1.71	1.71	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
20 DEG C RATE				0.07		0.00	1.22			0.00		0.00	0.00	0.00	0.00			0.00	0.06	
AVG 20 DEG C RATE			15.37		0.01						0.00									0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
1	35.800	25.40	0.00	3.40	3.10	7.45	3.77	3.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
2	35.600	25.40	0.00	3.40	3.10	7.49	3.77	3.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
3	35.400	25.40	0.00	3.40	3.10	7.52	3.76	3.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
4	35.200	25.40	0.00	3.40	3.10	7.55	3.76	3.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
5	35.000	25.40	0.00	3.40	3.10	7.57	3.76	3.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
6	34.800	25.40	0.00	3.40	3.10	7.58	3.76	3.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
7	34.600	25.40	0.00	3.40	3.10	7.59	3.75	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
8	34.400	25.40	0.00	3.40	3.10	7.61	3.75	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
9	34.200	25.40	0.00	3.40	3.10	7.61	3.75	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
10	34.000	25.40	0.00	3.40	3.10	7.58	4.55	4.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98
11	33.800	25.40	0.00	3.40	3.10	7.59	4.55	4.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97
12	33.600	25.40	0.00	3.40	3.10	7.60	4.54	4.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97
13	33.400	25.40	0.00	3.40	3.10	7.61	4.54	4.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97
14	33.200	25.40	0.00	3.40	3.10	7.62	4.54	4.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97
15	33.000	25.40	0.00	3.40	3.10	7.62	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96
16	32.800	25.40	0.00	3.40	3.10	7.63	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96
17	32.600	25.40	0.00	3.40	3.10	7.63	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96
18	32.400	25.40	0.00	3.40	3.10	7.64	4.52	4.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95
19	32.200	25.40	0.00	3.40	3.10	7.64	4.52	4.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95

20	32.000	25.40	0.00	3.40	3.10	7.64	4.52	4.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95
21	31.800	25.40	0.00	3.40	3.10	7.64	4.51	4.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95
22	31.600	25.40	0.00	3.40	3.10	7.64	4.51	4.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94
23	31.400	25.40	0.00	3.40	3.10	7.64	4.51	4.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94
24	31.200	25.40	0.00	3.40	3.10	7.64	4.50	4.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94
25	31.000	25.40	0.00	3.40	3.10	7.64	4.50	4.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94
26	30.800	25.40	0.00	3.40	3.10	7.65	4.50	4.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93
27	30.600	25.40	0.00	3.40	3.10	7.65	4.49	4.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93
28	30.400	25.40	0.00	3.40	3.10	7.65	4.49	4.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93
29	30.200	25.40	0.00	3.40	3.10	7.65	4.49	4.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92
30	30.000	25.40	0.00	3.40	3.10	7.65	4.49	4.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL

REACH NO. 2   RKM 30.0 - ALLIGATOR BAYOU   MILL CREEK CURRENT SUMMER 5.0 STANDARD RUN

************ REACH INPUTS ************

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
31	UPR RCH	0.11580	25.40	0.00	3.40	3.10	7.65	4.49	4.49	0.00	0.00	0.00	0.00	0.00	0.00	1.92
46	WSTLD	0.00280	25.40	0.00	14.90	9.50	7.40	3.40	3.40	0.00	0.00	0.00	0.00	0.00	0.00	0.80

************ HYDRAULIC PARAMETER VALUES ************

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
31	30.00	29.80	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024
32	29.80	29.60	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024
33	29.60	29.40	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024
34	29.40	29.20	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024
35	29.20	29.00	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024
36	29.00	28.80	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024
37	28.80	28.60	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024
38	28.60	28.40	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024
39	28.40	28.20	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024
40	28.20	28.00	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024
41	28.00	27.80	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024
42	27.80	27.60	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024
43	27.60	27.40	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024
44	27.40	27.20	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024

45	27.20	27.00	0.11580	1.90	0.02365	0.10	0.95	5.14	979.30	1028.44	4.90	0.00	0.000	0.017	0.024
46	27.00	26.80	0.11860	4.22	0.02421	0.10	0.95	5.14	979.80	1028.52	4.90	0.00	0.000	0.017	0.024
TOT						1.56			15669.31	16455.18					
AVG					0.02368		0.95	5.14			4.90				
CUM						2.00									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
31	29.800	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
32	29.600	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
33	29.400	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
34	29.200	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
35	29.000	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
36	28.800	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
37	28.600	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
38	28.400	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
39	28.200	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
40	28.000	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
41	27.800	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
42	27.600	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
43	27.400	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
44	27.200	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
45	27.000	8.20	1.17	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
46	26.800	8.20	1.18	0.08	0.01	0.00	3.29	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01

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 20 DEG C RATE               0.06         0.00  2.34               0.00         0.00  0.00   0.00  0.00               0.00   0.06
 AVG 20 DEG C RATE     1.05         0.01                                 0.00
0.01

 * g/m²/d              ** mg/L/day
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** WATER QUALITY CONSTITUENT VALUES ***

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
31	29.800	25.40	0.00	3.40	3.10	7.36	4.46	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
32	29.600	25.40	0.00	3.40	3.10	7.09	4.43	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89
33	29.400	25.40	0.00	3.40	3.10	6.86	4.41	4.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87
34	29.200	25.40	0.00	3.40	3.10	6.65	4.38	4.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85
35	29.000	25.40	0.00	3.40	3.10	6.46	4.36	4.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83
36	28.800	25.40	0.00	3.40	3.10	6.30	4.33	4.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81
37	28.600	25.40	0.00	3.40	3.10	6.14	4.31	4.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80
38	28.400	25.40	0.00	3.40	3.10	6.01	4.28	4.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78
39	28.200	25.40	0.00	3.40	3.10	5.89	4.26	4.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76
40	28.000	25.40	0.00	3.40	3.10	5.78	4.23	4.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75
41	27.800	25.40	0.00	3.40	3.10	5.68	4.21	4.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73
42	27.600	25.40	0.00	3.40	3.10	5.60	4.19	4.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71
43	27.400	25.40	0.00	3.40	3.10	5.52	4.16	4.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70
44	27.200	25.40	0.00	3.40	3.10	5.45	4.14	4.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68
45	27.000	25.40	0.00	3.40	3.10	5.39	4.12	4.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67
46	26.800	25.40	0.00	3.67	3.25	5.38	4.08	4.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63

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 * CM-I = CHLORIDES                          CM-II = SULFATES                          NCM =
          MG/L                                       MG/L
 ** g/m³
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FINAL REPORT    HEADWATER                                          MILL CREEK WATERSHED MODEL
REACH NO.  3    ALLIGATOR BAYOU - BLACK CR                         MILL CREEK CURRENT SUMMER 5.0 STANDARD RUN
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*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
47	UPR RCH	0.11860	25.40	0.00	3.67	3.25	5.38	4.08	4.08	0.00	0.00	0.00	0.00	0.00	0.00	1.63
64	WSTLD	0.00280	25.40	0.00	3.80	1.90	7.40	7.50	7.50	0.00	0.00	0.00	0.00	0.00	0.00	2.18

** HYDRAULIC PARAMETER VALUES ***

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 ELEM   BEGIN  ENDING       FLOW   PCT   ADVCTV    TRAVEL   DEPTH  WIDTH   VOLUME    SURFACE  X-SECT     TIDAL  TIDAL   DISPRSN   MEAN
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NO.	DIST km	DIST km	m³/	EFF	VELO m/s	TIME days	m	m	m³	AREA m²	AREA m²	PRISM m³	VELO m/s	m²/s	VELO m/s
47	26.80	26.70	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
48	26.70	26.60	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
49	26.60	26.50	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
50	26.50	26.40	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
51	26.40	26.30	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
52	26.30	26.20	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
53	26.20	26.10	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
54	26.10	26.00	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
55	26.00	25.90	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
56	25.90	25.80	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
57	25.80	25.70	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
58	25.70	25.60	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
59	25.60	25.50	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
60	25.50	25.40	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
61	25.40	25.30	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
62	25.30	25.20	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
63	25.20	25.10	0.11860	4.22	0.02421	0.05	0.95	5.14	489.90	514.26	4.90	0.00	0.000	0.017	0.024
64	25.10	25.00	0.12140	6.43	0.02477	0.05	0.95	5.14	490.14	514.30	4.90	0.00	0.000	0.018	0.025
TOT						0.86			8818.40	9256.76					
AVG					0.02424		0.95	5.14			4.90				
CUM						2.86									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
47	26.700	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
48	26.600	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
49	26.500	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
50	26.400	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
51	26.300	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
52	26.200	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
53	26.100	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01

54	26.000	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
55	25.900	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
56	25.800	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
57	25.700	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
58	25.600	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
59	25.500	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
60	25.400	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
61	25.300	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
62	25.200	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
63	25.100	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
64	25.000	8.20	1.18	0.08	0.01	0.00	3.26	3.26	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
20 DEG C RATE				0.06		0.00	2.32			0.00		0.00	0.00	0.00	0.00			0.00	0.06	
AVG 20 DEG C RATE			1.06		0.01						0.00									0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
47	26.700	25.40	0.00	3.67	3.25	5.36	4.07	4.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63
48	26.600	25.40	0.00	3.67	3.25	5.33	4.07	4.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63
49	26.500	25.40	0.00	3.67	3.25	5.31	4.06	4.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
50	26.400	25.40	0.00	3.67	3.25	5.29	4.05	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
51	26.300	25.40	0.00	3.67	3.25	5.27	4.05	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
52	26.200	25.40	0.00	3.67	3.25	5.25	4.04	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
53	26.100	25.40	0.00	3.67	3.25	5.23	4.03	4.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
54	26.000	25.40	0.00	3.67	3.25	5.21	4.03	4.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
55	25.900	25.40	0.00	3.67	3.25	5.20	4.02	4.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
56	25.800	25.40	0.00	3.67	3.25	5.18	4.02	4.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
57	25.700	25.40	0.00	3.67	3.25	5.17	4.01	4.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
58	25.600	25.40	0.00	3.67	3.25	5.15	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
59	25.500	25.40	0.00	3.67	3.25	5.14	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
60	25.400	25.40	0.00	3.67	3.25	5.13	3.99	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
61	25.300	25.40	0.00	3.67	3.25	5.12	3.99	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60

62	25.200	25.40	0.00	3.67	3.25	5.11	3.98	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
63	25.100	25.40	0.00	3.67	3.25	5.10	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
64	25.000	25.40	0.00	3.67	3.22	5.14	4.05	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM =

** g/m³

FINAL REPORT HEADWATER MILL CREEK WATERSHED MODEL
REACH NO. 4 BLACK CREEK - RKM 14.0 MILL CREEK CURRENT SUMMER 5.0 STANDARD RUN

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
65	UPR RCH	0.12140	25.40	0.00	3.67	3.22	5.14	4.05	4.05	0.00	0.00	0.00	0.00	0.00	0.00	1.61

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
65	25.00	24.80	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
66	24.80	24.60	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
67	24.60	24.40	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
68	24.40	24.20	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
69	24.20	24.00	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
70	24.00	23.80	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
71	23.80	23.60	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
72	23.60	23.40	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
73	23.40	23.20	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
74	23.20	23.00	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
75	23.00	22.80	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
76	22.80	22.60	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
77	22.60	22.40	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
78	22.40	22.20	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
79	22.20	22.00	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
80	22.00	21.80	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
81	21.80	21.60	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
82	21.60	21.40	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
83	21.40	21.20	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
84	21.20	21.00	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
85	21.00	20.80	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
86	20.80	20.60	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
87	20.60	20.40	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030

88	20.40	20.20	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
89	20.20	20.00	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
90	20.00	19.80	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
91	19.80	19.60	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
92	19.60	19.40	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
93	19.40	19.20	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
94	19.20	19.00	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
95	19.00	18.80	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
96	18.80	18.60	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
97	18.60	18.40	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
98	18.40	18.20	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
99	18.20	18.00	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
100	18.00	17.80	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
101	17.80	17.60	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
102	17.60	17.40	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
103	17.40	17.20	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
104	17.20	17.00	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
105	17.00	16.80	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
106	16.80	16.60	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
107	16.60	16.40	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
108	16.40	16.20	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
109	16.20	16.00	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
110	16.00	15.80	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
111	15.80	15.60	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
112	15.60	15.40	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
113	15.40	15.20	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
114	15.20	15.00	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
115	15.00	14.80	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
116	14.80	14.60	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
117	14.60	14.40	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
118	14.40	14.20	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
119	14.20	14.00	0.12140	6.43	0.03031	0.08	0.60	6.64	801.18	1328.60	4.01	0.00	0.000	0.015	0.030
TOT						4.20			44064.74	73073.24					
AVG					0.03031		0.60	6.64			4.01				
CUM						7.06									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
65	24.800	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
66	24.600	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	

0.01

67	24.400	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
68	24.200	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
69	24.000	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
70	23.800	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
71	23.600	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
72	23.400	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
73	23.200	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
74	23.000	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
75	22.800	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
76	22.600	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
77	22.400	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
78	22.200	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
79	22.000	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
80	21.800	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
81	21.600	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
82	21.400	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
83	21.200	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
84	21.000	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
85	20.800	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
86	20.600	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
87	20.400	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
88	20.200	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
89	20.000	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
90	19.800	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
91	19.600	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	

0.01
92 19.400 8.20 2.02 0.05 0.01 0.00 3.23 3.23 3.23 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.13
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103 17.200 8.20 2.02 0.05 0.01 0.00 3.23 3.23 3.23 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.13
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105 16.800 8.20 2.02 0.05 0.01 0.00 3.23 3.23 3.23 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.13
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113 15.200 8.20 2.02 0.05 0.01 0.00 3.23 3.23 3.23 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.13
0.01
114 15.000 8.20 2.02 0.05 0.01 0.00 3.23 3.23 3.23 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.13
0.01
115 14.800 8.20 2.02 0.05 0.01 0.00 3.23 3.23 3.23 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.13
0.01
116 14.600 8.20 2.02 0.05 0.01 0.00 3.23 3.23 3.23 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.13

0.01																				
117	14.400	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
118	14.200	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
119	14.000	8.20	2.02	0.05	0.01	0.00	3.23	3.23	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
20 DEG C RATE				0.04		0.00	2.30			0.00		0.00	0.00	0.00	0.00			0.00	0.09	
AVG 20 DEG C RATE			1.82		0.01						0.00									0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
65	24.800	25.40	0.00	3.67	3.22	5.16	4.04	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
66	24.600	25.40	0.00	3.67	3.22	5.19	4.03	4.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58
67	24.400	25.40	0.00	3.67	3.22	5.21	4.02	4.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
68	24.200	25.40	0.00	3.67	3.22	5.23	4.01	4.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
69	24.000	25.40	0.00	3.67	3.22	5.24	4.01	4.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55
70	23.800	25.40	0.00	3.67	3.22	5.26	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
71	23.600	25.40	0.00	3.67	3.22	5.27	3.99	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52
72	23.400	25.40	0.00	3.67	3.22	5.28	3.98	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51
73	23.200	25.40	0.00	3.67	3.22	5.29	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
74	23.000	25.40	0.00	3.67	3.22	5.30	3.96	3.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49
75	22.800	25.40	0.00	3.67	3.22	5.30	3.95	3.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48
76	22.600	25.40	0.00	3.67	3.22	5.31	3.94	3.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47
77	22.400	25.40	0.00	3.67	3.22	5.31	3.94	3.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46
78	22.200	25.40	0.00	3.67	3.22	5.32	3.93	3.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45
79	22.000	25.40	0.00	3.67	3.22	5.32	3.92	3.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44
80	21.800	25.40	0.00	3.67	3.22	5.33	3.91	3.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43
81	21.600	25.40	0.00	3.67	3.22	5.33	3.90	3.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42
82	21.400	25.40	0.00	3.67	3.22	5.33	3.89	3.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
83	21.200	25.40	0.00	3.67	3.22	5.34	3.89	3.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
84	21.000	25.40	0.00	3.67	3.22	5.34	3.88	3.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
85	20.800	25.40	0.00	3.67	3.22	5.34	3.87	3.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
86	20.600	25.40	0.00	3.67	3.22	5.34	3.86	3.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
87	20.400	25.40	0.00	3.67	3.22	5.35	3.85	3.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
88	20.200	25.40	0.00	3.67	3.22	5.35	3.85	3.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35
89	20.000	25.40	0.00	3.67	3.22	5.35	3.84	3.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
90	19.800	25.40	0.00	3.67	3.22	5.35	3.83	3.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
91	19.600	25.40	0.00	3.67	3.22	5.35	3.82	3.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32
92	19.400	25.40	0.00	3.67	3.22	5.35	3.81	3.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31
93	19.200	25.40	0.00	3.67	3.22	5.36	3.81	3.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31
94	19.000	25.40	0.00	3.67	3.22	5.36	3.80	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30

95	18.800	25.40	0.00	3.67	3.22	5.36	3.79	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29
96	18.600	25.40	0.00	3.67	3.22	5.36	3.78	3.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.28
97	18.400	25.40	0.00	3.67	3.22	5.36	3.78	3.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27
98	18.200	25.40	0.00	3.67	3.22	5.36	3.77	3.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26
99	18.000	25.40	0.00	3.67	3.22	5.36	3.76	3.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.25
100	17.800	25.40	0.00	3.67	3.22	5.36	3.75	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.25
101	17.600	25.40	0.00	3.67	3.22	5.36	3.75	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24
102	17.400	25.40	0.00	3.67	3.22	5.37	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23
103	17.200	25.40	0.00	3.67	3.22	5.37	3.73	3.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22
104	17.000	25.40	0.00	3.67	3.22	5.37	3.72	3.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21
105	16.800	25.40	0.00	3.67	3.22	5.37	3.72	3.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21
106	16.600	25.40	0.00	3.67	3.22	5.37	3.71	3.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
107	16.400	25.40	0.00	3.67	3.22	5.37	3.70	3.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
108	16.200	25.40	0.00	3.67	3.22	5.37	3.69	3.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18
109	16.000	25.40	0.00	3.67	3.22	5.37	3.69	3.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18
110	15.800	25.40	0.00	3.67	3.22	5.37	3.68	3.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17
111	15.600	25.40	0.00	3.67	3.22	5.37	3.67	3.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16
112	15.400	25.40	0.00	3.67	3.22	5.37	3.67	3.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15
113	15.200	25.40	0.00	3.67	3.22	5.37	3.66	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15
114	15.000	25.40	0.00	3.67	3.22	5.37	3.65	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14
115	14.800	25.40	0.00	3.67	3.22	5.38	3.64	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13
116	14.600	25.40	0.00	3.67	3.22	5.38	3.64	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13
117	14.400	25.40	0.00	3.67	3.22	5.38	3.63	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12
118	14.200	25.40	0.00	3.67	3.22	5.38	3.62	3.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11
119	14.000	25.40	0.00	3.67	3.22	5.38	3.62	3.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11

* CM-I = CHLORIDES MG/L　　CM-II = SULFATES MG/L　　NCM =

** g/m³

FINAL REPORT　HEADWATER　　MILL CREEK WATERSHED MODEL
REACH NO. 5　RKM 14.0 - LITTLE MILL CR　　MILL CREEK CURRENT SUMMER 5.0 STANDARD RUN

** REACH INPUTS **

ELEM NO.	TYPE	FLOW $m^3/$	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
120	UPR RCH	0.12140	25.40	0.00	3.67	3.22	5.38	3.62	3.62	0.00	0.00	0.00	0.00	0.00	0.00	1.11
172	WSTLD	0.00280	25.40	0.00	13.70	3.20	7.40	6.30	6.30	0.00	0.00	0.00	0.00	0.00	0.00	1.84

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW $m^3/$	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s

120	14.00	13.80	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
121	13.80	13.60	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
122	13.60	13.40	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
123	13.40	13.20	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
124	13.20	13.00	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
125	13.00	12.80	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
126	12.80	12.60	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
127	12.60	12.40	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
128	12.40	12.20	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
129	12.20	12.00	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
130	12.00	11.80	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
131	11.80	11.60	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
132	11.60	11.40	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
133	11.40	11.20	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
134	11.20	11.00	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
135	11.00	10.80	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
136	10.80	10.60	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
137	10.60	10.40	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
138	10.40	10.20	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
139	10.20	10.00	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
140	10.00	9.80	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
141	9.80	9.60	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
142	9.60	9.40	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
143	9.40	9.20	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
144	9.20	9.00	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
145	9.00	8.80	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
146	8.80	8.60	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
147	8.60	8.40	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
148	8.40	8.20	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
149	8.20	8.00	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
150	8.00	7.80	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
151	7.80	7.60	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
152	7.60	7.40	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
153	7.40	7.20	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
154	7.20	7.00	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
155	7.00	6.80	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
156	6.80	6.60	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
157	6.60	6.40	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
158	6.40	6.20	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
159	6.20	6.00	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
160	6.00	5.80	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
161	5.80	5.60	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
162	5.60	5.40	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
163	5.40	5.20	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
164	5.20	5.00	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
165	5.00	4.80	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
166	4.80	4.60	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
167	4.60	4.40	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
168	4.40	4.20	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
169	4.20	4.00	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208

170	4.00	3.80	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
171	3.80	3.60	0.12140	6.43	0.20776	0.01	0.21	2.74	116.86	548.60	0.58	0.00	0.000	0.042	0.208
172	3.60	3.40	0.12420	8.53	0.21213	0.01	0.21	2.74	117.10	548.68	0.59	0.00	0.000	0.043	0.212
TOT						0.59			6194.06	29076.09					
AVG					0.20784		0.21	2.74			0.58				
CUM						7.65									

*** BIOLOGICAL AND PHYSICAL COEFFICIENTS ***

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
120	13.800	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
121	13.600	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
122	13.400	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
123	13.200	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
124	13.000	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
125	12.800	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
126	12.600	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
127	12.400	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
128	12.200	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
129	12.000	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
130	11.800	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
131	11.600	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
132	11.400	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
133	11.200	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
134	11.000	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
135	10.800	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01

136	10.600	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
137	10.400	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
138	10.200	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
139	10.000	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
140	9.800	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
141	9.600	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
142	9.400	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
143	9.200	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
144	9.000	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
145	8.800	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
146	8.600	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
147	8.400	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
148	8.200	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
149	8.000	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
150	7.800	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
151	7.600	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
152	7.400	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
153	7.200	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
154	7.000	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
155	6.800	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
156	6.600	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
157	6.400	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
158	6.200	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
159	6.000	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
160	5.800	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01

161	5.600	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
162	5.400	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
163	5.200	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
164	5.000	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
165	4.800	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
166	4.600	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
167	4.400	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
168	4.200	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
169	4.000	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
170	3.800	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
171	3.600	8.20	18.90	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
172	3.400	8.20	19.19	0.05	0.01	0.00	3.34	3.34	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
20 DEG C RATE				0.04		0.00	2.38			0.00		0.00	0.00	0.00	0.00			0.00	0.08	
AVG 20 DEG C RATE			17.06		0.01						0.00									0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
120	13.800	25.40	0.00	3.67	3.22	5.72	3.62	3.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
121	13.600	25.40	0.00	3.67	3.22	6.01	3.62	3.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
122	13.400	25.40	0.00	3.67	3.22	6.24	3.62	3.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
123	13.200	25.40	0.00	3.67	3.22	6.43	3.62	3.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
124	13.000	25.40	0.00	3.67	3.22	6.59	3.62	3.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
125	12.800	25.40	0.00	3.67	3.22	6.73	3.62	3.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
126	12.600	25.40	0.00	3.67	3.22	6.84	3.62	3.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09
127	12.400	25.40	0.00	3.67	3.22	6.93	3.63	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09
128	12.200	25.40	0.00	3.67	3.22	7.00	3.63	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09
129	12.000	25.40	0.00	3.67	3.22	7.06	3.63	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09
130	11.800	25.40	0.00	3.67	3.22	7.11	3.63	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09
131	11.600	25.40	0.00	3.67	3.22	7.16	3.63	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09
132	11.400	25.40	0.00	3.67	3.22	7.19	3.63	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09

133	11.200	25.40	0.00	3.67	3.22	7.22	3.63	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08
134	11.000	25.40	0.00	3.67	3.22	7.24	3.63	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08
135	10.800	25.40	0.00	3.67	3.22	7.26	3.63	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08
136	10.600	25.40	0.00	3.67	3.22	7.28	3.63	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08
137	10.400	25.40	0.00	3.67	3.22	7.29	3.64	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08
138	10.200	25.40	0.00	3.67	3.22	7.30	3.64	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08
139	10.000	25.40	0.00	3.67	3.22	7.31	3.64	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
140	9.800	25.40	0.00	3.67	3.22	7.32	3.64	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
141	9.600	25.40	0.00	3.67	3.22	7.33	3.64	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
142	9.400	25.40	0.00	3.67	3.22	7.33	3.64	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
143	9.200	25.40	0.00	3.67	3.22	7.34	3.64	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
144	9.000	25.40	0.00	3.67	3.22	7.34	3.64	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
145	8.800	25.40	0.00	3.67	3.22	7.34	3.64	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
146	8.600	25.40	0.00	3.67	3.22	7.34	3.65	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06
147	8.400	25.40	0.00	3.67	3.22	7.35	3.65	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06
148	8.200	25.40	0.00	3.67	3.22	7.35	3.65	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06
149	8.000	25.40	0.00	3.67	3.22	7.35	3.65	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06
150	7.800	25.40	0.00	3.67	3.22	7.35	3.65	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06
151	7.600	25.40	0.00	3.67	3.22	7.35	3.65	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06
152	7.400	25.40	0.00	3.67	3.22	7.35	3.65	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06
153	7.200	25.40	0.00	3.67	3.22	7.35	3.65	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05
154	7.000	25.40	0.00	3.67	3.22	7.35	3.65	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05
155	6.800	25.40	0.00	3.67	3.22	7.35	3.65	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05
156	6.600	25.40	0.00	3.67	3.22	7.35	3.66	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05
157	6.400	25.40	0.00	3.67	3.22	7.35	3.66	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05
158	6.200	25.40	0.00	3.67	3.22	7.35	3.66	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05
159	6.000	25.40	0.00	3.67	3.22	7.35	3.66	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
160	5.800	25.40	0.00	3.67	3.22	7.36	3.66	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
161	5.600	25.40	0.00	3.67	3.22	7.36	3.66	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
162	5.400	25.40	0.00	3.67	3.22	7.36	3.66	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
163	5.200	25.40	0.00	3.67	3.22	7.36	3.66	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
164	5.000	25.40	0.00	3.67	3.22	7.36	3.66	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
165	4.800	25.40	0.00	3.67	3.22	7.36	3.67	3.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
166	4.600	25.40	0.00	3.67	3.22	7.36	3.67	3.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
167	4.400	25.40	0.00	3.67	3.22	7.36	3.67	3.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
168	4.200	25.40	0.00	3.67	3.22	7.36	3.67	3.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
169	4.000	25.40	0.00	3.67	3.22	7.36	3.67	3.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
170	3.800	25.40	0.00	3.67	3.22	7.36	3.67	3.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
171	3.600	25.40	0.00	3.67	3.22	7.36	3.67	3.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
172	3.400	25.40	0.00	3.90	3.22	7.36	3.73	3.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m^3

** REACH INPUTS **

ELEM NO.	TYPE	FLOW $m^3/$	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
173	UPR RCH	0.12420	25.40	0.00	3.90	3.22	7.36	3.73	3.73	0.00	0.00	0.00	0.00	0.00	0.00	1.04

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW $m^3/$	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
173	3.40	3.20	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
174	3.20	3.00	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
175	3.00	2.80	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
176	2.80	2.60	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
177	2.60	2.40	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
178	2.40	2.20	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
179	2.20	2.00	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
180	2.00	1.80	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
181	1.80	1.60	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
182	1.60	1.40	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
183	1.40	1.20	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
184	1.20	1.00	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
185	1.00	0.80	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
186	0.80	0.60	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
187	0.60	0.40	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
188	0.40	0.20	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
189	0.20	0.00	0.12420	8.53	0.12121	0.02	0.25	4.04	204.93	808.68	1.02	0.00	0.000	0.029	0.121
TOT						0.32			3483.86	13747.62					
AVG					0.12121		0.25	4.04			1.02				
CUM						7.97									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
173	3.200	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
174	3.000	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01

175	2.800	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
176	2.600	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
177	2.400	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
178	2.200	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
179	2.000	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
180	1.800	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
181	1.600	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
182	1.400	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
183	1.200	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
184	1.000	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
185	0.800	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
186	0.600	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
187	0.400	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
188	0.200	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
189	0.000	8.20	10.48	0.05	0.01	0.00	3.41	3.41	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
20 DEG C RATE				0.04		0.00	2.43			0.00		0.00	0.00	0.00	0.00			0.00	0.05	
AVG 20 DEG C RATE			9.45		0.01						0.00									0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
173	3.200	25.40	0.00	3.90	3.22	7.28	3.73	3.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
174	3.000	25.40	0.00	3.90	3.22	7.22	3.73	3.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
175	2.800	25.40	0.00	3.90	3.22	7.16	3.73	3.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
176	2.600	25.40	0.00	3.90	3.22	7.12	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
177	2.400	25.40	0.00	3.90	3.22	7.08	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
178	2.200	25.40	0.00	3.90	3.22	7.05	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
179	2.000	25.40	0.00	3.90	3.22	7.02	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03

180	1.800	25.40	0.00	3.90	3.22	7.00	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
181	1.600	25.40	0.00	3.90	3.22	6.98	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
182	1.400	25.40	0.00	3.90	3.22	6.97	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
183	1.200	25.40	0.00	3.90	3.22	6.95	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
184	1.000	25.40	0.00	3.90	3.22	6.94	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02
185	0.800	25.40	0.00	3.90	3.22	6.94	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02
186	0.600	25.40	0.00	3.90	3.22	6.93	3.75	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02
187	0.400	25.40	0.00	3.90	3.22	6.92	3.75	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02
188	0.200	25.40	0.00	3.90	3.22	6.92	3.75	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02
189	0.000	25.40	0.00	3.90	3.22	6.91	3.75	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m^3

STREAM SUMMARY
HEADWATER

MILL CREEK WATERSHED MODEL
MILL CREEK CURRENT SUMMER 5.0 STANDARD RUN

TRAVEL TIME = 7.97 DAYS

MAXIMUM EFFLUENT = 8.53 PERCENT

FLOW	=	0.11360	TO	0.12420	m^3/s
DISPERSION	=	0.0147	TO	0.0434	m^2/s
VELOCITY	=	0.02365	TO	0.21213	m/s
DEPTH	=	0.19	TO	0.95	m
WIDTH	=	2.74	TO	6.64	m
BOD DECAY	=	0.05	TO	0.09	per day
NH3 DECAY	=	0.00	TO	0.00	per day
SDMNT OXYGEN DMND	=	1.71	TO	3.41	$g/m^2/d$
NH3 SOURCE	=	0.00	TO	0.00	$g/m^2/d$
REAERATION	=	1.17	TO	19.19	per day
BOD SETTLING	=	0.01	TO	0.01	per day
ORGN DECAY	=	0.00	TO	0.00	per day
ORGN SETTLING	=	0.00	TO	0.00	per day
TEMPERATURE	=	25.40	TO	25.40	deg C
DISSOLVED OXYGEN	=	5.10	TO	7.65	mg/L

.....EXECUTION COMPLETED

Mill Creek Water Quality Current Summer 5.0 DO Projection Model Input Description

DATA TYPE 3, Program Constants			
Description of Constant	**Value**	**Result**	**Source/Justification**
Maximum iteration limit	200.0		Standard
KL Minimum	0.7	Minimum KL to be used.	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
Inhibition control value	3.0	Inhibits all decay rate except SOD for low DO.	Standard LA modeling procedure.
Ocean exchange ratio	0.0	Set 0% tidal exchange at lower boundary.	This was done to allow dispersion in the model but not to force the bottom element through the boundary conditions.
Hydraulic calculation method	2.0	Sets the Hydraulic calc. to width and depth coef.	The low slopes in this waterbody cause a substantial amount of water to be present during critical flow conditions, making the Leopold relationships inaccurate. This method allows the model to predict a more accurate depth and width during low flow conditions.
Settled rate units.	2.0	Sets the settled rate to a velocity (m/day).	By making the settling rate a velocity the rate becomes dependent upon the depth.
K2 Max	25.0	Max K2 at 20 C allowed for any computational element	EPA Policy in the absence of a measured value.
NCM Oxygen Uptake	1.0	Oxygen Uptake Rate per Unit of NBOD decay.	Standard LA modeling procedure

Mill Creek Water Quality Current Summer 5.0 DO Projection Model Input Description

DATA TYPE 9, Advective Hydraulic Coefficients					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	3.70	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.15	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
2	Mill Creek, RKM 30.0 to Alligator Bayou	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	5.10	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
			Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.91	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
3	Mill Creek, Alligator Bayou to Black Creek	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	5.10	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.91	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
4	Mill Creek, Black Creek to RKM 14.0	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	6.60	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.56	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
5	Mill Creek, RKM 14.0 to Little Mill Creek	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	2.70	Zero flow cross section

Mill Creek Water Quality Current Summer 5.0 DO Projection Model Input Description

DATA TYPE 9, Advective Hydraulic Coefficients

Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.17	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
6	Mill Creek, Little Mill Creek to Calcasieu River	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	4.00	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.21	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.

Mill Creek Water Quality Current Summer 5.0 DO Projection Model Input Description

DATA TYPE 11, INITIAL CONDITIONS					
Reach #	**REACH DESCRIPTION**	**Initial Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Temperature	^{o}Celcius	25.4	Summer Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Summer Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
2	Mill Creek, RKM 30.0 to Alligator Bayou	Temperature	^{o}Celcius	25.4	Summer Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Summer Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
3	Mill Creek, Alligator Bayou to Black Creek	Temperature	^{o}Celcius	25.4	Summer Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Summer Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
4	Mill Creek, Black Creek to RKM 14.0	Temperature	^{o}Celcius	25.4	Summer Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Summer Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
5	Mill Creek, RKM 14.0 to Little Mill Creek	Temperature	^{o}Celcius	25.4	Summer Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Summer Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
6	Mill Creek, Little Mill Creek to Calcasieu River	Temperature	^{o}Celcius	25.4	Summer Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Summer Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		

Mill Creek Water Quality Current Summer 5.0 DO Projection Model Input Description

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.

Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
1	Mill Creek, Headwater to RKM 30.0	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m^2-day	1.22	SOD Projection to meet 5.0 DO Standard
		Aerobic BOD decay	1/day	0.07	Bottle Rate for Site 5
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	
2	Mill Creek, RKM 30.0 to Alligator Bayou	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	2.34	SOD Projection to meet 5.0 DO Standard
		Aerobic BOD decay	1/day	0.06	Bottle Rate for Site 4
		BOD Settling rate	m/day	0.01	Calibration
			Fraction	0.00	
3	Mill Creek, Alligator Bayou to Black Creek	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	2.32	SOD Projection to meet 5.0 DO Standard
		Aerobic BOD decay	1/day	0.06	Bottle Rate for Site 4
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	
4	Mill Creek, Black Creek to RKM 14.0	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	2.30	SOD Projection to meet 5.0 DO Standard
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 3
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	

Mill Creek Water Quality Current Summer 5.0 DO Projection Model Input Description

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.

Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
5	Mill Creek, RKM 14.0 to Little Mill Creek	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	2.38	SOD Projection to meet 5.0 DO Standard
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 2
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	
6	Mill Creek, Little Mill Creek to Calcasieu River	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	2.43	SOD Projection to meet 5.0 DO Standard
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 1
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	

Mill Creek Water Quality Current Summer 5.0 DO Projection Model Input Description

DATA TYPE 15, Coliform and Nonconservative Coefficents

Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
1	Mill Creek, Headwater to RKM 30.0	NCM Decay	1/day	0.06	Bottle Rate Site 5
		NCM Settling Rate	m/day	0.01	Calibration
2	Mill Creek, RKM 30.0 to Alligator Bayou	NCM Decay	1/day	0.06	Bottle Rate Site 4
		NCM Settling Rate	m/day	0.01	Calibration
3	Mill Creek, Alligator Bayou to Black Creek	NCM Decay	1/day	0.06	Bottle Rate Site 4
		NCM Settling Rate	m/day	0.01	Calibration
4	Mill Creek, Black Creek to RKM 14.0	NCM Decay	1/day	0.09	Bottle Rate Site 3
		NCM Settling Rate	m/day	0.01	Calibration
5	Mill Creek, RKM 14.0 to Little Mill Creek	NCM Decay	1/day	0.08	Bottle Rate Site 2
		NCM Settling Rate	m/day	0.01	Calibration
6	Mill Creek, Little Mill Creek to Calcasieu River	NCM Decay	1/day	0.05	Bottle Rate Site 1
		NCM Settling Rate	m/day	0.01	Calibration

Mill Creek Water Quality Current Summer 5.0 DO Projection Model Input Description

DATA TYPE 19, Nonpoint Source Data					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	BOD	kg/day	1	70% Loading reduction to meet current standard.
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		0	70% Loading reduction to meet current standard.
		Dissolved O_2	kg/day		
2	Mill Creek, RKM 30.0 to Alligator Bayou	BOD	kg/day	2	70% Loading reduction to meet current standard.
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		0	70% Loading reduction to meet current standard.
		Dissolved O_2	kg/day		
3	Mill Creek, Alligator Bayou to Black Creek	BOD	kg/day	2	70% Loading reduction to meet current standard.
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		1	70% Loading reduction to meet current standard.
		Dissolved O_2	kg/day		
4	Mill Creek, Black Creek to RKM 14.0	BOD	kg/day	6	70% Loading reduction to meet current standard.
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		3	70% Loading reduction to meet current standard.
		Dissolved O_2	kg/day		
5	Mill Creek, RKM 14.0 to Little Mill Creek	BOD	kg/day	2	70% Loading reduction to meet current standard.
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		0	70% Loading reduction to meet current standard.
		Dissolved O_2	kg/day		
6	Mill Creek, Little Mill Creek to Calcasieu River	BOD	kg/day	1	70% Loading reduction to meet current standard.
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		0	70% Loading reduction to meet current standard.
		Dissolved O_2	kg/day		

Mill Creek Water Quality Current Summer 5.0 DO Projection Model Input Description

DATA TYPE 20, Headwater Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Element # of input		1	
		Headwater name		Mill Creek	
		Headwater flow	cms	0.1136	7Q10 for current summer season
		Temperature	^{o}Celcius	25.40	90th percentile Temperature for Summer Season
		Salinity	ppt		
		Conservative Matl. I	mg/l	3.40	Site 5
		Conservative Matl. II	mg/l	3.10	Site 5

Mill Creek Water Quality Current Summer 5.0 DO Projection Model Input Description

DATA TYPE 21, Headwater Data for DO, BOD, and Nitrogen					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Element # of input		1	
		Dissolved O_2	mg/l	7.4	90 percent of DO Sat at Summer 90th Percentile Temperature
		BOD	mg/l	3.77	70% Loading reduction to meet current standard.

Mill Creek Water Quality Current Summer 5.0 DO Projection Model Input Description

DATA TYPE 22, Headwater Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Element # of input		1	
		NCM	mg/l	1.2	70% Loading reduction to meet current standard.

Mill Creek Water Quality Current Summer 5.0 DO Projection Model Input Description

DATA TYPE 24, Wastewater Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Town of Elizabeth	Element # of input		10	
		Wasteload description		STP	
		Wasteload inflow	cms	0.0022	50,000 gpd design flow
		Temperature	^{o}Celcius	25.4	90th percentile Temperature for Summer Season
		Salinity	ppt		
		Conservative Matl. I	mg/l	3.4	
		Conservative Matl. II	mg/l	3.1	
2	Alligator Bayou	Element # of input		46	
		Wasteload description		Tributary	
		Wasteload inflow	cms	0.0028	LTP Summer Projection Value
		Temperature	^{o}Celcius	25.4	90th percentile Temperature for Summer Season
		Salinity	ppt		
		Conservative Matl. I	mg/l	14.9	
		Conservative Matl. II	mg/l	9.5	
3	Black Bayou	Element # of input		64	
		Wasteload description		Tributary	
		Wasteload inflow	cms	0.0028	LTP Summer Projection Value
		Temperature	^{o}Celcius	25.4	90th percentile Temperature for Summer Season
		Salinity	ppt		
		Conservative Matl. I	mg/l	3.8	
		Conservative Matl. II	mg/l	1.9	
5	Little Mill Creek	Element # of input		172	
		Wasteload description		Tributary	
		Wasteload inflow	cms	0.0028	LTP Summer Projection Value
		Temperature	^{o}Celcius	25.4	90th percentile Temperature for Summer Season
		Salinity	ppt		
		Conservative Matl. I	mg/l	13.7	
		Conservative Matl. II	mg/l	3.2	

Mill Creek Water Quality Current Summer 5.0 DO Projection Model Input Description

DATA TYPE 25, Wastewater Data for DO, BOD, and Nitrogen

Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
1	Town of Elizabeth	Element # of input		10	
		Wasteload description		STP	
		Dissolved O_2	mg/l	5	Summer Standard
		BOD	mg/l	46	10 CBOD5 * 2.3.
2	Alligator Bayou	Element # of input		46	
		Wasteload description		Tributary	
		Dissolved O_2	mg/l	7.4	90 percent of DO Sat at Summer 90th Percentile Temperature
		BOD	mg/l	3.4	70% Loading reduction to meet current standard
3	Black Bayou	Element # of input		64	
		Wasteload description		Tributary	
		Dissolved O_2	mg/l	7.4	90 percent of DO Sat at Summer 90th Percentile Temperature
		BOD	mg/l	7.5	70% Loading reduction to meet current standard
5	Little Mill Creek	Element # of input		172	
		Wasteload description		Tributary	
		Dissolved O_2	mg/l	7.4	90 percent of DO Sat at Summer 90th Percentile Temperature
		BOD	mg/l	6.3	70% Loading reduction to meet current standard.

Mill Creek Water Quality Current Summer 5.0 DO Projection Model Input Description

DATA TYPE 25, Wastewater Data for DO, BOD, and Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Town of Elizabeth	Element # of input		10	
		Wasteload description		STP	
		NCM	mg/l	43	10 mg/l NH3-N * 4.3. An amonia value was not given in the last LADEQ permit, a 10 mg/l NH3-N value is consistent with the treatment level for a 10 mg/l CBOD limit.
2	Alligator Bayou	Element # of input		46	
		Wasteload description		Tributary	
		NCM	mg/l	0.8	70% Loading reduction to meet current standard.
3	Black Bayou	Element # of input		64	
		Wasteload description		Tributary	
		NCM	mg/l	2.18	70% Loading reduction to meet current standard.
5	Little Mill Creek	Element # of input		172	
		Wasteload description		Tributary	
		NCM	mg/l	1.84	70% Loading reduction to meet current standard.

Summer Projection, Non-Point Benthic Load Input and TMDL Calculations:

Modeled stream or water body:	Mill Creek - Current Standards

Shaded cells are input values for calculations.
Values to be used in the projection models.

Reach Number and Description	Calibration Model Values: Non-Point UCBOD	Non-Point UNBOD	SOD @ 20°C	Total Calb. Benthic Load (TCBL)	Reach Length	Back-ground Benthic Load	Back-ground percentage reduction	Proj. Model Avg. Reach Width	Proj. Temp.	Percentage Reduction of man-made sources	TCBL adjusted for % reduction (Reduced TCBL)
	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	Kilo-meters	gm O_2 / [(m^2)(day)]	%	Meters	(degrees Celcius)	%	gm O_2 / [(m^2)(day)]
	A, (note 1)	**B,** (note 1)	**C,** (note 1)	**D,** (note 1)	**E,** (note 1)	**F1**	**F2**	**G**	**I**	**H**	**J,** (note 2)
Reach 1 - Headwater to RKM 30.0	2.222	0.556	1.90	4.678	6.00	2.00	0%	0.15	25.40	70.0%	2.80
Reach 2 - RKM 30.0 - Alligator Bayou	1.374	0.000	3.80	5.174	3.20	2.00	0%	0.91	25.40	70.0%	2.95
Reach 3 - Alligator Bayou - Black Creek	1.832	0.611	4.10	6.542	1.80	2.00	0%	0.91	25.40	70.0%	3.36
Reach 4 - Black Creek - RKM 14.0	1.623	0.974	4.10	6.697	11.00	2.00	0%	0.56	25.40	70.0%	3.41
Reach 5 - RKM 14.0 -Little Mill Creek	2.220	0.444	4.30	6.964	10.60	2.00	0%	0.17	25.40	70.0%	3.49
Reach 6 - Little Mill Creek - Calcasieu	1.401	0.000	4.00	5.401	3.40	2.00	0%	0.21	25.40	70.0%	3.02
Sub-Total											19.04

Reach Number and Description	Projection Model Equivalents: Reduced TCBL adjusted for MOS	Non-Point UCBOD	Non-Point UNBOD	SOD @ 20°C	Projected Model Loads: Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	SOD load @ Proj. temp.	Total Projection Benthic Load **(LA+MOS)**	Margin of Safety Loads: MOS Total Benthic Load @ 20°C	MOS SOD @ 20°C	Non-Point UCBOD MOS Loads	Non-Point UNBOD MOS Loads	Adjusted SOD MOS @ Proj. temp	Adjusted Total MOS @ Proj. temp
	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)
	K, (note 3)	**L = (K)(A / D)**	**M = (K)(B / D)**	**N = (K)(C / D)**	**O = (E)(G)(L)**	**P = (E)(G)(M)**	**Q,** (note 4)	**O + P + Q**	**R = (K-J)(E)(G)**	**S = (R)(C/D)**	**T = (R)(A/D)**	**U = (R)(B/D)**	**V,** (note 5)	**T + U + V**
Reach 1 - Headwater to RKM 30.0	3.00	1.427	0.357	1.22	1	0	2	3.15	0	0	0	0	0	0
Reach 2 - RKM 30.0 - Alligator Bayou	3.19	0.847	0.000	2.34	2	0	10	12.05	1	1	0	0	1	1
Reach 3 - Alligator Bayou - Black Creek	3.70	1.037	0.346	2.32	2	1	5	7.61	1	0	0	0	0	1
Reach 4 - Black Creek - RKM 14.0	3.76	0.912	0.547	2.30	6	3	20	28.92	2	1	1	0	2	3
Reach 5 - RKM 14.0 -Little Mill Creek	3.86	1.231	0.246	2.38	2	0	6	8.70	1	0	0	0	1	1
Reach 6 - Little Mill Creek - Calcasieu	3.28	0.849	0.000	2.43	1	0	2	3.04	0	0	0	0	0	0
Sub-Total					14	5	45	**63**	4		1	0	4	**6**

Reach Number and Description	Man-made Model equivalents: Manmade portion of TCBL	Non-Point UCBOD	Non-Point UNBOD	SOD @ 20°C	Man-made Model loads: Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	SOD load @ Proj. temp.	Man-made Total Projection Benthic Load	Background Model loads: Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	SOD load @ Proj. temp.	Man-made Total Projection Benthic Load
	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)
	W = K - F	**X = (W)(A / D)**	**Y = (W)(B / D)**	**Z = (W)(C / D)**	**AA = (E)(G)(X)**	**AB = (E)(G)(Y)**	**AC,** (note 6)	**AA + AB + AC**	**AD = O - AA**	**AE = P - AB**	**AF = Q - AC**	**AD + AE + AF**
Reach 1 - Headwater to RKM 30.0	1.00	0.477	0.119	0.41	0	0	1	1.05	1	0	1	2.10
Reach 2 - RKM 30.0 - Alligator Bayou	1.19	0.316	0.000	0.87	1	0	4	4.50	2	0	6	7.56
Reach 3 - Alligator Bayou - Black Creek	1.70	0.477	0.159	1.07	1	0	2	3.50	1	0	3	4.11
Reach 4 - Black Creek - RKM 14.0	1.76	0.427	0.256	1.08	3	2	9	13.54	3	2	11	15.37
Reach 5 - RKM 14.0 -Little Mill Creek	1.86	0.593	0.119	1.15	1	0	3	4.19	1	0	3	4.51
Reach 6 - Little Mill Creek - Calcasieu	1.28	0.331	0.000	0.94	0	0	1	1.18	0	0	1	1.86
Sub-Total					6	2	20	**28**	8	3	25	**35**

Notes: Note 1, Data was calculated in and brought from the Calibration worksheet dataset.
Note 2, **J** = [(1 - **H**) x (**D** - **F**) + **F**]
Note 3, **K** = [(**J** - **F**) / (1 - MOS) + **F**]
Note 4, **Q** = **E** x **G** x **N** x $1.065^{(I-20)}$
Note 5, **V** = **S** x $1.065^{(I-20)}$
Note 6, **AC** = **E** x **G** x **Z** x $1.065^{(I-20)}$

EXPLICIT MARGINS:

MARGIN OF SAFETY (MOS) (%) = [MOG + MOU] =	**20%**

Summer TMDL calculations and Projection model calculations for Headwater / Tributary loads:

Mill Creek - Current Standards

Shaded cells are input values for calculations.
Values to be used in the projection models.

Headwater / Tributary load determinations

Headwater / Tributary Description and Reach #	Seasonal Critical flow (cms)	UCBOD (mg/l)	UNBOD (mg/l)	UCBOD (kg/day)	UNBOD (kg/day)	Background UCBOD conc. (mg/l)	Background UNBOD conc. (mg/l)	Background % Reduction	Background UCBOD Load (kg/day)	Background UNBOD Load (kg/day)	Percent reduction of Man-Made loads	UCBOD load adjusted for % Reduction (kg/day)	UNBOD load adjusted for % Reduction (kg/day)	Reduced UCBOD load adjusted for MOS (kg/day)	Reduced UNBOD load adjusted for MOS (kg/day)	Projection UCBOD input conc. (mg/l)	Projection UNBOD input conc. (mg/l)	**Total MOS (kg/day)**	**Total LA (kg/day)**
	A	**B**	**C**	**D = (86.4)(A)(B)**	**E = (86.4)(A)(C)**	**F**	**G**	**H1**	**H = (1-H1) (86.4)(A)(F)**	**I = (1-H1) (86.4)(A)(G)**	**J**	**K = (D-H)(1-J) + H**	**L = (D-I)(1-J) + I**	**M = (K - H) / (1 - MOS) + H**	**N = (L - I) / (1 - MOS) + I**	**(M)/[(A)(86.4)]**	**(N)/[(A)(86.4)]**	**(M+N) - (K+L)**	**K + L**
Mill Creek Headwater	0.1136	6.49	1.20	63.70	11.78	2.14	3.61	0%	21.00	35.43	70.0%	33.81	11.78	37.01	11.78	3.77	1.20	**3.20**	**45.59**
Alligator Bayou	0.0028	5.49	0.80	1.33	0.19	2.14	3.61	0%	0.52	0.87	70.0%	0.76	0.19	0.82	0.19	3.40	0.80	**0.06**	**0.95**
Black Bayou	0.0028	16.42	2.18	3.97	0.53	2.14	3.61	0%	0.52	0.87	70.0%	1.55	0.53	1.81	0.53	7.50	2.18	**0.26**	**2.08**
Little Mill Creek	0.0028	13.22	1.84	3.20	0.45	2.14	3.61	0%	0.52	0.87	70.0%	1.32	0.45	1.52	0.45	6.30	1.84	**0.20**	**1.77**
SUB-TOTAL TMDL LOADING				**72**	**13**				**23**	**38**		**37**	**13**	**41**	**13**			**4**	**50**

EXPLICIT MARGINS:

MARGIN OF SAFETY (MOS) (%) =	**20%**

Summer TMDL Calculations for Point Source loads:

Mill Creek - Current Standards

Input data into the shaded cells.

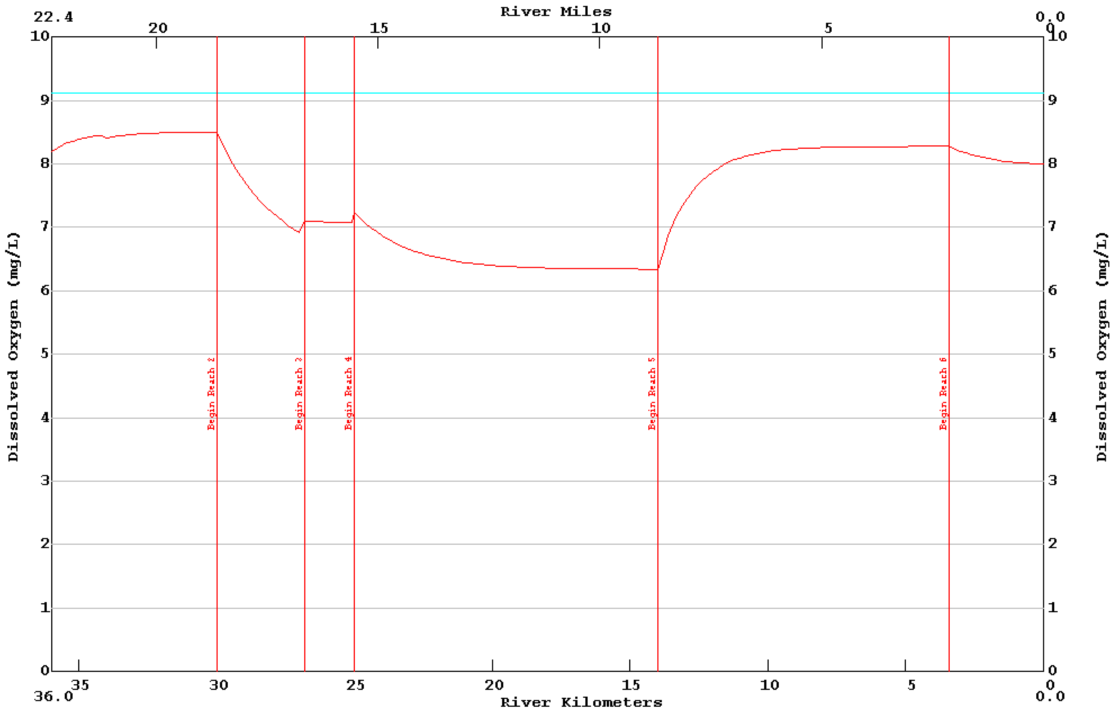
Point Source Loading Calculations

					Proposed Permit Limits			UCBOD				UNBOD				Sub-total of Point Source Loads		
Pt. Source / Facility Description and Reach #	Receiving Stream	Included in the Projection Model (Yes/No)	Anticipated/ design flow (cms)	Flow (cms)	$CBOD_5$ (mg/l)	NH_3N (mg/l)	MOS (%)	Ultimate Conc. (mg/l) (2)	Loads (kg/day) (1)	WLA (kg/day)	Reserve/ MOS Load (kg/day)	Ultimate Conc. (mg/l) (2)	Loads (kg/day) (1)	WLA (kg/day)	Reserve/ MOS Load (kg/day)	**Loads (kg/day)**	**WLA (kg/day)**	**Reserve/ MOS (kg/day)**
			A	**A1 = A/(1-D)**	**B**	**C**	**D**	**E = 2.3 x B**	**F = (86.4)(A1)(E)**	**G = (1-D) x F**	**H = (D)(F)**	**I = 4.3 x B**	**J = (86.4)(A1)(I)**	**K = (1-D) x J**	**L = (D)(J)**	**F + J**	**G + K**	**H + L**
Town of Elizabeth	Mill Creek	Yes	0.0022	0.00275	20.0	10.0	20%	46.0	11	9	2	43.0	10	8	2	**21**	**17**	**4**
SUB-TOTAL Loads									**11**	**9**	**2**		**10**	**8**	**2**	**21**	**17**	**4**

(1) - Load(kg/day) = 86.4 x Ultimate Conc.(mg/l) x Modeled Flow(cms)

(2) - [UCBOD conc. = CBOD5(mg/l) x 2.3] and [UNBOD conc. = NH3N(mg/l) x 4.3]

LA-QUAL Version 5.02 Run at 07:21 on 02/28/2002 File D:\Mill Creek\Input Files\millwin5.txt
MILL CREEK CURRENT WINTER 5.0 DO STANDARD RUN   min= 6.34   max= 8.50
MILL CREEK



```
LA-QUAL Version 5.02
Louisiana Department of Environmental Quality

Input file is D:\Mill Creek\Input Files\millwin5.txt
Output produced at 07:21 on 02/28/2002

$$$ DATA TYPE 1 (TITLES AND CONTROL CARDS) $$$

CARD TYPE       CONTROL TITLES

TITLE01         MILL CREEK WATERSHED MODEL
TITLE02         MILL CREEK CURRENT WINTER 5.0 DO STANDARD RUN
CNTROL12  YES   METRIC UNITS
CNTROL13  YES   OXYGEN DEPENDENT RATES
ENDATA01

$$$ DATA TYPE 2 (MODEL OPTIONS) $$$

CARD TYPE       MODEL OPTION

MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL  I = CHLORIDES                  IN MG/L
MODOPT04  YES   CONSERVATIVE MATERIAL II = SULFATES                   IN MG/L
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BIOCHEMICAL OXYGEN DEMAND
MODOPT07   NO   NITROGEN
MODOPT08   NO   PHOSPHORUS
MODOPT09   NO   CHLOROPHYLL A
MODOPT10   NO   MACROPHYTES
MODOPT11   NO   COLIFORM
MODOPT12  YES   NONCONSERVATIVE MATERIAL
ENDATA02

$$$ DATA TYPE 3 (PROGRAM CONSTANTS) $$$

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

PROGRAM         MAXIMUM ITERATION LIMIT            =       200.00000
PROGRAM         KL MINIMUM                         =         0.70000 meters/day
PROGRAM         NCM OXYGEN UPTAKE RATE             =         1.00000 mg O/mg NCM
PROGRAM         INHIBITION CONTROL VALUE           =         3.00000
PROGRAM         OCEAN EXCHANGE RATIO               =         0.00000
PROGRAM         K2 MAXIMUM                         =        25.00000 per day
PROGRAM         HYDRAULIC CALCULATION METHOD       =         2.00000 (widths and depths)
PROGRAM         SETTLING RATE UNITS                =         2.00000 (per day)
ENDATA03

$$$ DATA TYPE 4 (TEMPERATURE CORRECTION CONSTANTS FOR RATE COEFFICIENTS) $$$
```

CARD TYPE RATE CODE THETA VALUE

ENDATA04

$$$ CONSTANTS TYPE 5 (TEMPERATURE DATA) $$$

CARD TYPE DESCRIPTION OF CONSTANT VALUE

ENDATA05

$$$ DATA TYPE 6 (ALGAE CONSTANTS) $$$

CARD TYPE DESCRIPTION OF CONSTANT VALUE

ENDATA06

$$$ DATA TYPE 7 (MACROPHYTE CONSTANTS) $$$

CARD TYPE DESCRIPTION OF CONSTANT VALUE

ENDATA07

$$$ DATA TYPE 8 (REACH IDENTIFICATION DATA) $$$

CARD TYPE	REACH	ID	NAME	BEGIN REACH km		END REACH km	ELEM LENGTH km	REACH LENGTH km	ELEMS PER RCH	BEGIN ELEM NUM	END ELEM NUM
REACH ID	1	MC	HEADWATER - RKM 30.0	36.00	TO	30.00	0.2000	6.00	30	1	30
REACH ID	2	MC	RKM 30.0 - ALLIGATOR BAYOU	30.00	TO	26.80	0.2000	3.20	16	31	46
REACH ID	3	MC	ALLIGATOR BAYOU - BLACK CR	26.80	TO	25.00	0.1000	1.80	18	47	64
REACH ID	4	MC	BLACK CREEK - RKM 14.0	25.00	TO	14.00	0.2000	11.00	55	65	119
REACH ID	5	MC	RKM 14.0 - LITTLE MILL CR	14.00	TO	3.40	0.2000	10.60	53	120	172
REACH ID	6	MC	LITTLE MILL - CALCASIEU	3.40	TO	0.00	0.2000	3.40	17	173	189

ENDATA08

$$$ DATA TYPE 9 (ADVECTIVE HYDRAULIC COEFFICIENTS) $$$

CARD TYPE	REACH	ID	WIDTH "A"	WIDTH "B"	WIDTH "C"	DEPTH "D"	DEPTH "E"	DEPTH "F"	SLOPE	MANNINGS "N"
HYDR-1	1	MC	0.100	0.400	3.700	0.100	0.400	0.150	0.00000	0.040
HYDR-1	2	MC	0.100	0.400	5.100	0.100	0.400	0.910	0.00000	0.040
HYDR-1	3	MC	0.100	0.400	5.100	0.100	0.400	0.910	0.00000	0.040
HYDR-1	4	MC	0.100	0.400	6.600	0.100	0.400	0.560	0.00000	0.040
HYDR-1	5	MC	0.100	0.400	2.700	0.100	0.400	0.170	0.00000	0.040
HYDR-1	6	MC	0.100	0.400	4.000	0.100	0.400	0.210	0.00000	0.040

ENDATA09

$$$ DATA TYPE 10 (DISPERSIVE HYDRAULIC COEFFICIENTS) $$$

CARD TYPE	REACH	ID	TIDAL RANGE	DISPERSION "A"	DISPERSION "B"	DISPERSION "C"	DISPERSION "D"

ENDATA10

$$$ DATA TYPE 11 (INITIAL CONDITIONS) $$$

CARD TYPE	REACH	ID	TEMP	SALIN	DO	NH3	NO3+2	PHOS	CHL A	MACRO
INITIAL	1	MC	19.90	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	2	MC	19.90	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	3	MC	19.90	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	4	MC	19.90	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	5	MC	19.90	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	6	MC	19.90	0.00	5.00	0.00	0.00	0.00	0.00	0.00

ENDATA11

$$$ DATA TYPE 12 (REAERATION, SEDIMENT OXYGEN DEMAND, BOD COEFFICIENTS) $$$

CARD TYPE	REACH	ID	K2 OPT	K2 "A"	K2 "B"	K2 "C"	BKGRND SOD g/m²/d	AEROB BOD DECAY per day	BOD SETT m/d	BOD CONV TO SOD	ANAER BOD DECAY
COEF-1	1	MC	15 LOUISIANA	0.000	0.000	0.000	1.900	0.070	0.010	0.000	0.000
COEF-1	2	MC	15 LOUISIANA	0.000	0.000	0.000	2.500	0.060	0.010	0.000	0.000
COEF-1	3	MC	15 LOUISIANA	0.000	0.000	0.000	2.000	0.060	0.010	0.000	0.000
COEF-1	4	MC	15 LOUISIANA	0.000	0.000	0.000	3.500	0.040	0.010	0.000	0.000
COEF-1	5	MC	15 LOUISIANA	0.000	0.000	0.000	4.200	0.040	0.010	0.000	0.000
COEF-1	6	MC	15 LOUISIANA	0.000	0.000	0.000	4.000	0.040	0.010	0.000	0.000

ENDATA12

$$$ DATA TYPE 13 (NITROGEN AND PHOSPHORUS COEFFICIENTS) $$$

CARD TYPE	REACH	ID	ORG-N DECA	ORG-N SETT	ORGN CONV TO NH3 SRCE	NH3 DECA	NH3 SRCE	PHOS SRCE	DENIT RATE

ENDATA13

$$$ DATA TYPE 14 (ALGAE AND MACROPHYTE COEFFICIENTS) $$$

CARD TYPE	REACH	ID	SECCHI DEPTH	ALGAE: CHL A	ALGAE SETT	ALG CONV TO SOD	ALGAE GROW	ALGAE RESP	MACRO GROW	MACRO RESP

ENDATA14

$$$ DATA TYPE 15 (COLIFORM AND NONCONSERVATIVE COEFFICIENTS) $$$

CARD TYPE	REACH	ID	COLIFORM DIE-OFF	NCM DECAY	NCM SETT	NCM CONV TO SOD

COEF-4	1	MC	0.00	0.06	0.01	0.00
COEF-4	2	MC	0.00	0.06	0.01	0.00
COEF-4	3	MC	0.00	0.06	0.01	0.00
COEF-4	4	MC	0.00	0.09	0.01	0.00
COEF-4	5	MC	0.00	0.08	0.01	0.00
COEF-4	6	MC	0.00	0.05	0.01	0.00

ENDATA15

$$$ DATA TYPE 16 (INCREMENTAL DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) $$$

CARD TYPE	REACH	ID	OUTFLOW	INFLOW	TEMP	SALIN	CM-I	CM-II	IN/DIST	OUT/DIST

ENDATA16

$$$ DATA TYPE 17 (INCREMENTAL DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	REACH	ID	DO	BOD	ORG-N	NH3	NO3+2

ENDATA17

$$$ DATA TYPE 18 (INCREMENTAL DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	REACH	ID	PHOS	CHL A	COLI	NCM

ENDATA18

$$$ DATA TYPE 19 (NONPOINT SOURCE DATA) $$$

CARD TYPE	REACH	ID	BOD	ORG-N	COLI	NCM	DO
NONPOINT	1	MC	1.00	0.00	0.00	0.00	0.00
NONPOINT	2	MC	2.00	0.00	0.00	0.00	0.00
NONPOINT	3	MC	2.00	0.00	0.00	1.00	0.00
NONPOINT	4	MC	6.00	0.00	0.00	3.00	0.00
NONPOINT	5	MC	2.00	0.00	0.00	0.00	0.00
NONPOINT	6	MC	1.00	0.00	0.00	0.00	0.00

ENDATA19

$$$ DATA TYPE 20 (HEADWATER FOR FLOW, TEMPERATURE, SALINITY AND CONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	UNIT	FLOW m³/s	FLOW cfs	TEMP deg C	SALIN ppt	CM-I MG/L	CM-II MG/L
HDWTR-1	1	HEADWATER	0	0.13080	4.619	19.90	0.00	3.400	3.100

ENDATA20

$$$ DATA TYPE 21 (HEADWATER DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	ELEMENT	NAME	DO	BOD	ORG-N	NH3	NO3+2

HDWTR-2	1	HEADWATER	8.20	4.66	0.00	0.00	0.00

ENDATA21

$$$ DATA TYPE 22 (HEADWATER DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	PHOS	CHL A	COLI	NCM
HDWTR-3	1	HEADWATER	0.00	0.00	0.00	1.20

ENDATA22

$$$ DATA TYPE 23 (JUNCTION DATA) $$$

CARD TYPE	JUNCTION ELEMENT	UPSTRM ELEMENT	RIVER KILOM	NAME

ENDATA23

$$$ DATA TYPE 24 (WASTELOAD DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) $$$

CARD TYPE	ELEMENT	RKILO	NAME	FLOW m^3/s	FLOW cfs	FLOW MGD	TEMP deg C	SALIN ppt	CM-I MG/L	CM-II MG/L
WSTLD-1	10	34.20	TOWN OF ELIZABETH	0.00220	0.07768	0.050	19.90	0.00	3.400	3.100
WSTLD-1	46	27.00	ALLIGATOR BAYOU	0.02800	0.98870	0.639	19.90	0.00	14.900	9.500
WSTLD-1	64	25.10	BLACK BAYOU	0.02800	0.98870	0.639	19.90	0.00	3.800	1.900
WSTLD-1	172	3.60	LITTLE MILL CREEK	0.02800	0.98870	0.639	19.90	0.00	13.700	3.200

ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	ELEMENT	NAME	DO	BOD	% BOD RMVL	ORG-N	NH3	% NITRIF	NO3+2
WSTLD-2	10	TOWN OF ELIZABETH	5.00	46.00	0.00	0.00	0.00	0.00	0.00
WSTLD-2	46	ALLIGATOR BAYOU	8.20	3.40	0.00	0.00	0.00	0.00	0.00
WSTLD-2	64	BLACK BAYOU	8.20	7.50	0.00	0.00	0.00	0.00	0.00
WSTLD-2	172	LITTLE MILL CREEK	8.20	6.30	0.00	0.00	0.00	0.00	0.00

ENDATA25

$$$ DATA TYPE 26 (WASTELOAD DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	PHOS	CHL A	COLI	NCM
WSTLD-3	10	TOWN OF ELIZABETH	0.00	0.00	0.00	43.00
WSTLD-3	46	ALLIGATOR BAYOU	0.00	0.00	0.00	0.80
WSTLD-3	64	BLACK BAYOU	0.00	0.00	0.00	2.18
WSTLD-3	172	LITTLE MILL CREEK	0.00	0.00	0.00	1.84

ENDATA26

$$$ DATA TYPE 27 (LOWER BOUNDARY CONDITIONS) $$$

```
CARD TYPE    CONSTITUENT                    CONCENTRATION

ENDATA27

$$$ DATA TYPE 28 (DAM DATA) $$$

CARD TYPE     ELEMENT   NAME                  EQN      "A"       "B"       "H"

ENDATA28

$$$ DATA TYPE 29 (SENSITIVITY ANALYSIS DATA) $$$

CARD TYPE       PARAMETER     COL 1     COL 2     COL 3     COL 4     COL 5     COL 6     COL 7     COL 8

ENDATA29

$$$ DATA TYPE 30 (PLOT CONTROL CARDS) $$$


NUMBER OF PLOTS =  1
NUMBER OF REACHES IN PLOT 1 =   6
PLOT RCH  1  2  3  4  5  6
ENDATA30

$$$ DATA TYPE 31 (OVERLAY PLOT DATA) $$$


OVERLAY  NUMBER OF OVERLAY SETS =   1
OVERLAY SET 1 BASEPLOT  1, DATAFILE  mc.ovl      MILL CREEK
ENDATA31


     .....NO ERRORS DETECTED IN INPUT DATA
     .....HYDRAULIC CALCULATIONS COMPLETED
     .....TRIDIAGONAL MATRIX TERMS INITIALIZED
     .....OXYGEN DEPENDENT RATES CONVERGENT IN   1 ITERATIONS
     .....CONSTITUENT CALCULATIONS COMPLETED
     .....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 11

FINAL REPORT    HEADWATER                                       MILL CREEK WATERSHED MODEL
REACH NO.  1    HEADWATER  - RKM 30.0                           MILL CREEK CURRENT WINTER 5.0 DO STANDARD RUN

 ********************************************************** REACH INPUTS ***********************************************************

 ELEM  TYPE         FLOW     TEMP     SALN     CM-I    CM-II     DO     BOD   EBOD   ORGN    NH3  NO3+2   PHOS  CHL A     COLI      NCM
 NO.                m³/     DEG C      PPT       *        *    mg/L   mg/L   mg/L   mg/L   mg/L   mg/L   mg/L   µg/L    #/100mL    *
```

1	HDWTR	0.13080	19.90	0.00	3.40	3.10	8.20	4.66	4.66	0.00	0.00	0.00	0.00	0.00	0.00	1.20
10	WSTLD	0.00220	19.90	0.00	3.40	3.10	5.00	46.00	46.00	0.00	0.00	0.00	0.00	0.00	0.00	43.00

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW $m^3/$	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
1	36.00	35.80	0.13080	0.00	0.17977	0.01	0.19	3.74	145.52	748.86	0.73	0.00	0.000	0.034	0.180
2	35.80	35.60	0.13080	0.00	0.17977	0.01	0.19	3.74	145.52	748.86	0.73	0.00	0.000	0.034	0.180
3	35.60	35.40	0.13080	0.00	0.17977	0.01	0.19	3.74	145.52	748.86	0.73	0.00	0.000	0.034	0.180
4	35.40	35.20	0.13080	0.00	0.17977	0.01	0.19	3.74	145.52	748.86	0.73	0.00	0.000	0.034	0.180
5	35.20	35.00	0.13080	0.00	0.17977	0.01	0.19	3.74	145.52	748.86	0.73	0.00	0.000	0.034	0.180
6	35.00	34.80	0.13080	0.00	0.17977	0.01	0.19	3.74	145.52	748.86	0.73	0.00	0.000	0.034	0.180
7	34.80	34.60	0.13080	0.00	0.17977	0.01	0.19	3.74	145.52	748.86	0.73	0.00	0.000	0.034	0.180
8	34.60	34.40	0.13080	0.00	0.17977	0.01	0.19	3.74	145.52	748.86	0.73	0.00	0.000	0.034	0.180
9	34.40	34.20	0.13080	0.00	0.17977	0.01	0.19	3.74	145.52	748.86	0.73	0.00	0.000	0.034	0.180
10	34.20	34.00	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
11	34.00	33.80	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
12	33.80	33.60	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
13	33.60	33.40	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
14	33.40	33.20	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
15	33.20	33.00	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
16	33.00	32.80	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
17	32.80	32.60	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
18	32.60	32.40	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
19	32.40	32.20	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
20	32.20	32.00	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
21	32.00	31.80	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
22	31.80	31.60	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
23	31.60	31.40	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
24	31.40	31.20	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
25	31.20	31.00	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
26	31.00	30.80	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
27	30.80	30.60	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
28	30.60	30.40	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
29	30.40	30.20	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
30	30.20	30.00	0.13300	1.65	0.18250	0.01	0.19	3.74	145.76	748.92	0.73	0.00	0.000	0.035	0.182
TOT						0.38			4370.59	22467.19					
AVG					0.18167		0.19	3.74			0.73				
CUM						0.38									

*** BIOLOGICAL AND PHYSICAL COEFFICIENTS ***

ELEM ENDING SAT REAER CBOD CBOD ANBOD BKGD FULL CORR ORGN ORGN NH3 NH3 DENIT PO4 ALG MAC COLI NCM
NCM

NO.	DIST	D.O.	RATE	DECAY	SETT	DECAY	SOD	SOD	SOD	DECAY	SETT	DECAY	SRCE	RATE	SRCE	PROD	PROD	DECAY	DECAY	SETT
		mg/L	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
1	35.800	9.11	16.60	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
2	35.600	9.11	16.60	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
3	35.400	9.11	16.60	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
4	35.200	9.11	16.60	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
5	35.000	9.11	16.60	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
6	34.800	9.11	16.60	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
7	34.600	9.11	16.60	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
8	34.400	9.11	16.60	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
9	34.200	9.11	16.60	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
10	34.000	9.11	16.78	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
11	33.800	9.11	16.78	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
12	33.600	9.11	16.78	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
13	33.400	9.11	16.78	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
14	33.200	9.11	16.78	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
15	33.000	9.11	16.78	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
16	32.800	9.11	16.78	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
17	32.600	9.11	16.78	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
18	32.400	9.11	16.78	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
19	32.200	9.11	16.78	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
20	32.000	9.11	16.78	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
21	31.800	9.11	16.78	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
22	31.600	9.11	16.78	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
23	31.400	9.11	16.78	0.07	0.01	0.00	1.89	1.89	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	

```
0.01
  24   31.200  9.11   16.78   0.07  0.01   0.00  1.89  1.89  1.89   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01
  25   31.000  9.11   16.78   0.07  0.01   0.00  1.89  1.89  1.89   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01
  26   30.800  9.11   16.78   0.07  0.01   0.00  1.89  1.89  1.89   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01
  27   30.600  9.11   16.78   0.07  0.01   0.00  1.89  1.89  1.89   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01
  28   30.400  9.11   16.78   0.07  0.01   0.00  1.89  1.89  1.89   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01
  29   30.200  9.11   16.78   0.07  0.01   0.00  1.89  1.89  1.89   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01
  30   30.000  9.11   16.78   0.07  0.01   0.00  1.89  1.89  1.89   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01

 20 DEG C RATE                0.07         0.00  1.90               0.00         0.00  0.00   0.00  0.00                0.00   0.06
 AVG 20 DEG C RATE    16.76         0.01                                  0.00
0.01

 * g/m²/d              ** mg/L/day
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** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
1	35.800	19.90	0.00	3.40	3.10	8.25	4.66	4.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
2	35.600	19.90	0.00	3.40	3.10	8.30	4.66	4.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
3	35.400	19.90	0.00	3.40	3.10	8.33	4.65	4.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
4	35.200	19.90	0.00	3.40	3.10	8.36	4.65	4.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
5	35.000	19.90	0.00	3.40	3.10	8.39	4.65	4.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
6	34.800	19.90	0.00	3.40	3.10	8.41	4.65	4.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
7	34.600	19.90	0.00	3.40	3.10	8.42	4.65	4.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
8	34.400	19.90	0.00	3.40	3.10	8.44	4.65	4.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
9	34.200	19.90	0.00	3.40	3.10	8.45	4.64	4.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
10	34.000	19.90	0.00	3.40	3.10	8.41	5.33	5.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88
11	33.800	19.90	0.00	3.40	3.10	8.43	5.32	5.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88
12	33.600	19.90	0.00	3.40	3.10	8.44	5.32	5.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88
13	33.400	19.90	0.00	3.40	3.10	8.45	5.32	5.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88
14	33.200	19.90	0.00	3.40	3.10	8.46	5.32	5.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87
15	33.000	19.90	0.00	3.40	3.10	8.47	5.31	5.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87
16	32.800	19.90	0.00	3.40	3.10	8.47	5.31	5.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87
17	32.600	19.90	0.00	3.40	3.10	8.48	5.31	5.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87
18	32.400	19.90	0.00	3.40	3.10	8.48	5.31	5.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87
19	32.200	19.90	0.00	3.40	3.10	8.49	5.30	5.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87
20	32.000	19.90	0.00	3.40	3.10	8.49	5.30	5.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86
21	31.800	19.90	0.00	3.40	3.10	8.49	5.30	5.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86
22	31.600	19.90	0.00	3.40	3.10	8.49	5.30	5.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86

23	31.400	19.90	0.00	3.40	3.10	8.50	5.29	5.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86
24	31.200	19.90	0.00	3.40	3.10	8.50	5.29	5.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86
25	31.000	19.90	0.00	3.40	3.10	8.50	5.29	5.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86
26	30.800	19.90	0.00	3.40	3.10	8.50	5.29	5.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85
27	30.600	19.90	0.00	3.40	3.10	8.50	5.28	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85
28	30.400	19.90	0.00	3.40	3.10	8.50	5.28	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85
29	30.200	19.90	0.00	3.40	3.10	8.50	5.28	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85
30	30.000	19.90	0.00	3.40	3.10	8.50	5.28	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m^3

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 2   RKM 30.0 - ALLIGATOR BAYOU   MILL CREEK CURRENT WINTER 5.0 DO STANDARD RUN

** REACH INPUTS **

ELEM NO.	TYPE	FLOW $m^3/$	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
31	UPR RCH	0.13300	19.90	0.00	3.40	3.10	8.50	5.28	5.28	0.00	0.00	0.00	0.00	0.00	0.00	1.85
46	WSTLD	0.02800	19.90	0.00	14.90	9.50	8.20	3.40	3.40	0.00	0.00	0.00	0.00	0.00	0.00	0.80

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW $m^3/$	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
31	30.00	29.80	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
32	29.80	29.60	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
33	29.60	29.40	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
34	29.40	29.20	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
35	29.20	29.00	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
36	29.00	28.80	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
37	28.80	28.60	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
38	28.60	28.40	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
39	28.40	28.20	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
40	28.20	28.00	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
41	28.00	27.80	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
42	27.80	27.60	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
43	27.60	27.40	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
44	27.40	27.20	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
45	27.20	27.00	0.13300	1.65	0.02708	0.09	0.95	5.14	982.23	1028.92	4.91	0.00	0.000	0.019	0.027
46	27.00	26.80	0.16100	18.76	0.03264	0.07	0.96	5.15	986.56	1029.63	4.93	0.00	0.000	0.023	0.033

TOT		1.35			15720.05	16463.49	
AVG	0.02737		0.95	5.14			4.91
CUM		1.74					

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
31	29.800	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
32	29.600	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
33	29.400	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
34	29.200	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
35	29.000	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
36	28.800	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
37	28.600	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
38	28.400	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
39	28.200	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
40	28.000	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
41	27.800	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
42	27.600	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
43	27.400	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
44	27.200	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
45	27.000	9.11	1.10	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
46	26.800	9.11	1.18	0.06	0.01	0.00	2.48	2.48	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
20 DEG C RATE				0.06		0.00	2.50			0.00		0.00	0.00	0.00	0.00			0.00	0.06	
AVG 20 DEG C RATE			1.11		0.01						0.00									0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
31	29.800	19.90	0.00	3.40	3.10	8.32	5.26	5.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84
32	29.600	19.90	0.00	3.40	3.10	8.15	5.24	5.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83
33	29.400	19.90	0.00	3.40	3.10	8.00	5.22	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81
34	29.200	19.90	0.00	3.40	3.10	7.85	5.20	5.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80
35	29.000	19.90	0.00	3.40	3.10	7.73	5.18	5.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
36	28.800	19.90	0.00	3.40	3.10	7.61	5.16	5.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78
37	28.600	19.90	0.00	3.40	3.10	7.50	5.14	5.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.77
38	28.400	19.90	0.00	3.40	3.10	7.41	5.12	5.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76
39	28.200	19.90	0.00	3.40	3.10	7.32	5.10	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75
40	28.000	19.90	0.00	3.40	3.10	7.24	5.08	5.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74
41	27.800	19.90	0.00	3.40	3.10	7.16	5.06	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73
42	27.600	19.90	0.00	3.40	3.10	7.09	5.04	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72
43	27.400	19.90	0.00	3.40	3.10	7.03	5.02	5.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71
44	27.200	19.90	0.00	3.40	3.10	6.98	5.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70
45	27.000	19.90	0.00	3.41	3.10	6.93	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69
46	26.800	19.90	0.00	5.40	4.21	7.10	4.69	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM =
** g/m³

FINAL REPORT HEADWATER MILL CREEK WATERSHED MODEL
REACH NO. 3 ALLIGATOR BAYOU - BLACK CR MILL CREEK CURRENT WINTER 5.0 DO STANDARD RUN

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
47	UPR RCH	0.16100	19.90	0.00	5.40	4.21	7.10	4.69	4.69	0.00	0.00	0.00	0.00	0.00	0.00	1.53
64	WSTLD	0.02800	19.90	0.00	3.80	1.90	8.20	7.50	7.50	0.00	0.00	0.00	0.00	0.00	0.00	2.18

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s

47	26.80	26.70	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
48	26.70	26.60	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
49	26.60	26.50	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
50	26.50	26.40	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
51	26.40	26.30	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
52	26.30	26.20	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
53	26.20	26.10	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
54	26.10	26.00	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
55	26.00	25.90	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
56	25.90	25.80	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
57	25.80	25.70	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
58	25.70	25.60	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
59	25.60	25.50	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
60	25.50	25.40	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
61	25.40	25.30	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
62	25.30	25.20	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
63	25.20	25.10	0.16100	18.76	0.03264	0.04	0.96	5.15	493.28	514.82	4.93	0.00	0.000	0.023	0.033
64	25.10	25.00	0.18900	30.79	0.03816	0.03	0.96	5.15	495.23	515.14	4.95	0.00	0.000	0.027	0.038
TOT						0.63			8880.97	9267.02					
AVG					0.03290		0.96	5.15			4.93				
CUM						2.37									

*** BIOLOGICAL AND PHYSICAL COEFFICIENTS ***

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
47	26.700	9.11	1.18	0.06	0.01	0.00	1.99	1.99	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
48	26.600	9.11	1.18	0.06	0.01	0.00	1.99	1.99	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
49	26.500	9.11	1.18	0.06	0.01	0.00	1.99	1.99	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
50	26.400	9.11	1.18	0.06	0.01	0.00	1.99	1.99	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
51	26.300	9.11	1.18	0.06	0.01	0.00	1.99	1.99	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
52	26.200	9.11	1.18	0.06	0.01	0.00	1.99	1.99	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
53	26.100	9.11	1.18	0.06	0.01	0.00	1.99	1.99	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
54	26.000	9.11	1.18	0.06	0.01	0.00	1.99	1.99	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
55	25.900	9.11	1.18	0.06	0.01	0.00	1.99	1.99	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	

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0.01
  56   25.800  9.11    1.18   0.06  0.01   0.00  1.99  1.99  1.99   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01
  57   25.700  9.11    1.18   0.06  0.01   0.00  1.99  1.99  1.99   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01
  58   25.600  9.11    1.18   0.06  0.01   0.00  1.99  1.99  1.99   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01
  59   25.500  9.11    1.18   0.06  0.01   0.00  1.99  1.99  1.99   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01
  60   25.400  9.11    1.18   0.06  0.01   0.00  1.99  1.99  1.99   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01
  61   25.300  9.11    1.18   0.06  0.01   0.00  1.99  1.99  1.99   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01
  62   25.200  9.11    1.18   0.06  0.01   0.00  1.99  1.99  1.99   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01
  63   25.100  9.11    1.18   0.06  0.01   0.00  1.99  1.99  1.99   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01
  64   25.000  9.11    1.26   0.06  0.01   0.00  1.99  1.99  1.99   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00   0.06
0.01

 20 DEG C RATE                0.06         0.00  2.00               0.00         0.00  0.00   0.00  0.00               0.00   0.06
 AVG 20 DEG C RATE     1.18         0.01                                   0.00
0.01

 * g/m²/d              ** mg/L/day
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** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
47	26.700	19.90	0.00	5.40	4.21	7.10	4.69	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
48	26.600	19.90	0.00	5.40	4.21	7.10	4.69	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
49	26.500	19.90	0.00	5.40	4.21	7.10	4.68	4.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
50	26.400	19.90	0.00	5.40	4.21	7.09	4.68	4.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
51	26.300	19.90	0.00	5.40	4.21	7.09	4.67	4.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
52	26.200	19.90	0.00	5.40	4.21	7.09	4.67	4.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
53	26.100	19.90	0.00	5.40	4.21	7.09	4.67	4.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
54	26.000	19.90	0.00	5.40	4.21	7.08	4.66	4.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
55	25.900	19.90	0.00	5.40	4.21	7.08	4.66	4.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
56	25.800	19.90	0.00	5.40	4.21	7.08	4.66	4.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
57	25.700	19.90	0.00	5.40	4.21	7.08	4.65	4.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
58	25.600	19.90	0.00	5.40	4.21	7.08	4.65	4.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
59	25.500	19.90	0.00	5.40	4.21	7.08	4.65	4.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
60	25.400	19.90	0.00	5.40	4.21	7.07	4.64	4.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
61	25.300	19.90	0.00	5.40	4.21	7.07	4.64	4.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
62	25.200	19.90	0.00	5.40	4.21	7.07	4.64	4.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
63	25.100	19.90	0.00	5.40	4.21	7.07	4.64	4.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
64	25.000	19.90	0.00	5.16	3.87	7.23	5.05	5.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =
** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 4   BLACK CREEK - RKM 14.0   MILL CREEK CURRENT WINTER 5.0 DO STANDARD RUN

*** REACH INPUTS **

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
65	UPR RCH	0.18900	19.90	0.00	5.16	3.87	7.23	5.05	5.05	0.00	0.00	0.00	0.00	0.00	0.00	1.63

*** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
65	25.00	24.80	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
66	24.80	24.60	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
67	24.60	24.40	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
68	24.40	24.20	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
69	24.20	24.00	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
70	24.00	23.80	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
71	23.80	23.60	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
72	23.60	23.40	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
73	23.40	23.20	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
74	23.20	23.00	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
75	23.00	22.80	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
76	22.80	22.60	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
77	22.60	22.40	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
78	22.40	22.20	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
79	22.20	22.00	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
80	22.00	21.80	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
81	21.80	21.60	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
82	21.60	21.40	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
83	21.40	21.20	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
84	21.20	21.00	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
85	21.00	20.80	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
86	20.80	20.60	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
87	20.60	20.40	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
88	20.40	20.20	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
89	20.20	20.00	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046
90	20.00	19.80	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023	0.046

91	19.80	19.60	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
92	19.60	19.40	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
93	19.40	19.20	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
94	19.20	19.00	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
95	19.00	18.80	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
96	18.80	18.60	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
97	18.60	18.40	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
98	18.40	18.20	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
99	18.20	18.00	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
100	18.00	17.80	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
101	17.80	17.60	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
102	17.60	17.40	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
103	17.40	17.20	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
104	17.20	17.00	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
105	17.00	16.80	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
106	16.80	16.60	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
107	16.60	16.40	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
108	16.40	16.20	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
109	16.20	16.00	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
110	16.00	15.80	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
111	15.80	15.60	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
112	15.60	15.40	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
113	15.40	15.20	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
114	15.20	15.00	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
115	15.00	14.80	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
116	14.80	14.60	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
117	14.60	14.40	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
118	14.40	14.20	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
119	14.20	14.00	0.18900	30.79	0.04648	0.05	0.61	6.65	813.27	1330.27	4.07	0.00	0.000	0.023 0.046
TOT						2.74			44729.76	73164.89				
AVG					0.04648		0.61	6.65			4.07			
CUM						5.11								

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
65	24.800	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
66	24.600	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
67	24.400	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01

68	24.200	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
69	24.000	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
70	23.800	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
71	23.600	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
72	23.400	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
73	23.200	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
74	23.000	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
75	22.800	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
76	22.600	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
77	22.400	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
78	22.200	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
79	22.000	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
80	21.800	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
81	21.600	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
82	21.400	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
83	21.200	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
84	21.000	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
85	20.800	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
86	20.600	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
87	20.400	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
88	20.200	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
89	20.000	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
90	19.800	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
91	19.600	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
92	19.400	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01

93	19.200	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
94	19.000	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
95	18.800	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
96	18.600	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
97	18.400	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
98	18.200	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
99	18.000	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
100	17.800	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
101	17.600	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
102	17.400	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
103	17.200	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
104	17.000	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
105	16.800	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
106	16.600	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
107	16.400	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
108	16.200	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
109	16.000	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
110	15.800	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
111	15.600	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
112	15.400	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
113	15.200	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
114	15.000	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
115	14.800	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
116	14.600	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
117	14.400	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01

118	14.200	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
119	14.000	9.11	2.17	0.04	0.01	0.00	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
20 DEG C RATE				0.04		0.00	3.50			0.00		0.00	0.00	0.00	0.00			0.00	0.09	
AVG 20 DEG C RATE			2.17		0.01						0.00									0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
65	24.800	19.90	0.00	5.16	3.87	7.14	5.05	5.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
66	24.600	19.90	0.00	5.16	3.87	7.07	5.04	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
67	24.400	19.90	0.00	5.16	3.87	6.99	5.04	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
68	24.200	19.90	0.00	5.16	3.87	6.93	5.03	5.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
69	24.000	19.90	0.00	5.16	3.87	6.87	5.02	5.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
70	23.800	19.90	0.00	5.16	3.87	6.82	5.02	5.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
71	23.600	19.90	0.00	5.16	3.87	6.77	5.01	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
72	23.400	19.90	0.00	5.16	3.87	6.73	5.01	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
73	23.200	19.90	0.00	5.16	3.87	6.69	5.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
74	23.000	19.90	0.00	5.16	3.87	6.65	5.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58
75	22.800	19.90	0.00	5.16	3.87	6.62	4.99	4.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58
76	22.600	19.90	0.00	5.16	3.87	6.59	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
77	22.400	19.90	0.00	5.16	3.87	6.57	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
78	22.200	19.90	0.00	5.16	3.87	6.54	4.97	4.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
79	22.000	19.90	0.00	5.16	3.87	6.52	4.97	4.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
80	21.800	19.90	0.00	5.16	3.87	6.50	4.96	4.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
81	21.600	19.90	0.00	5.16	3.87	6.49	4.96	4.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55
82	21.400	19.90	0.00	5.16	3.87	6.47	4.95	4.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55
83	21.200	19.90	0.00	5.16	3.87	6.46	4.95	4.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
84	21.000	19.90	0.00	5.16	3.87	6.45	4.94	4.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
85	20.800	19.90	0.00	5.16	3.87	6.44	4.93	4.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
86	20.600	19.90	0.00	5.16	3.87	6.43	4.93	4.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
87	20.400	19.90	0.00	5.16	3.87	6.42	4.92	4.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
88	20.200	19.90	0.00	5.16	3.87	6.41	4.92	4.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52
89	20.000	19.90	0.00	5.16	3.87	6.40	4.91	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52
90	19.800	19.90	0.00	5.16	3.87	6.39	4.91	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51
91	19.600	19.90	0.00	5.16	3.87	6.39	4.90	4.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51
92	19.400	19.90	0.00	5.16	3.87	6.38	4.90	4.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
93	19.200	19.90	0.00	5.16	3.87	6.38	4.89	4.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
94	19.000	19.90	0.00	5.16	3.87	6.37	4.88	4.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
95	18.800	19.90	0.00	5.16	3.87	6.37	4.88	4.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49
96	18.600	19.90	0.00	5.16	3.87	6.37	4.87	4.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49
97	18.400	19.90	0.00	5.16	3.87	6.36	4.87	4.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48

98	18.200	19.90	0.00	5.16	3.87	6.36	4.86	4.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48
99	18.000	19.90	0.00	5.16	3.87	6.36	4.86	4.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48
100	17.800	19.90	0.00	5.16	3.87	6.36	4.85	4.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47
101	17.600	19.90	0.00	5.16	3.87	6.35	4.85	4.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47
102	17.400	19.90	0.00	5.16	3.87	6.35	4.84	4.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46
103	17.200	19.90	0.00	5.16	3.87	6.35	4.84	4.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46
104	17.000	19.90	0.00	5.16	3.87	6.35	4.83	4.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46
105	16.800	19.90	0.00	5.16	3.87	6.35	4.83	4.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45
106	16.600	19.90	0.00	5.16	3.87	6.35	4.82	4.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45
107	16.400	19.90	0.00	5.16	3.87	6.35	4.82	4.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45
108	16.200	19.90	0.00	5.16	3.87	6.35	4.81	4.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44
109	16.000	19.90	0.00	5.16	3.87	6.35	4.80	4.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44
110	15.800	19.90	0.00	5.16	3.87	6.34	4.80	4.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43
111	15.600	19.90	0.00	5.16	3.87	6.34	4.79	4.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43
112	15.400	19.90	0.00	5.16	3.87	6.34	4.79	4.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43
113	15.200	19.90	0.00	5.16	3.87	6.34	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42
114	15.000	19.90	0.00	5.16	3.87	6.34	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42
115	14.800	19.90	0.00	5.16	3.87	6.34	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42
116	14.600	19.90	0.00	5.16	3.87	6.34	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
117	14.400	19.90	0.00	5.16	3.87	6.34	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
118	14.200	19.90	0.00	5.16	3.87	6.34	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
119	14.000	19.90	0.00	5.16	3.87	6.34	4.75	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 5   RKM 14.0 - LITTLE MILL CR   MILL CREEK CURRENT WINTER 5.0 DO STANDARD RUN

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW $m^3/$	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
120	UPR RCH	0.18900	19.90	0.00	5.16	3.87	6.34	4.75	4.75	0.00	0.00	0.00	0.00	0.00	0.00	1.40
172	WSTLD	0.02800	19.90	0.00	13.70	3.20	8.20	6.30	6.30	0.00	0.00	0.00	0.00	0.00	0.00	1.84

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW $m^3/$	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
120	14.00	13.80	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
121	13.80	13.60	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
122	13.60	13.40	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310

123	13.40	13.20	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
124	13.20	13.00	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
125	13.00	12.80	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
126	12.80	12.60	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
127	12.60	12.40	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
128	12.40	12.20	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
129	12.20	12.00	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
130	12.00	11.80	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
131	11.80	11.60	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
132	11.60	11.40	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
133	11.40	11.20	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
134	11.20	11.00	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
135	11.00	10.80	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
136	10.80	10.60	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
137	10.60	10.40	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
138	10.40	10.20	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
139	10.20	10.00	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
140	10.00	9.80	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
141	9.80	9.60	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
142	9.60	9.40	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
143	9.40	9.20	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
144	9.20	9.00	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
145	9.00	8.80	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
146	8.80	8.60	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
147	8.60	8.40	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
148	8.40	8.20	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
149	8.20	8.00	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
150	8.00	7.80	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
151	7.80	7.60	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
152	7.60	7.40	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
153	7.40	7.20	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
154	7.20	7.00	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
155	7.00	6.80	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
156	6.80	6.60	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
157	6.60	6.40	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
158	6.40	6.20	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
159	6.20	6.00	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
160	6.00	5.80	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
161	5.80	5.60	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
162	5.60	5.40	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
163	5.40	5.20	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
164	5.20	5.00	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
165	5.00	4.80	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
166	4.80	4.60	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
167	4.60	4.40	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
168	4.40	4.20	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
169	4.20	4.00	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
170	4.00	3.80	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
171	3.80	3.60	0.18900	30.79	0.31033	0.01	0.22	2.75	121.81	550.27	0.61	0.00	0.000	0.065	0.310
172	3.60	3.40	0.21700	39.72	0.35130	0.01	0.22	2.75	123.54	550.85	0.62	0.00	0.000	0.075	0.351

TOT 0.39 6457.42 29164.96
AVG 0.31102 0.22 2.75 0.61
CUM 5.50

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
120	13.800	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
121	13.600	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
122	13.400	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
123	13.200	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
124	13.000	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
125	12.800	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
126	12.600	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
127	12.400	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
128	12.200	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
129	12.000	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
130	11.800	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
131	11.600	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
132	11.400	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
133	11.200	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
134	11.000	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
135	10.800	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
136	10.600	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
137	10.400	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	

0.01																			
138	10.200	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
139	10.000	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
140	9.800	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
141	9.600	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
142	9.400	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
143	9.200	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
144	9.000	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
145	8.800	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
146	8.600	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
147	8.400	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
148	8.200	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
149	8.000	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
150	7.800	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
151	7.600	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
152	7.400	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
153	7.200	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
154	7.000	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
155	6.800	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
156	6.600	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
157	6.400	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
158	6.200	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
159	6.000	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
160	5.800	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
161	5.600	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
0.01																			
162	5.400	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08

0.01

163	5.200	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
164	5.000	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
165	4.800	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
166	4.600	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
167	4.400	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
168	4.200	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
169	4.000	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
170	3.800	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
171	3.600	9.11	22.99	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
172	3.400	9.11	24.95	0.04	0.01	0.00	4.17	4.17	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01
20 DEG C RATE				0.04		0.00	4.20			0.00		0.00	0.00	0.00	0.00			0.00	0.08	
AVG 20 DEG C RATE			23.07		0.01						0.00									0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
120	13.800	19.90	0.00	5.16	3.87	6.63	4.75	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
121	13.600	19.90	0.00	5.16	3.87	6.87	4.75	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
122	13.400	19.90	0.00	5.16	3.87	7.07	4.75	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
123	13.200	19.90	0.00	5.16	3.87	7.25	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
124	13.000	19.90	0.00	5.16	3.87	7.40	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
125	12.800	19.90	0.00	5.16	3.87	7.53	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
126	12.600	19.90	0.00	5.16	3.87	7.64	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
127	12.400	19.90	0.00	5.16	3.87	7.73	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
128	12.200	19.90	0.00	5.16	3.87	7.81	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
129	12.000	19.90	0.00	5.16	3.87	7.88	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
130	11.800	19.90	0.00	5.16	3.87	7.94	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
131	11.600	19.90	0.00	5.16	3.87	7.99	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
132	11.400	19.90	0.00	5.16	3.87	8.03	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
133	11.200	19.90	0.00	5.16	3.87	8.07	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
134	11.000	19.90	0.00	5.16	3.87	8.10	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
135	10.800	19.90	0.00	5.16	3.87	8.12	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39

136	10.600	19.90	0.00	5.16	3.87	8.15	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
137	10.400	19.90	0.00	5.16	3.87	8.16	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
138	10.200	19.90	0.00	5.16	3.87	8.18	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
139	10.000	19.90	0.00	5.16	3.87	8.20	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
140	9.800	19.90	0.00	5.16	3.87	8.21	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
141	9.600	19.90	0.00	5.16	3.87	8.22	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
142	9.400	19.90	0.00	5.16	3.87	8.23	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
143	9.200	19.90	0.00	5.16	3.87	8.23	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
144	9.000	19.90	0.00	5.16	3.87	8.24	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
145	8.800	19.90	0.00	5.16	3.87	8.25	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
146	8.600	19.90	0.00	5.16	3.87	8.25	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
147	8.400	19.90	0.00	5.16	3.87	8.25	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
148	8.200	19.90	0.00	5.16	3.87	8.26	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
149	8.000	19.90	0.00	5.16	3.87	8.26	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
150	7.800	19.90	0.00	5.16	3.87	8.26	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
151	7.600	19.90	0.00	5.16	3.87	8.26	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
152	7.400	19.90	0.00	5.16	3.87	8.27	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
153	7.200	19.90	0.00	5.16	3.87	8.27	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
154	7.000	19.90	0.00	5.16	3.87	8.27	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
155	6.800	19.90	0.00	5.16	3.87	8.27	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
156	6.600	19.90	0.00	5.16	3.87	8.27	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
157	6.400	19.90	0.00	5.16	3.87	8.27	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
158	6.200	19.90	0.00	5.16	3.87	8.27	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
159	6.000	19.90	0.00	5.16	3.87	8.27	4.77	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
160	5.800	19.90	0.00	5.16	3.87	8.27	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
161	5.600	19.90	0.00	5.16	3.87	8.27	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
162	5.400	19.90	0.00	5.16	3.87	8.27	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
163	5.200	19.90	0.00	5.16	3.87	8.28	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
164	5.000	19.90	0.00	5.16	3.87	8.28	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
165	4.800	19.90	0.00	5.16	3.87	8.28	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
166	4.600	19.90	0.00	5.16	3.87	8.28	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
167	4.400	19.90	0.00	5.16	3.87	8.28	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
168	4.200	19.90	0.00	5.16	3.87	8.28	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
169	4.000	19.90	0.00	5.16	3.87	8.28	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
170	3.800	19.90	0.00	5.16	3.87	8.28	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35
171	3.600	19.90	0.00	5.16	3.87	8.28	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35
172	3.400	19.90	0.00	6.26	3.78	8.28	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 6   LITTLE MILL - CALCASIEU   MILL CREEK CURRENT WINTER 5.0 DO STANDARD RUN

*** REACH INPUTS **

ELEM	TYPE	FLOW	TEMP	SALN	CM-I	CM-II	DO	BOD	EBOD	ORGN	NH3	NO3+2	PHOS	CHL A	COLI	NCM

NO.		m³/	DEG C	PPT	*	*	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	#/100mL	*
173	UPR RCH	0.21700	19.90	0.00	6.26	3.78	8.28	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	1.42

** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
173	3.40	3.20	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
174	3.20	3.00	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
175	3.00	2.80	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
176	2.80	2.60	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
177	2.60	2.40	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
178	2.40	2.20	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
179	2.20	2.00	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
180	2.00	1.80	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
181	1.80	1.60	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
182	1.60	1.40	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
183	1.40	1.20	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
184	1.20	1.00	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
185	1.00	0.80	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
186	0.80	0.60	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
187	0.60	0.40	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
188	0.40	0.20	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
189	0.20	0.00	0.21700	39.72	0.20253	0.01	0.26	4.05	214.29	810.85	1.07	0.00	0.000	0.050	0.203
TOT						0.19			3642.88	13784.53					
AVG					0.20253		0.26	4.05			1.07				
CUM						5.70									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS ***

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
173	3.200	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
174	3.000	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
175	2.800	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
176	2.600	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	

																				0.01
177	2.400	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
178	2.200	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
179	2.000	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
180	1.800	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
181	1.600	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
182	1.400	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
183	1.200	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
184	1.000	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
185	0.800	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
186	0.600	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
187	0.400	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
188	0.200	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
189	0.000	9.11	13.44	0.04	0.01	0.00	3.97	3.97	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01
20 DEG C RATE				0.04		0.00	4.00			0.00		0.00	0.00	0.00	0.00			0.00	0.05	
AVG 20 DEG C RATE			13.46		0.01						0.00									0.01

* g/m²/d   ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
173	3.200	19.90	0.00	6.26	3.78	8.24	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
174	3.000	19.90	0.00	6.26	3.78	8.20	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
175	2.800	19.90	0.00	6.26	3.78	8.17	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
176	2.600	19.90	0.00	6.26	3.78	8.14	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
177	2.400	19.90	0.00	6.26	3.78	8.12	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
178	2.200	19.90	0.00	6.26	3.78	8.10	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
179	2.000	19.90	0.00	6.26	3.78	8.08	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
180	1.800	19.90	0.00	6.26	3.78	8.07	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
181	1.600	19.90	0.00	6.26	3.78	8.06	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
182	1.400	19.90	0.00	6.26	3.78	8.04	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41

183	1.200	19.90	0.00	6.26	3.78	8.03	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
184	1.000	19.90	0.00	6.26	3.78	8.03	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
185	0.800	19.90	0.00	6.26	3.78	8.02	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
186	0.600	19.90	0.00	6.26	3.78	8.01	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
187	0.400	19.90	0.00	6.26	3.78	8.01	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
188	0.200	19.90	0.00	6.26	3.78	8.00	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
189	0.000	19.90	0.00	6.26	3.78	8.00	4.98	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m^3

STREAM SUMMARY
HEADWATER

MILL CREEK WATERSHED MODEL
MILL CREEK CURRENT WINTER 5.0 DO STANDARD RUN

TRAVEL TIME = 5.70 DAYS

MAXIMUM EFFLUENT = 39.72 PERCENT

FLOW	=	0.13080	TO	0.21700	m^3/s
DISPERSION	=	0.0193	TO	0.0750	m^2/s
VELOCITY	=	0.02708	TO	0.35130	m/s
DEPTH	=	0.19	TO	0.96	m
WIDTH	=	2.75	TO	6.65	m
BOD DECAY	=	0.04	TO	0.07	per day
NH3 DECAY	=	0.00	TO	0.00	per day
SDMNT OXYGEN DMND	=	1.89	TO	4.17	$g/m^2/d$
NH3 SOURCE	=	0.00	TO	0.00	$g/m^2/d$
REAERATION	=	1.10	TO	24.95	per day
BOD SETTLING	=	0.01	TO	0.01	per day
ORGN DECAY	=	0.00	TO	0.00	per day
ORGN SETTLING	=	0.00	TO	0.00	per day
TEMPERATURE	=	19.90	TO	19.90	deg C
DISSOLVED OXYGEN	=	6.34	TO	8.50	mg/L

.....EXECUTION COMPLETED

Mill Creek Water Quality Current 5.0 DO Winter Projection Model Input Description

DATA TYPE 3, Program Constants

Description of Constant	Value	Result	Source/Justification
Maximum iteration limit	200.0		Standard
KL Minimum	0.7	Minimum KL to be used.	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
Inhibition control value	3.0	Inhibits all decay rate except SOD for low DO.	Standard LA modeling procedure.
Ocean exchange ratio	0.0	Set 0% tidal exchange at lower boundary.	This was done to allow dispersion in the model but not to force the bottom element through the boundary conditions.
Hydraulic calculation method	2.0	Sets the Hydraulic calc. to width and depth coef.	The low slopes in this waterbody cause a substantial amount of water to be present during critical flow conditions, making the Leopold relationships inaccurate. This method allows the model to predict a more accurate depth and width during low flow conditions.
Settled rate units.	2.0	Sets the settled rate to a velocity (m/day).	By making the settling rate a velocity the rate becomes dependent upon the depth.
K2 Max	25.0	Max K2 at 20 C allowed for any computational element	EPA Policy in the absence of a measured value.
NCM Oxygen Uptake	1.0	Oxygen Uptake Rate per Unit of NBOD decay.	Standard LA modeling procedure

Mill Creek Water Quality Current 5.0 DO Winter Projection Model Input Description

DATA TYPE 9, Advective Hydraulic Coefficients					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	3.70	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.15	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
2	Mill Creek, RKM 30.0 to Alligator Bayou	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	5.10	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
			Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.91	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
3	Mill Creek, Alligator Bayou to Black Creek	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	5.10	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.91	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
4	Mill Creek, Black Creek to RKM 14.0	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	6.60	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.56	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
5	Mill Creek, RKM 14.0 to Little Mill Creek	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	2.70	Zero flow cross section

Mill Creek Water Quality Current 5.0 DO Winter Projection Model Input Description

DATA TYPE 9, Advective Hydraulic Coefficients

Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.17	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
6	Mill Creek, Little Mill Creek to Calcasieu River	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	4.00	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.21	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.

Mill Creek Water Quality Current 5.0 DO Winter Projection Model Input Description

DATA TYPE 11, INITIAL CONDITIONS					
Reach #	**REACH DESCRIPTION**	**Initial Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Temperature	^{o}Celcius	19.9	Winter Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Winter Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
2	Mill Creek, RKM 30.0 to Alligator Bayou	Temperature	^{o}Celcius	19.9	Winter Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Winter Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
3	Mill Creek, Alligator Bayou to Black Creek	Temperature	^{o}Celcius	19.9	Winter Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Winter Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
4	Mill Creek, Black Creek to RKM 14.0	Temperature	^{o}Celcius	19.9	Winter Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Winter Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
5	Mill Creek, RKM 14.0 to Little Mill Creek	Temperature	^{o}Celcius	19.9	Winter Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Winter Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
6	Mill Creek, Little Mill Creek to Calcasieu River	Temperature	^{o}Celcius	19.9	Winter Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Winter Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		

Mill Creek Water Quality Current 5.0 DO Winter Projection Model Input Description

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m^2-day	1.90	Winter Projection Value
		Aerobic BOD decay	1/day	0.07	Bottle Rate for Site 5
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	
2	Mill Creek, RKM 30.0 to Alligator Bayou	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	2.50	Winter Projection Value
		Aerobic BOD decay	1/day	0.06	Bottle Rate for Site 4
		BOD Settling rate	m/day	0.01	Calibration
			Fraction	0.00	
3	Mill Creek, Alligator Bayou to Black Creek	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	2.00	Winter Projection Value
		Aerobic BOD decay	1/day	0.06	Bottle Rate for Site 4
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	
4	Mill Creek, Black Creek to RKM 14.0	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	3.50	Winter Projection Value
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 3
		BOD Settling rate	m/day	0.01	
		BOD conv. to SOD	Fraction	0.0	

Mill Creek Water Quality Current 5.0 DO Winter Projection Model Input Description

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.

Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
5	Mill Creek, RKM 14.0 to Little Mill Creek	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	4.20	Winter Projection Value
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 2
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	
6	Mill Creek, Little Mill Creek to Calcasieu River	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	4.00	Winter Projection Value
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 1
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	

Mill Creek Water Quality Current 5.0 DO Winter Projection Model Input Description

DATA TYPE 15, Coliform and Nonconservative Coefficents					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	NCM Decay	1/day	0.06	Bottle Rate Site 5
		NCM Settling Rate	m/day	0.01	Calibration
2	Mill Creek, RKM 30.0 to Alligator Bayou	NCM Decay	1/day	0.06	Bottle Rate Site 4
		NCM Settling Rate	m/day	0.01	Calibration
3	Mill Creek, Alligator Bayou to Black Creek	NCM Decay	1/day	0.06	Bottle Rate Site 4
		NCM Settling Rate	m/day	0.01	Calibration
4	Mill Creek, Black Creek to RKM 14.0	NCM Decay	1/day	0.09	Bottle Rate Site 3
		NCM Settling Rate	m/day	0.01	Calibration
5	Mill Creek, RKM 14.0 to Little Mill Creek	NCM Decay	1/day	0.08	Bottle Rate Site 2
		NCM Settling Rate	m/day	0.01	Calibration
6	Mill Creek, Little Mill Creek to Calcasieu River	NCM Decay	1/day	0.05	Bottle Rate Site 1
		NCM Settling Rate	m/day	0.01	Calibration

Mill Creek Water Quality Current 5.0 DO Winter Projection Model Input Description

DATA TYPE 19, Nonpoint Source Data					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	BOD	kg/day	1	70% reduction to meet current DO standard.
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		0	70% reduction to meet current DO standard.
		Dissolved O_2	kg/day		
2	Mill Creek, RKM 30.0 to Alligator Bayou	BOD	kg/day	2	70% reduction to meet current DO standard.
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		0	70% reduction to meet current DO standard.
		Dissolved O_2	kg/day		
3	Mill Creek, Alligator Bayou to Black Creek	BOD	kg/day	2	70% reduction to meet current DO standard.
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		1	70% reduction to meet current DO standard.
		Dissolved O_2	kg/day		
4	Mill Creek, Black Creek to RKM 14.0	BOD	kg/day	6	70% reduction to meet current DO standard.
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		3	70% reduction to meet current DO standard.
		Dissolved O_2	kg/day		
5	Mill Creek, RKM 14.0 to Little Mill Creek	BOD	kg/day	2	70% reduction to meet current DO standard.
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		0	70% reduction to meet current DO standard.
		Dissolved O_2	kg/day		
6	Mill Creek, Little Mill Creek to Calcasieu River	BOD	kg/day	1	70% reduction to meet current DO standard.
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		0	70% reduction to meet current DO standard.
		Dissolved O_2	kg/day		

Mill Creek Water Quality Current 5.0 DO Winter Projection Model Input Description

DATA TYPE 20, Headwater Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Element # of input		1	
		Headwater name		Mill Creek	
		Headwater flow	cms	0.1308	Seasonal 7Q10 for current winter season
		Temperature	^{o}Celcius	19.90	Winter Season 90th Percentile Temperature
		Salinity	ppt		
		Conservative Matl. I	mg/l	3.40	Site 5
		Conservative Matl. II	mg/l	3.10	Site 5

Mill Creek Water Quality Current 5.0 DO Winter Projection Model Input Description

DATA TYPE 21, Headwater Data for DO, BOD, and Nitrogen					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Element # of input		1	
		Dissolved O_2	mg/l	8.2	90 percent of DO Sat at Winter 90th Percentile Temperature
		BOD	mg/l	4.66	70% reduction to meet current DO standard.

Mill Creek Water Quality Current 5.0 DO Winter Projection Model Input Description

DATA TYPE 22, Headwater Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Element # of input		1	
		NCM	mg/l	1.2	70% reduction to meet current DO standard.

Mill Creek Water Quality Current 5.0 DO Winter Projection Model Input Description

DATA TYPE 25, Wastewater Data for DO, BOD, and Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Town of Elizabeth	Element # of input		10	
		Wasteload description		STP	
		Dissolved O_2	mg/l	5	Winter Projection Standard
		BOD	mg/l	46	10 CBOD5 * 2.3.
2	Alligator Bayou	Element # of input		46	
		Wasteload description		Tributary	
		Dissolved O_2	mg/l	8.2	90 percent of DO Sat at Winter 90th Percentile Temperature
		BOD	mg/l	3.4	70% reduction to meet current DO standard
3	Black Bayou	Element # of input		64	
		Wasteload description		Tributary	
		Dissolved O_2	mg/l	8.2	90 percent of DO Sat at Winter 90th Percentile Temperature
		BOD	mg/l	7.5	70% reduction to meet current DO standard
5	Little Mill Creek	Element # of input		172	
		Wasteload description		Tributary	
		Dissolved O_2	mg/l	8.2	90 percent of DO Sat at Winter 90th Percentile Temperature
		BOD	mg/l	6.3	70% reduction to meet current DO standard.

Mill Creek Water Quality Current 5.0 DO Winter Projection Model Input Description

DATA TYPE 25, Wastewater Data for DO, BOD, and Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Town of Elizabeth	Element # of input		10	
		Wasteload description		STP	
		NCM	mg/l	43	10 mg/l NH3-N * 4.3. An amonia value was not given in the last LADEQ permit, a 10 mg/l NH3-N value is consistent with the treatment level for a 10 mg/l CBOD limit.
2	Alligator Bayou	Element # of input		46	
		Wasteload description		Tributary	
		NCM	mg/l	0.8	70% reduction to meet current DO standard.
3	Black Bayou	Element # of input		64	
		Wasteload description		Tributary	
		NCM	mg/l	2.18	70% reduction to meet current DO standard.
5	Little Mill Creek	Element # of input		172	
		Wasteload description		Tributary	
		NCM	mg/l	1.84	70% reduction to meet current DO standard.

Winter Projection, Non-Point Benthic Load Input and TMDL Calculations:

Modeled stream or water body:	Mill Creek - Current Standards

Shaded cells are input values for calculations.
Values to be used in the projection models.

	Calibration Model Values											
Reach Number and Description	Non-Point UCBOD	Non-Point UNBOD	SOD @ 20°C	Total Calb. Benthic Load (TCBL)	Reach Length	Back-ground Benthic Load	Back-ground percentage reduction	Back-ground Benthic Load adjusted for % reduction	Proj. Model Avg. Reach Width	Proj. Temp.	Percentage Reduction of man-made sources	TCBL adjusted for % reduction (Reduced TCBL)
	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	Kilo-meters	gm O_2 / [(m^2)(day)]	%	gm O_2 / [(m^2)(day)]	Meters	(degrees Celcius)	%	gm O_2 / [(m^2)(day)]
	A, (note 1)	**B**, (note 1)	**C**, (note 1)	**D**, (note 1)	**E**, (note 1)	**F1**	**F2**	**F = F1*(1-F2)**	**G**	**I**	**H**	**J**, (note 2)
Reach 1 - Headwater to RKM 30.0	2.222	0.556	1.90	4.678	6.00	2.00	0%	2.00	0.15	19.90	70.0%	2.80
Reach 2 - RKM 30.0 - Alligator Bayou	1.374	0.000	3.80	5.174	3.20	2.00	0%	2.00	0.91	19.90	70.0%	2.95
Reach 3 - Alligator Bayou - Black Creek	1.832	0.611	4.10	6.542	1.80	2.00	0%	2.00	0.91	19.90	70.0%	3.36
Reach 4 - Black Creek - RKM 14.0	1.623	0.974	4.10	6.697	11.00	2.00	0%	2.00	0.56	19.90	70.0%	3.41
Reach 5 - RKM 14.0 -Little Mill Creek	2.220	0.444	4.30	6.964	10.60	2.00	0%	2.00	0.17	19.90	70.0%	3.49
Reach 6 - Little Mill Creek - Calcasieu	1.401	0.000	4.00	5.401	3.40	2.00	0%	2.00	0.21	19.90	70.0%	3.02
Sub-Total												19.04

	Projection Model Equivalents				Projected Model Loads				Margin of Safety Loads					
Reach Number and Description	Reduced TCBL adjusted for MOS	Non-Point UCBOD	Non-Point UNBOD	SOD @ 20°C	Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	SOD load @ Proj. temp.	Total Projection Benthic Load **(LA+MOS)**	MOS Total Benthic Load @ 20°C	MOS SOD @ 20°C	Non-Point UCBOD MOS Loads	Non-Point UNBOD MOS Loads	Adjusted SOD MOS @ Proj. temp	Adjusted Total MOS @ Proj. temp
	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)
	K, (note 3)	**L = (K)(A / D)**	**M = (K)(B / D)**	**N = (K)(C / D)**	**O = (E)(G)(L)**	**P = (E)(G)(M)**	**Q**, (note 4)	**O + P + Q**	**R = (K-J)(E)(G)**	**S = (R)(C/D)**	**T = (R)(A/D)**	**U = (R)(B/D)**	**V**, (note 5)	**T + U + V**
Reach 1 - Headwater to RKM 30.0	3.00	1.427	0.357	1.22	1	0	1	2.70	0	0	0	0	0	0
Reach 2 - RKM 30.0 - Alligator Bayou	3.19	0.847	0.000	2.34	2	0	7	9.25	1	1	0	0	1	1
Reach 3 - Alligator Bayou - Black Creek	3.70	1.037	0.346	2.32	2	1	4	6.04	1	0	0	0	0	1
Reach 4 - Black Creek - RKM 14.0	3.76	0.912	0.547	2.30	6	3	14	23.08	2	1	1	0	1	2
Reach 5 - RKM 14.0 -Little Mill Creek	3.86	1.231	0.246	2.38	2	0	4	6.93	1	0	0	0	0	1
Reach 6 - Little Mill Creek - Calcasieu	3.28	0.849	0.000	2.43	1	0	2	2.33	0	0	0	0	0	0
Sub-Total					14	5	32	**50**	4		1	0	3	**4**

	Man-made Model equivalents				Man-made Model loads				Background Model loads			
Reach Number and Description	Manmade portion of TCBL	Non-Point UCBOD	Non-Point UNBOD	SOD @ 20°C	Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	SOD load @ Proj. temp.	Man-made Total Projection Benthic Load	Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	SOD load @ Proj. temp.	Man-made Total Projection Benthic Load
	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)
	W = K - F	**X = (W)(A / D)**	**Y = (W)(B / D)**	**Z = (W)(C / D)**	**AA = (E)(G)(X)**	**AB = (E)(G)(Y)**	**AC**, (note 6)	**AA + AB + AC**	**AD = O - AA**	**AE = P - AB**	**AF = Q - AC**	**AD + AE + AF**
Reach 1 - Headwater to RKM 30.0	1.00	0.477	0.119	0.41	0	0	0	0.90	1	0	1	1.80
Reach 2 - RKM 30.0 - Alligator Bayou	1.19	0.316	0.000	0.87	1	0	3	3.45	2	0	4	5.80
Reach 3 - Alligator Bayou - Black Creek	1.70	0.477	0.159	1.07	1	0	2	2.78	1	0	2	3.26
Reach 4 - Black Creek - RKM 14.0	1.76	0.427	0.256	1.08	3	2	7	10.81	3	2	7	12.27
Reach 5 - RKM 14.0 -Little Mill Creek	1.86	0.593	0.119	1.15	1	0	2	3.34	1	0	2	3.59
Reach 6 - Little Mill Creek - Calcasieu	1.28	0.331	0.000	0.94	0	0	1	0.91	0	0	1	1.42
Sub-Total					6	2	14	**22**	8	3	18	**28**

Notes: Note 1, Data was calculated in and brought from the Calibration worksheet dataset.
Note 2, $\mathbf{J} = [(1 - \mathbf{H}) \times (\mathbf{D} - \mathbf{F}) + \mathbf{F}]$
Note 3, $\mathbf{K} = [(\mathbf{J} - \mathbf{F}) / (1 - \text{MOS}) + \mathbf{F}]$
Note 4, $\mathbf{Q} = \mathbf{E} \times \mathbf{G} \times \mathbf{N} \times 1.065^{(\mathbf{I}-20)}$
Note 5, $\mathbf{V} = \mathbf{S} \times 1.065^{(\mathbf{I}-20)}$
Note 6, $\mathbf{AC} = \mathbf{E} \times \mathbf{G} \times \mathbf{Z} \times 1.065^{(\mathbf{I}-20)}$

EXPLICIT MARGINS:

MARGIN OF SAFETY (MOS) (%) = [MOG + MOU] =	**20%**

Winter TMDL calculations and Projection model calculations for Headwater / Tributary loads:

Mill Creek - Current Standards

Shaded cells are input values for calculations.
Values to be used in the projection models.

Headwater / Tributary load determinations

Headwater / Tributary Description and Reach #	Seasonal Critical flow (cms)	UCBOD (mg/l)	UNBOD (mg/l)	UCBOD (kg/day)	UNBOD (kg/day)	Background UCBOD conc. (mg/l)	Background UNBOD conc. (mg/l)	Background % Reduction	Background UCBOD Load (kg/day)	Background UNBOD Load (kg/day)	Percent reduction of Man-Made loads	UCBOD load adjusted for % Reduction (kg/day)	UNBOD load adjusted for % Reduction (kg/day)	Reduced UCBOD load adjusted for MOS (kg/day)	Reduced UNBOD load adjusted for MOS (kg/day)	Projection UCBOD input conc. (mg/l)	Projection UNBOD input conc. (mg/l)	**Total MOS (kg/day)**	**Total LA (kg/day)**
	A	**B**	**C**	**D = (86.4)(A)(B)**	**E = (86.4)(A)(C)**	**F**	**G**	**H1**	**H = (1-H1) (86.4)(A)(F)**	**I = (1-H1) (86.4)(A)(G)**	**J**	**K = (D-H)(1-J) + H**	**L = (D-I)(1-J) + I**	**M = (K - H) / (1 - MOS) + H**	**N = (L - I) / (1 - MOS) + I**	**(M)/[(A)(86.4)]**	**(N)/[(A)(86.4)]**	**(M+N) - (K+L)**	**K + L**
Mill Creek Headwater	0.1308	8.87	3.41	100.24	38.54	2.14	3.61	0%	24.18	40.80	70%	47.00	38.54	52.71	38.54	4.66	3.41	**5.70**	**85.54**
Alligator Bayou	0.028	5.49	0.80	13.28	1.94	2.14	3.61	0%	5.18	8.73	70%	7.61	1.94	8.22	1.94	3.40	0.80	**0.61**	**9.54**
Black Bayou	0.028	16.42	2.18	39.72	5.27	2.14	3.61	0%	5.18	8.73	70%	15.54	5.27	18.13	5.27	7.50	2.18	**2.59**	**20.81**
Little Mill Creek	0.028	13.22	1.84	31.98	4.45	2.14	3.61	0%	5.18	8.73	70%	13.22	4.45	15.23	4.45	6.30	1.84	**2.01**	**17.67**
SUB-TOTAL TMDL LOADING				**185**	**50**				**40**	**67**		**83**	**50**	**94**	**50**			**11**	**134**

EXPLICIT MARGINS:

MARGIN OF SAFETY (MOS) (%) = **20%**

Winter TMDL Calculations for Point Source loads:

Mill Creek - Current Standards

Input data into the shaded cells.

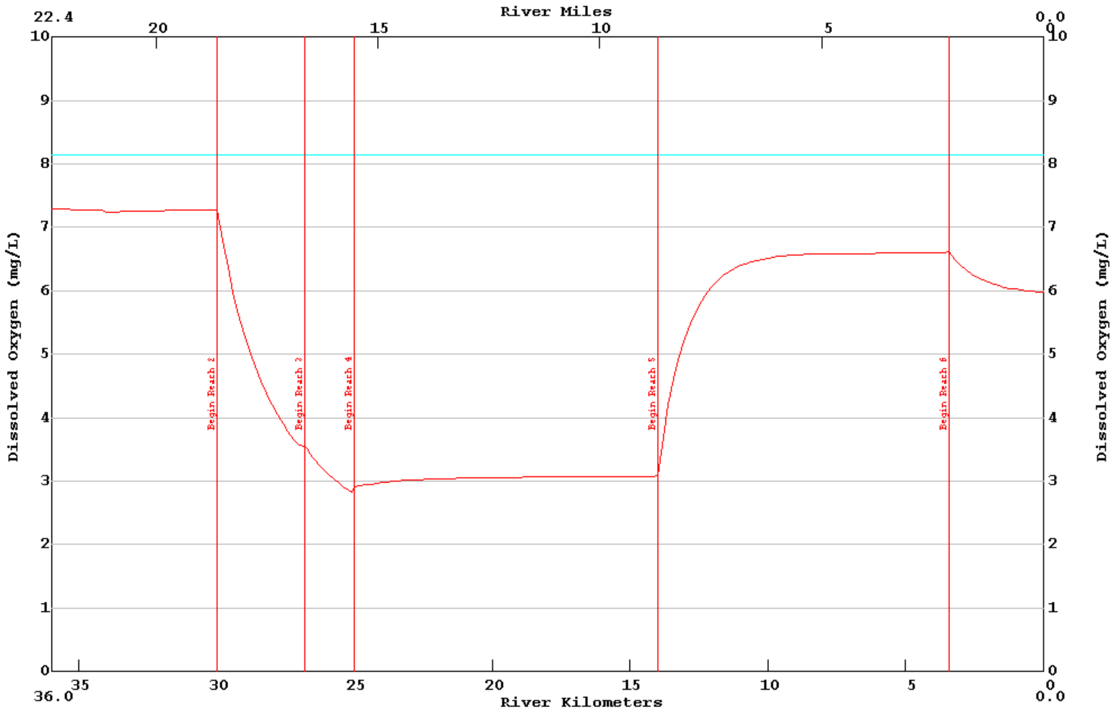
Point Source Loading Calculations

Pt. Source / Facility Description and Reach #	Receiving Stream	Included in the Projection Model (Yes/No)	Anticipated/ design flow (cms)	Flow (cms)	Proposed Permit Limits: $CBOD_5$ (mg/l)	Proposed Permit Limits: NH_3N (mg/l)	Proposed Permit Limits: MOS (%)	UCBOD: Ultimate Conc. (mg/l) (2)	UCBOD: Loads (kg/day) (1)	UCBOD: WLA (kg/day)	UCBOD: Reserve/ MOS Load (kg/day)	UNBOD: Ultimate Conc. (mg/l) (2)	UNBOD: Loads (kg/day) (1)	UNBOD: WLA (kg/day)	UNBOD: Reserve/ MOS Load (kg/day)	Sub-total of Point Source Loads: Loads (kg/day)	Sub-total of Point Source Loads: WLA (kg/day)	Sub-total of Point Source Loads: Reserve/ MOS (kg/day)
			A	A1 = A/(1-D)	B	C	D	E = 2.3 x B	F = (86.4)(A1)(E)	G = (1-D) x F	H = (D)(F)	I = 4.3 x B	J = (86.4)(A1)(I)	K = (1-D) x J	L = (D)(J)	F + J	G + K	H + L
Town of Elizabeth	Mill Creek	Yes	0.0022	0.00275	20.0	10.0	20%	46.0	11	9	2	43.0	10	8	2	**21**	**17**	**4**
SUB-TOTAL Loads									**11**	**9**	**2**		**10**	**8**	**2**	**21**	**17**	**4**

(1) - Load(kg/day) = 86.4 x Ultimate Conc.(mg/l) x Modeled Flow(cms)

(2) - [UCBOD conc. = CBOD5(mg/l) x 2.3] and [UNBOD conc. = NH3N(mg/l) x 4.3]

LA-QUAL Version 5.02 Run at 07:29 on 02/28/2002 File D:\Mill Creek\Input Files\millsum2.5.txt
MILL CREEK PROPOSED SUMMER 2.5 STANDARD RUN   min= 2.83   max= 7.30
MILL CREEK



```
LA-QUAL Version 5.02
Louisiana Department of Environmental Quality

Input file is D:\Mill Creek\Input Files\millsum2.5.txt
Output produced at 07:29 on 02/28/2002

$$$ DATA TYPE 1 (TITLES AND CONTROL CARDS) $$$

CARD TYPE       CONTROL TITLES

TITLE01         MILL CREEK WATERSHED MODEL
TITLE02         MILL CREEK PROPOSED SUMMER 2.5 STANDARD RUN
CNTROL12  YES   METRIC UNITS
CNTROL13  YES   OXYGEN DEPENDENT RATES
ENDATA01

$$$ DATA TYPE 2 (MODEL OPTIONS) $$$

CARD TYPE       MODEL OPTION

MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL  I = CHLORIDES                   IN MG/L
MODOPT04  YES   CONSERVATIVE MATERIAL II = SULFATES                    IN MG/L
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BIOCHEMICAL OXYGEN DEMAND
MODOPT07   NO   NITROGEN
MODOPT08   NO   PHOSPHORUS
MODOPT09   NO   CHLOROPHYLL A
MODOPT10   NO   MACROPHYTES
MODOPT11   NO   COLIFORM
MODOPT12  YES   NONCONSERVATIVE MATERIAL
ENDATA02

$$$ DATA TYPE 3 (PROGRAM CONSTANTS) $$$

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

PROGRAM         MAXIMUM ITERATION LIMIT            =       200.00000
PROGRAM         KL MINIMUM                         =         0.70000 meters/day
PROGRAM         NCM OXYGEN UPTAKE RATE             =         1.00000 mg O/mg NCM
PROGRAM         INHIBITION CONTROL VALUE           =         3.00000
PROGRAM         OCEAN EXCHANGE RATIO               =         0.00000
PROGRAM         K2 MAXIMUM                         =        25.00000 per day
PROGRAM         HYDRAULIC CALCULATION METHOD       =         2.00000 (widths and depths)
PROGRAM         SETTLING RATE UNITS                =         2.00000 (per day)
ENDATA03

$$$ DATA TYPE 4 (TEMPERATURE CORRECTION CONSTANTS FOR RATE COEFFICIENTS) $$$

 CARD TYPE     RATE CODE     THETA VALUE

ENDATA04
```

$$$ CONSTANTS TYPE 5 (TEMPERATURE DATA) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA05

$$$ DATA TYPE 6 (ALGAE CONSTANTS) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA06

$$$ DATA TYPE 7 (MACROPHYTE CONSTANTS) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA07

$$$ DATA TYPE 8 (REACH IDENTIFICATION DATA) $$$

CARD TYPE	REACH	ID	NAME	BEGIN REACH km		END REACH km	ELEM LENGTH km	REACH LENGTH km	ELEMS PER RCH	BEGIN ELEM NUM	END ELEM NUM
REACH ID	1	MC	HEADWATER - RKM 30.0	36.00	TO	30.00	0.2000	6.00	30	1	30
REACH ID	2	MC	RKM 30.0 - ALLIGATOR BAYOU	30.00	TO	26.80	0.2000	3.20	16	31	46
REACH ID	3	MC	ALLIGATOR BAYOU - BLACK CR	26.80	TO	25.00	0.1000	1.80	18	47	64
REACH ID	4	MC	BLACK CREEK - RKM 14.0	25.00	TO	14.00	0.2000	11.00	55	65	119
REACH ID	5	MC	RKM 14.0 - LITTLE MILL CR	14.00	TO	3.40	0.2000	10.60	53	120	172
REACH ID	6	MC	LITTLE MILL - CALCASIEU	3.40	TO	0.00	0.2000	3.40	17	173	189

ENDATA08

$$$ DATA TYPE 9 (ADVECTIVE HYDRAULIC COEFFICIENTS) $$$

CARD TYPE	REACH	ID	WIDTH "A"	WIDTH "B"	WIDTH "C"	DEPTH "D"	DEPTH "E"	DEPTH "F"	SLOPE	MANNINGS "N"
HYDR-1	1	MC	0.100	0.400	3.700	0.100	0.400	0.150	0.00000	0.040
HYDR-1	2	MC	0.100	0.400	5.100	0.100	0.400	0.910	0.00000	0.040
HYDR-1	3	MC	0.100	0.400	5.100	0.100	0.400	0.910	0.00000	0.040
HYDR-1	4	MC	0.100	0.400	6.600	0.100	0.400	0.560	0.00000	0.040
HYDR-1	5	MC	0.100	0.400	2.700	0.100	0.400	0.170	0.00000	0.040
HYDR-1	6	MC	0.100	0.400	4.000	0.100	0.400	0.210	0.00000	0.040

ENDATA09

$$$ DATA TYPE 10 (DISPERSIVE HYDRAULIC COEFFICIENTS) $$$

CARD TYPE	REACH	ID	TIDAL RANGE	DISPERSION "A"	DISPERSION "B"	DISPERSION "C"	DISPERSION "D"

ENDATA10

$$$ DATA TYPE 11 (INITIAL CONDITIONS) $$$

CARD TYPE	REACH	ID	TEMP	SALIN	DO	NH3	NO3+2	PHOS	CHL A	MACRO

```
INITIAL           1   MC       25.80      0.00       2.50       0.00       0.00       0.00       0.00       0.00
INITIAL           2   MC       25.80      0.00       2.50       0.00       0.00       0.00       0.00       0.00
INITIAL           3   MC       25.80      0.00       2.50       0.00       0.00       0.00       0.00       0.00
INITIAL           4   MC       25.80      0.00       2.50       0.00       0.00       0.00       0.00       0.00
INITIAL           5   MC       25.80      0.00       2.50       0.00       0.00       0.00       0.00       0.00
INITIAL           6   MC       25.80      0.00       2.50       0.00       0.00       0.00       0.00       0.00
ENDATA11

$$$ DATA TYPE 12 (REAERATION, SEDIMENT OXYGEN DEMAND, BOD COEFFICIENTS) $$$
                                                                                    AEROB                             ANAER
CARD TYPE REACH  ID       K2                  K2         K2         K2     BKGRND     BOD        BOD   BOD CONV      BOD
                         OPT                 "A"        "B"        "C"       SOD     DECAY      SETT    TO SOD      DECAY
                                                                        g/m²/d       per day     m/d

COEF-1       1   MC  15 LOUISIANA        0.000      0.000      0.000      1.900      0.070      0.010      0.000      0.000
COEF-1       2   MC  15 LOUISIANA        0.000      0.000      0.000      3.800      0.060      0.010      0.000      0.000
COEF-1       3   MC  15 LOUISIANA        0.000      0.000      0.000      4.100      0.060      0.010      0.000      0.000
COEF-1       4   MC  15 LOUISIANA        0.000      0.000      0.000      4.100      0.040      0.010      0.000      0.000
COEF-1       5   MC  15 LOUISIANA        0.000      0.000      0.000      4.300      0.040      0.010      0.000      0.000
COEF-1       6   MC  15 LOUISIANA        0.000      0.000      0.000      4.000      0.040      0.010      0.000      0.000
ENDATA12

$$$ DATA TYPE 13 (NITROGEN AND PHOSPHORUS COEFFICIENTS) $$$

CARD TYPE      REACH  ID       ORG-N     ORG-N   ORGN CONV       NH3       NH3      PHOS      DENIT
                                DECA      SETT  TO NH3 SRCE     DECA      SRCE      SRCE       RATE

ENDATA13

$$$ DATA TYPE 14 (ALGAE AND MACROPHYTE COEFFICIENTS) $$$

CARD TYPE      REACH  ID       SECCHI    ALGAE:     ALGAE    ALG CONV     ALGAE     ALGAE     MACRO     MACRO
                                DEPTH     CHL A      SETT     TO SOD       GROW      RESP      GROW      RESP

ENDATA14

$$$ DATA TYPE 15 (COLIFORM AND NONCONSERVATIVE COEFFICIENTS) $$$

CARD TYPE      REACH  ID    COLIFORM       NCM       NCM    NCM CONV
                             DIE-OFF     DECAY      SETT     TO SOD

COEF-4            1   MC        0.00      0.06      0.01      0.00
COEF-4            2   MC        0.00      0.06      0.01      0.00
COEF-4            3   MC        0.00      0.06      0.01      0.00
COEF-4            4   MC        0.00      0.09      0.01      0.00
COEF-4            5   MC        0.00      0.08      0.01      0.00
COEF-4            6   MC        0.00      0.05      0.01      0.00
ENDATA15

$$$ DATA TYPE 16 (INCREMENTAL DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) $$$

CARD TYPE      REACH  ID       OUTFLOW      INFLOW      TEMP     SALIN      CM-I     CM-II   IN/DIST  OUT/DIST
```

ENDATA16

$$$ DATA TYPE 17 (INCREMENTAL DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	REACH	ID	DO	BOD	ORG-N	NH3	NO3+2

ENDATA17

$$$ DATA TYPE 18 (INCREMENTAL DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	REACH	ID	PHOS	CHL A	COLI	NCM

ENDATA18

$$$ DATA TYPE 19 (NONPOINT SOURCE DATA) $$$

CARD TYPE	REACH	ID	BOD	ORG-N	COLI	NCM	DO
NONPOINT	1	MC	2.00	0.00	0.00	1.00	0.00
NONPOINT	2	MC	4.00	0.00	0.00	0.00	0.00
NONPOINT	3	MC	3.00	0.00	0.00	1.00	0.00
NONPOINT	4	MC	10.00	0.00	0.00	6.00	0.00
NONPOINT	5	MC	4.00	0.00	0.00	1.00	0.00
NONPOINT	6	MC	1.00	0.00	0.00	0.00	0.00

ENDATA19

$$$ DATA TYPE 20 (HEADWATER FOR FLOW, TEMPERATURE, SALINITY AND CONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	UNIT	FLOW m^3/s	FLOW cfs	TEMP deg C	SALIN ppt	CM-I MG/L	CM-II MG/L
HDWTR-1	1	HEADWATER	0	0.11380	4.018	25.80	0.00	3.400	3.100

ENDATA20

$$$ DATA TYPE 21 (HEADWATER DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	ELEMENT	NAME	DO	BOD	ORG-N	NH3	NO3+2
HDWTR-2	1	HEADWATER	7.30	6.49	0.00	0.00	0.00

ENDATA21

$$$ DATA TYPE 22 (HEADWATER DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	PHOS	CHL A	COLI	NCM
HDWTR-3	1	HEADWATER	0.00	0.00	0.00	1.20

ENDATA22

$$$ DATA TYPE 23 (JUNCTION DATA) $$$

CARD TYPE	JUNCTION ELEMENT	UPSTRM ELEMENT	RIVER KILOM	NAME

ENDATA23

$$$ DATA TYPE 24 (WASTELOAD DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) $$$

CARD TYPE	ELEMENT	RKILO	NAME	FLOW m³/s	FLOW cfs	FLOW MGD	TEMP deg C	SALIN ppt	CM-I MG/L	CM-II MG/L
WSTLD-1	10	34.20	TOWN OF ELIZABETH	0.00220	0.07768	0.050	25.80	0.00	3.400	3.100
WSTLD-1	46	27.00	ALLIGATOR BAYOU	0.00280	0.09887	0.064	25.80	0.00	14.900	9.500
WSTLD-1	64	25.10	BLACK BAYOU	0.00280	0.09887	0.064	25.80	0.00	3.800	1.900
WSTLD-1	172	3.60	LITTLE MILL CREEK	0.00280	0.09887	0.064	25.80	0.00	13.700	3.200

ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	ELEMENT	NAME	DO	BOD	% BOD RMVL	ORG-N	NH3	% NITRIF	NO3+2
WSTLD-2	10	TOWN OF ELIZABETH	5.00	46.00	0.00	0.00	0.00	0.00	0.00
WSTLD-2	46	ALLIGATOR BAYOU	7.30	5.49	0.00	0.00	0.00	0.00	0.00
WSTLD-2	64	BLACK BAYOU	7.30	16.42	0.00	0.00	0.00	0.00	0.00
WSTLD-2	172	LITTLE MILL CREEK	7.30	13.22	0.00	0.00	0.00	0.00	0.00

ENDATA25

$$$ DATA TYPE 26 (WASTELOAD DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	PHOS	CHL A	COLI	NCM
WSTLD-3	10	TOWN OF ELIZABETH	0.00	0.00	0.00	43.00
WSTLD-3	46	ALLIGATOR BAYOU	0.00	0.00	0.00	0.80
WSTLD-3	64	BLACK BAYOU	0.00	0.00	0.00	2.18
WSTLD-3	172	LITTLE MILL CREEK	0.00	0.00	0.00	1.84

ENDATA26

$$$ DATA TYPE 27 (LOWER BOUNDARY CONDITIONS) $$$

CARD TYPE   CONSTITUENT   CONCENTRATION

ENDATA27

$$$ DATA TYPE 28 (DAM DATA) $$$

CARD TYPE   ELEMENT   NAME   EQN   "A"   "B"   "H"

ENDATA28

$$$ DATA TYPE 29 (SENSITIVITY ANALYSIS DATA) $$$

CARD TYPE   PARAMETER   COL 1   COL 2   COL 3   COL 4   COL 5   COL 6   COL 7   COL 8

ENDATA29

$$$ DATA TYPE 30 (PLOT CONTROL CARDS) $$$

NUMBER OF PLOTS = 2

NUMBER OF REACHES IN PLOT 1 = 6
PLOT RCH 1 2 3 4 5 6
NUMBER OF REACHES IN PLOT 1 = 1
PLOT RCH 1
ENDATA30

$$$ DATA TYPE 31 (OVERLAY PLOT DATA) $$$

OVERLAY NUMBER OF OVERLAY SETS = 1
OVERLAY SET 1 BASEPLOT 1, DATAFILE mc.ovl :MILL CREEK
ENDATA31

.....NO ERRORS DETECTED IN INPUT DATA
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN 1 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED
.....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 11
.....GRAPHICS DATA FOR PLOT 2 WRITTEN TO UNIT 12

FINAL REPORT HEADWATER MILL CREEK WATERSHED MODEL
REACH NO. 1 HEADWATER - RKM 30.0 MILL CREEK PROPOSED SUMMER 2.5 STANDARD RUN

** REACH INPUTS **

ELEM NO.	TYPE	FLOW $m^3/$	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
1	HDWTR	0.11380	25.80	0.00	3.40	3.10	7.30	6.49	6.49	0.00	0.00	0.00	0.00	0.00	0.00	1.20
10	WSTLD	0.00220	25.80	0.00	3.40	3.10	5.00	46.00	46.00	0.00	0.00	0.00	0.00	0.00	0.00	43.00

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW $m^3/$	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
1	36.00	35.80	0.11380	0.00	0.15846	0.01	0.19	3.74	143.63	748.38	0.72	0.00	0.000	0.030	0.158

2	35.80	35.60	0.11380	0.00	0.15846	0.01	0.19	3.74	143.63	748.38	0.72	0.00	0.000	0.030	0.158
3	35.60	35.40	0.11380	0.00	0.15846	0.01	0.19	3.74	143.63	748.38	0.72	0.00	0.000	0.030	0.158
4	35.40	35.20	0.11380	0.00	0.15846	0.01	0.19	3.74	143.63	748.38	0.72	0.00	0.000	0.030	0.158
5	35.20	35.00	0.11380	0.00	0.15846	0.01	0.19	3.74	143.63	748.38	0.72	0.00	0.000	0.030	0.158
6	35.00	34.80	0.11380	0.00	0.15846	0.01	0.19	3.74	143.63	748.38	0.72	0.00	0.000	0.030	0.158
7	34.80	34.60	0.11380	0.00	0.15846	0.01	0.19	3.74	143.63	748.38	0.72	0.00	0.000	0.030	0.158
8	34.60	34.40	0.11380	0.00	0.15846	0.01	0.19	3.74	143.63	748.38	0.72	0.00	0.000	0.030	0.158
9	34.40	34.20	0.11380	0.00	0.15846	0.01	0.19	3.74	143.63	748.38	0.72	0.00	0.000	0.030	0.158
10	34.20	34.00	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
11	34.00	33.80	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
12	33.80	33.60	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
13	33.60	33.40	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
14	33.40	33.20	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
15	33.20	33.00	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
16	33.00	32.80	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
17	32.80	32.60	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
18	32.60	32.40	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
19	32.40	32.20	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
20	32.20	32.00	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
21	32.00	31.80	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
22	31.80	31.60	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
23	31.60	31.40	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
24	31.40	31.20	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
25	31.20	31.00	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
26	31.00	30.80	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
27	30.80	30.60	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
28	30.60	30.40	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161

29	30.40	30.20	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
30	30.20	30.00	0.11600	1.90	0.16124	0.01	0.19	3.74	143.89	748.45	0.72	0.00	0.000	0.030	0.161
TOT						0.43			4314.30	22452.89					
AVG					0.16039		0.19	3.74			0.72				
CUM						0.43									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
1	35.800	8.14	17.04	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
2	35.600	8.14	17.04	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
3	35.400	8.14	17.04	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
4	35.200	8.14	17.04	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
5	35.000	8.14	17.04	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
6	34.800	8.14	17.04	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
7	34.600	8.14	17.04	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
8	34.400	8.14	17.04	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
9	34.200	8.14	17.04	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
10	34.000	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
11	33.800	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
12	33.600	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
13	33.400	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
14	33.200	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
15	33.000	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
16	32.800	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
17	32.600	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01

18	32.400	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
19	32.200	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
20	32.000	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
21	31.800	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
22	31.600	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
23	31.400	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
24	31.200	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
25	31.000	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
26	30.800	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
27	30.600	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
28	30.400	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
29	30.200	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
30	30.000	8.14	17.24	0.09	0.01	0.00	2.74	2.74	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
20 DEG C RATE				0.07		0.00	1.90			0.00		0.00	0.00	0.00	0.00			0.00	0.06	
AVG 20 DEG C RATE			15.38		0.01						0.00								0.01	

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
1	35.800	25.80	0.00	3.40	3.10	7.29	6.49	6.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
2	35.600	25.80	0.00	3.40	3.10	7.29	6.48	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
3	35.400	25.80	0.00	3.40	3.10	7.28	6.48	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
4	35.200	25.80	0.00	3.40	3.10	7.28	6.48	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21
5	35.000	25.80	0.00	3.40	3.10	7.28	6.48	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21
6	34.800	25.80	0.00	3.40	3.10	7.27	6.47	6.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

1.21

7	34.600	25.80	0.00	3.40	3.10	7.27	6.47	6.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21
8	34.400	25.80	0.00	3.40	3.10	7.27	6.47	6.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21
9	34.200	25.80	0.00	3.40	3.10	7.27	6.46	6.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22
10	34.000	25.80	0.00	3.40	3.10	7.23	7.21	7.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
11	33.800	25.80	0.00	3.40	3.10	7.24	7.21	7.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
12	33.600	25.80	0.00	3.40	3.10	7.25	7.20	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
13	33.400	25.80	0.00	3.40	3.10	7.25	7.20	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
14	33.200	25.80	0.00	3.40	3.10	7.25	7.19	7.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
15	33.000	25.80	0.00	3.40	3.10	7.26	7.19	7.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
16	32.800	25.80	0.00	3.40	3.10	7.26	7.19	7.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
17	32.600	25.80	0.00	3.40	3.10	7.26	7.18	7.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
18	32.400	25.80	0.00	3.40	3.10	7.26	7.18	7.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
19	32.200	25.80	0.00	3.40	3.10	7.26	7.17	7.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
20	32.000	25.80	0.00	3.40	3.10	7.26	7.17	7.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
21	31.800	25.80	0.00	3.40	3.10	7.27	7.17	7.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
22	31.600	25.80	0.00	3.40	3.10	7.27	7.16	7.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
23	31.400	25.80	0.00	3.40	3.10	7.27	7.16	7.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
24	31.200	25.80	0.00	3.40	3.10	7.27	7.15	7.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
25	31.000	25.80	0.00	3.40	3.10	7.27	7.15	7.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
26	30.800	25.80	0.00	3.40	3.10	7.27	7.15	7.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
27	30.600	25.80	0.00	3.40	3.10	7.27	7.14	7.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01
28	30.400	25.80	0.00	3.40	3.10	7.27	7.14	7.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02
29	30.200	25.80	0.00	3.40	3.10	7.27	7.13	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02
30	30.000	25.80	0.00	3.40	3.10	7.27	7.13	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM =

** g/m^3

** REACH INPUTS **

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
31	UPR RCH	0.11600	25.80	0.00	3.40	3.10	7.27	7.13	7.13	0.00	0.00	0.00	0.00	0.00	0.00	2.02
46	WSTLD	0.00280	25.80	0.00	14.90	9.50	7.30	5.49	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.80

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
31	30.00	29.80	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	0.024
32	29.80	29.60	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	0.024
33	29.60	29.40	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	0.024
34	29.40	29.20	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	0.024
35	29.20	29.00	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	0.024
36	29.00	28.80	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	0.024
37	28.80	28.60	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	0.024
38	28.60	28.40	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	0.024
39	28.40	28.20	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	0.024
40	28.20	28.00	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	0.024
41	28.00	27.80	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	0.024
42	27.80	27.60	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	0.024
43	27.60	27.40	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	

															0.024
44	27.40	27.20	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	0.024
45	27.20	27.00	0.11600	1.90	0.02369	0.10	0.95	5.14	979.34	1028.45	4.90	0.00	0.000	0.017	0.024
46	27.00	26.80	0.11880	4.21	0.02425	0.10	0.95	5.14	979.83	1028.53	4.90	0.00	0.000	0.017	0.024
TOT						1.56			15669.87	16455.27					
AVG					0.02372		0.95	5.14			4.90				
CUM						1.99									

*** BIOLOGICAL AND PHYSICAL COEFFICIENTS
****

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
31	29.800	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
32	29.600	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
33	29.400	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
34	29.200	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
35	29.000	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
36	28.800	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
37	28.600	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
38	28.400	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
39	28.200	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
40	28.000	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
41	27.800	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
42	27.600	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
43	27.400	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
44	27.200	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
45	27.000	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
46	26.800	8.14	1.18	0.08	0.01	0.00	5.48	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

0.09 0.01

20 DEG C RATE 0.06 0.00 3.80 0.00 0.00 0.00 0.00 0.00 0.00
0.06
AVG 20 DEG C RATE 1.05 0.01 0.00
0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES
****

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
31	29.800	25.80	0.00	3.40	3.10	6.79	7.09	7.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
32	29.600	25.80	0.00	3.40	3.10	6.36	7.06	7.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98
33	29.400	25.80	0.00	3.40	3.10	5.98	7.02	7.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96
34	29.200	25.80	0.00	3.40	3.10	5.63	6.98	6.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94
35	29.000	25.80	0.00	3.40	3.10	5.33	6.95	6.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92
36	28.800	25.80	0.00	3.40	3.10	5.05	6.91	6.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
37	28.600	25.80	0.00	3.40	3.10	4.80	6.88	6.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88
38	28.400	25.80	0.00	3.40	3.10	4.58	6.84	6.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86
39	28.200	25.80	0.00	3.40	3.10	4.38	6.81	6.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85
40	28.000	25.80	0.00	3.40	3.10	4.21	6.77	6.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83
41	27.800	25.80	0.00	3.40	3.10	4.05	6.74	6.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81
42	27.600	25.80	0.00	3.40	3.10	3.91	6.70	6.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
43	27.400	25.80	0.00	3.40	3.10	3.78	6.67	6.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78
44	27.200	25.80	0.00	3.40	3.10	3.66	6.64	6.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76
45	27.000	25.80	0.00	3.40	3.10	3.56	6.60	6.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74
46	26.800	25.80	0.00	3.67	3.25	3.56	6.55	6.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM =

** g/m³

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW $m^3/$	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
47	UPR RCH	0.11880	25.80	0.00	3.67	3.25	3.56	6.55	6.55	0.00	0.00	0.00	0.00	0.00	0.00	1.70
64	WSTLD	0.00280	25.80	0.00	3.80	1.90	7.30	16.42	16.42	0.00	0.00	0.00	0.00	0.00	0.00	2.18

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW $m^3/$	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
47	26.80	26.70	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
48	26.70	26.60	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
49	26.60	26.50	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
50	26.50	26.40	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
51	26.40	26.30	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
52	26.30	26.20	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
53	26.20	26.10	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
54	26.10	26.00	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
55	26.00	25.90	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
56	25.90	25.80	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
57	25.80	25.70	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
58	25.70	25.60	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024

59	25.60	25.50	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
60	25.50	25.40	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
61	25.40	25.30	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
62	25.30	25.20	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
63	25.20	25.10	0.11880	4.21	0.02425	0.05	0.95	5.14	489.92	514.27	4.90	0.00	0.000	0.017	0.024
64	25.10	25.00	0.12160	6.41	0.02481	0.05	0.95	5.14	490.16	514.30	4.90	0.00	0.000	0.018	0.025
TOT						0.86			8818.71	9256.81					
AVG					0.02428		0.95	5.14			4.90				
CUM						2.85									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
47	26.700	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
48	26.600	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
49	26.500	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
50	26.400	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
51	26.300	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
52	26.200	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
53	26.100	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
54	26.000	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
55	25.900	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
56	25.800	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
57	25.700	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
58	25.600	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
59	25.500	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01

60	25.400	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
61	25.300	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
62	25.200	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
63	25.100	8.14	1.18	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
64	25.000	8.14	1.19	0.08	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
20 DEG C RATE				0.06		0.00	4.10			0.00		0.00	0.00	0.00	0.00			0.00	0.06	
AVG 20 DEG C RATE			1.06		0.01						0.00								0.01	

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
47	26.700	25.80	0.00	3.67	3.25	3.49	6.53	6.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70
48	26.600	25.80	0.00	3.67	3.25	3.43	6.52	6.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70
49	26.500	25.80	0.00	3.67	3.25	3.37	6.51	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70
50	26.400	25.80	0.00	3.67	3.25	3.32	6.50	6.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69
51	26.300	25.80	0.00	3.67	3.25	3.27	6.49	6.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69
52	26.200	25.80	0.00	3.67	3.25	3.22	6.48	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69
53	26.100	25.80	0.00	3.67	3.25	3.17	6.46	6.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68
54	26.000	25.80	0.00	3.67	3.25	3.13	6.45	6.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68
55	25.900	25.80	0.00	3.67	3.25	3.09	6.44	6.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68
56	25.800	25.80	0.00	3.67	3.25	3.05	6.43	6.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68
57	25.700	25.80	0.00	3.67	3.25	3.01	6.42	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67
58	25.600	25.80	0.00	3.67	3.25	2.98	6.41	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67
59	25.500	25.80	0.00	3.67	3.25	2.94	6.40	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67
60	25.400	25.80	0.00	3.67	3.25	2.91	6.39	6.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

1.67

61	25.300	25.80	0.00	3.67	3.25	2.88	6.37	6.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66
62	25.200	25.80	0.00	3.67	3.25	2.85	6.36	6.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66
63	25.100	25.80	0.00	3.67	3.25	2.83	6.35	6.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66
64	25.000	25.80	0.00	3.67	3.22	2.90	6.57	6.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67

* CM-I = CHLORIDES MG/L　　CM-II = SULFATES MG/L　　NCM =

** g/m³

FINAL REPORT　HEADWATER　　MILL CREEK WATERSHED MODEL
REACH NO. 4　BLACK CREEK - RKM 14.0　　MILL CREEK PROPOSED SUMMER 2.5 STANDARD RUN

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
65	UPR RCH	0.12160	25.80	0.00	3.67	3.22	2.90	6.57	6.57	0.00	0.00	0.00	0.00	0.00	0.00	1.67

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
65	25.00	24.80	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
66	24.80	24.60	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
67	24.60	24.40	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
68	24.40	24.20	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
69	24.20	24.00	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
70	24.00	23.80	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
71	23.80	23.60	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	

0.030

72	23.60	23.40	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
73	23.40	23.20	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
74	23.20	23.00	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
75	23.00	22.80	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
76	22.80	22.60	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
77	22.60	22.40	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
78	22.40	22.20	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
79	22.20	22.00	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
80	22.00	21.80	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
81	21.80	21.60	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
82	21.60	21.40	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
83	21.40	21.20	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
84	21.20	21.00	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
85	21.00	20.80	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
86	20.80	20.60	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
87	20.60	20.40	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
88	20.40	20.20	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
89	20.20	20.00	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
90	20.00	19.80	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
91	19.80	19.60	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
92	19.60	19.40	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
93	19.40	19.20	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
94	19.20	19.00	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
95	19.00	18.80	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
96	18.80	18.60	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
97	18.60	18.40	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
98	18.40	18.20	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	

															0.030
99	18.20	18.00	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
100	18.00	17.80	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
101	17.80	17.60	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
102	17.60	17.40	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
103	17.40	17.20	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
104	17.20	17.00	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
105	17.00	16.80	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
106	16.80	16.60	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
107	16.60	16.40	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
108	16.40	16.20	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
109	16.20	16.00	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
110	16.00	15.80	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
111	15.80	15.60	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
112	15.60	15.40	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
113	15.40	15.20	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
114	15.20	15.00	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
115	15.00	14.80	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
116	14.80	14.60	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
117	14.60	14.40	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
118	14.40	14.20	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
119	14.20	14.00	0.12160	6.41	0.03035	0.08	0.60	6.64	801.22	1328.61	4.01	0.00	0.000	0.015	0.030
TOT						4.19			44067.02	73073.53					
AVG					0.03035		0.60	6.64			4.01				
CUM						7.05									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS
****

ELEM ENDING SAT REAER CBOD CBOD ANBOD BKGD FULL CORR ORGN ORGN NH3 NH3 DENIT PO4 ALG MAC COLI
NCM NCM

NO.	DIST	D.O.	RATE	DECAY	SETT	DECAY	SOD	SOD	SOD	DECAY	SETT	DECAY	SRCE	RATE	SRCE	PROD	PROD	DECAY	DECAY	SETT
		mg/L	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
65	24.800	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
66	24.600	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
67	24.400	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
68	24.200	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
69	24.000	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
70	23.800	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
71	23.600	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
72	23.400	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
73	23.200	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
74	23.000	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
75	22.800	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
76	22.600	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
77	22.400	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
78	22.200	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
79	22.000	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
80	21.800	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
81	21.600	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
82	21.400	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
83	21.200	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
84	21.000	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
85	20.800	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
86	20.600	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
87	20.400	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
88	20.200	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
89	20.000	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

0.13	0.01																	
90	19.800	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
91	19.600	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
92	19.400	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
93	19.200	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
94	19.000	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
95	18.800	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
96	18.600	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
97	18.400	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
98	18.200	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
99	18.000	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
100	17.800	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
101	17.600	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
102	17.400	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
103	17.200	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
104	17.000	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
105	16.800	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
106	16.600	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
107	16.400	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
108	16.200	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
109	16.000	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
110	15.800	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
111	15.600	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
112	15.400	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
113	15.200	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
114	15.000	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
115	14.800	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.13	0.01																	
116	14.600	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

																			0.13	0.01
117	14.400	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
118	14.200	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
119	14.000	8.14	2.03	0.05	0.01	0.00	5.91	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
20 DEG C RATE				0.04		0.00	4.10			0.00		0.00	0.00	0.00	0.00			0.00	0.09	
AVG 20 DEG C RATE			1.82		0.01						0.00								0.01	

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
65	24.800	25.80	0.00	3.67	3.22	2.92	6.56	6.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66
66	24.600	25.80	0.00	3.67	3.22	2.94	6.54	6.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.65
67	24.400	25.80	0.00	3.67	3.22	2.95	6.53	6.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.64
68	24.200	25.80	0.00	3.67	3.22	2.97	6.52	6.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.64
69	24.000	25.80	0.00	3.67	3.22	2.98	6.50	6.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63
70	23.800	25.80	0.00	3.67	3.22	2.99	6.49	6.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
71	23.600	25.80	0.00	3.67	3.22	3.00	6.47	6.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
72	23.400	25.80	0.00	3.67	3.22	3.00	6.46	6.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
73	23.200	25.80	0.00	3.67	3.22	3.01	6.44	6.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
74	23.000	25.80	0.00	3.67	3.22	3.02	6.43	6.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
75	22.800	25.80	0.00	3.67	3.22	3.02	6.42	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
76	22.600	25.80	0.00	3.67	3.22	3.03	6.40	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58
77	22.400	25.80	0.00	3.67	3.22	3.03	6.39	6.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
78	22.200	25.80	0.00	3.67	3.22	3.03	6.38	6.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
79	22.000	25.80	0.00	3.67	3.22	3.04	6.36	6.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56

80	21.800	25.80	0.00	3.67	3.22	3.04	6.35	6.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55
81	21.600	25.80	0.00	3.67	3.22	3.04	6.33	6.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
82	21.400	25.80	0.00	3.67	3.22	3.04	6.32	6.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
83	21.200	25.80	0.00	3.67	3.22	3.05	6.31	6.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
84	21.000	25.80	0.00	3.67	3.22	3.05	6.29	6.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52
85	20.800	25.80	0.00	3.67	3.22	3.05	6.28	6.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52
86	20.600	25.80	0.00	3.67	3.22	3.05	6.27	6.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51
87	20.400	25.80	0.00	3.67	3.22	3.05	6.26	6.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51
88	20.200	25.80	0.00	3.67	3.22	3.06	6.24	6.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
89	20.000	25.80	0.00	3.67	3.22	3.06	6.23	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49
90	19.800	25.80	0.00	3.67	3.22	3.06	6.22	6.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49
91	19.600	25.80	0.00	3.67	3.22	3.06	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48
92	19.400	25.80	0.00	3.67	3.22	3.06	6.19	6.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48
93	19.200	25.80	0.00	3.67	3.22	3.06	6.18	6.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47
94	19.000	25.80	0.00	3.67	3.22	3.06	6.17	6.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46
95	18.800	25.80	0.00	3.67	3.22	3.06	6.15	6.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46
96	18.600	25.80	0.00	3.67	3.22	3.06	6.14	6.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45
97	18.400	25.80	0.00	3.67	3.22	3.06	6.13	6.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45
98	18.200	25.80	0.00	3.67	3.22	3.07	6.12	6.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44
99	18.000	25.80	0.00	3.67	3.22	3.07	6.10	6.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44
100	17.800	25.80	0.00	3.67	3.22	3.07	6.09	6.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43
101	17.600	25.80	0.00	3.67	3.22	3.07	6.08	6.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43
102	17.400	25.80	0.00	3.67	3.22	3.07	6.07	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42
103	17.200	25.80	0.00	3.67	3.22	3.07	6.05	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
104	17.000	25.80	0.00	3.67	3.22	3.07	6.04	6.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
105	16.800	25.80	0.00	3.67	3.22	3.07	6.03	6.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
106	16.600	25.80	0.00	3.67	3.22	3.07	6.02	6.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40

107	16.400	25.80	0.00	3.67	3.22	3.07	6.01	6.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
108	16.200	25.80	0.00	3.67	3.22	3.07	6.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
109	16.000	25.80	0.00	3.67	3.22	3.07	5.98	5.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
110	15.800	25.80	0.00	3.67	3.22	3.07	5.97	5.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
111	15.600	25.80	0.00	3.67	3.22	3.08	5.96	5.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
112	15.400	25.80	0.00	3.67	3.22	3.08	5.95	5.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
113	15.200	25.80	0.00	3.67	3.22	3.08	5.94	5.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37
114	15.000	25.80	0.00	3.67	3.22	3.08	5.93	5.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
115	14.800	25.80	0.00	3.67	3.22	3.08	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
116	14.600	25.80	0.00	3.67	3.22	3.08	5.90	5.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35
117	14.400	25.80	0.00	3.67	3.22	3.08	5.89	5.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35
118	14.200	25.80	0.00	3.67	3.22	3.08	5.88	5.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
119	14.000	25.80	0.00	3.67	3.22	3.08	5.87	5.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 5   RKM 14.0 - LITTLE MILL CR   MILL CREEK PROPOSED SUMMER 2.5 STANDARD RUN

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
120	UPR RCH	0.12160	25.80	0.00	3.67	3.22	3.08	5.87	5.87	0.00	0.00	0.00	0.00	0.00	0.00	1.34
172	WSTLD	0.00280	25.80	0.00	13.70	3.20	7.30	13.22	13.22	0.00	0.00	0.00	0.00	0.00	0.00	1.84

** HYDRAULIC PARAMETER VALUES **

ELEM	BEGIN	ENDING	FLOW	PCT	ADVCTV	TRAVEL	DEPTH	WIDTH	VOLUME	SURFACE	X-SECT	TIDAL	TIDAL	DISPRSN

NO.	DIST	DIST		EFF	VELO	TIME				AREA	AREA	PRISM	VELO		MEAN VELO
	km	km	m³/		m/s	days	m	m	m³	m²	m²	m³	m/s	m²/s	m/s
120	14.00	13.80	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
121	13.80	13.60	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
122	13.60	13.40	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
123	13.40	13.20	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
124	13.20	13.00	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
125	13.00	12.80	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
126	12.80	12.60	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
127	12.60	12.40	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
128	12.40	12.20	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
129	12.20	12.00	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
130	12.00	11.80	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
131	11.80	11.60	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
132	11.60	11.40	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
133	11.40	11.20	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
134	11.20	11.00	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
135	11.00	10.80	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
136	10.80	10.60	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
137	10.60	10.40	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
138	10.40	10.20	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
139	10.20	10.00	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
140	10.00	9.80	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
141	9.80	9.60	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
142	9.60	9.40	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
143	9.40	9.20	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208

144	9.20	9.00	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
145	9.00	8.80	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
146	8.80	8.60	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
147	8.60	8.40	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
148	8.40	8.20	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
149	8.20	8.00	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
150	8.00	7.80	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
151	7.80	7.60	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
152	7.60	7.40	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
153	7.40	7.20	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
154	7.20	7.00	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
155	7.00	6.80	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
156	6.80	6.60	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
157	6.60	6.40	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
158	6.40	6.20	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
159	6.20	6.00	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
160	6.00	5.80	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
161	5.80	5.60	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
162	5.60	5.40	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
163	5.40	5.20	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
164	5.20	5.00	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
165	5.00	4.80	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
166	4.80	4.60	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
167	4.60	4.40	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
168	4.40	4.20	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
169	4.20	4.00	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
170	4.00	3.80	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208

171	3.80	3.60	0.12160	6.41	0.20807	0.01	0.21	2.74	116.88	548.61	0.58	0.00	0.000	0.043	0.208
172	3.60	3.40	0.12440	8.52	0.21244	0.01	0.21	2.74	117.11	548.69	0.59	0.00	0.000	0.043	0.212
TOT						0.59			6194.94	29076.40					
AVG					0.20815		0.21	2.74			0.58				
CUM						7.64									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
120	13.800	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
121	13.600	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
122	13.400	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
123	13.200	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
124	13.000	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
125	12.800	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
126	12.600	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
127	12.400	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
128	12.200	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
129	12.000	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
130	11.800	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
131	11.600	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
132	11.400	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
133	11.200	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
134	11.000	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
135	10.800	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
136	10.600	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01

137	10.400	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
138	10.200	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
139	10.000	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
140	9.800	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
141	9.600	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
142	9.400	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
143	9.200	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
144	9.000	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
145	8.800	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
146	8.600	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
147	8.400	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
148	8.200	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
149	8.000	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
150	7.800	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
151	7.600	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
152	7.400	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
153	7.200	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
154	7.000	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
155	6.800	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
156	6.600	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
157	6.400	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
158	6.200	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
159	6.000	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
160	5.800	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
161	5.600	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
162	5.400	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
163	5.200	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01

164	5.000	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
165	4.800	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
166	4.600	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
167	4.400	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
168	4.200	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
169	4.000	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
170	3.800	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
171	3.600	8.14	19.06	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
172	3.400	8.14	19.35	0.05	0.01	0.00	6.20	6.20	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
20 DEG C RATE				0.04		0.00	4.30			0.00		0.00	0.00	0.00	0.00			0.00	0.08	
AVG 20 DEG C RATE			17.08		0.01						0.00								0.01	

* g/m²/d ** mg/L/day

*** WATER QUALITY CONSTITUENT VALUES ***

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
120	13.800	25.80	0.00	3.67	3.22	3.70	5.87	5.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
121	13.600	25.80	0.00	3.67	3.22	4.20	5.87	5.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
122	13.400	25.80	0.00	3.67	3.22	4.62	5.88	5.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
123	13.200	25.80	0.00	3.67	3.22	4.97	5.88	5.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
124	13.000	25.80	0.00	3.67	3.22	5.25	5.88	5.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
125	12.800	25.80	0.00	3.67	3.22	5.49	5.89	5.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
126	12.600	25.80	0.00	3.67	3.22	5.68	5.89	5.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
127	12.400	25.80	0.00	3.67	3.22	5.84	5.89	5.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
128	12.200	25.80	0.00	3.67	3.22	5.97	5.90	5.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
129	12.000	25.80	0.00	3.67	3.22	6.08	5.90	5.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

1.34	130	11.800	25.80	0.00	3.67	3.22	6.17	5.90	5.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	131	11.600	25.80	0.00	3.67	3.22	6.24	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	132	11.400	25.80	0.00	3.67	3.22	6.30	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	133	11.200	25.80	0.00	3.67	3.22	6.35	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	134	11.000	25.80	0.00	3.67	3.22	6.40	5.91	5.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	135	10.800	25.80	0.00	3.67	3.22	6.43	5.92	5.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	136	10.600	25.80	0.00	3.67	3.22	6.46	5.92	5.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	137	10.400	25.80	0.00	3.67	3.22	6.48	5.92	5.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	138	10.200	25.80	0.00	3.67	3.22	6.50	5.93	5.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	139	10.000	25.80	0.00	3.67	3.22	6.52	5.93	5.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	140	9.800	25.80	0.00	3.67	3.22	6.53	5.93	5.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	141	9.600	25.80	0.00	3.67	3.22	6.54	5.93	5.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	142	9.400	25.80	0.00	3.67	3.22	6.55	5.94	5.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	143	9.200	25.80	0.00	3.67	3.22	6.56	5.94	5.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	144	9.000	25.80	0.00	3.67	3.22	6.56	5.94	5.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.34	145	8.800	25.80	0.00	3.67	3.22	6.57	5.95	5.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.33	146	8.600	25.80	0.00	3.67	3.22	6.57	5.95	5.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.33	147	8.400	25.80	0.00	3.67	3.22	6.58	5.95	5.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.33	148	8.200	25.80	0.00	3.67	3.22	6.58	5.96	5.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.33	149	8.000	25.80	0.00	3.67	3.22	6.58	5.96	5.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.33	150	7.800	25.80	0.00	3.67	3.22	6.58	5.96	5.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.33	151	7.600	25.80	0.00	3.67	3.22	6.59	5.96	5.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.33	152	7.400	25.80	0.00	3.67	3.22	6.59	5.97	5.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.33	153	7.200	25.80	0.00	3.67	3.22	6.59	5.97	5.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.33	154	7.000	25.80	0.00	3.67	3.22	6.59	5.97	5.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.33	155	6.800	25.80	0.00	3.67	3.22	6.59	5.98	5.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.33	156	6.600	25.80	0.00	3.67	3.22	6.59	5.98	5.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1.33

157	6.400	25.80	0.00	3.67	3.22	6.59	5.98	5.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
158	6.200	25.80	0.00	3.67	3.22	6.59	5.99	5.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
159	6.000	25.80	0.00	3.67	3.22	6.59	5.99	5.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
160	5.800	25.80	0.00	3.67	3.22	6.59	5.99	5.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
161	5.600	25.80	0.00	3.67	3.22	6.59	5.99	5.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
162	5.400	25.80	0.00	3.67	3.22	6.59	6.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
163	5.200	25.80	0.00	3.67	3.22	6.59	6.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
164	5.000	25.80	0.00	3.67	3.22	6.59	6.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
165	4.800	25.80	0.00	3.67	3.22	6.59	6.01	6.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
166	4.600	25.80	0.00	3.67	3.22	6.59	6.01	6.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
167	4.400	25.80	0.00	3.67	3.22	6.59	6.01	6.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
168	4.200	25.80	0.00	3.67	3.22	6.59	6.01	6.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
169	4.000	25.80	0.00	3.67	3.22	6.59	6.02	6.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
170	3.800	25.80	0.00	3.67	3.22	6.59	6.02	6.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
171	3.600	25.80	0.00	3.67	3.22	6.59	6.02	6.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
172	3.400	25.80	0.00	3.90	3.22	6.61	6.19	6.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 6   LITTLE MILL - CALCASIEU   MILL CREEK PROPOSED SUMMER 2.5 STANDARD RUN

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
173	UPR RCH	0.12440	25.80	0.00	3.90	3.22	6.61	6.19	6.19	0.00	0.00	0.00	0.00	0.00	0.00	1.34

** HYDRAULIC PARAMETER VALUES
****

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
173	3.40	3.20	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
174	3.20	3.00	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
175	3.00	2.80	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
176	2.80	2.60	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
177	2.60	2.40	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
178	2.40	2.20	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
179	2.20	2.00	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
180	2.00	1.80	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
181	1.80	1.60	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
182	1.60	1.40	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
183	1.40	1.20	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
184	1.20	1.00	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
185	1.00	0.80	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
186	0.80	0.60	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
187	0.60	0.40	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
188	0.40	0.20	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
189	0.20	0.00	0.12440	8.52	0.12139	0.02	0.25	4.04	204.96	808.69	1.02	0.00	0.000	0.029	0.121
TOT						0.32			3484.27	13747.71					
AVG					0.12139		0.25	4.04			1.02				
CUM						7.96									

*** BIOLOGICAL AND PHYSICAL COEFFICIENTS
****

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
173	3.200	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
174	3.000	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
175	2.800	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
176	2.600	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
177	2.400	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
178	2.200	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
179	2.000	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
180	1.800	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
181	1.600	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
182	1.400	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
183	1.200	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
184	1.000	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
185	0.800	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
186	0.600	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
187	0.400	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
188	0.200	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
189	0.000	8.14	10.57	0.05	0.01	0.00	5.76	5.76	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
20 DEG C RATE				0.04		0.00	4.00			0.00		0.00	0.00	0.00	0.00			0.00	0.05	
AVG 20 DEG C RATE			9.46		0.01						0.00								0.01	

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM	ENDING	TEMP	SALN	CM-I	CM-II	DO	BOD	EBOD	ORGN	NH3	NO3+2	TOTN	PHOS	CHL A	MACRO	COLI

NCM

NO.	DIST	DEG C	PPT	*	*	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	**	#/100mL	*
173	3.200	25.80	0.00	3.90	3.22	6.50	6.19	6.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
174	3.000	25.80	0.00	3.90	3.22	6.41	6.18	6.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
175	2.800	25.80	0.00	3.90	3.22	6.33	6.18	6.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
176	2.600	25.80	0.00	3.90	3.22	6.27	6.18	6.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
177	2.400	25.80	0.00	3.90	3.22	6.21	6.18	6.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
178	2.200	25.80	0.00	3.90	3.22	6.17	6.18	6.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
179	2.000	25.80	0.00	3.90	3.22	6.13	6.17	6.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
180	1.800	25.80	0.00	3.90	3.22	6.10	6.17	6.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
181	1.600	25.80	0.00	3.90	3.22	6.08	6.17	6.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32
182	1.400	25.80	0.00	3.90	3.22	6.06	6.17	6.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32
183	1.200	25.80	0.00	3.90	3.22	6.04	6.17	6.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32
184	1.000	25.80	0.00	3.90	3.22	6.02	6.16	6.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32
185	0.800	25.80	0.00	3.90	3.22	6.01	6.16	6.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31
186	0.600	25.80	0.00	3.90	3.22	6.00	6.16	6.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31
187	0.400	25.80	0.00	3.90	3.22	5.99	6.16	6.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31
188	0.200	25.80	0.00	3.90	3.22	5.99	6.16	6.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31
189	0.000	25.80	0.00	3.90	3.22	5.98	6.15	6.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m³

STREAM SUMMARY
HEADWATER

MILL CREEK WATERSHED MODEL
MILL CREEK PROPOSED SUMMER 2.5 STANDARD RUN

TRAVEL TIME = 7.96 DAYS

MAXIMUM EFFLUENT = 8.52 PERCENT

FLOW = 0.11380 TO 0.12440 m^3/s
DISPERSION = 0.0148 TO 0.0435 m^2/s
VELOCITY = 0.02369 TO 0.21244 m/s

DEPTH	=	0.19	TO	0.95	m
WIDTH	=	2.74	TO	6.64	m
BOD DECAY	=	0.05	TO	0.09	per day
NH3 DECAY	=	0.00	TO	0.00	per day
SDMNT OXYGEN DMND	=	2.74	TO	6.20	$g/m^2/d$
NH3 SOURCE	=	0.00	TO	0.00	$g/m^2/d$
REAERATION	=	1.18	TO	19.35	per day
BOD SETTLING	=	0.01	TO	0.01	per day
ORGN DECAY	=	0.00	TO	0.00	per day
ORGN SETTLING	=	0.00	TO	0.00	per day
TEMPERATURE	=	25.80	TO	25.80	deg C
DISSOLVED OXYGEN	=	2.83	TO	7.29	mg/L

.....EXECUTION COMPLETED

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 3, Program Constants			
Description of Constant	**Value**	**Result**	**Source/Justification**
Maximum iteration limit	200.0		Standard
KL Minimum	0.7	Minimum KL to be used.	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
Inhibition control value	3.0	Inhibits all decay rate except SOD for low DO.	Standard LA modeling procedure.
Ocean exchange ratio	0.0	Set 0% tidal exchange at lower boundary.	This was done to allow dispersion in the model but not to force the bottom element through the boundary conditions.
Hydraulic calculation method	2.0	Sets the Hydraulic calc. to width and depth coef.	The low slopes in this waterbody cause a substantial amount of water to be present during critical flow conditions, making the Leopold relationships inaccurate. This method allows the model to predict a more accurate depth and width during low flow conditions.
Settled rate units.	2.0	Sets the settled rate to a velocity (m/day).	By making the settling rate a velocity the rate becomes dependent upon the depth.
K2 Max	25.0	Max K2 at 20 C allowed for any computational element	EPA Policy in the absence of a measured value.
NCM Oxygen Uptake	1.0	Oxygen Uptake Rate per Unit of NBOD decay.	Standard LA modeling procedure

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 9, Advective Hydraulic Coefficients

Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
1	Mill Creek, Headwater to RKM 30.0	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	3.70	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.15	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
2	Mill Creek, RKM 30.0 to Alligator Bayou	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	5.10	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
			Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.91	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
3	Mill Creek, Alligator Bayou to Black Creek	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	5.10	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.91	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
4	Mill Creek, Black Creek to RKM 14.0	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	6.60	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.56	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 9, Advective Hydraulic Coefficients

Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
5	Mill Creek, RKM 14.0 to Little Mill Creek	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	2.70	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.17	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
6	Mill Creek, Little Mill Creek to Calcasieu River	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	4.00	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.21	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 11, INITIAL CONDITIONS					
Reach #	**REACH DESCRIPTION**	**Initial Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Temperature	^{o}Celcius	25.8	Summer Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	2.5	Summer Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
2	Mill Creek, RKM 30.0 to Alligator Bayou	Temperature	^{o}Celcius	25.8	Summer Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	2.5	Summer Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
3	Mill Creek, Alligator Bayou to Black Creek	Temperature	^{o}Celcius	25.8	Summer Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	2.5	Summer Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
4	Mill Creek, Black Creek to RKM 14.0	Temperature	^{o}Celcius	25.8	Summer Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	2.5	Summer Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
5	Mill Creek, RKM 14.0 to Little Mill Creek	Temperature	^{o}Celcius	25.8	Summer Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	2.5	Summer Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
6	Mill Creek, Little Mill Creek to Calcasieu River	Temperature	^{o}Celcius	25.8	Summer Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	2.5	Summer Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.

Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
1	Mill Creek, Headwater to RKM 30.0	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m^2-day	1.90	SOD Projection to meet 2.5 DO Standard
		Aerobic BOD decay	1/day	0.07	Bottle Rate for Site 5
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	
2	Mill Creek, RKM 30.0 to Alligator Bayou	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	3.80	SOD Projection to meet 2.5 DO Standard
		Aerobic BOD decay	1/day	0.06	Bottle Rate for Site 4
		BOD Settling rate	m/day	0.01	Calibration
			Fraction	0.00	
3	Mill Creek, Alligator Bayou to Black Creek	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	4.10	SOD Projection to meet 2.5 DO Standard
		Aerobic BOD decay	1/day	0.06	Bottle Rate for Site 4
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	
4	Mill Creek, Black Creek to RKM 14.0	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	4.10	SOD Projection to meet 2.5 DO Standard
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 3
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
5	Mill Creek, RKM 14.0 to Little Mill Creek	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	4.30	SOD Projection to meet 2.5 DO Standard
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 2
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	
6	Mill Creek, Little Mill Creek to Calcasieu River	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	4.00	SOD Projection to meet 2.5 DO Standard
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 1
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 15, Coliform and Nonconservative Coefficents					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	NCM Decay	1/day	0.06	Bottle Rate Site 5
		NCM Settling Rate	m/day	0.01	Calibration
2	Mill Creek, RKM 30.0 to Alligator Bayou	NCM Decay	1/day	0.06	Bottle Rate Site 4
		NCM Settling Rate	m/day	0.01	Calibration
3	Mill Creek, Alligator Bayou to Black Creek	NCM Decay	1/day	0.06	Bottle Rate Site 4
		NCM Settling Rate	m/day	0.01	Calibration
4	Mill Creek, Black Creek to RKM 14.0	NCM Decay	1/day	0.09	Bottle Rate Site 3
		NCM Settling Rate	m/day	0.01	Calibration
5	Mill Creek, RKM 14.0 to Little Mill Creek	NCM Decay	1/day	0.08	Bottle Rate Site 2
		NCM Settling Rate	m/day	0.01	Calibration
6	Mill Creek, Little Mill Creek to Calcasieu River	NCM Decay	1/day	0.05	Bottle Rate Site 1
		NCM Settling Rate	m/day	0.01	Calibration

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 19, Nonpoint Source Data					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	BOD	kg/day	2	20% reduction to meet standard
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		1	20% reduction to meet standard
		Dissolved O_2	kg/day		
2	Mill Creek, RKM 30.0 to Alligator Bayou	BOD	kg/day	4	20% reduction to meet standard
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		0	20% reduction to meet standard
		Dissolved O_2	kg/day		
3	Mill Creek, Alligator Bayou to Black Creek	BOD	kg/day	3	20% reduction to meet standard
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		1	20% reduction to meet standard
		Dissolved O_2	kg/day		
4	Mill Creek, Black Creek to RKM 14.0	BOD	kg/day	10	20% reduction to meet standard
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		6	20% reduction to meet standard
		Dissolved O_2	kg/day		
5	Mill Creek, RKM 14.0 to Little Mill Creek	BOD	kg/day	4	20% reduction to meet standard
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		1	20% reduction to meet standard
		Dissolved O_2	kg/day		
6	Mill Creek, Little Mill Creek to Calcasieu River	BOD	kg/day	1	20% reduction to meet standard
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		0	20% reduction to meet standard
		Dissolved O_2	kg/day		

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 20, Headwater Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Element # of input		1	
		Headwater name		Mill Creek	
		Headwater flow	cms	0.1138	
		Temperature	^{o}Celcius	25.80	90th percentile Temperature for Summer Season
		Salinity	ppt		
		Conservative Matl. I	mg/l	3.40	Site 5
		Conservative Matl. II	mg/l	3.10	Site 5

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 21, Headwater Data for DO, BOD, and Nitrogen					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Element # of input		1	
		Dissolved O_2	mg/l	7.3	90 percent of DO Sat at Summer 90th Percentile Temperature
		BOD	mg/l	6.49	Site 5

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description					
DATA TYPE 22, Headwater Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Element # of input		1	
		NCM	mg/l	1.2	Site 5

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 21, Headwater Data for DO, BOD, and Nitrogen					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Element # of input		1	
		Dissolved O_2	mg/l	7.3	90 percent of DO Sat at Summer 90th Percentile Temperature
		BOD	mg/l	6.49	Site 5

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 22, Headwater Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Element # of input		1	
		NCM	mg/l	1.2	Site 5

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 24, Wastewater Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
1	Town of Elizabeth	Element # of input		10	
		Wasteload description		STP	
		Wasteload inflow	cms	0.0022	50,000 gpd design flow
		Temperature	^{o}Celcius	25.8	90th percentile Temperature for Summer Season
		Salinity	ppt		
		Conservative Matl. I	mg/l	3.4	
		Conservative Matl. II	mg/l	3.1	
2	Alligator Bayou	Element # of input		46	
		Wasteload description		Tributary	
		Wasteload inflow	cms	0.0028	LTP Summer Projection Value
		Temperature	^{o}Celcius	25.8	90th percentile Temperature for Summer Season
		Salinity	ppt		
		Conservative Matl. I	mg/l	14.9	
		Conservative Matl. II	mg/l	9.5	
3	Black Bayou	Element # of input		64	
		Wasteload description		Tributary	
		Wasteload inflow	cms	0.0028	LTP Summer Projection Value
		Temperature	^{o}Celcius	25.8	90th percentile Temperature for Summer Season
		Salinity	ppt		
		Conservative Matl. I	mg/l	3.8	
		Conservative Matl. II	mg/l	1.9	
5	Little Mill Creek	Element # of input		172	
		Wasteload description		Tributary	
		Wasteload inflow	cms	0.0028	LTP Summer Projection Value
		Temperature	^{o}Celcius	25.8	90th percentile Temperature for Summer Season
		Salinity	ppt		
		Conservative Matl. I	mg/l	13.7	
		Conservative Matl. II	mg/l	3.2	

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 25, Wastewater Data for DO, BOD, and Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Town of Elizabeth	Element # of input		10	
		Wasteload description		STP	
		Dissolved O_2	mg/l	5	
		BOD	mg/l	46	10 CBOD5 * 2.3.
2	Alligator Bayou	Element # of input		46	
		Wasteload description		Tributary	
		Dissolved O_2	mg/l	7.3	90 percent of DO Sat at Summer 90th Percentile Temperature
		BOD	mg/l	5.49	Site 4
3	Black Bayou	Element # of input		64	
		Wasteload description		Tributary	
		Dissolved O_2	mg/l	7.3	90 percent of DO Sat at Summer 90th Percentile Temperature
		BOD	mg/l	16.42	Site 3
5	Little Mill Creek	Element # of input		172	
		Wasteload description		Tributary	
		Dissolved O_2	mg/l	7.3	90 percent of DO Sat at Summer 90th Percentile Temperature
		BOD	mg/l	13.22	Site 2

Mill Creek Water Quality Proposed Summer 2.5 DO Projection Model Input Description

DATA TYPE 26, Wastewater Data for DO, BOD, and Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Town of Elizabeth	Element # of input		10	
		Wasteload description		STP	
		NCM	mg/l	43	10 mg/l NH3-N * 4.3. An amonia value was not given in the last LADEQ permit, a 10 mg/l NH3-N value is consistent with the treatment level for a 10 mg/l CBOD limit.
2	Alligator Bayou	Element # of input		46	
		Wasteload description		Tributary	
		NCM	mg/l	0.8	Site 4
3	Black Bayou	Element # of input		64	
		Wasteload description		Tributary	
		NCM	mg/l	2.18	Site 3
5	Little Mill Creek	Element # of input		172	
		Wasteload description		Tributary	
		NCM	mg/l	1.84	Site 2

Summer Projection, Non-Point Benthic Load Input and TMDL Calculations:

Modeled stream or water body:	Mill Creek - Proposed Standards

Shaded cells are input values for calculations.
Values to be used in the projection models.

	Calibration Model Values											Projection Model Equivalents			
Reach Number and Description	Non-Point UCBOD	Non-Point UNBOD	SOD @ 20°C	Total Calb. Benthic Load (TCBL)	Reach Length	Back-ground Benthic Load	Back-ground percentage reduction	Proj. Model Avg. Reach Width	Proj. Temp.	Percentage Reduction of man-made sources	TCBL adjusted for % reduction (Reduced TCBL)	Reduced TCBL adjusted for MOS	Non-Point UCBOD	Non-Point UNBOD	SOD @ 20°C
	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	Kilo-meters	gm O_2 / [(m^2)(day)]	%	Meters	(degrees Celcius)	%	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]
	A, (note 1)	B, (note 1)	C, (note 1)	D, (note 1)	E, (note 1)	F1	F2	G	I	H	J, (note 2)	K, (note 3)	L = (K)(A / D)	M = (K)(B / D)	N = (K)(C / D)
Reach 1 - Headwater to RKM 30.0	2.222	0.556	1.90	4.678	6.00	2.00	0%	0.15	25.80	20.0%	4.14	4.68	2.222	0.556	1.90
Reach 2 - RKM 30.0 - Alligator Bayou	1.374	0.000	3.80	5.174	3.20	2.00	0%	0.91	25.80	20.0%	4.54	5.17	1.374	0.000	3.80
Reach 3 - Alligator Bayou - Black Creek	1.832	0.611	4.10	6.542	1.80	2.00	0%	0.91	25.80	20.0%	5.63	6.54	1.832	0.611	4.10
Reach 4 - Black Creek - RKM 14.0	1.623	0.974	4.10	6.697	11.00	2.00	0%	0.56	25.80	20.0%	5.76	6.70	1.623	0.974	4.10
Reach 5 - RKM 14.0 -Little Mill Creek	2.220	0.444	4.30	6.964	10.60	2.00	0%	0.17	25.80	20.0%	5.97	6.96	2.220	0.444	4.30
Reach 6 - Little Mill Creek - Calcasieu	1.401	0.000	4.00	5.401	3.40	2.00	0%	0.21	25.80	20.0%	4.72	5.40	1.401	0.000	4.00
Sub-Total											30.76				

	Projected Model Loads				Margin of Safety Loads					
Reach Number and Description	Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	SOD load @ Proj. temp.	Total Projection Benthic Load **(LA+MOS)**	MOS Total Benthic Load @ 20°C	MOS SOD @ 20°C	Non-Point UCBOD MOS Loads	Non-Point UNBOD MOS Loads	Adjusted SOD MOS @ Proj. temp	Adjusted Total MOS @ Proj. temp
	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)
	O = (E)(G)(L)	P = (E)(G)(M)	Q, (note 4)	O + P + Q	R = (K-J)(E)(G)	S = (R)(C/D)	T = (R)(A/D)	U = (R)(B/D)	V, (note 5)	T + U + V
Reach 1 - Headwater to RKM 30.0	2	1	2	4.96	0	0	0	0	0	1
Reach 2 - RKM 30.0 - Alligator Bayou	4	0	16	19.94	2	1	0	0	2	2
Reach 3 - Alligator Bayou - Black Creek	3	1	10	13.68	1	1	0	0	1	2
Reach 4 - Black Creek - RKM 14.0	10	6	36	52.39	6	4	1	1	5	7
Reach 5 - RKM 14.0 -Little Mill Creek	4	1	11	15.96	2	1	1	0	2	2
Reach 6 - Little Mill Creek - Calcasieu	1	0	4	5.12	0	0	0	0	1	1
Sub-Total	24	8	80	**112**	12		3	1	11	**15**

	Man-made Model equivalents				Man-made Model loads				Background Model loads			
Reach Number and Description	Manmade portion of TCBL	Non-Point UCBOD	Non-Point UNBOD	SOD @ 20°C	Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	SOD load @ Proj. temp.	Man-made Total Projection Benthic Load	Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	SOD load @ Proj. temp.	Man-made Total Projection Benthic Load
	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)
	W = K - F	X = (W)(A / D)	Y = (W)(B / D)	Z = (W)(C / D)	AA = (E)(G)(X)	AB = (E)(G)(Y)	AC, (note 6)	AA + AB + AC	AD = O - AA	AE = P - AB	AF = Q - AC	AD + AE + AF
Reach 1 - Headwater to RKM 30.0	2.68	1.272	0.318	1.09	1	0	1	2.84	1	0	1	2.12
Reach 2 - RKM 30.0 - Alligator Bayou	3.17	0.843	0.000	2.33	2	0	10	12.23	2	0	6	7.71
Reach 3 - Alligator Bayou - Black Creek	4.54	1.272	0.424	2.85	2	1	7	9.50	1	0	3	4.18
Reach 4 - Black Creek - RKM 14.0	4.70	1.139	0.683	2.88	7	4	26	36.75	3	2	11	15.65
Reach 5 - RKM 14.0 -Little Mill Creek	4.96	1.582	0.316	3.07	3	1	8	11.38	1	0	3	4.59
Reach 6 - Little Mill Creek - Calcasieu	3.40	0.882	0.000	2.52	1	0	3	3.22	0	0	2	1.89
Sub-Total					16	6	54	**76**	8	3	26	**36**

Notes: Note 1, Data was calculated in and brought from the Calibration worksheet dataset.
Note 2, **J** = [(1 - **H**) x (**D** - **F**) + **F**]
Note 3, **K** = [(**J** - **F**) / (1 - MOS) + **F**]
Note 4, **Q** = **E** x **G** x **N** x $1.065^{(\mathbf{I}-20)}$
Note 5, **V** = **S** x $1.065^{(\mathbf{I}-20)}$
Note 6, **AC** = **E** x **G** x **Z** x $1.065^{(\mathbf{I}-20)}$

EXPLICIT MARGINS:

MARGIN OF SAFETY (MOS) (%) = [MOG + MOU] =	**20%**

Summer TMDL calculations and Projection model calculations for Headwater / Tributary loads:

Mill Creek - Proposed Standards

Shaded cells are input values for calculations.
Values to be used in the projection models.

Headwater / Tributary load determinations

Headwater / Tributary Description and Reach #	Seasonal Critical flow (cms)	UCBOD (mg/l)	UNBOD (mg/l)	UCBOD (kg/day)	UNBOD (kg/day)	Background UCBOD conc. (mg/l)	Background UNBOD conc. (mg/l)	Background % Reduction	Background UCBOD Load (kg/day)	Background UNBOD Load (kg/day)	Percent reduction of Man-Made loads	UCBOD load adjusted for % Reduction (kg/day)	UNBOD load adjusted for % Reduction (kg/day)	Reduced UCBOD load adjusted for MOS (kg/day)	Reduced UNBOD load adjusted for MOS (kg/day)	Projection UCBOD input conc. (mg/l)	Projection UNBOD input conc. (mg/l)	**Total MOS (kg/day)**	**Total LA (kg/day)**
	A	**B**	**C**	**D = (86.4)(A)(B)**	**E = (86.4)(A)(C)**	**F**	**G**	**H1**	**H = (1-H1) (86.4)(A)(F)**	**I = (1-H1) (86.4)(A)(G)**	**J**	**K = (D-H)(1-J) + H**	**L = (D-I)(1-J) + I**	**M = (K - H) / (1 - MOS) + H**	**N = (L - I) / (1 - MOS) + I**	**(M)/[(A)(86.4)]**	**(N)/[(A)(86.4)]**	**(M+N) - (K+L)**	**K + L**
Mill Creek Headwater	0.1138	6.49	1.20	63.81	11.80	2.14	3.61	0%	21.04	35.49	20.0%	55.26	11.80	63.81	11.80	6.49	1.20	**8.55**	**67.06**
Alligator Bayou	0.0028	5.49	0.80	1.33	0.19	2.14	3.61	0%	0.52	0.87	20.0%	1.17	0.19	1.33	0.19	5.49	0.80	**0.16**	**1.36**
Black Bayou	0.0028	16.42	2.18	3.97	0.53	2.14	3.61	0%	0.52	0.87	20.0%	3.28	0.53	3.97	0.53	16.42	2.18	**0.69**	**3.81**
Little Mill Creek	0.0028	13.22	1.84	3.20	0.45	2.14	3.61	0%	0.52	0.87	20.0%	2.66	0.45	3.20	0.45	13.22	1.84	**0.54**	**3.11**
SUB-TOTAL TMDL LOADING				**72**	**13**				**23**	**38**		**62**	**13**	**72**	**13**			**10**	**75**

EXPLICIT MARGINS:

MARGIN OF SAFETY (MOS) (%) = **20%**

Summary TMDL Calculations for Point Source loads:

Mill Creek - Proposed Standards

Input data into the shaded cells.

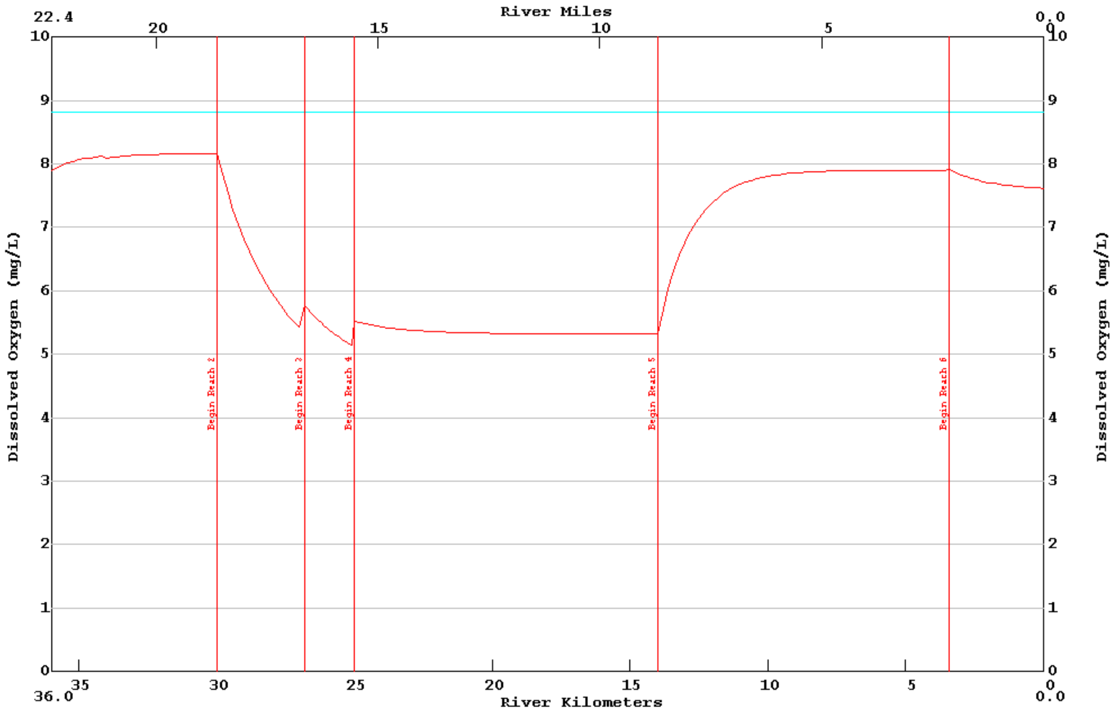
Point Source Loading Calculations

					Proposed Permit Limits			UCBOD				UNBOD				Sub-total of Point Source Loads		
Pt. Source / Facility Description and Reach #	Receiving Stream	Included in the Projection Model (Yes/No)	Anticipated/ design flow (cms)	Flow (cms)	$CBOD_5$ (mg/l)	NH_3N (mg/l)	MOS (%)	Ultimate Conc. (mg/l) (2)	Loads (kg/day) (1)	WLA (kg/day)	Reserve/ MOS Load (kg/day)	Ultimate Conc. (mg/l) (2)	Loads (kg/day) (1)	WLA (kg/day)	Reserve/ MOS Load (kg/day)	Loads (kg/day)	WLA (kg/day)	Reserve/ MOS (kg/day)
			A	A1 = A/(1-D)	B	C	D	E = 2.3 x B	F = (86.4)(A1)(E)	G = (1-D) x F	H = (D)(F)	I = 4.3 x B	J = (86.4)(A1)(I)	K = (1-D) x J	L = (D)(J)	F + J	G + K	H + L
Town of Elizabeth	Mill Creek	Yes	0.0022	0.00275	46.0	43.0	20%	105.8	25	20	5	184.9	44	35	9	69	55	14
SUB-TOTAL Loads									**25**	**20**	**5**		**44**	**35**	**9**	**69**	**55**	**14**

(1) - Load(kg/day) = 86.4 x Ultimate Conc.(mg/l) x Modeled Flow(cms)

(2) - [UCBOD conc. = CBOD5(mg/l) x 2.3] and [UNBOD conc. = NH3N(mg/l) x 4.3]

LA-QUAL Version 5.02 Run at 07:00 on 02/28/2002 File D:\Mill Creek\Input Files\millwin2.5.txt
MILL CREEK PROPOSED WINTER DO STANDARD RUN min= 5.14 max= 8.16
MILL CREEK



```
LA-QUAL Version 5.02
Louisiana Department of Environmental Quality

Input file is D:\Mill Creek\Input Files\millwin2.5.txt
Output produced at 07:00 on 02/28/2002

$$$ DATA TYPE 1 (TITLES AND CONTROL CARDS) $$$

CARD TYPE       CONTROL TITLES

TITLE01         MILL CREEK WATERSHED MODEL
TITLE02         MILL CREEK PROPOSED WINTER DO STANDARD RUN
CNTROL12  YES   METRIC UNITS
CNTROL13  YES   OXYGEN DEPENDENT RATES
ENDATA01

$$$ DATA TYPE 2 (MODEL OPTIONS) $$$

CARD TYPE       MODEL OPTION

MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL  I = CHLORIDES                   IN MG/L
MODOPT04  YES   CONSERVATIVE MATERIAL II = SULFATES                    IN MG/L
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BIOCHEMICAL OXYGEN DEMAND
MODOPT07   NO   NITROGEN
MODOPT08   NO   PHOSPHORUS
MODOPT09   NO   CHLOROPHYLL A
MODOPT10   NO   MACROPHYTES
MODOPT11   NO   COLIFORM
MODOPT12  YES   NONCONSERVATIVE MATERIAL
ENDATA02

$$$ DATA TYPE 3 (PROGRAM CONSTANTS) $$$

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

PROGRAM         MAXIMUM ITERATION LIMIT            =       200.00000
PROGRAM         KL MINIMUM                         =         0.70000 meters/day
PROGRAM         NCM OXYGEN UPTAKE RATE             =         1.00000 mg O/mg NCM
PROGRAM         INHIBITION CONTROL VALUE           =         3.00000
PROGRAM         OCEAN EXCHANGE RATIO               =         0.00000
PROGRAM         K2 MAXIMUM                         =        25.00000 per day
PROGRAM         HYDRAULIC CALCULATION METHOD       =         2.00000 (widths and depths)
PROGRAM         SETTLING RATE UNITS                =         2.00000 (per day)
ENDATA03

$$$ DATA TYPE 4 (TEMPERATURE CORRECTION CONSTANTS FOR RATE COEFFICIENTS) $$$

 CARD TYPE     RATE CODE     THETA VALUE

ENDATA04
```

$$$ CONSTANTS TYPE 5 (TEMPERATURE DATA) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA05

$$$ DATA TYPE 6 (ALGAE CONSTANTS) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA06

$$$ DATA TYPE 7 (MACROPHYTE CONSTANTS) $$$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE

ENDATA07

$$$ DATA TYPE 8 (REACH IDENTIFICATION DATA) $$$

CARD TYPE	REACH	ID	NAME	BEGIN REACH km		END REACH km	ELEM LENGTH km	REACH LENGTH km	ELEMS PER RCH	BEGIN ELEM NUM	END ELEM NUM
REACH ID	1	MC	HEADWATER - RKM 30.0	36.00	TO	30.00	0.2000	6.00	30	1	30
REACH ID	2	MC	RKM 30.0 - ALLIGATOR BAYOU	30.00	TO	26.80	0.2000	3.20	16	31	46
REACH ID	3	MC	ALLIGATOR BAYOU - BLACK CR	26.80	TO	25.00	0.1000	1.80	18	47	64
REACH ID	4	MC	BLACK CREEK - RKM 14.0	25.00	TO	14.00	0.2000	11.00	55	65	119
REACH ID	5	MC	RKM 14.0 - LITTLE MILL CR	14.00	TO	3.40	0.2000	10.60	53	120	172
REACH ID	6	MC	LITTLE MILL - CALCASIEU	3.40	TO	0.00	0.2000	3.40	17	173	189

ENDATA08

$$$ DATA TYPE 9 (ADVECTIVE HYDRAULIC COEFFICIENTS) $$$

CARD TYPE	REACH	ID	WIDTH "A"	WIDTH "B"	WIDTH "C"	DEPTH "D"	DEPTH "E"	DEPTH "F"	SLOPE	MANNINGS "N"
HYDR-1	1	MC	0.100	0.400	3.700	0.100	0.400	0.150	0.00000	0.040
HYDR-1	2	MC	0.100	0.400	5.100	0.100	0.400	0.910	0.00000	0.040
HYDR-1	3	MC	0.100	0.400	5.100	0.100	0.400	0.910	0.00000	0.040
HYDR-1	4	MC	0.100	0.400	6.600	0.100	0.400	0.560	0.00000	0.040
HYDR-1	5	MC	0.100	0.400	2.700	0.100	0.400	0.170	0.00000	0.040
HYDR-1	6	MC	0.100	0.400	4.000	0.100	0.400	0.210	0.00000	0.040

ENDATA09

$$$ DATA TYPE 10 (DISPERSIVE HYDRAULIC COEFFICIENTS) $$$

CARD TYPE	REACH	ID	TIDAL RANGE	DISPERSION "A"	DISPERSION "B"	DISPERSION "C"	DISPERSION "D"

ENDATA10

$$$ DATA TYPE 11 (INITIAL CONDITIONS) $$$

CARD TYPE	REACH	ID	TEMP	SALIN	DO	NH3	NO3+2	PHOS	CHL A	MACRO

INITIAL	1	MC	21.60	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	2	MC	21.60	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	3	MC	21.60	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	4	MC	21.60	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	5	MC	21.60	0.00	5.00	0.00	0.00	0.00	0.00	0.00
INITIAL	6	MC	21.60	0.00	5.00	0.00	0.00	0.00	0.00	0.00

ENDATA11

$$$ DATA TYPE 12 (REAERATION, SEDIMENT OXYGEN DEMAND, BOD COEFFICIENTS) $$$

CARD TYPE	REACH	ID	K2 OPT	K2 "A"	K2 "B"	K2 "C"	BKGRND SOD g/m²/d	AEROB BOD DECAY per day	BOD SETT m/d	BOD CONV TO SOD	ANAER BOD DECAY
COEF-1	1	MC	15 LOUISIANA	0.000	0.000	0.000	1.900	0.070	0.010	0.000	0.000
COEF-1	2	MC	15 LOUISIANA	0.000	0.000	0.000	3.800	0.060	0.010	0.000	0.000
COEF-1	3	MC	15 LOUISIANA	0.000	0.000	0.000	4.100	0.060	0.010	0.000	0.000
COEF-1	4	MC	15 LOUISIANA	0.000	0.000	0.000	4.100	0.040	0.010	0.000	0.000
COEF-1	5	MC	15 LOUISIANA	0.000	0.000	0.000	4.300	0.040	0.010	0.000	0.000
COEF-1	6	MC	15 LOUISIANA	0.000	0.000	0.000	4.000	0.040	0.010	0.000	0.000

ENDATA12

$$$ DATA TYPE 13 (NITROGEN AND PHOSPHORUS COEFFICIENTS) $$$

CARD TYPE	REACH	ID	ORG-N DECA	ORG-N SETT	ORGN CONV TO NH3 SRCE	NH3 DECA	NH3 SRCE	PHOS SRCE	DENIT RATE

ENDATA13

$$$ DATA TYPE 14 (ALGAE AND MACROPHYTE COEFFICIENTS) $$$

CARD TYPE	REACH	ID	SECCHI DEPTH	ALGAE: CHL A	ALGAE SETT	ALG CONV TO SOD	ALGAE GROW	ALGAE RESP	MACRO GROW	MACRO RESP

ENDATA14

$$$ DATA TYPE 15 (COLIFORM AND NONCONSERVATIVE COEFFICIENTS) $$$

CARD TYPE	REACH	ID	COLIFORM DIE-OFF	NCM DECAY	NCM SETT	NCM CONV TO SOD
COEF-4	1	MC	0.00	0.06	0.01	0.00
COEF-4	2	MC	0.00	0.06	0.01	0.00
COEF-4	3	MC	0.00	0.06	0.01	0.00
COEF-4	4	MC	0.00	0.09	0.01	0.00
COEF-4	5	MC	0.00	0.08	0.01	0.00
COEF-4	6	MC	0.00	0.05	0.01	0.00

ENDATA15

$$$ DATA TYPE 16 (INCREMENTAL DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) $$$

CARD TYPE	REACH	ID	OUTFLOW	INFLOW	TEMP	SALIN	CM-I	CM-II	IN/DIST	OUT/DIST

ENDATA16

$$$ DATA TYPE 17 (INCREMENTAL DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	REACH	ID	DO	BOD	ORG-N	NH3	NO3+2

ENDATA17

$$$ DATA TYPE 18 (INCREMENTAL DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	REACH	ID	PHOS	CHL A	COLI	NCM

ENDATA18

$$$ DATA TYPE 19 (NONPOINT SOURCE DATA) $$$

CARD TYPE	REACH	ID	BOD	ORG-N	COLI	NCM	DO
NONPOINT	1	MC	2.00	0.00	0.00	1.00	0.00
NONPOINT	2	MC	4.00	0.00	0.00	0.00	0.00
NONPOINT	3	MC	3.00	0.00	0.00	1.00	0.00
NONPOINT	4	MC	10.00	0.00	0.00	6.00	0.00
NONPOINT	5	MC	4.00	0.00	0.00	1.00	0.00
NONPOINT	6	MC	1.00	0.00	0.00	0.00	0.00

ENDATA19

$$$ DATA TYPE 20 (HEADWATER FOR FLOW, TEMPERATURE, SALINITY AND CONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	UNIT	FLOW m^3/s	FLOW cfs	TEMP deg C	SALIN ppt	CM-I MG/L	CM-II MG/L
HDWTR-1	1	HEADWATER	0	0.13480	4.760	21.60	0.00	3.400	3.100

ENDATA20

$$$ DATA TYPE 21 (HEADWATER DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	ELEMENT	NAME	DO	BOD	ORG-N	NH3	NO3+2
HDWTR-2	1	HEADWATER	7.90	6.49	0.00	0.00	0.00

ENDATA21

$$$ DATA TYPE 22 (HEADWATER DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	PHOS	CHL A	COLI	NCM
HDWTR-3	1	HEADWATER	0.00	0.00	0.00	1.20

ENDATA22

$$$ DATA TYPE 23 (JUNCTION DATA) $$$

CARD TYPE	JUNCTION ELEMENT	UPSTRM ELEMENT	RIVER KILOM	NAME

ENDATA23

$$$ DATA TYPE 24 (WASTELOAD DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) $$$

CARD TYPE	ELEMENT	RKILO	NAME	FLOW m^3/s	FLOW cfs	FLOW MGD	TEMP deg C	SALIN ppt	CM-I MG/L	CM-II MG/L
WSTLD-1	10	34.20	TOWN OF ELIZABETH	0.00220	0.07768	0.050	21.60	0.00	3.400	3.100
WSTLD-1	46	27.00	ALLIGATOR BAYOU	0.02800	0.98870	0.639	21.60	0.00	14.900	9.500
WSTLD-1	64	25.10	BLACK BAYOU	0.02800	0.98870	0.639	21.60	0.00	3.800	1.900
WSTLD-1	172	3.60	LITTLE MILL CREEK	0.02800	0.98870	0.639	21.60	0.00	13.700	3.200

ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$

CARD TYPE	ELEMENT	NAME	DO	BOD	% BOD RMVL	ORG-N	NH3	% NITRIF	NO3+2
WSTLD-2	10	TOWN OF ELIZABETH	5.00	46.00	0.00	0.00	0.00	0.00	0.00
WSTLD-2	46	ALLIGATOR BAYOU	7.90	5.49	0.00	0.00	0.00	0.00	0.00
WSTLD-2	64	BLACK BAYOU	7.90	16.42	0.00	0.00	0.00	0.00	0.00
WSTLD-2	172	LITTLE MILL CREEK	7.90	13.22	0.00	0.00	0.00	0.00	0.00

ENDATA25

$$$ DATA TYPE 26 (WASTELOAD DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$

CARD TYPE	ELEMENT	NAME	PHOS	CHL A	COLI	NCM
WSTLD-3	10	TOWN OF ELIZABETH	0.00	0.00	0.00	43.00
WSTLD-3	46	ALLIGATOR BAYOU	0.00	0.00	0.00	0.80
WSTLD-3	64	BLACK BAYOU	0.00	0.00	0.00	2.18
WSTLD-3	172	LITTLE MILL CREEK	0.00	0.00	0.00	1.84

ENDATA26

$$$ DATA TYPE 27 (LOWER BOUNDARY CONDITIONS) $$$

CARD TYPE	CONSTITUENT	CONCENTRATION

ENDATA27

$$$ DATA TYPE 28 (DAM DATA) $$$

CARD TYPE	ELEMENT	NAME	EQN	"A"	"B"	"H"

ENDATA28

$$$ DATA TYPE 29 (SENSITIVITY ANALYSIS DATA) $$$

CARD TYPE	PARAMETER	COL 1	COL 2	COL 3	COL 4	COL 5	COL 6	COL 7	COL 8

ENDATA29

$$$ DATA TYPE 30 (PLOT CONTROL CARDS) $$$

NUMBER OF PLOTS = 1

NUMBER OF REACHES IN PLOT 1 = 6
PLOT RCH 1 2 3 4 5 6
ENDATA30

$$$ DATA TYPE 31 (OVERLAY PLOT DATA) $$$

OVERLAY NUMBER OF OVERLAY SETS = 1
OVERLAY SET 1 BASEPLOT 1, DATAFILE mc.ovl MILL CREEK
ENDATA31

.....NO ERRORS DETECTED IN INPUT DATA
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN 1 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED
.....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 11

FINAL REPORT HEADWATER MILL CREEK WATERSHED MODEL
REACH NO. 1 HEADWATER - RKM 30.0 MILL CREEK PROPOSED WINTER DO STANDARD RUN

** REACH INPUTS **

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
1	HDWTR	0.13480	21.60	0.00	3.40	3.10	7.90	6.49	6.49	0.00	0.00	0.00	0.00	0.00	0.00	1.20
10	WSTLD	0.00220	21.60	0.00	3.40	3.10	5.00	46.00	46.00	0.00	0.00	0.00	0.00	0.00	0.00	43.00

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
1	36.00	35.80	0.13480	0.00	0.18473	0.01	0.19	3.74	145.95	748.97	0.73	0.00	0.000	0.035	0.185
2	35.80	35.60	0.13480	0.00	0.18473	0.01	0.19	3.74	145.95	748.97	0.73	0.00	0.000	0.035	0.185
3	35.60	35.40	0.13480	0.00	0.18473	0.01	0.19	3.74	145.95	748.97	0.73	0.00	0.000	0.035	

0.185

4	35.40	35.20	0.13480	0.00	0.18473	0.01	0.19	3.74	145.95	748.97	0.73	0.00	0.000	0.035	0.185
5	35.20	35.00	0.13480	0.00	0.18473	0.01	0.19	3.74	145.95	748.97	0.73	0.00	0.000	0.035	0.185
6	35.00	34.80	0.13480	0.00	0.18473	0.01	0.19	3.74	145.95	748.97	0.73	0.00	0.000	0.035	0.185
7	34.80	34.60	0.13480	0.00	0.18473	0.01	0.19	3.74	145.95	748.97	0.73	0.00	0.000	0.035	0.185
8	34.60	34.40	0.13480	0.00	0.18473	0.01	0.19	3.74	145.95	748.97	0.73	0.00	0.000	0.035	0.185
9	34.40	34.20	0.13480	0.00	0.18473	0.01	0.19	3.74	145.95	748.97	0.73	0.00	0.000	0.035	0.185
10	34.20	34.00	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
11	34.00	33.80	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
12	33.80	33.60	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
13	33.60	33.40	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
14	33.40	33.20	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
15	33.20	33.00	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
16	33.00	32.80	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
17	32.80	32.60	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
18	32.60	32.40	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
19	32.40	32.20	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
20	32.20	32.00	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
21	32.00	31.80	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
22	31.80	31.60	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
23	31.60	31.40	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
24	31.40	31.20	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
25	31.20	31.00	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
26	31.00	30.80	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
27	30.80	30.60	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
28	30.60	30.40	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
29	30.40	30.20	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	0.187
30	30.20	30.00	0.13700	1.61	0.18745	0.01	0.20	3.75	146.18	749.03	0.73	0.00	0.000	0.036	

0.187

TOT 0.37 4383.21 22470.39
AVG 0.18662 0.20 3.75 0.73
CUM 0.37

** BIOLOGICAL AND PHYSICAL COEFFICIENTS ***

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
1	35.800	8.81	17.49	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
2	35.600	8.81	17.49	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
3	35.400	8.81	17.49	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
4	35.200	8.81	17.49	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
5	35.000	8.81	17.49	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
6	34.800	8.81	17.49	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
7	34.600	8.81	17.49	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
8	34.400	8.81	17.49	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
9	34.200	8.81	17.49	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
10	34.000	8.81	17.67	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
11	33.800	8.81	17.67	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
12	33.600	8.81	17.67	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
13	33.400	8.81	17.67	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
14	33.200	8.81	17.67	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
15	33.000	8.81	17.67	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
16	32.800	8.81	17.67	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
17	32.600	8.81	17.67	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
18	32.400	8.81	17.67	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
19	32.200	8.81	17.67	0.08	0.01	0.00	2.10	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

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0.07  0.01
  20   32.000  8.81   17.67   0.08  0.01   0.00  2.10  2.10  2.10   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  21   31.800  8.81   17.67   0.08  0.01   0.00  2.10  2.10  2.10   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  22   31.600  8.81   17.67   0.08  0.01   0.00  2.10  2.10  2.10   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  23   31.400  8.81   17.67   0.08  0.01   0.00  2.10  2.10  2.10   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  24   31.200  8.81   17.67   0.08  0.01   0.00  2.10  2.10  2.10   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  25   31.000  8.81   17.67   0.08  0.01   0.00  2.10  2.10  2.10   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  26   30.800  8.81   17.67   0.08  0.01   0.00  2.10  2.10  2.10   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  27   30.600  8.81   17.67   0.08  0.01   0.00  2.10  2.10  2.10   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  28   30.400  8.81   17.67   0.08  0.01   0.00  2.10  2.10  2.10   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  29   30.200  8.81   17.67   0.08  0.01   0.00  2.10  2.10  2.10   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  30   30.000  8.81   17.67   0.08  0.01   0.00  2.10  2.10  2.10   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01

 20 DEG C RATE                0.07         0.00  1.90              0.00         0.00  0.00   0.00  0.00               0.00
0.06
 AVG 20 DEG C RATE    17.08         0.01                                 0.00
0.01

 * g/m²/d              ** mg/L/day


 ************************************************** WATER QUALITY CONSTITUENT VALUES
**************************************************

 ELEM  ENDING   TEMP  SALN     CM-I    CM-II    DO     BOD   EBOD   ORGN    NH3  NO3+2   TOTN   PHOS  CHL A   MACRO     COLI
NCM
 NO.     DIST  DEG C   PPT       *        *    mg/L   mg/L   mg/L   mg/L   mg/L   mg/L   mg/L   mg/L   µg/L     **     #/100mL
*

   1   35.800  21.60  0.00     3.40     3.10   7.95   6.49   6.49   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
1.20
   2   35.600  21.60  0.00     3.40     3.10   7.99   6.49   6.49   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
1.20
   3   35.400  21.60  0.00     3.40     3.10   8.02   6.49   6.49   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
1.21
   4   35.200  21.60  0.00     3.40     3.10   8.04   6.49   6.49   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
1.21
   5   35.000  21.60  0.00     3.40     3.10   8.06   6.48   6.48   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
1.21
   6   34.800  21.60  0.00     3.40     3.10   8.08   6.48   6.48   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
1.21
   7   34.600  21.60  0.00     3.40     3.10   8.10   6.48   6.48   0.00   0.00   0.00   0.00   0.00   0.00    0.00     0.00
1.21
```

8	34.400	21.60	0.00	3.40	3.10	8.11	6.48	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21
9	34.200	21.60	0.00	3.40	3.10	8.12	6.48	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22
10	34.000	21.60	0.00	3.40	3.10	8.09	7.11	7.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89
11	33.800	21.60	0.00	3.40	3.10	8.10	7.11	7.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89
12	33.600	21.60	0.00	3.40	3.10	8.11	7.11	7.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89
13	33.400	21.60	0.00	3.40	3.10	8.12	7.11	7.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89
14	33.200	21.60	0.00	3.40	3.10	8.13	7.10	7.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89
15	33.000	21.60	0.00	3.40	3.10	8.13	7.10	7.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89
16	32.800	21.60	0.00	3.40	3.10	8.14	7.10	7.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89
17	32.600	21.60	0.00	3.40	3.10	8.14	7.10	7.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89
18	32.400	21.60	0.00	3.40	3.10	8.15	7.10	7.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
19	32.200	21.60	0.00	3.40	3.10	8.15	7.09	7.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
20	32.000	21.60	0.00	3.40	3.10	8.15	7.09	7.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
21	31.800	21.60	0.00	3.40	3.10	8.16	7.09	7.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
22	31.600	21.60	0.00	3.40	3.10	8.16	7.09	7.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
23	31.400	21.60	0.00	3.40	3.10	8.16	7.09	7.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
24	31.200	21.60	0.00	3.40	3.10	8.16	7.09	7.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
25	31.000	21.60	0.00	3.40	3.10	8.16	7.08	7.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
26	30.800	21.60	0.00	3.40	3.10	8.16	7.08	7.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
27	30.600	21.60	0.00	3.40	3.10	8.16	7.08	7.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
28	30.400	21.60	0.00	3.40	3.10	8.16	7.08	7.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91
29	30.200	21.60	0.00	3.40	3.10	8.16	7.08	7.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91
30	30.000	21.60	0.00	3.40	3.10	8.16	7.07	7.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m^3

** REACH INPUTS **

ELEM NO.	TYPE	FLOW m^3/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
31	UPR RCH	0.13700	21.60	0.00	3.40	3.10	8.16	7.07	7.07	0.00	0.00	0.00	0.00	0.00	0.00	1.91
46	WSTLD	0.02800	21.60	0.00	14.90	9.50	7.90	5.49	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.80

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m^3/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
31	30.00	29.80	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028
32	29.80	29.60	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028
33	29.60	29.40	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028
34	29.40	29.20	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028
35	29.20	29.00	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028
36	29.00	28.80	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028
37	28.80	28.60	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028
38	28.60	28.40	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028
39	28.40	28.20	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028
40	28.20	28.00	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028
41	28.00	27.80	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028
42	27.80	27.60	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028
43	27.60	27.40	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028
44	27.40	27.20	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028

45	27.20	27.00	0.13700	1.61	0.02788	0.08	0.96	5.15	982.88	1029.03	4.91	0.00	0.000	0.020	0.028
46	27.00	26.80	0.16500	18.30	0.03343	0.07	0.96	5.15	987.14	1029.73	4.94	0.00	0.000	0.024	0.033
TOT						1.31			15730.37	16465.19					
AVG					0.02817		0.96	5.15			4.92				
CUM						1.69									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
31	29.800	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
32	29.600	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
33	29.400	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
34	29.200	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
35	29.000	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
36	28.800	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
37	28.600	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
38	28.400	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
39	28.200	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
40	28.000	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
41	27.800	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
42	27.600	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
43	27.400	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
44	27.200	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
45	27.000	8.81	1.15	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
46	26.800	8.81	1.23	0.06	0.01	0.00	4.20	4.20	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
20 DEG C RATE				0.06		0.00	3.80			0.00		0.00	0.00	0.00	0.00			0.00		

0.06
AVG 20 DEG C RATE   1.12   0.01   0.00
0.01

* g/m²/d   ** mg/L/day

*** WATER QUALITY CONSTITUENT VALUES ***

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
31	29.800	21.60	0.00	3.40	3.10	7.84	7.05	7.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
32	29.600	21.60	0.00	3.40	3.10	7.55	7.03	7.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88
33	29.400	21.60	0.00	3.40	3.10	7.28	7.01	7.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87
34	29.200	21.60	0.00	3.40	3.10	7.04	6.98	6.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86
35	29.000	21.60	0.00	3.40	3.10	6.81	6.96	6.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85
36	28.800	21.60	0.00	3.40	3.10	6.61	6.94	6.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84
37	28.600	21.60	0.00	3.40	3.10	6.43	6.92	6.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.82
38	28.400	21.60	0.00	3.40	3.10	6.26	6.90	6.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81
39	28.200	21.60	0.00	3.40	3.10	6.10	6.87	6.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80
40	28.000	21.60	0.00	3.40	3.10	5.96	6.85	6.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
41	27.800	21.60	0.00	3.40	3.10	5.83	6.83	6.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78
42	27.600	21.60	0.00	3.40	3.10	5.72	6.81	6.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.77
43	27.400	21.60	0.00	3.40	3.10	5.61	6.79	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76
44	27.200	21.60	0.00	3.40	3.10	5.51	6.77	6.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74
45	27.000	21.60	0.00	3.41	3.10	5.43	6.75	6.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73
46	26.800	21.60	0.00	5.35	4.19	5.76	6.52	6.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =
** g/m³

REACH NO. 3 ALLIGATOR BAYOU - BLACK CR MILL CREEK PROPOSED WINTER DO STANDARD RUN

** REACH INPUTS **

ELEM NO.	TYPE	FLOW m^3/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
47	UPR RCH	0.16500	21.60	0.00	5.35	4.19	5.76	6.52	6.52	0.00	0.00	0.00	0.00	0.00	0.00	1.57
64	WSTLD	0.02800	21.60	0.00	3.80	1.90	7.90	16.42	16.42	0.00	0.00	0.00	0.00	0.00	0.00	2.18

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m^3/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
47	26.80	26.70	0.16500	18.30	0.03343	0.03	0.96	5.15	493.57	514.86	4.94	0.00	0.000	0.024	0.033
48	26.70	26.60	0.16500	18.30	0.03343	0.03	0.96	5.15	493.57	514.86	4.94	0.00	0.000	0.024	0.033
49	26.60	26.50	0.16500	18.30	0.03343	0.03	0.96	5.15	493.57	514.86	4.94	0.00	0.000	0.024	0.033
50	26.50	26.40	0.16500	18.30	0.03343	0.03	0.96	5.15	493.57	514.86	4.94	0.00	0.000	0.024	0.033
51	26.40	26.30	0.16500	18.30	0.03343	0.03	0.96	5.15	493.57	514.86	4.94	0.00	0.000	0.024	0.033
52	26.30	26.20	0.16500	18.30	0.03343	0.03	0.96	5.15	493.57	514.86	4.94	0.00	0.000	0.024	0.033
53	26.20	26.10	0.16500	18.30	0.03343	0.03	0.96	5.15	493.57	514.86	4.94	0.00	0.000	0.024	0.033
54	26.10	26.00	0.16500	18.30	0.03343	0.03	0.96	5.15	493.57	514.86	4.94	0.00	0.000	0.024	0.033
55	26.00	25.90	0.16500	18.30	0.03343	0.03	0.96	5.15	493.57	514.86	4.94	0.00	0.000	0.024	0.033
56	25.90	25.80	0.16500	18.30	0.03343	0.03	0.96	5.15	493.57	514.86	4.94	0.00	0.000	0.024	0.033
57	25.80	25.70	0.16500	18.30	0.03343	0.03	0.96	5.15	493.57	514.86	4.94	0.00	0.000	0.024	0.033
58	25.70	25.60	0.16500	18.30	0.03343	0.03	0.96	5.15	493.57	514.86	4.94	0.00	0.000	0.024	0.033
59	25.60	25.50	0.16500	18.30	0.03343	0.03	0.96	5.15	493.57	514.86	4.94	0.00	0.000	0.024	0.033
60	25.50	25.40	0.16500	18.30	0.03343	0.03	0.96	5.15	493.57	514.86	4.94	0.00	0.000	0.024	

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0.033
   61   25.40   25.30    0.16500  18.30  0.03343     0.03   0.96   5.15    493.57     514.86    4.94      0.00  0.000     0.024
0.033
   62   25.30   25.20    0.16500  18.30  0.03343     0.03   0.96   5.15    493.57     514.86    4.94      0.00  0.000     0.024
0.033
   63   25.20   25.10    0.16500  18.30  0.03343     0.03   0.96   5.15    493.57     514.86    4.94      0.00  0.000     0.024
0.033
   64   25.10   25.00    0.19300  30.16  0.03895     0.03   0.96   5.15    495.49     515.18    4.95      0.00  0.000     0.028
0.039

  TOT                                                0.62                8886.17    9267.87
  AVG                                    0.03370            0.96   5.15                          4.94
  CUM                                                2.31


 *********************************************** BIOLOGICAL AND PHYSICAL COEFFICIENTS
***********************************************

 ELEM  ENDING  SAT    REAER   CBOD  CBOD  ANBOD  BKGD  FULL  CORR   ORGN  ORGN    NH3   NH3  DENIT   PO4   ALG   MAC   COLI
NCM   NCM
 NO.     DIST  D.O.    RATE  DECAY  SETT  DECAY   SOD   SOD   SOD  DECAY  SETT  DECAY  SRCE   RATE  SRCE  PROD  PROD  DECAY
DECAY  SETT
               mg/L    1/da   1/da  1/da   1/da    *     *     *    1/da  1/da   1/da    *    1/da    *    **    **    1/da
1/da  1/da

  47   26.700  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  48   26.600  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  49   26.500  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  50   26.400  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  51   26.300  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  52   26.200  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  53   26.100  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  54   26.000  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  55   25.900  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  56   25.800  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  57   25.700  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  58   25.600  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  59   25.500  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  60   25.400  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
0.07  0.01
  61   25.300  8.81    1.23   0.06  0.01   0.00  4.53  4.53  4.53   0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0.00
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																			0.07	0.01
62	25.200	8.81	1.23	0.06	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
63	25.100	8.81	1.23	0.06	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
64	25.000	8.81	1.31	0.06	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01
20 DEG C RATE				0.06		0.00	4.10			0.00		0.00	0.00	0.00	0.00			0.00	0.06	
AVG 20 DEG C RATE			1.20		0.01						0.00									0.01

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
47	26.700	21.60	0.00	5.35	4.19	5.71	6.51	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
48	26.600	21.60	0.00	5.35	4.19	5.67	6.51	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
49	26.500	21.60	0.00	5.35	4.19	5.62	6.50	6.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
50	26.400	21.60	0.00	5.35	4.19	5.58	6.50	6.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
51	26.300	21.60	0.00	5.35	4.19	5.53	6.49	6.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
52	26.200	21.60	0.00	5.35	4.19	5.49	6.49	6.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
53	26.100	21.60	0.00	5.35	4.19	5.45	6.48	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
54	26.000	21.60	0.00	5.35	4.19	5.42	6.48	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
55	25.900	21.60	0.00	5.35	4.19	5.38	6.47	6.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
56	25.800	21.60	0.00	5.35	4.19	5.35	6.47	6.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
57	25.700	21.60	0.00	5.35	4.19	5.31	6.46	6.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
58	25.600	21.60	0.00	5.35	4.19	5.28	6.46	6.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
59	25.500	21.60	0.00	5.35	4.19	5.25	6.45	6.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
60	25.400	21.60	0.00	5.35	4.19	5.22	6.45	6.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
61	25.300	21.60	0.00	5.35	4.19	5.19	6.44	6.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56

62	25.200	21.60	0.00	5.35	4.19	5.17	6.44	6.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
63	25.100	21.60	0.00	5.35	4.18	5.14	6.44	6.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
64	25.000	21.60	0.00	5.13	3.85	5.51	7.87	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.65

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 4   BLACK CREEK - RKM 14.0   MILL CREEK PROPOSED WINTER DO STANDARD RUN

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
65	UPR RCH	0.19300	21.60	0.00	5.13	3.85	5.51	7.87	7.87	0.00	0.00	0.00	0.00	0.00	0.00	1.65

*** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
65	25.00	24.80	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
66	24.80	24.60	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
67	24.60	24.40	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
68	24.40	24.20	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
69	24.20	24.00	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
70	24.00	23.80	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
71	23.80	23.60	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
72	23.60	23.40	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047

73	23.40	23.20	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
74	23.20	23.00	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
75	23.00	22.80	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
76	22.80	22.60	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
77	22.60	22.40	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
78	22.40	22.20	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
79	22.20	22.00	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
80	22.00	21.80	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
81	21.80	21.60	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
82	21.60	21.40	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
83	21.40	21.20	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
84	21.20	21.00	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
85	21.00	20.80	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
86	20.80	20.60	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
87	20.60	20.40	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
88	20.40	20.20	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
89	20.20	20.00	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
90	20.00	19.80	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
91	19.80	19.60	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
92	19.60	19.40	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
93	19.40	19.20	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
94	19.20	19.00	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
95	19.00	18.80	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
96	18.80	18.60	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
97	18.60	18.40	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
98	18.40	18.20	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
99	18.20	18.00	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047

100	18.00	17.80	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
101	17.80	17.60	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
102	17.60	17.40	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
103	17.40	17.20	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
104	17.20	17.00	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
105	17.00	16.80	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
106	16.80	16.60	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
107	16.60	16.40	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
108	16.40	16.20	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
109	16.20	16.00	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
110	16.00	15.80	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
111	15.80	15.60	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
112	15.60	15.40	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
113	15.40	15.20	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
114	15.20	15.00	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
115	15.00	14.80	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
116	14.80	14.60	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
117	14.60	14.40	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
118	14.40	14.20	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
119	14.20	14.00	0.19300	30.16	0.04743	0.05	0.61	6.65	813.90	1330.36	4.07	0.00	0.000	0.023	0.047
TOT						2.68			44764.26	73169.72					
AVG					0.04743		0.61	6.65			4.07				
CUM						4.99									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY	NCM SETT

																			1/da	1/da
65	24.800	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
66	24.600	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
67	24.400	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
68	24.200	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
69	24.000	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
70	23.800	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
71	23.600	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
72	23.400	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
73	23.200	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
74	23.000	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
75	22.800	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
76	22.600	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
77	22.400	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
78	22.200	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
79	22.000	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
80	21.800	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
81	21.600	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
82	21.400	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
83	21.200	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
84	21.000	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
85	20.800	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
86	20.600	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
87	20.400	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
88	20.200	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
89	20.000	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
90	19.800	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01

91	19.600	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
92	19.400	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
93	19.200	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
94	19.000	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
95	18.800	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
96	18.600	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
97	18.400	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
98	18.200	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
99	18.000	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
100	17.800	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
101	17.600	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
102	17.400	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
103	17.200	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
104	17.000	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
105	16.800	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
106	16.600	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
107	16.400	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
108	16.200	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
109	16.000	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
110	15.800	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
111	15.600	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
112	15.400	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
113	15.200	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
114	15.000	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
115	14.800	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
116	14.600	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
117	14.400	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01

118	14.200	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
119	14.000	8.81	2.26	0.04	0.01	0.00	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
20 DEG C RATE				0.04		0.00	4.10			0.00		0.00	0.00	0.00	0.00			0.00	0.09	
AVG 20 DEG C RATE			2.19		0.01						0.00								0.01	

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
65	24.800	21.60	0.00	5.13	3.85	5.49	7.86	7.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.65
66	24.600	21.60	0.00	5.13	3.85	5.47	7.85	7.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.65
67	24.400	21.60	0.00	5.13	3.85	5.46	7.84	7.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.64
68	24.200	21.60	0.00	5.13	3.85	5.44	7.83	7.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.64
69	24.000	21.60	0.00	5.13	3.85	5.43	7.82	7.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.64
70	23.800	21.60	0.00	5.13	3.85	5.42	7.81	7.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.64
71	23.600	21.60	0.00	5.13	3.85	5.41	7.81	7.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63
72	23.400	21.60	0.00	5.13	3.85	5.40	7.80	7.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63
73	23.200	21.60	0.00	5.13	3.85	5.39	7.79	7.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63
74	23.000	21.60	0.00	5.13	3.85	5.38	7.78	7.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63
75	22.800	21.60	0.00	5.13	3.85	5.38	7.77	7.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63
76	22.600	21.60	0.00	5.13	3.85	5.37	7.76	7.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
77	22.400	21.60	0.00	5.13	3.85	5.37	7.75	7.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
78	22.200	21.60	0.00	5.13	3.85	5.36	7.74	7.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
79	22.000	21.60	0.00	5.13	3.85	5.36	7.73	7.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
80	21.800	21.60	0.00	5.13	3.85	5.35	7.72	7.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
81	21.600	21.60	0.00	5.13	3.85	5.35	7.71	7.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

1.61																
82	21.400	21.60	0.00	5.13	3.85	5.35	7.70	7.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.61																
83	21.200	21.60	0.00	5.13	3.85	5.34	7.69	7.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.61																
84	21.000	21.60	0.00	5.13	3.85	5.34	7.68	7.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.61																
85	20.800	21.60	0.00	5.13	3.85	5.34	7.68	7.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.60																
86	20.600	21.60	0.00	5.13	3.85	5.34	7.67	7.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.60																
87	20.400	21.60	0.00	5.13	3.85	5.33	7.66	7.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.60																
88	20.200	21.60	0.00	5.13	3.85	5.33	7.65	7.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.60																
89	20.000	21.60	0.00	5.13	3.85	5.33	7.64	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.60																
90	19.800	21.60	0.00	5.13	3.85	5.33	7.63	7.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.59																
91	19.600	21.60	0.00	5.13	3.85	5.33	7.62	7.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.59																
92	19.400	21.60	0.00	5.13	3.85	5.33	7.61	7.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.59																
93	19.200	21.60	0.00	5.13	3.85	5.33	7.60	7.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.59																
94	19.000	21.60	0.00	5.13	3.85	5.33	7.59	7.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.59																
95	18.800	21.60	0.00	5.13	3.85	5.33	7.59	7.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.58																
96	18.600	21.60	0.00	5.13	3.85	5.33	7.58	7.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.58																
97	18.400	21.60	0.00	5.13	3.85	5.33	7.57	7.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.58																
98	18.200	21.60	0.00	5.13	3.85	5.33	7.56	7.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.58																
99	18.000	21.60	0.00	5.13	3.85	5.33	7.55	7.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.58																
100	17.800	21.60	0.00	5.13	3.85	5.32	7.54	7.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.57																
101	17.600	21.60	0.00	5.13	3.85	5.32	7.53	7.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.57																
102	17.400	21.60	0.00	5.13	3.85	5.32	7.52	7.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.57																
103	17.200	21.60	0.00	5.13	3.85	5.32	7.52	7.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.57																
104	17.000	21.60	0.00	5.13	3.85	5.32	7.51	7.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.57																
105	16.800	21.60	0.00	5.13	3.85	5.32	7.50	7.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.56																
106	16.600	21.60	0.00	5.13	3.85	5.32	7.49	7.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.56																
107	16.400	21.60	0.00	5.13	3.85	5.32	7.48	7.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.56																
108	16.200	21.60	0.00	5.13	3.85	5.32	7.47	7.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1.56

109	16.000	21.60	0.00	5.13	3.85	5.32	7.46	7.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
110	15.800	21.60	0.00	5.13	3.85	5.32	7.46	7.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55
111	15.600	21.60	0.00	5.13	3.85	5.32	7.45	7.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55
112	15.400	21.60	0.00	5.13	3.85	5.32	7.44	7.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55
113	15.200	21.60	0.00	5.13	3.85	5.32	7.43	7.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55
114	15.000	21.60	0.00	5.13	3.85	5.32	7.42	7.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55
115	14.800	21.60	0.00	5.13	3.85	5.32	7.41	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55
116	14.600	21.60	0.00	5.13	3.85	5.33	7.40	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
117	14.400	21.60	0.00	5.13	3.85	5.33	7.40	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
118	14.200	21.60	0.00	5.13	3.85	5.33	7.39	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
119	14.000	21.60	0.00	5.13	3.85	5.33	7.38	7.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 5   RKM 14.0 - LITTLE MILL CR   MILL CREEK PROPOSED WINTER DO STANDARD RUN

** REACH INPUTS **

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
120	UPR RCH	0.19300	21.60	0.00	5.13	3.85	5.33	7.38	7.38	0.00	0.00	0.00	0.00	0.00	0.00	1.54
172	WSTLD	0.02800	21.60	0.00	13.70	3.20	7.90	13.22	13.22	0.00	0.00	0.00	0.00	0.00	0.00	1.84

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST	ENDING DIST	FLOW	PCT EFF	ADVCTV VELO	TRAVEL TIME	DEPTH	WIDTH	VOLUME	SURFACE AREA	X-SECT AREA	TIDAL PRISM	TIDAL VELO	DISPRSN	MEAN VELO

	km	km	m^3/		m/s	days	m	m	m^3	m^2	m^2	m^3	m/s	m^2/s	m/s
120	14.00	13.80	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
121	13.80	13.60	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
122	13.60	13.40	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
123	13.40	13.20	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
124	13.20	13.00	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
125	13.00	12.80	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
126	12.80	12.60	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
127	12.60	12.40	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
128	12.40	12.20	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
129	12.20	12.00	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
130	12.00	11.80	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
131	11.80	11.60	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
132	11.60	11.40	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
133	11.40	11.20	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
134	11.20	11.00	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
135	11.00	10.80	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
136	10.80	10.60	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
137	10.60	10.40	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
138	10.40	10.20	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
139	10.20	10.00	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
140	10.00	9.80	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
141	9.80	9.60	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
142	9.60	9.40	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
143	9.40	9.20	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
144	9.20	9.00	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	0.316
145	9.00	8.80	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067	

0.316

146	8.80	8.60	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
147	8.60	8.40	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
148	8.40	8.20	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
149	8.20	8.00	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
150	8.00	7.80	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
151	7.80	7.60	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
152	7.60	7.40	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
153	7.40	7.20	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
154	7.20	7.00	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
155	7.00	6.80	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
156	6.80	6.60	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
157	6.60	6.40	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
158	6.40	6.20	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
159	6.20	6.00	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
160	6.00	5.80	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
161	5.80	5.60	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
162	5.60	5.40	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
163	5.40	5.20	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
164	5.20	5.00	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
165	5.00	4.80	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
166	4.80	4.60	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
167	4.60	4.40	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
168	4.40	4.20	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
169	4.20	4.00	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
170	4.00	3.80	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
171	3.80	3.60	0.19300	30.16	0.31623	0.01	0.22	2.75	122.06	550.36	0.61	0.00	0.000	0.067 0.316
172	3.60	3.40	0.22100	39.00	0.35709	0.01	0.22	2.75	123.78	550.93	0.62	0.00	0.000	0.076

0.357

TOT 0.39 6471.02 29169.52
AVG 0.31692 0.22 2.75 0.61
CUM 5.38

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	CBOD DECAY 1/da	CBOD SETT 1/da	ANBOD DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORGN DECAY 1/da	ORGN SETT 1/da	NH3 DECAY 1/da	NH3 SRCE *	DENIT RATE 1/da	PO4 SRCE *	ALG PROD **	MAC PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
120	13.800	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
121	13.600	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
122	13.400	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
123	13.200	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
124	13.000	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
125	12.800	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
126	12.600	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
127	12.400	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
128	12.200	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
129	12.000	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
130	11.800	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
131	11.600	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
132	11.400	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
133	11.200	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
134	11.000	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
135	10.800	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
136	10.600	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
137	10.400	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
138	10.200	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

0.09	0.01																	
139	10.000	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
140	9.800	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
141	9.600	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
142	9.400	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
143	9.200	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
144	9.000	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
145	8.800	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
146	8.600	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
147	8.400	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
148	8.200	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
149	8.000	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
150	7.800	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
151	7.600	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
152	7.400	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
153	7.200	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
154	7.000	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
155	6.800	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
156	6.600	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
157	6.400	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
158	6.200	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
159	6.000	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
160	5.800	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
161	5.600	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
162	5.400	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
163	5.200	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
164	5.000	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	0.01																	
165	4.800	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

																			0.09	0.01
166	4.600	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
167	4.400	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
168	4.200	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
169	4.000	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
170	3.800	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
171	3.600	8.81	24.11	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
172	3.400	8.81	25.80	0.04	0.01	0.00	4.76	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
20 DEG C RATE				0.04		0.00	4.30			0.00		0.00	0.00	0.00	0.00			0.00	0.08	
AVG 20 DEG C RATE			23.40		0.01						0.00								0.01	

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
120	13.800	21.60	0.00	5.13	3.85	5.71	7.38	7.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
121	13.600	21.60	0.00	5.13	3.85	6.04	7.38	7.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
122	13.400	21.60	0.00	5.13	3.85	6.32	7.38	7.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
123	13.200	21.60	0.00	5.13	3.85	6.56	7.39	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
124	13.000	21.60	0.00	5.13	3.85	6.76	7.39	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
125	12.800	21.60	0.00	5.13	3.85	6.93	7.39	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
126	12.600	21.60	0.00	5.13	3.85	7.08	7.39	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
127	12.400	21.60	0.00	5.13	3.85	7.20	7.39	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
128	12.200	21.60	0.00	5.13	3.85	7.31	7.39	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
129	12.000	21.60	0.00	5.13	3.85	7.40	7.40	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
130	11.800	21.60	0.00	5.13	3.85	7.47	7.40	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54

131	11.600	21.60	0.00	5.13	3.85	7.54	7.40	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
132	11.400	21.60	0.00	5.13	3.85	7.59	7.40	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
133	11.200	21.60	0.00	5.13	3.85	7.64	7.40	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
134	11.000	21.60	0.00	5.13	3.85	7.68	7.40	7.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
135	10.800	21.60	0.00	5.13	3.85	7.71	7.41	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
136	10.600	21.60	0.00	5.13	3.85	7.74	7.41	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
137	10.400	21.60	0.00	5.13	3.85	7.76	7.41	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
138	10.200	21.60	0.00	5.13	3.85	7.79	7.41	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
139	10.000	21.60	0.00	5.13	3.85	7.80	7.41	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
140	9.800	21.60	0.00	5.13	3.85	7.82	7.41	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
141	9.600	21.60	0.00	5.13	3.85	7.83	7.42	7.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
142	9.400	21.60	0.00	5.13	3.85	7.84	7.42	7.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
143	9.200	21.60	0.00	5.13	3.85	7.85	7.42	7.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
144	9.000	21.60	0.00	5.13	3.85	7.86	7.42	7.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
145	8.800	21.60	0.00	5.13	3.85	7.87	7.42	7.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
146	8.600	21.60	0.00	5.13	3.85	7.87	7.42	7.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
147	8.400	21.60	0.00	5.13	3.85	7.88	7.43	7.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
148	8.200	21.60	0.00	5.13	3.85	7.88	7.43	7.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
149	8.000	21.60	0.00	5.13	3.85	7.88	7.43	7.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
150	7.800	21.60	0.00	5.13	3.85	7.89	7.43	7.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
151	7.600	21.60	0.00	5.13	3.85	7.89	7.43	7.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
152	7.400	21.60	0.00	5.13	3.85	7.89	7.43	7.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
153	7.200	21.60	0.00	5.13	3.85	7.89	7.43	7.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
154	7.000	21.60	0.00	5.13	3.85	7.89	7.44	7.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
155	6.800	21.60	0.00	5.13	3.85	7.90	7.44	7.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
156	6.600	21.60	0.00	5.13	3.85	7.90	7.44	7.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
157	6.400	21.60	0.00	5.13	3.85	7.90	7.44	7.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54

158	6.200	21.60	0.00	5.13	3.85	7.90	7.44	7.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
159	6.000	21.60	0.00	5.13	3.85	7.90	7.44	7.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
160	5.800	21.60	0.00	5.13	3.85	7.90	7.45	7.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
161	5.600	21.60	0.00	5.13	3.85	7.90	7.45	7.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
162	5.400	21.60	0.00	5.13	3.85	7.90	7.45	7.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
163	5.200	21.60	0.00	5.13	3.85	7.90	7.45	7.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
164	5.000	21.60	0.00	5.13	3.85	7.90	7.45	7.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
165	4.800	21.60	0.00	5.13	3.85	7.90	7.45	7.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
166	4.600	21.60	0.00	5.13	3.85	7.90	7.46	7.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
167	4.400	21.60	0.00	5.13	3.85	7.90	7.46	7.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
168	4.200	21.60	0.00	5.13	3.85	7.90	7.46	7.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
169	4.000	21.60	0.00	5.13	3.85	7.90	7.46	7.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
170	3.800	21.60	0.00	5.13	3.85	7.90	7.46	7.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
171	3.600	21.60	0.00	5.13	3.85	7.90	7.46	7.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54
172	3.400	21.60	0.00	6.21	3.77	7.91	8.19	8.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m³

FINAL REPORT   HEADWATER   MILL CREEK WATERSHED MODEL
REACH NO. 6   LITTLE MILL - CALCASIEU   MILL CREEK PROPOSED WINTER DO STANDARD RUN

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW m³/	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM *
173	UPR RCH	0.22100	21.60	0.00	6.21	3.77	7.91	8.19	8.19	0.00	0.00	0.00	0.00	0.00	0.00	1.58

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW $m^3/$	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
173	3.40	3.20	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
174	3.20	3.00	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
175	3.00	2.80	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
176	2.80	2.60	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
177	2.60	2.40	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
178	2.40	2.20	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
179	2.20	2.00	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
180	2.00	1.80	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
181	1.80	1.60	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
182	1.60	1.40	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
183	1.40	1.20	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
184	1.20	1.00	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
185	1.00	0.80	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
186	0.80	0.60	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
187	0.60	0.40	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
188	0.40	0.20	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
189	0.20	0.00	0.22100	39.00	0.20594	0.01	0.26	4.05	214.63	810.93	1.07	0.00	0.000	0.050	0.206
TOT						0.19			3648.72	13785.88					
AVG					0.20594		0.26	4.05			1.07				
CUM						5.57									

** BIOLOGICAL AND PHYSICAL COEFFICIENTS **

ELEM NO.	ENDING DIST	SAT D.O.	REAER RATE	CBOD DECAY	CBOD SETT	ANBOD DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM	NCM

		mg/L	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	DECAY 1/da	SETT 1/da
173	3.200	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
174	3.000	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
175	2.800	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
176	2.600	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
177	2.400	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
178	2.200	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
179	2.000	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
180	1.800	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
181	1.600	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
182	1.400	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
183	1.200	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
184	1.000	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
185	0.800	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
186	0.600	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
187	0.400	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
188	0.200	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
189	0.000	8.81	14.06	0.04	0.01	0.00	4.42	4.42	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01
20 DEG C RATE				0.04		0.00	4.00			0.00		0.00	0.00	0.00	0.00			0.00	0.05	
AVG 20 DEG C RATE			13.63		0.01						0.00								0.01	

* g/m²/d ** mg/L/day

** WATER QUALITY CONSTITUENT VALUES **

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I *	CM-II *	DO mg/L	BOD mg/L	EBOD mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *

173	3.200	21.60	0.00	6.21	3.77	7.87	8.19	8.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58
174	3.000	21.60	0.00	6.21	3.77	7.83	8.19	8.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
175	2.800	21.60	0.00	6.21	3.77	7.80	8.19	8.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
176	2.600	21.60	0.00	6.21	3.77	7.77	8.19	8.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
177	2.400	21.60	0.00	6.21	3.77	7.75	8.19	8.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
178	2.200	21.60	0.00	6.21	3.77	7.72	8.18	8.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
179	2.000	21.60	0.00	6.21	3.77	7.71	8.18	8.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
180	1.800	21.60	0.00	6.21	3.77	7.69	8.18	8.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
181	1.600	21.60	0.00	6.21	3.77	7.68	8.18	8.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
182	1.400	21.60	0.00	6.21	3.77	7.67	8.18	8.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
183	1.200	21.60	0.00	6.21	3.77	7.66	8.17	8.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
184	1.000	21.60	0.00	6.21	3.77	7.65	8.17	8.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
185	0.800	21.60	0.00	6.21	3.77	7.64	8.17	8.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
186	0.600	21.60	0.00	6.21	3.77	7.63	8.17	8.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
187	0.400	21.60	0.00	6.21	3.77	7.63	8.17	8.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
188	0.200	21.60	0.00	6.21	3.77	7.62	8.16	8.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
189	0.000	21.60	0.00	6.21	3.77	7.62	8.16	8.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM =

** g/m³

STREAM SUMMARY   MILL CREEK WATERSHED MODEL
HEADWATER   MILL CREEK PROPOSED WINTER DO STANDARD RUN

TRAVEL TIME = 5.57 DAYS

MAXIMUM EFFLUENT = 39.00 PERCENT

FLOW	=	0.13480	TO	0.22100	m^3/s
DISPERSION	=	0.0199	TO	0.0763	m^2/s
VELOCITY	=	0.02788	TO	0.35709	m/s
DEPTH	=	0.19	TO	0.96	m
WIDTH	=	2.75	TO	6.65	m

BOD DECAY	=	0.04	TO	0.08	per day
NH3 DECAY	=	0.00	TO	0.00	per day
SDMNT OXYGEN DMND	=	2.10	TO	4.76	g/m²/d
NH3 SOURCE	=	0.00	TO	0.00	g/m²/d
REAERATION	=	1.15	TO	25.80	per day
BOD SETTLING	=	0.01	TO	0.01	per day
ORGN DECAY	=	0.00	TO	0.00	per day
ORGN SETTLING	=	0.00	TO	0.00	per day
TEMPERATURE	=	21.60	TO	21.60	deg C
DISSOLVED OXYGEN	=	5.14	TO	8.16	mg/L

.....EXECUTION COMPLETED

Mill Creek Water Quality Proposed 5.0 DO Winter Projection Model Input Description

DATA TYPE 11, INITIAL CONDITIONS					
Reach #	**REACH DESCRIPTION**	**Initial Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Temperature	^{o}Celcius	21.6	Winter Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Winter Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
2	Mill Creek, RKM 30.0 to Alligator Bayou	Temperature	^{o}Celcius	21.6	Winter Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Winter Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
3	Mill Creek, Alligator Bayou to Black Creek	Temperature	^{o}Celcius	21.6	Winter Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Winter Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
4	Mill Creek, Black Creek to RKM 14.0	Temperature	^{o}Celcius	21.6	Winter Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Winter Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
5	Mill Creek, RKM 14.0 to Little Mill Creek	Temperature	^{o}Celcius	21.6	Winter Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Winter Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		
6	Mill Creek, Little Mill Creek to Calcasieu River	Temperature	^{o}Celcius	21.6	Winter Season 90th percentile Temperature
		Salinity	ppt		
		Dissolved O_2	mg/l	5	Winter Standard
		NH_4-N	mg/l		
		NO_{2+3} - N	mg/l		
		Chlorophyll a	ug/l		

Mill Creek Water Quality Proposed 5.0 DO Winter Projection Model Input Description

DATA TYPE 3, Program Constants			
Description of Constant	**Value**	**Result**	**Source/Justification**
Maximum iteration limit	200.0		Standard
KL Minimum	0.7	Minimum KL to be used.	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
Inhibition control value	3.0	Inhibits all decay rate except SOD for low DO.	Standard LA modeling procedure.
Ocean exchange ratio	0.0	Set 0% tidal exchange at lower boundary.	This was done to allow dispersion in the model but not to force the bottom element through the boundary conditions.
Hydraulic calculation method	2.0	Sets the Hydraulic calc. to width and depth coef.	The low slopes in this waterbody cause a substantial amount of water to be present during critical flow conditions, making the Leopold relationships inaccurate. This method allows the model to predict a more accurate depth and width during low flow conditions.
Settled rate units.	2.0	Sets the settled rate to a velocity (m/day).	By making the settling rate a velocity the rate becomes dependent upon the depth.
K2 Max	25.0	Max K2 at 20 C allowed for any computational element	EPA Policy in the absence of a measured value.
NCM Oxygen Uptake	1.0	Oxygen Uptake Rate per Unit of NBOD decay.	Standard LA modeling procedure.

Mill Creek Water Quality Proposed 5.0 DO Winter Projection Model Input Description

DATA TYPE 26, Wastewater Data for DO, BOD, and Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Town of Elizabeth	Element # of input		10	
		Wasteload description		STP	
		NCM	mg/l	43	10 mg/l NH3-N * 4.3. An amonia value was not given in the last LADEQ permit, a 10 mg/l NH3-N value is consistent with the treatment level for a 10 mg/l CBOD limit.
2	Alligator Bayou	Element # of input		46	
		Wasteload description		Tributary	
		NCM	mg/l	0.8	Site 4
3	Black Bayou	Element # of input		64	
		Wasteload description		Tributary	
		NCM	mg/l	2.18	Site 3
5	Little Mill Creek	Element # of input		172	
		Wasteload description		Tributary	
		NCM	mg/l	1.84	Site 2

Mill Creek Water Quality Proposed 5.0 DO Winter Projection Model Input Description

DATA TYPE 25, Wastewater Data for DO, BOD, and Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Town of Elizabeth	Element # of input		10	
		Wasteload description		STP	
		Dissolved O_2	mg/l	5	Winter Projection Standard
		BOD	mg/l	46	10 CBOD5 * 2.3.
2	Alligator Bayou	Element # of input		46	
		Wasteload description		Tributary	
		Dissolved O_2	mg/l	7.9	90 percent of DO Sat at Winter 90th Percentile Temperature
		BOD	mg/l	5.49	Site 4
3	Black Bayou	Element # of input		64	
		Wasteload description		Tributary	
		Dissolved O_2	mg/l	7.9	90 percent of DO Sat at Winter 90th Percentile Temperature
		BOD	mg/l	16.42	Site 3
5	Little Mill Creek	Element # of input		172	
		Wasteload description		Tributary	
		Dissolved O_2	mg/l	7.9	90 percent of DO Sat at Winter 90th Percentile Temperature
		BOD	mg/l	13.22	Site 2

Mill Creek Water Quality Proposed 5.0 DO Winter Projection Model Input Description

DATA TYPE 24, Wastewater Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Town of Elizabeth	Element # of input		10	
		Wasteload description		STP	
		Wasteload inflow	cms	0.0022	50,000 gpd design flow
		Temperature	^{o}Celcius	21.6	90th percentile Temperature for Winter Season
		Salinity	ppt		
		Conservative Matl. I	mg/l	3.4	
		Conservative Matl. II	mg/l	3.1	
2	Alligator Bayou	Element # of input		46	
		Wasteload description		Tributary	
		Wasteload inflow	cms	0.028	LTP Winter Projection Value
		Temperature	^{o}Celcius	21.6	90th percentile Temperature for Winter Season
		Salinity	ppt		
		Conservative Matl. I	mg/l	14.9	
		Conservative Matl. II	mg/l	9.5	
3	Black Bayou	Element # of input		64	
		Wasteload description		Tributary	
		Wasteload inflow	cms	0.028	LTP Winter Projection Value
		Temperature	^{o}Celcius	21.6	90th percentile Temperature for Winter Season
		Salinity	ppt		
		Conservative Matl. I	mg/l	3.8	
		Conservative Matl. II	mg/l	1.9	
5	Little Mill Creek	Element # of input		172	
		Wasteload description		Tributary	
		Wasteload inflow	cms	0.028	LTP Winter Projection Value
		Temperature	^{o}Celcius	21.6	90th percentile Temperature for Winter Season
		Salinity	ppt		
		Conservative Matl. I	mg/l	13.7	
		Conservative Matl. II	mg/l	3.2	

Mill Creek Water Quality Proposed 5.0 DO Winter Projection Model Input Description

DATA TYPE 22, Headwater Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Element # of input		1	
		NCM	mg/l	1.2	Site 5

Mill Creek Water Quality Proposed 5.0 DO Winter Projection Model Input Description

DATA TYPE 21, Headwater Data for DO, BOD, and Nitrogen					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Element # of input		1	
		Dissolved O_2	mg/l	7.9	90 percent of DO Sat at Winter 90th Percentile Temperature
		BOD	mg/l	6.49	Site 5

Mill Creek Water Quality Proposed 5.0 DO Winter Projection Model Input Description

DATA TYPE 20, Headwater Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Element # of input		1	
		Headwater name		Mill Creek	
		Headwater flow	cms	0.1348	
		Temperature	^{o}Celcius	21.60	Winter Season 90th Percentile Temperature
		Salinity	ppt		
		Conservative Matl. I	mg/l	3.40	Site 5
		Conservative Matl. II	mg/l	3.10	Site 5

Mill Creek Water Quality Proposed 5.0 DO Winter Projection Model Input Description

DATA TYPE 19, Nonpoint Source Data

Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
1	Mill Creek, Headwater to RKM 30.0	BOD	kg/day	2	20% reduction needed to meet standard
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		1	20% reduction needed to meet standard
		Dissolved O_2	kg/day		
2	Mill Creek, RKM 30.0 to Alligator Bayou	BOD	kg/day	4	20% reduction needed to meet standard
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		0	20% reduction needed to meet standard
		Dissolved O_2	kg/day		
3	Mill Creek, Alligator Bayou to Black Creek	BOD	kg/day	3	20% reduction needed to meet standard
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		1	20% reduction needed to meet standard
		Dissolved O_2	kg/day		
4	Mill Creek, Black Creek to RKM 14.0	BOD	kg/day	10	20% reduction needed to meet standard
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		6	20% reduction needed to meet standard
		Dissolved O_2	kg/day		
5	Mill Creek, RKM 14.0 to Little Mill Creek	BOD	kg/day	4	20% reduction needed to meet standard
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		1	20% reduction needed to meet standard
		Dissolved O_2	kg/day		
6	Mill Creek, Little Mill Creek to Calcasieu River	BOD	kg/day	1	20% reduction needed to meet standard
		Org.-N	kg/day		
		Coliform	#/day		
		Nonconservative matl.		0	20% reduction needed to meet standard
		Dissolved O_2	kg/day		

Mill Creek Water Quality Proposed 5.0 DO Winter Projection Model Input Description

DATA TYPE 15, Coliform and Nonconservative Coefficents					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	NCM Decay	1/day	0.06	Bottle Rate Site 5
		NCM Settling Rate	m/day	0.01	Calibration
2	Mill Creek, RKM 30.0 to Alligator Bayou	NCM Decay	1/day	0.06	Bottle Rate Site 4
		NCM Settling Rate	m/day	0.01	Calibration
3	Mill Creek, Alligator Bayou to Black Creek	NCM Decay	1/day	0.06	Bottle Rate Site 4
		NCM Settling Rate	m/day	0.01	Calibration
4	Mill Creek, Black Creek to RKM 14.0	NCM Decay	1/day	0.09	Bottle Rate Site 3
		NCM Settling Rate	m/day	0.01	Calibration
5	Mill Creek, RKM 14.0 to Little Mill Creek	NCM Decay	1/day	0.08	Bottle Rate Site 2
		NCM Settling Rate	m/day	0.01	Calibration
6	Mill Creek, Little Mill Creek to Calcasieu River	NCM Decay	1/day	0.05	Bottle Rate Site 1
		NCM Settling Rate	m/day	0.01	Calibration

Mill Creek Water Quality Proposed 5.0 DO Winter Projection Model Input Description

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m^2-day	1.90	Winter Projection Value
		Aerobic BOD decay	1/day	0.07	Bottle Rate for Site 5
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	
2	Mill Creek, RKM 30.0 to Alligator Bayou	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	3.80	Winter Projection Value
		Aerobic BOD decay	1/day	0.06	Bottle Rate for Site 4
		BOD Settling rate	m/day	0.01	Calibration
			Fraction	0.00	
3	Mill Creek, Alligator Bayou to Black Creek	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	4.10	Winter Projection Value
		Aerobic BOD decay	1/day	0.06	Bottle Rate for Site 4
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	
4	Mill Creek, Black Creek to RKM 14.0	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	4.10	Winter Projection Value
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 3
		BOD Settling rate	m/day	0.01	
		BOD conv. to SOD	Fraction	0.0	

Mill Creek Water Quality Proposed 5.0 DO Winter Projection Model Input Description

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
5	Mill Creek, RKM 14.0 to Little Mill Creek	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	4.30	Winter Projection Value
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 2
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	
6	Mill Creek, Little Mill Creek to Calcasieu River	K_2 option	Unitless	15	Louisiana Equation
		Oxygen Transfer coef.	m/day	0.0	
		Background SOD	g/m2-day	4.00	Winter Projection Value
		Aerobic BOD decay	1/day	0.04	Bottle Rate for Site 1
		BOD Settling rate	m/day	0.01	Calibration
		BOD conv. to SOD	Fraction	0.0	

Mill Creek Water Quality Proposed 5.0 DO Winter Projection Model Input Description

DATA TYPE 9, Advective Hydraulic Coefficients					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Mill Creek, Headwater to RKM 30.0	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	3.70	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.15	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
2	Mill Creek, RKM 30.0 to Alligator Bayou	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	5.10	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
			Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.91	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
3	Mill Creek, Alligator Bayou to Black Creek	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	5.10	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.91	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
4	Mill Creek, Black Creek to RKM 14.0	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	6.60	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.56	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
5	Mill Creek, RKM 14.0 to Little Mill Creek	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	2.70	Zero flow cross section

Mill Creek Water Quality Proposed 5.0 DO Winter Projection Model Input Description

DATA TYPE 9, Advective Hydraulic Coefficients					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.17	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.
6	Mill Creek, Little Mill Creek to Calcasieu River	Width Coef "A"	Unitless	0.10	Calibration
		Width Exp "B"	Unitless	0.40	Calibration
		Width Const "C"	Meter	4.00	Zero flow cross section
		Depth Coef "D"	Unitless	0.10	Calibration
		Depth Exp "E"	Unitless	0.40	Calibration
		Depth Const "F"	Meter	0.21	Zero flow cross section
		Mannings - N	Unitless	0.04	Value determined by considering sluggish stream.

Winter Projection, Non-Point Benthic Load Input and TMDL Calculations:

Modeled stream or water body:	Mill Creek - Proposed Standards

Shaded cells are input values for calculations.

Values to be used in the projection models.

Reach Number and Description	Calibration Model Values: Non-Point UCBOD	Non-Point UNBOD	SOD @ 20°C	Total Calb. Benthic Load (TCBL)	Reach Length	Back-ground Benthic Load	Back-ground percentage reduction	Back-ground Benthic Load adjusted for % reduction	Proj. Model Avg. Reach Width	Proj. Temp.	Percentage Reduction of man-made sources	TCBL adjusted for % reduction (Reduced TCBL)
	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	Kilo-meters	gm O_2 / [(m^2)(day)]	%	gm O_2 / [(m^2)(day)]	Meters	(degrees Celcius)	%	gm O_2 / [(m^2)(day)]
	A, (note 1)	**B**, (note 1)	**C**, (note 1)	**D**, (note 1)	**E**, (note 1)	**F1**	**F2**	**F = F1*(1-F2)**	**G**	**I**	**H**	**J**, (note 2)
Reach 1 - Headwater to RKM 30.0	2.222	0.556	1.90	4.678	6.00	2.00	0%	2.00	0.15	21.60	20.0%	4.14
Reach 2 - RKM 30.0 - Alligator Bayou	1.374	0.000	3.80	5.174	3.20	2.00	0%	2.00	0.91	21.60	20.0%	4.54
Reach 3 - Alligator Bayou - Black Creek	1.832	0.611	4.10	6.542	1.80	2.00	0%	2.00	0.91	21.60	20.0%	5.63
Reach 4 - Black Creek - RKM 14.0	1.623	0.974	4.10	6.697	11.00	2.00	0%	2.00	0.56	21.60	20.0%	5.76
Reach 5 - RKM 14.0 -Little Mill Creek	2.220	0.444	4.30	6.964	10.60	2.00	0%	2.00	0.17	21.60	20.0%	5.97
Reach 6 - Little Mill Creek - Calcasieu	1.401	0.000	4.00	5.401	3.40	2.00	0%	2.00	0.21	21.60	20.0%	4.72
Sub-Total												30.76

Reach Number and Description	Projection Model Equivalents: Reduced TCBL adjusted for MOS	Non-Point UCBOD	Non-Point UNBOD	SOD @ 20°C	Projected Model Loads: Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	SOD load @ Proj. temp.	Total Projection Benthic Load **(LA+MOS)**	Margin of Safety Loads: MOS Total Benthic Load @ 20°C	MOS SOD @ 20°C	Non-Point UCBOD MOS Loads	Non-Point UNBOD MOS Loads	Adjusted SOD MOS @ Proj. temp	Adjusted Total MOS @ Proj. temp
	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)
	K, (note 3)	**L = (K)(A / D)**	**M = (K)(B / D)**	**N = (K)(C / D)**	**O = (E)(G)(L)**	**P = (E)(G)(M)**	**Q**, (note 4)	**O + P + Q**	**R = (K-J)(E)(G)**	**S = (R)(C/D)**	**T = (R)(A/D)**	**U = (R)(B/D)**	**V**, (note 5)	**T + U + V**
Reach 1 - Headwater to RKM 30.0	4.68	2.222	0.556	1.90	2	1	2	4.39	0	0	0	0	0	1
Reach 2 - RKM 30.0 - Alligator Bayou	5.17	1.374	0.000	3.80	4	0	12	16.24	2	1	0	0	2	2
Reach 3 - Alligator Bayou - Black Creek	6.54	1.832	0.611	4.10	3	1	7	11.43	1	1	0	0	1	2
Reach 4 - Black Creek - RKM 14.0	6.70	1.623	0.974	4.10	10	6	28	43.93	6	4	1	1	4	6
Reach 5 - RKM 14.0 -Little Mill Creek	6.96	2.220	0.444	4.30	4	1	9	13.37	2	1	1	0	1	2
Reach 6 - Little Mill Creek - Calcasieu	5.40	1.401	0.000	4.00	1	0	3	4.16	0	0	0	0	0	1
Sub-Total					24	8	61	**94**	12		3	1	8	**13**

Reach Number and Description	Man-made Model equivalents: Manmade portion of TCBL	Non-Point UCBOD	Non-Point UNBOD	SOD @ 20°C	Man-made Model loads: Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	SOD load @ Proj. temp.	Man-made Total Projection Benthic Load	Background Model loads: Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	SOD load @ Proj. temp.	Man-made Total Projection Benthic Load
	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	gm O_2 / [(m^2)(day)]	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)
	W = K - F	**X = (W)(A / D)**	**Y = (W)(B / D)**	**Z = (W)(C / D)**	**AA = (E)(G)(X)**	**AB = (E)(G)(Y)**	**AC**, (note 6)	**AA + AB + AC**	**AD = O - AA**	**AE = P - AB**	**AF = Q - AC**	**AD + AE + AF**
Reach 1 - Headwater to RKM 30.0	2.68	1.272	0.318	1.09	1	0	1	2.51	1	0	1	1.88
Reach 2 - RKM 30.0 - Alligator Bayou	3.17	0.843	0.000	2.33	2	0	8	9.96	2	0	5	6.28
Reach 3 - Alligator Bayou - Black Creek	4.54	1.272	0.424	2.85	2	1	5	7.93	1	0	2	3.49
Reach 4 - Black Creek - RKM 14.0	4.70	1.139	0.683	2.88	7	4	20	30.81	3	2	8	13.12
Reach 5 - RKM 14.0 -Little Mill Creek	4.96	1.582	0.316	3.07	3	1	6	9.53	1	0	2	3.84
Reach 6 - Little Mill Creek - Calcasieu	3.40	0.882	0.000	2.52	1	0	2	2.62	0	0	1	1.54
Sub-Total					16	6	41	**63**	8	3	20	**30**

Notes: Note 1, Data was calculated in and brought from the Calibration worksheet dataset.
Note 2, $J = [(1 - H) \times (D - F) + F]$
Note 3, $K = [(J - F) / (1 - MOS) + F]$
Note 4, $Q = E \times G \times N \times 1.065^{(I-20)}$
Note 5, $V = S \times 1.065^{(I-20)}$
Note 6, $AC = E \times G \times Z \times 1.065^{(I-20)}$

EXPLICIT MARGINS:

MARGIN OF SAFETY (MOS) (%) = [MOG + MOU] = **20%**

Winter TMDL calculations and Projection model calculations for Headwater / Tributary loads:

Mill Creek - Proposed Standards

Shaded cells are input values for calculations.
Values to be used in the projection models.

Headwater / Tributary load determinations

Headwater / Tributary Description and Reach #	Seasonal Critical flow (cms)	UCBOD (mg/l)	UNBOD (mg/l)	UCBOD (kg/day)	UNBOD (kg/day)	Background UCBOD conc. (mg/l)	Background UNBOD conc. (mg/l)	Background % Reduction	Background UCBOD Load (kg/day)	Background UNBOD Load (kg/day)	Percent reduction of Man-Made loads	UCBOD load adjusted for % Reduction (kg/day)	UNBOD load adjusted for % Reduction (kg/day)	Reduced UCBOD load adjusted for MOS (kg/day)	Reduced UNBOD load adjusted for MOS (kg/day)	Projection UCBOD input conc. (mg/l)	Projection UNBOD input conc. (mg/l)	**Total MOS (kg/day)**	**Total LA (kg/day)**
	A	**B**	**C**	**D** = (86.4)(**A**)(**B**)	**E** = (86.4)(**A**)(**C**)	**F**	**G**	**H1**	**H** = (1-**H1**) (86.4)(**A**)(**F**)	**I** = (1-**H1**) (86.4)(**A**)(**G**)	**J**	**K** = (**D-H**)(1-**J**) + **H**	**L** = (**D-I**)(1-**J**) + **I**	**M** = (**K** - **H**) / (1 - **MOS**) + **H**	**N** = (**L** - **I**) / (1 - **MOS**) + **I**	(**M**)/[(**A**)(86.4)]	(**N**)/[(**A**)(86.4)]	(**M+N**) - (**K+L**)	**K + L**
Mill Creek Headwater	0.1308	8.87	3.41	100.24	38.54	2.14	3.61	0%	24.18	40.80	20%	85.03	38.54	100.24	38.54	8.87	3.41	**15.21**	**123.57**
Alligator Bayou	0.028	5.49	0.80	13.28	1.94	2.14	3.61	0%	5.18	8.73	20%	11.66	1.94	13.28	1.94	5.49	0.80	**1.62**	**13.60**
Black Bayou	0.028	16.42	2.18	39.72	5.27	2.14	3.61	0%	5.18	8.73	20%	32.81	5.27	39.72	5.27	16.42	2.18	**6.91**	**38.09**
Little Mill Creek	0.028	13.22	1.84	31.98	4.45	2.14	3.61	0%	5.18	8.73	20%	26.62	4.45	31.98	4.45	13.22	1.84	**5.36**	**31.07**
SUB-TOTAL TMDL LOADING				**185**	**50**				**40**	**67**		**156**	**50**	**185**	**50**			**29**	**206**

EXPLICIT MARGINS:

MARGIN OF SAFETY (MOS) (%) =	**20%**

Winter TMDL Calculations for Point Source loads:

Mill Creek - Proposed Standards

Input data into the shaded cells.

Point Source Loading Calculations																		
					Proposed Permit Limits			UCBOD				UNBOD				Sub-total of Point Source Loads		
Pt. Source / Facility Description and Reach #	Receiving Stream	Included in the Projection Model (Yes/No)	Anticipated/ design flow (cms)	Flow (cms)	$CBOD_5$ (mg/l)	NH_3N (mg/l)	MOS (%)	Ultimate Conc. (mg/l) (2)	Loads (kg/day) (1)	WLA (kg/day)	Reserve/ MOS Load (kg/day)	Ultimate Conc. (mg/l) (2)	Loads (kg/day) (1)	WLA (kg/day)	Reserve/ MOS Load (kg/day)	**Loads (kg/day)**	**WLA (kg/day)**	**Reserve/ MOS (kg/day)**
			A	**A1 = A/(1-D)**	**B**	**C**	**D**	**E = 2.3 x B**	**F = (86.4)(A1)(E)**	**G = (1-D) x F**	**H = (D)(F)**	**I = 4.3 x B**	**J = (86.4)(A1)(I)**	**K = (1-D) x J**	**L = (D)(J)**	**F + J**	**G + K**	**H + L**
Town of Elizabeth	Mill Creek	Yes	0.0022	0.00275	20.0	10.0	20%	46.0	11	9	2	43.0	10	8	2	**21**	**17**	**4**
SUB-TOTAL Loads									**11**	**9**	**2**		**10**	**8**	**2**	**21**	**17**	**4**

(1) - Load(kg/day) = 86.4 x Ultimate Conc.(mg/l) x Modeled Flow(cms)

(2) - [UCBOD conc. = CBOD5(mg/l) x 2.3] and [UNBOD conc. = NH3N(mg/l) x 4.3]

Appendix C

Survey Data Measurements and Analysis Results

Site_Name	Site_Description	Analysis_Name
Mill Creek	Just above the confluence with Calcasieu	Field Depth
Mill Creek	Just above the confluence with Calcasieu	Field Gage Height
Mill Creek	Just above the confluence with Calcasieu	Field pH
Mill Creek	Just above the confluence with Calcasieu	Field Temp.
Mill Creek	Just above the confluence with Calcasieu	Field D.O.
Mill Creek	Just above the confluence with Calcasieu	Field Conductivity
Mill Creek	Just above the confluence with Calcasieu	Field Secchi Disc
Mill Creek	Just above the confluence with Calcasieu	Field Salinity
Mill Creek	Just above the confluence with Calcasieu	TSS
Mill Creek	Just above the confluence with Calcasieu	TDS
Mill Creek	Just above the confluence with Calcasieu	Specific Conductance
Mill Creek	Just above the confluence with Calcasieu	Color
Mill Creek	Just above the confluence with Calcasieu	Chloride (IC)
Mill Creek	Just above the confluence with Calcasieu	Sulfate
Mill Creek	Just above the confluence with Calcasieu	Sodium
Mill Creek	Just above the confluence with Calcasieu	Hardness
Mill Creek	Just above the confluence with Calcasieu	Nitrate+Nitrite-Nitrogen
Mill Creek	Just above the confluence with Calcasieu	Total Phosphorus
Mill Creek	Just above the confluence with Calcasieu	TKN
Mill Creek	Just above the confluence with Calcasieu	Ammonia-Nitrogen
Mill Creek	Just above the confluence with Calcasieu	TOC
Mill Creek	Just above the confluence with Calcasieu	BOD60-Reading 1
Mill Creek	Just above the confluence with Calcasieu	BOD60-Reading 2
Mill Creek	Just above the confluence with Calcasieu	BOD60-Reading 3
Mill Creek	Just above the confluence with Calcasieu	BOD60-Reading 4
Mill Creek	Just above the confluence with Calcasieu	BOD60-Reading 5
Mill Creek	Just above the confluence with Calcasieu	BOD60-Reading 6
Mill Creek	Just above the confluence with Calcasieu	BOD60-Reading 7
Mill Creek	Just above the confluence with Calcasieu	BOD60-Reading 8
Mill Creek	Just above the confluence with Calcasieu	BOD60-Reading 9
Mill Creek	Just above the confluence with Calcasieu	BOD60-Reading 10
Mill Creek	Just above the confluence with Calcasieu	BOD60-Reading 11
Mill Creek	Just above the confluence with Calcasieu	BOD60-Final Reading
Mill Creek	Just above the confluence with Calcasieu	NO2NO3- Initial Reading
Mill Creek	Just above the confluence with Calcasieu	NO2NO3- Reading 1
Mill Creek	Just above the confluence with Calcasieu	NO2NO3- Reading 2
Mill Creek	Just above the confluence with Calcasieu	NO2NO3- Reading 3
Mill Creek	Just above the confluence with Calcasieu	NO2NO3- Reading 4
Mill Creek	Just above the confluence with Calcasieu	NO2NO3- Reading 5
Mill Creek	Just above the confluence with Calcasieu	NO2NO3- Reading 6
Mill Creek	Just above the confluence with Calcasieu	NO2NO3- Reading 7
Mill Creek	Just above the confluence with Calcasieu	NO2NO3- Reading 8
Mill Creek	Just above the confluence with Calcasieu	NO2NO3- Reading 9
Mill Creek	Just above the confluence with Calcasieu	NO2NO3- Reading 10
Mill Creek	Just above the confluence with Calcasieu	NO2NO3- Reading 11
Mill Creek	Just above the confluence with Calcasieu	NO2NO3-Final Reading
Mill Creek	Just above the confluence with Calcasieu	TKN (60 Day BOD)
Mill Creek	@ iron bridge	Field Depth
Mill Creek	@ iron bridge	Field Gage Height
Mill Creek	@ iron bridge	Field pH
Mill Creek	@ iron bridge	Field Temp.

Mill Creek	@ iron bridge	Field D.O.
Mill Creek	@ iron bridge	Field Conductivity
Mill Creek	@ iron bridge	Field Secchi Disc
Mill Creek	@ iron bridge	Field Salinity
Mill Creek	@ iron bridge	TSS
Mill Creek	@ iron bridge	TDS
Mill Creek	@ iron bridge	Specific Conductance
Mill Creek	@ iron bridge	Color
Mill Creek	@ iron bridge	Chloride (IC)
Mill Creek	@ iron bridge	Sulfate
Mill Creek	@ iron bridge	Sodium
Mill Creek	@ iron bridge	Hardness
Mill Creek	@ iron bridge	Nitrate+Nitrite-Nitrogen .05
Mill Creek	@ iron bridge	Total Phosphorus
Mill Creek	@ iron bridge	TKN
Mill Creek	@ iron bridge	Ammonia-Nitrogen
Mill Creek	@ iron bridge	TOC
Mill Creek	@ iron bridge	BOD60-Reading 1
Mill Creek	@ iron bridge	BOD60-Reading 2
Mill Creek	@ iron bridge	BOD60-Reading 3
Mill Creek	@ iron bridge	BOD60-Reading 4
Mill Creek	@ iron bridge	BOD60-Reading 5
Mill Creek	@ iron bridge	BOD60-Reading 6
Mill Creek	@ iron bridge	BOD60-Reading 7
Mill Creek	@ iron bridge	BOD60-Reading 8
Mill Creek	@ iron bridge	BOD60-Reading 9
Mill Creek	@ iron bridge	BOD60-Reading 10
Mill Creek	@ iron bridge	BOD60-Reading 11
Mill Creek	@ iron bridge	BOD60-Final Reading
Mill Creek	@ iron bridge	NO2NO3- Initial Reading
Mill Creek	@ iron bridge	NO2NO3- Reading 1
Mill Creek	@ iron bridge	NO2NO3- Reading 2
Mill Creek	@ iron bridge	NO2NO3- Reading 3
Mill Creek	@ iron bridge	NO2NO3- Reading 4
Mill Creek	@ iron bridge	NO2NO3- Reading 5
Mill Creek	@ iron bridge	NO2NO3- Reading 6
Mill Creek	@ iron bridge	NO2NO3- Reading 7
Mill Creek	@ iron bridge	NO2NO3- Reading 8
Mill Creek	@ iron bridge	NO2NO3- Reading 9
Mill Creek	@ iron bridge	NO2NO3- Reading 10
Mill Creek	@ iron bridge	NO2NO3- Reading 11
Mill Creek	@ iron bridge	NO2NO3-Final Reading
Mill Creek	@ iron bridge	TKN (60 Day BOD)
Mill Creek	@ Tower Road	Field Depth
Mill Creek	@ Tower Road	Field Gage Height
Mill Creek	@ Tower Road	Field pH
Mill Creek	@ Tower Road	Field Temp.
Mill Creek	@ Tower Road	Field D.O.
Mill Creek	@ Tower Road	Field Conductivity
Mill Creek	@ Tower Road	Field Secchi Disc
Mill Creek	@ Tower Road	Field Salinity
Mill Creek	@ Tower Road	TSS

Mill Creek	@ Tower Road	TDS
Mill Creek	@ Tower Road	Specific Conductance
Mill Creek	@ Tower Road	Color
Mill Creek	@ Tower Road	Chloride (IC)
Mill Creek	@ Tower Road	Sulfate
Mill Creek	@ Tower Road	Sodium
Mill Creek	@ Tower Road	Hardness
Mill Creek	@ Tower Road	Nitrate+Nitrite-Nitrogen
Mill Creek	@ Tower Road	Total Phosphorus
Mill Creek	@ Tower Road	TKN
Mill Creek	@ Tower Road	Ammonia-Nitrogen
Mill Creek	@ Tower Road	TOC
Mill Creek	@ Tower Road	BOD60-Reading 1
Mill Creek	@ Tower Road	BOD60-Reading 2
Mill Creek	@ Tower Road	BOD60-Reading 3
Mill Creek	@ Tower Road	BOD60-Reading 4
Mill Creek	@ Tower Road	BOD60-Reading 5
Mill Creek	@ Tower Road	BOD60-Reading 6
Mill Creek	@ Tower Road	BOD60-Reading 7
Mill Creek	@ Tower Road	BOD60-Reading 8
Mill Creek	@ Tower Road	BOD60-Reading 9
Mill Creek	@ Tower Road	BOD60-Reading 10
Mill Creek	@ Tower Road	BOD60-Reading 11
Mill Creek	@ Tower Road	BOD60-Final Reading
Mill Creek	@ Tower Road	NO2NO3- Initial Reading
Mill Creek	@ Tower Road	NO2NO3- Reading 1
Mill Creek	@ Tower Road	NO2NO3- Reading 2
Mill Creek	@ Tower Road	NO2NO3- Reading 3
Mill Creek	@ Tower Road	NO2NO3- Reading 4
Mill Creek	@ Tower Road	NO2NO3- Reading 5
Mill Creek	@ Tower Road	NO2NO3- Reading 6
Mill Creek	@ Tower Road	NO2NO3- Reading 7
Mill Creek	@ Tower Road	NO2NO3- Reading 8
Mill Creek	@ Tower Road	NO2NO3- Reading 9
Mill Creek	@ Tower Road	NO2NO3- Reading 10
Mill Creek	@ Tower Road	NO2NO3- Reading 11
Mill Creek	@ Tower Road	NO2NO3-Final Reading
Mill Creek	@ Tower Road	TKN (60 Day BOD)
Mill Creek	@ Tower Road	Field Depth
Mill Creek	@ Tower Road	Field Gage Height
Mill Creek	@ Tower Road	Field pH
Mill Creek	@ Tower Road	Field Temp.
Mill Creek	@ Tower Road	Field D.O.
Mill Creek	@ Tower Road	Field Conductivity
Mill Creek	@ Tower Road	Field Secchi Disc
Mill Creek	@ Tower Road	Field Salinity
Mill Creek	@ Tower Road	TSS
Mill Creek	@ Tower Road	TDS
Mill Creek	@ Tower Road	Specific Conductance
Mill Creek	@ Tower Road	Color
Mill Creek	@ Tower Road	Chloride (IC)
Mill Creek	@ Tower Road	Sulfate

Mill Creek	@ Tower Road	Sodium
Mill Creek	@ Tower Road	Hardness
Mill Creek	@ Tower Road	Nitrate+Nitrite-Nitrogen
Mill Creek	@ Tower Road	Total Phosphorus
Mill Creek	@ Tower Road	TKN
Mill Creek	@ Tower Road	Ammonia-Nitrogen
Mill Creek	@ Tower Road	TOC
Mill Creek	@ Tower Road	BOD60-Reading 1
Mill Creek	@ Tower Road	BOD60-Reading 2
Mill Creek	@ Tower Road	BOD60-Reading 3
Mill Creek	@ Tower Road	BOD60-Reading 4
Mill Creek	@ Tower Road	BOD60-Reading 5
Mill Creek	@ Tower Road	BOD60-Reading 6
Mill Creek	@ Tower Road	BOD60-Reading 7
Mill Creek	@ Tower Road	BOD60-Reading 8
Mill Creek	@ Tower Road	BOD60-Reading 9
Mill Creek	@ Tower Road	BOD60-Reading 10
Mill Creek	@ Tower Road	BOD60-Reading 11
Mill Creek	@ Tower Road	BOD60-Final Reading
Mill Creek	@ Tower Road	NO2NO3- Initial Reading
Mill Creek	@ Tower Road	NO2NO3- Reading 1
Mill Creek	@ Tower Road	NO2NO3- Reading 2
Mill Creek	@ Tower Road	NO2NO3- Reading 3
Mill Creek	@ Tower Road	NO2NO3- Reading 4
Mill Creek	@ Tower Road	NO2NO3- Reading 5
Mill Creek	@ Tower Road	NO2NO3- Reading 6
Mill Creek	@ Tower Road	NO2NO3- Reading 7
Mill Creek	@ Tower Road	NO2NO3- Reading 8
Mill Creek	@ Tower Road	NO2NO3- Reading 9
Mill Creek	@ Tower Road	NO2NO3- Reading 10
Mill Creek	@ Tower Road	NO2NO3- Reading 11
Mill Creek	@ Tower Road	NO2NO3-Final Reading
Mill Creek	@ Tower Road	TKN (60 Day BOD)
Mill Creek	@ Oakdale Road	Field Depth
Mill Creek	@ Oakdale Road	Field Gage Height
Mill Creek	@ Oakdale Road	Field pH
Mill Creek	@ Oakdale Road	Field Temp.
Mill Creek	@ Oakdale Road	Field D.O.
Mill Creek	@ Oakdale Road	Field Conductivity
Mill Creek	@ Oakdale Road	Field Secchi Disc
Mill Creek	@ Oakdale Road	Field Salinity
Mill Creek	@ Oakdale Road	TSS
Mill Creek	@ Oakdale Road	TDS
Mill Creek	@ Oakdale Road	Specific Conductance
Mill Creek	@ Oakdale Road	Color
Mill Creek	@ Oakdale Road	Chloride (IC)
Mill Creek	@ Oakdale Road	Sulfate
Mill Creek	@ Oakdale Road	Sodium
Mill Creek	@ Oakdale Road	Hardness
Mill Creek	@ Oakdale Road	Nitrate+Nitrite-Nitrogen
Mill Creek	@ Oakdale Road	Total Phosphorus
Mill Creek	@ Oakdale Road	TKN

Mill Creek	@ Oakdale Road	Ammonia-Nitrogen
Mill Creek	@ Oakdale Road	TOC
Mill Creek	@ Oakdale Road	BOD60-Reading 1
Mill Creek	@ Oakdale Road	BOD60-Reading 2
Mill Creek	@ Oakdale Road	BOD60-Reading 3
Mill Creek	@ Oakdale Road	BOD60-Reading 4
Mill Creek	@ Oakdale Road	BOD60-Reading 5
Mill Creek	@ Oakdale Road	BOD60-Reading 6
Mill Creek	@ Oakdale Road	BOD60-Reading 7
Mill Creek	@ Oakdale Road	BOD60-Reading 8
Mill Creek	@ Oakdale Road	BOD60-Reading 9
Mill Creek	@ Oakdale Road	BOD60-Reading 10
Mill Creek	@ Oakdale Road	BOD60-Reading 11
Mill Creek	@ Oakdale Road	BOD60-Final Reading
Mill Creek	@ Oakdale Road	NO2NO3- Initial Reading
Mill Creek	@ Oakdale Road	NO2NO3- Reading 1
Mill Creek	@ Oakdale Road	NO2NO3- Reading 2
Mill Creek	@ Oakdale Road	NO2NO3- Reading 3
Mill Creek	@ Oakdale Road	NO2NO3- Reading 4
Mill Creek	@ Oakdale Road	NO2NO3- Reading 5
Mill Creek	@ Oakdale Road	NO2NO3- Reading 6
Mill Creek	@ Oakdale Road	NO2NO3- Reading 7
Mill Creek	@ Oakdale Road	NO2NO3- Reading 8
Mill Creek	@ Oakdale Road	NO2NO3- Reading 9
Mill Creek	@ Oakdale Road	NO2NO3- Reading 10
Mill Creek	@ Oakdale Road	NO2NO3- Reading 11
Mill Creek	@ Oakdale Road	NO2NO3-Final Reading
Mill Creek	@ Oakdale Road	TKN (60 Day BOD)
Mill Creek	@ Highway 112	Field Depth
Mill Creek	@ Highway 112	Field Gage Height
Mill Creek	@ Highway 112	Field pH
Mill Creek	@ Highway 112	Field Temp.
Mill Creek	@ Highway 112	Field D.O.
Mill Creek	@ Highway 112	Field Conductivity
Mill Creek	@ Highway 112	Field Secchi Disc
Mill Creek	@ Highway 112	Field Salinity
Mill Creek	@ Highway 112	TSS
Mill Creek	@ Highway 112	TDS
Mill Creek	@ Highway 112	Specific Conductance
Mill Creek	@ Highway 112	Color
Mill Creek	@ Highway 112	Chloride (IC)
Mill Creek	@ Highway 112	Sulfate
Mill Creek	@ Highway 112	Sodium
Mill Creek	@ Highway 112	Spike Duplicate, NO2NO3
Mill Creek	@ Highway 112	Spike Duplicate, TP
Mill Creek	@ Highway 112	Spiked result, Total Phosphorus
Mill Creek	@ Highway 112	Amount spiked, Total Phosphorus
Mill Creek	@ Highway 112	Precision between spikes, TKN
Mill Creek	@ Highway 112	Spike Duplicate, TKN
Mill Creek	@ Highway 112	Spiked result, Total Kjeldahl Ni
Mill Creek	@ Highway 112	Precision between spikes, TP
Mill Creek	@ Highway 112	Amount spiked, Total Kjeldahl Ni

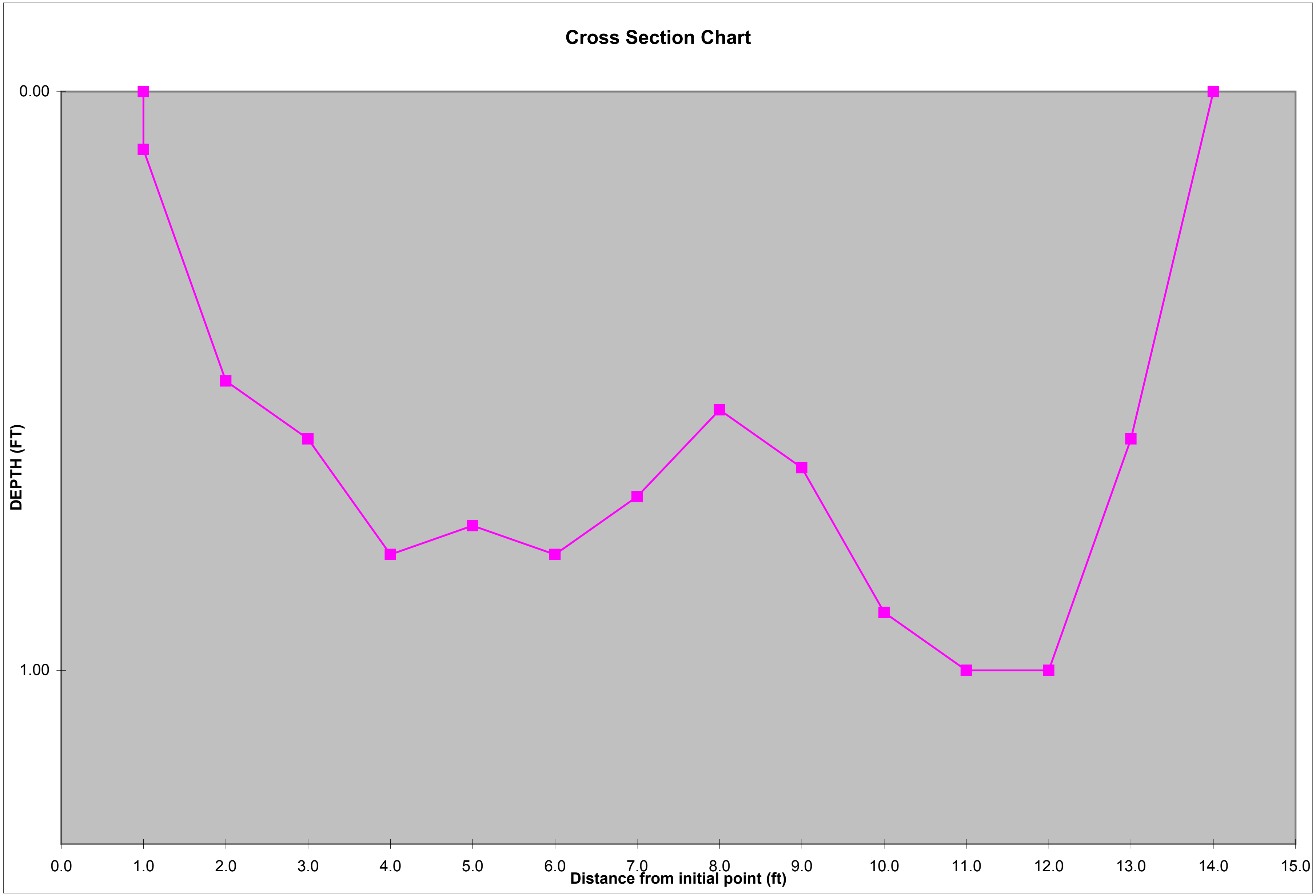
Mill Creek	@ Highway 112	Spiked result, Nitrate+Nitrite N
Mill Creek	@ Highway 112	Amount spiked, Nitrate/Nitrite
Mill Creek	@ Highway 112	Precision between spikes, NO2NO3
Mill Creek	@ Highway 112	Hardness
Mill Creek	@ Highway 112	Nitrate+Nitrite-Nitrogen
Mill Creek	@ Highway 112	Total Phosphorus
Mill Creek	@ Highway 112	TKN
Mill Creek	@ Highway 112	Ammonia-Nitrogen
Mill Creek	@ Highway 112	TOC
Mill Creek	@ Highway 112	BOD60-Reading 1
Mill Creek	@ Highway 112	BOD60-Reading 2
Mill Creek	@ Highway 112	BOD60-Reading 3
Mill Creek	@ Highway 112	BOD60-Reading 4
Mill Creek	@ Highway 112	BOD60-Reading 5
Mill Creek	@ Highway 112	BOD60-Reading 6
Mill Creek	@ Highway 112	BOD60-Reading 7
Mill Creek	@ Highway 112	BOD60-Reading 8
Mill Creek	@ Highway 112	BOD60-Reading 9
Mill Creek	@ Highway 112	BOD60-Reading 10
Mill Creek	@ Highway 112	BOD60-Reading 11
Mill Creek	@ Highway 112	BOD60-Final Reading
Mill Creek	@ Highway 112	NO2NO3- Initial Reading
Mill Creek	@ Highway 112	NO2NO3- Reading 1
Mill Creek	@ Highway 112	NO2NO3- Reading 2
Mill Creek	@ Highway 112	NO2NO3- Reading 3
Mill Creek	@ Highway 112	NO2NO3- Reading 4
Mill Creek	@ Highway 112	NO2NO3- Reading 5
Mill Creek	@ Highway 112	NO2NO3- Reading 6
Mill Creek	@ Highway 112	NO2NO3- Reading 7
Mill Creek	@ Highway 112	NO2NO3- Reading 8
Mill Creek	@ Highway 112	NO2NO3- Reading 9
Mill Creek	@ Highway 112	NO2NO3- Reading 10
Mill Creek	@ Highway 112	NO2NO3- Reading 11
Mill Creek	@ Highway 112	NO2NO3-Final Reading
Mill Creek	@ Highway 112	TKN (60 Day BOD)
Mill Creek Survey Blank	Mill Creek Survey Blank	Field Depth
Mill Creek Survey Blank	Mill Creek Survey Blank	Field Gage Height
Mill Creek Survey Blank	Mill Creek Survey Blank	Field pH
Mill Creek Survey Blank	Mill Creek Survey Blank	Field Temp.
Mill Creek Survey Blank	Mill Creek Survey Blank	Field D.O.
Mill Creek Survey Blank	Mill Creek Survey Blank	Field Conductivity
Mill Creek Survey Blank	Mill Creek Survey Blank	Field Secchi Disc
Mill Creek Survey Blank	Mill Creek Survey Blank	Field Salinity
Mill Creek Survey Blank	Mill Creek Survey Blank	TSS
Mill Creek Survey Blank	Mill Creek Survey Blank	TDS
Mill Creek Survey Blank	Mill Creek Survey Blank	Specific Conductance
Mill Creek Survey Blank	Mill Creek Survey Blank	Color
Mill Creek Survey Blank	Mill Creek Survey Blank	Chloride (IC)
Mill Creek Survey Blank	Mill Creek Survey Blank	Sulfate
Mill Creek Survey Blank	Mill Creek Survey Blank	Sodium
Mill Creek Survey Blank	Mill Creek Survey Blank	Hardness
Mill Creek Survey Blank	Mill Creek Survey Blank	Nitrate+Nitrite-Nitrogen

Mill Creek Survey Blank	Mill Creek Survey Blank	Total Phosphorus
Mill Creek Survey Blank	Mill Creek Survey Blank	TKN
Mill Creek Survey Blank	Mill Creek Survey Blank	Ammonia-Nitrogen
Mill Creek Survey Blank	Mill Creek Survey Blank	Amount spiked, Total Organic Car
Mill Creek Survey Blank	Mill Creek Survey Blank	Spiked result, Total Organic Car
Mill Creek Survey Blank	Mill Creek Survey Blank	Spike Duplicate, TOC
Mill Creek Survey Blank	Mill Creek Survey Blank	Precision between spikes, TOC
Mill Creek Survey Blank	Mill Creek Survey Blank	TOC
Mill Creek Survey Blank	Mill Creek Survey Blank	BOD60-Reading 1
Mill Creek Survey Blank	Mill Creek Survey Blank	BOD60-Reading 2
Mill Creek Survey Blank	Mill Creek Survey Blank	BOD60-Reading 3
Mill Creek Survey Blank	Mill Creek Survey Blank	BOD60-Reading 4
Mill Creek Survey Blank	Mill Creek Survey Blank	BOD60-Reading 5
Mill Creek Survey Blank	Mill Creek Survey Blank	BOD60-Reading 6
Mill Creek Survey Blank	Mill Creek Survey Blank	BOD60-Reading 7
Mill Creek Survey Blank	Mill Creek Survey Blank	BOD60-Reading 8
Mill Creek Survey Blank	Mill Creek Survey Blank	BOD60-Reading 9
Mill Creek Survey Blank	Mill Creek Survey Blank	BOD60-Reading 10
Mill Creek Survey Blank	Mill Creek Survey Blank	BOD60-Reading 11
Mill Creek Survey Blank	Mill Creek Survey Blank	BOD60-Final Reading
Mill Creek Survey Blank	Mill Creek Survey Blank	NO2NO3- Initial Reading
Mill Creek Survey Blank	Mill Creek Survey Blank	NO2NO3- Reading 1
Mill Creek Survey Blank	Mill Creek Survey Blank	NO2NO3- Reading 2
Mill Creek Survey Blank	Mill Creek Survey Blank	NO2NO3- Reading 3
Mill Creek Survey Blank	Mill Creek Survey Blank	NO2NO3- Reading 4
Mill Creek Survey Blank	Mill Creek Survey Blank	NO2NO3- Reading 5
Mill Creek Survey Blank	Mill Creek Survey Blank	NO2NO3- Reading 6
Mill Creek Survey Blank	Mill Creek Survey Blank	NO2NO3- Reading 7
Mill Creek Survey Blank	Mill Creek Survey Blank	NO2NO3- Reading 8
Mill Creek Survey Blank	Mill Creek Survey Blank	NO2NO3- Reading 9
Mill Creek Survey Blank	Mill Creek Survey Blank	NO2NO3- Reading 10
Mill Creek Survey Blank	Mill Creek Survey Blank	NO2NO3- Reading 11
Mill Creek Survey Blank	Mill Creek Survey Blank	NO2NO3-Final Reading
Mill Creek Survey Blank	Mill Creek Survey Blank	TKN (60 Day BOD)

Result	Units	Analysis_Setup	Analysis_Read	Nitrate_Sampled	Comments	Comments_cntd
1	M	6/14/2000	6/14/2000			
NR	ft	6/14/2000	6/14/2000			
6		6/14/2000	6/14/2000			
23.87	degrees C	6/14/2000	6/14/2000			
1.6	ppm	6/14/2000	6/14/2000			
59.4	umhos	6/14/2000	6/14/2000			
NR	inches	6/14/2000	6/14/2000			
NR	ppt	6/14/2000	6/14/2000			
7.4	ppm	6/15/2000	6/15/2000			
59	ppm	6/20/2000	6/20/2000			
67.13	umhos/cm	6/16/2000	6/16/2000			
110	PCU	6/15/2000	6/15/2000			
3.9	ppm	6/26/2000	6/26/2000			
5.9	ppm	6/26/2000	6/26/2000			
3.3	ppm	6/15/2000	6/15/2000			
24	ppm	6/15/2000	6/15/2000			
0.02	ppm	6/15/2000	6/15/2000			
0.07	ppm	6/20/2000	6/20/2000			
0.65	ppm	6/20/2000	6/20/2000			
Not detected	ppm	6/20/2000	6/20/2000			
12.1	ppm	7/5/2000	7/6/2000			
0.5	ppm	6/15/2000	6/16/2000			
2	ppm	6/15/2000	6/19/2000			
2.5	ppm	6/15/2000	6/21/2000			
3	ppm	6/15/2000	6/23/2000			
3.6	ppm	6/15/2000	6/26/2000			
4	ppm	6/15/2000	6/28/2000			
4.3	ppm	6/15/2000	6/30/2000			
5.3	ppm	6/15/2000	7/5/2000			
6.8	ppm	6/15/2000	7/14/2000			
8.2	ppm	6/15/2000	7/25/2000			
9.3	ppm	6/15/2000	8/4/2000			
10.2	ppm	6/15/2000	8/14/2000			
0.04	ppm	6/15/2000	6/15/2000			
0.03	ppm	6/15/2000	6/21/2000	6/16/2000		
0.05	ppm	6/15/2000	6/21/2000	6/19/2000		
0.03	ppm	6/15/2000	6/21/2000	6/21/2000		
0.03	ppm	6/15/2000	6/23/2000	6/23/2000		
0.03	ppm	6/15/2000	6/29/2000	6/26/2000		
0.03	ppm	6/15/2000	6/29/2000	6/28/2000		
0.04	ppm	6/15/2000	7/7/2000	6/30/2000		
0.09	ppm	6/15/2000	7/7/2000	7/5/2000		
0.11	ppm	6/15/2000	7/19/2000	7/14/2000		
0.15	ppm	6/15/2000	7/26/2000	7/25/2000		
0.14	ppm	6/15/2000	8/9/2000	8/4/2000		
0.18	ppm	6/15/2000	8/16/2000	8/14/2000		
0.49	ppm	6/15/2000	8/15/2000	8/14/2000		
0.3	M	6/14/2000	6/14/2000			
NR	ft	6/14/2000	6/14/2000			
6.51		6/14/2000	6/14/2000			
25.23	degrees C	6/14/2000	6/14/2000			

1.53	ppm	6/14/2000	6/14/2000	
73.9	umhos	6/14/2000	6/14/2000	
NR	inches	6/14/2000	6/14/2000	
NR	ppt	6/14/2000	6/14/2000	
57	ppm	6/19/2000	6/19/2000	
74	ppm	6/15/2000	6/15/2000	
73.5	umhos/cm	6/16/2000	6/16/2000	
110	PCU	6/15/2000	6/15/2000	
13.7	ppm	6/26/2000	6/26/2000	
3.2	ppm	6/26/2000	6/26/2000	
3.2	ppm	6/15/2000	6/15/2000	
27	ppm	6/15/2000	6/15/2000	
ppm	6/15/2000	6/15/2000		
0.12	ppm	6/20/2000	6/20/2000	
0.83	ppm	6/20/2000	6/20/2000	
Not detected	ppm	6/20/2000	6/20/2000	
15.3	ppm	7/5/2000	7/6/2000	
0.7	ppm	6/15/2000	6/16/2000	
2.9	ppm	6/15/2000	6/19/2000	
3.5	ppm	6/15/2000	6/21/2000	
4.1	ppm	6/15/2000	6/23/2000	
5.2	ppm	6/15/2000	6/26/2000	
6.1	ppm	6/15/2000	6/28/2000	
6.7	ppm	6/15/2000	6/30/2000	
8	ppm	6/15/2000	7/5/2000	
10.2	ppm	6/15/2000	7/14/2000	
11.9	ppm	6/15/2000	7/25/2000	
13.4	ppm	6/15/2000	8/4/2000	
14.4	ppm	6/15/2000	8/14/2000	
0.06	ppm	6/15/2000	6/15/2000	
0.04	ppm	6/15/2000	6/21/2000	6/16/2000
0.04	ppm	6/15/2000	6/21/2000	6/19/2000
0.04	ppm	6/15/2000	6/21/2000	6/21/2000
0.06	ppm	6/15/2000	6/23/2000	6/23/2000
0.09	ppm	6/15/2000	6/29/2000	6/26/2000
0.17	ppm	6/15/2000	6/29/2000	6/28/2000
0.21	ppm	6/15/2000	7/7/2000	6/30/2000
0.28	ppm	6/15/2000	7/7/2000	7/5/2000
0.38	ppm	6/15/2000	7/19/2000	7/14/2000
0.43	ppm	6/15/2000	7/26/2000	7/25/2000
0.43	ppm	6/15/2000	8/9/2000	8/4/2000
0.47	ppm	6/15/2000	8/16/2000	8/14/2000
0.65	ppm	6/15/2000	8/15/2000	8/14/2000
1	M	6/14/2000	6/14/2000	
NR	ft	6/14/2000	6/14/2000	
6.75		6/14/2000	6/14/2000	
23.67	degrees C	6/14/2000	6/14/2000	
0.92	ppm	6/14/2000	6/14/2000	
128.3	umhos	6/14/2000	6/14/2000	
NR	inches	6/14/2000	6/14/2000	
NR	ppt	6/14/2000	6/14/2000	
21	ppm	6/20/2000	6/20/2000	

91	ppm	6/15/2000	6/15/2000	
128.9	umhos/cm	6/16/2000	6/16/2000	
110	PCU	6/15/2000	6/15/2000	
3.8	ppm	6/26/2000	6/26/2000	
1.9	ppm	6/26/2000	6/26/2000	
4.8	ppm	8/3/2000	8/3/2000	
58.2	ppm	6/15/2000	6/15/2000	
0.05	ppm	6/15/2000	6/15/2000	
0.13	ppm	6/20/2000	6/20/2000	
1.37	ppm	6/20/2000	6/20/2000	
0.22	ppm	6/20/2000	6/20/2000	
19.5	ppm	7/5/2000	7/6/2000	
1	ppm	6/15/2000	6/16/2000	
3.2	ppm	6/15/2000	6/19/2000	
4.2	ppm	6/15/2000	6/21/2000	
5.4	ppm	6/15/2000	6/23/2000	
7.5	ppm	6/15/2000	6/26/2000	
8.1	ppm	6/15/2000	6/28/2000	
8.9	ppm	6/15/2000	6/30/2000	
10.4	ppm	6/15/2000	7/5/2000	
13	ppm	6/15/2000	7/14/2000	
15.2	ppm	6/15/2000	7/25/2000	
16.7	ppm	6/15/2000	8/4/2000	
17.9	ppm	6/15/2000	8/14/2000	
0.04	ppm	6/15/2000	6/15/2000	
0.05	ppm	6/15/2000	6/21/2000	6/16/2000
0.04	ppm	6/15/2000	6/21/2000	6/19/2000
0.04	ppm	6/15/2000	6/21/2000	6/21/2000
0.1	ppm	6/15/2000	6/23/2000	6/23/2000
0.27	ppm	6/15/2000	6/29/2000	6/26/2000
0.3	ppm	6/15/2000	6/29/2000	6/28/2000
0.33	ppm	6/15/2000	7/7/2000	6/30/2000
0.36	ppm	6/15/2000	7/7/2000	7/5/2000
0.42	ppm	6/15/2000	7/19/2000	7/14/2000
0.49	ppm	6/15/2000	7/26/2000	7/25/2000
0.49	ppm	6/15/2000	8/9/2000	8/4/2000
0.57	ppm	6/15/2000	8/16/2000	8/14/2000
0.63	ppm	6/15/2000	8/15/2000	8/14/2000
1	M	6/14/2000	6/14/2000	
NR	ft	6/14/2000	6/14/2000	
6.75		6/14/2000	6/14/2000	
23.67	degrees C	6/14/2000	6/14/2000	
0.92	ppm	6/14/2000	6/14/2000	
128.3	umhos	6/14/2000	6/14/2000	
NR	inches	6/14/2000	6/14/2000	
NR	ppt	6/14/2000	6/14/2000	
24	ppm	6/20/2000	6/20/2000	
97	ppm	6/20/2000	6/20/2000	
130.1	umhos/cm	6/16/2000	6/16/2000	
110	PCU	6/15/2000	6/15/2000	
4.1	ppm	6/26/2000	6/26/2000	
1.9	ppm	6/26/2000	6/26/2000	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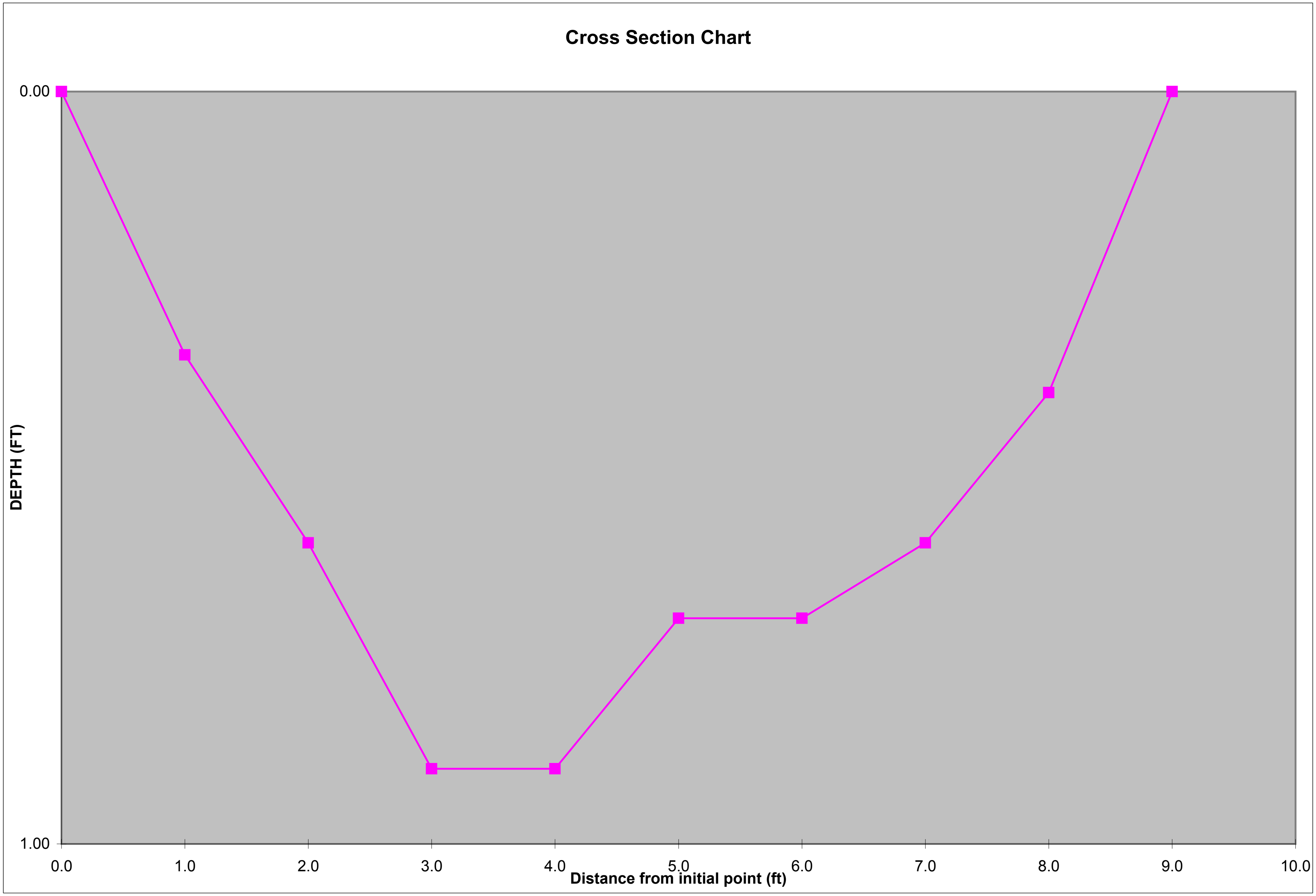
1.00
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
11.0
12.0
13.0
14.0
15.0
Distance from initial point (ft)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1.00
DEPTH (FT)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
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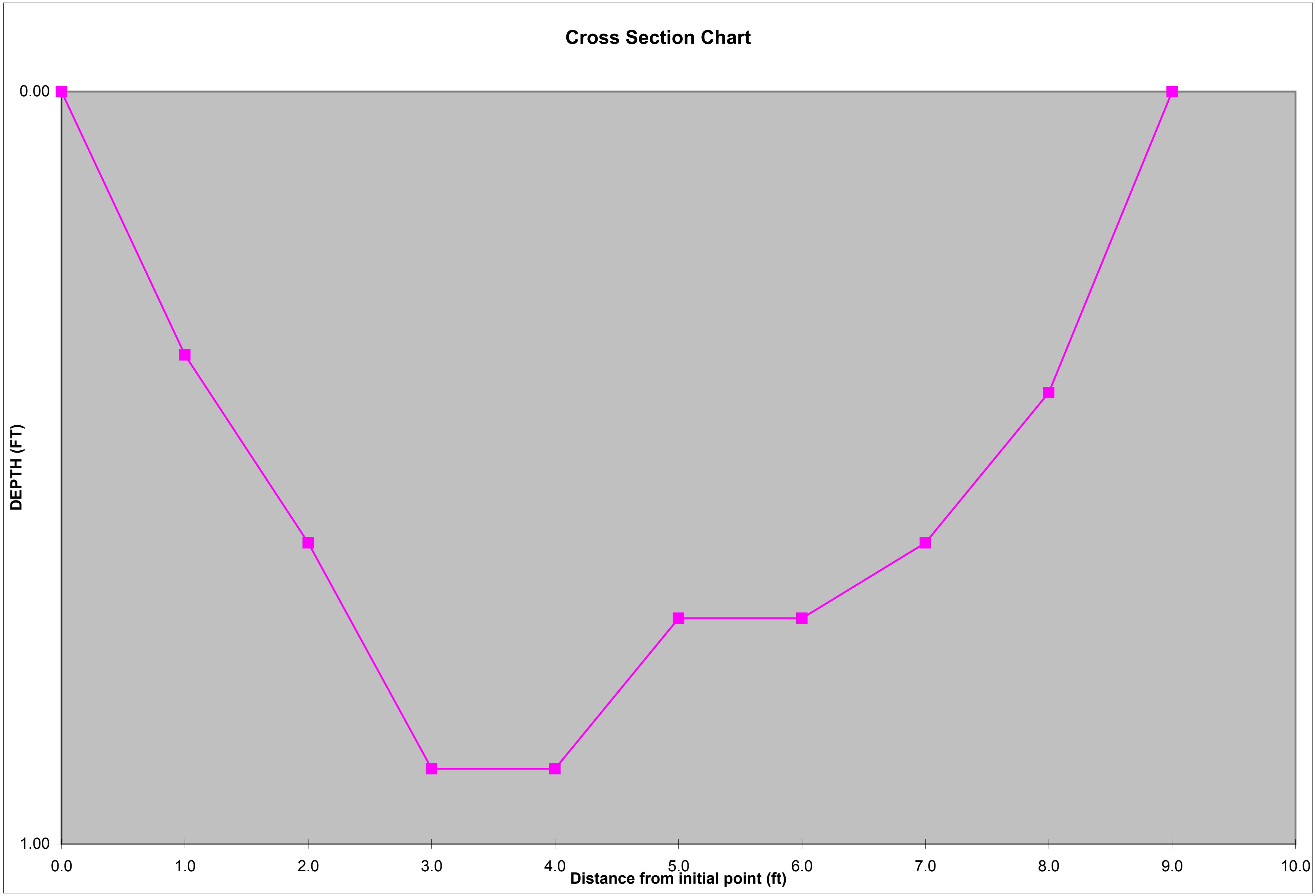
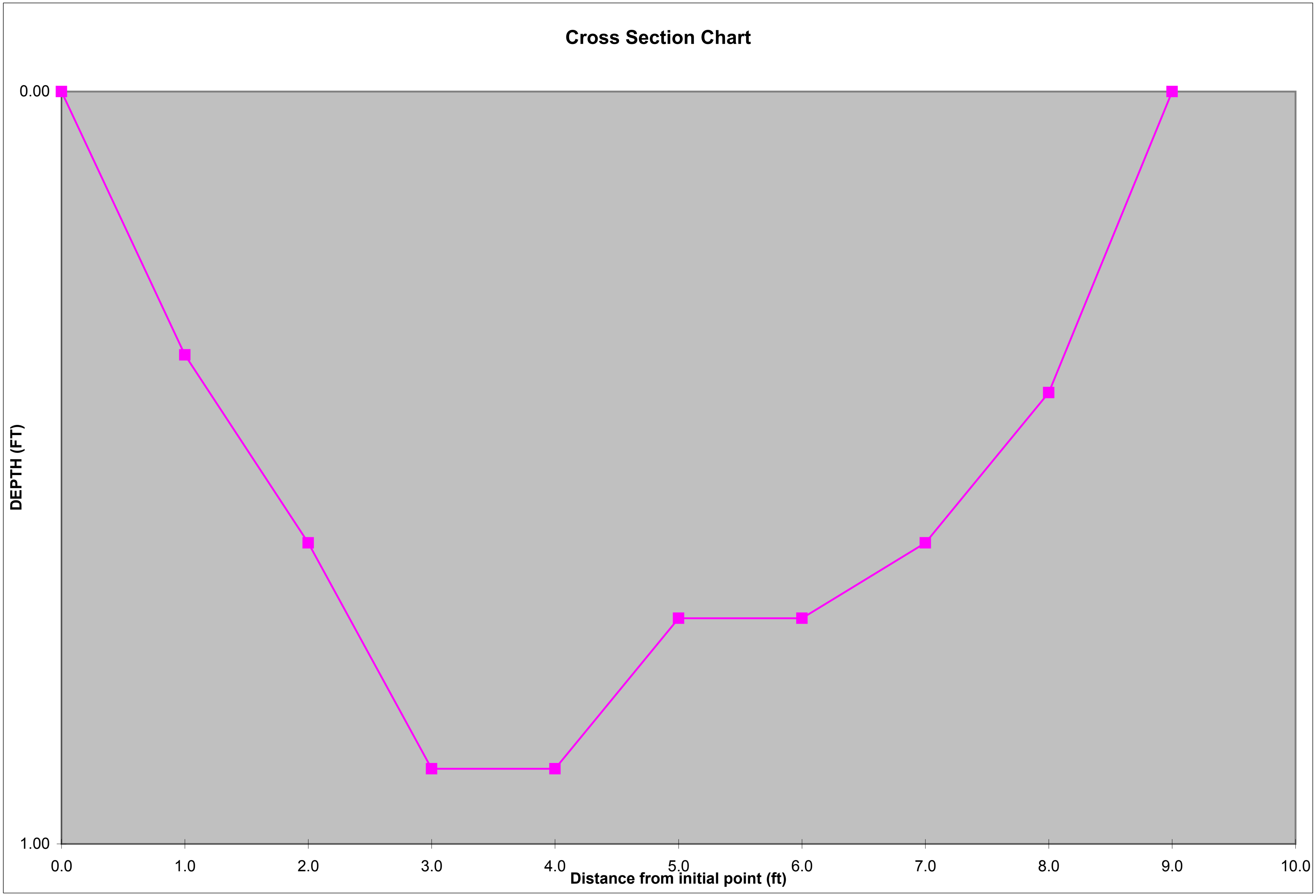
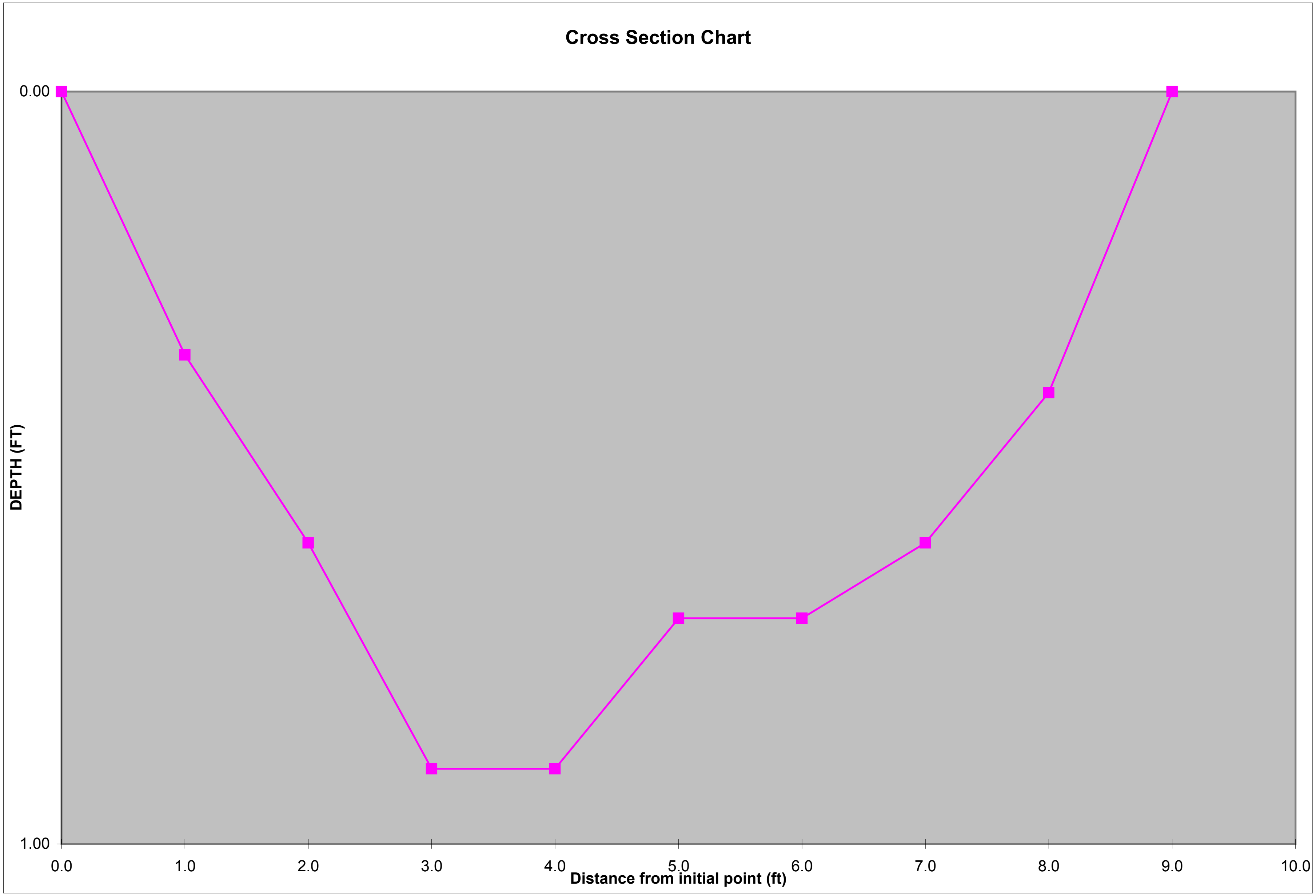
8.0
9.0
10.0
Distance from initial point (ft)


Cross Section Chart
0.00
1.00
DEPTH (FT)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Distance from initial point (ft)


Cross Section Chart
0.00
1.00
DEPTH (FT)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Distance from initial point (ft)


Cross Section Chart
0.00
1.00
DEPTH (FT)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Distance from initial point (ft)

Survey Notes for Mill Creek

6/14/00 Crew- Brignac, LaFleur, Fontenot, Gianelloni

** Mill Creek was dry until Hwy. 112. Hwy. 112 was the first site of water in the stream.

Site #1- Mill Creek above the confluence with Calcasieu River.
No Flow, Deployed continuous monitor at 1120.

Site #2- Mill Creek at Iron Bridge.
No Flow, Deployed continuous monitor at 1200.

Site #3- Mill Creek at Tower Road Bridge.
No Flow, Deployed continuous monitor at 1520.

Site #4- Mill Creek at Old Oakdale Road Bridge.
No Flow, Deployed continuous monitor at 1550.

Site #5- Mill Creek at Hwy. 112
No flow, first available water in Mill Creek.

Site #6- Little Mill Creek at Iron Bridge.
Dry.

Site #7- Black Creek at HDE Road.
No Flow.

Site #8- Alligator Bayou at Old Oakdale Road.
Dry.

6/14/00 Crew- Brignac, Gianelloni, Fontenot

Used Hydrolab insitu monitor (serial #- 37762)

Site #1- Mill Creek above confluence with Calcasieu River.
Took X-section with wading rod.
Insitu readings and water quality-Time 1120
Weather- Hot and partly cloudy
Readings- pH-6.00, Temp.- 23.87, DO-1.6, Cond.- 59.4, % DO-18.0

Site #2- Mill Creek at Iron Bridge.
Took X-section with wading rod.
Insitu readings and water quality- Time 1310
Weather- Hot and Partly cloudy with some evidence of rain.
Readings- pH- 6.51, Temp.-25.23, DO-1.53, Cond.- 59.4, % DO-18.6

6/14/00 Crew- LaFleur, Andrus, Farlow

Used Hydrolab insitu monitor (serial #-37761)

Site #5- Mill Creek at Hwy. 112
Took X-section with wading rod.
Took GPS reading.
Insitu readings and water quality- Time 1100

Weather- Hot rained for about 45 min.
Readings- pH-7.44, Temp.-25.11, DO-4.79, Cond.-237.4, % DO-58.9, Battery-7.9 volts

Site #4- Mill Creek at Old Oakdale Road
Took X-section with wading rod.
Insitu readings and water quality- Time 1235
Weather- Hot, mostly sunny
Readings- pH-7.28, Temp.-22.94, DO-1.85, Cond.-287.9, % DO-20.5, Battery-7.9 volts

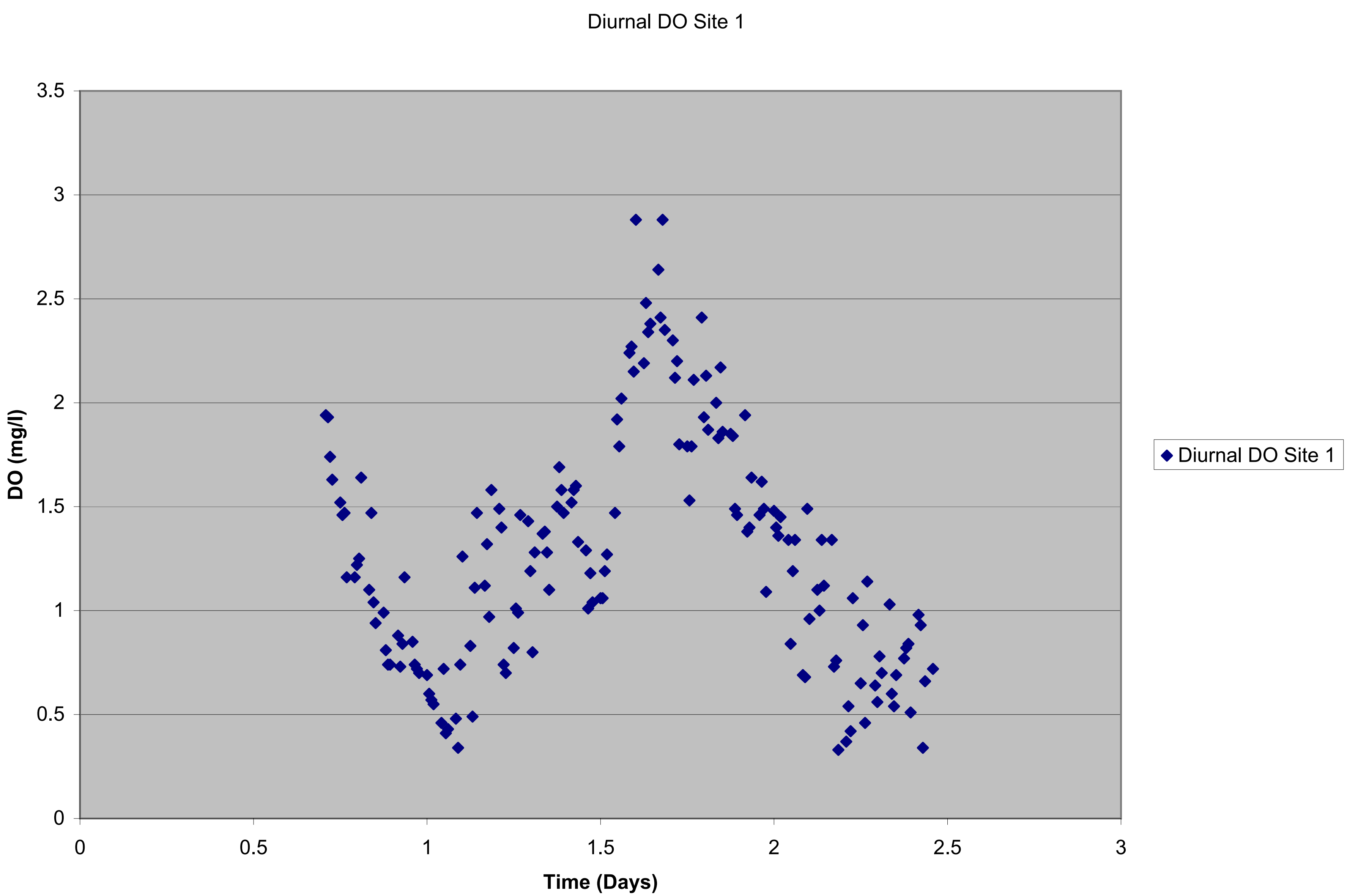
Site #3- Mill Creek at Tower Road
Took X-section with wading rod.
Insitu readings and water quality- Time 1345
Weather- Hot, cloudy
Readings- pH-6.75, Temp.-23.67, DO-0.92, Cond.-128.3, % DO-10.8, Battery-7.8 volts
Duplicate and blank samples also taken.

	4.9	ppm	8/3/2000	8/3/2000	
	58.2	ppm	6/15/2000	6/15/2000	
	0.05	ppm	6/15/2000	6/15/2000	
	0.14	ppm	6/20/2000	6/20/2000	
	1.36	ppm	6/20/2000	6/20/2000	
	0.2	ppm	6/20/2000	6/20/2000	
	18	ppm	7/5/2000	7/6/2000	
	1.2	ppm	6/15/2000	6/16/2000	
	4.2	ppm	6/15/2000	6/19/2000	
	5.4	ppm	6/15/2000	6/21/2000	
	6.6	ppm	6/15/2000	6/23/2000	
	9	ppm	6/15/2000	6/26/2000	
	9.9	ppm	6/15/2000	6/28/2000	
	10.9	ppm	6/15/2000	6/30/2000	
	12.6	ppm	6/15/2000	7/5/2000	
	15.5	ppm	6/15/2000	7/14/2000	
	17.6	ppm	6/15/2000	7/25/2000	
	19.2	ppm	6/15/2000	8/4/2000	
	20.6	ppm	6/15/2000	8/14/2000	
	0.05	ppm	6/15/2000	6/15/2000	
	0.04	ppm	6/15/2000	6/21/2000	6/16/2000
	0.04	ppm	6/15/2000	6/21/2000	6/19/2000
	0.04	ppm	6/15/2000	6/21/2000	6/21/2000
	0.09	ppm	6/15/2000	6/23/2000	6/23/2000
	0.32	ppm	6/15/2000	6/29/2000	6/26/2000
	0.36	ppm	6/15/2000	6/29/2000	6/28/2000
	0.44	ppm	6/15/2000	7/7/2000	6/30/2000
	0.46	ppm	6/15/2000	7/7/2000	7/5/2000
	0.59	ppm	6/15/2000	7/19/2000	7/14/2000
	0.63	ppm	6/15/2000	7/26/2000	7/25/2000
	0.66	ppm	6/15/2000	8/9/2000	8/4/2000
	0.74	ppm	6/15/2000	8/16/2000	8/14/2000
	0.61	ppm	6/15/2000	8/15/2000	8/14/2000
	1	M	6/14/2000	6/14/2000	
NR		ft	6/14/2000	6/14/2000	
	7.28		6/14/2000	6/14/2000	
	22.94	degrees C	6/14/2000	6/14/2000	
	1.85	ppm	6/14/2000	6/14/2000	
	287.9	umhos	6/14/2000	6/14/2000	
NR		inches	6/14/2000	6/14/2000	
NR		ppt	6/14/2000	6/14/2000	
	11.5	ppm	6/19/2000	6/19/2000	
	195	ppm	6/15/2000	6/15/2000	
	290.2	umhos/cm	6/16/2000	6/16/2000	
	55	PCU	6/15/2000	6/15/2000	
	14.9	ppm	6/26/2000	6/26/2000	
	9.5	ppm	6/26/2000	6/26/2000	
	51.9	ppm	8/3/2000	8/3/2000	
	49.1	ppm	6/15/2000	6/15/2000	
	0.35	ppm	6/15/2000	6/15/2000	
	0.36	ppm	6/20/2000	6/20/2000	
	0.62	ppm	6/20/2000	6/20/2000	

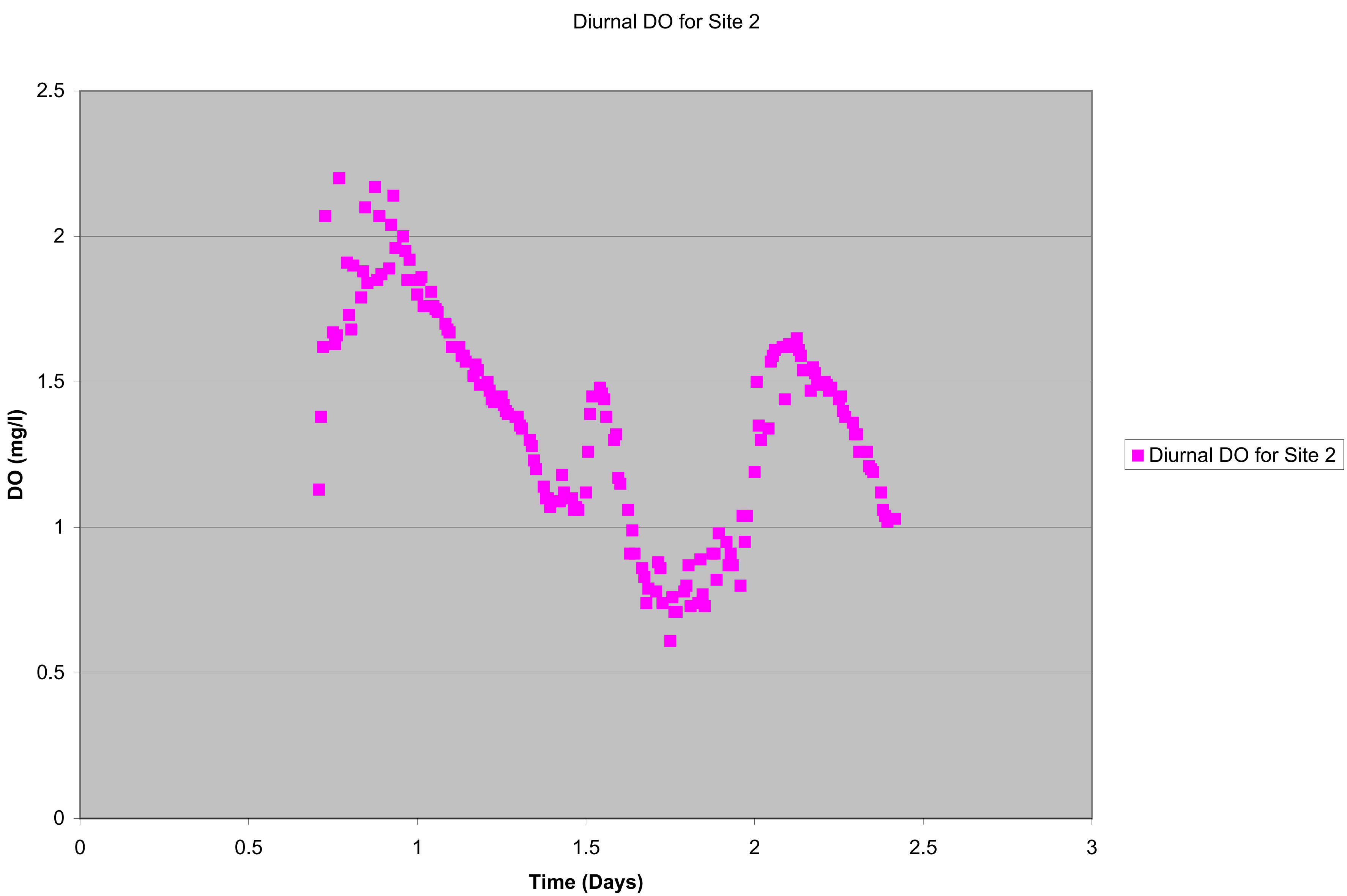
Not detected	ppm	6/20/2000	6/20/2000	
7.8	ppm	7/5/2000	7/6/2000	
0.7	ppm	6/15/2000	6/16/2000	
1.7	ppm	6/15/2000	6/19/2000	
2.1	ppm	6/15/2000	6/21/2000	
2.4	ppm	6/15/2000	6/23/2000	
3	ppm	6/15/2000	6/26/2000	
3.3	ppm	6/15/2000	6/28/2000	
3.4	ppm	6/15/2000	6/30/2000	
3.8	ppm	6/15/2000	7/5/2000	
4.9	ppm	6/15/2000	7/14/2000	
5.6	ppm	6/15/2000	7/25/2000	
6	ppm	6/15/2000	8/4/2000	
6.5	ppm	6/15/2000	8/14/2000	
0.05	ppm	6/15/2000	6/15/2000	
0.03	ppm	6/15/2000	6/21/2000	6/16/2000
0.03	ppm	6/15/2000	6/21/2000	6/19/2000
0.03	ppm	6/15/2000	6/21/2000	6/21/2000
0.06	ppm	6/15/2000	6/23/2000	6/23/2000
0.08	ppm	6/15/2000	6/29/2000	6/26/2000
0.1	ppm	6/15/2000	6/29/2000	6/28/2000
0.11	ppm	6/15/2000	7/7/2000	6/30/2000
0.13	ppm	6/15/2000	7/7/2000	7/5/2000
0.18	ppm	6/15/2000	7/19/2000	7/14/2000
0.2	ppm	6/15/2000	7/26/2000	7/25/2000
0.21	ppm	6/15/2000	8/9/2000	8/4/2000
0.21	ppm	6/15/2000	8/16/2000	8/14/2000
0.63	ppm	6/15/2000	8/15/2000	8/14/2000
1	M	6/14/2000	6/14/2000	
NR	ft	6/14/2000	6/14/2000	
7.44		6/14/2000	6/14/2000	
25.11	degrees C	6/14/2000	6/14/2000	
4.79	ppm	6/14/2000	6/14/2000	
237.4	umhos	6/14/2000	6/14/2000	
NR	inches	6/14/2000	6/14/2000	
NR	ppt	6/14/2000	6/14/2000	
Not detected	ppm	6/20/2000	6/20/2000	
164	ppm	6/20/2000	6/20/2000	
281.5	umhos/cm	6/16/2000	6/16/2000	
22	PCU	6/15/2000	6/15/2000	
3.4	ppm	6/26/2000	6/26/2000	
3.1	ppm	6/26/2000	6/26/2000	
24	ppm	8/3/2000	8/3/2000	
1.05	ppm	6/15/2000	6/15/2000	
0.99	ppm	6/20/2000	6/20/2000	
1.03	ppm	6/20/2000	6/20/2000	
1	ppm	6/20/2000	6/20/2000	
3.008	% deviation	6/20/2000	6/20/2000	
1.29	ppm	6/20/2000	6/20/2000	
1.37	ppm	6/20/2000	6/20/2000	
1.98	% deviation	6/20/2000	6/20/2000	
1	ppm	6/20/2000	6/20/2000	

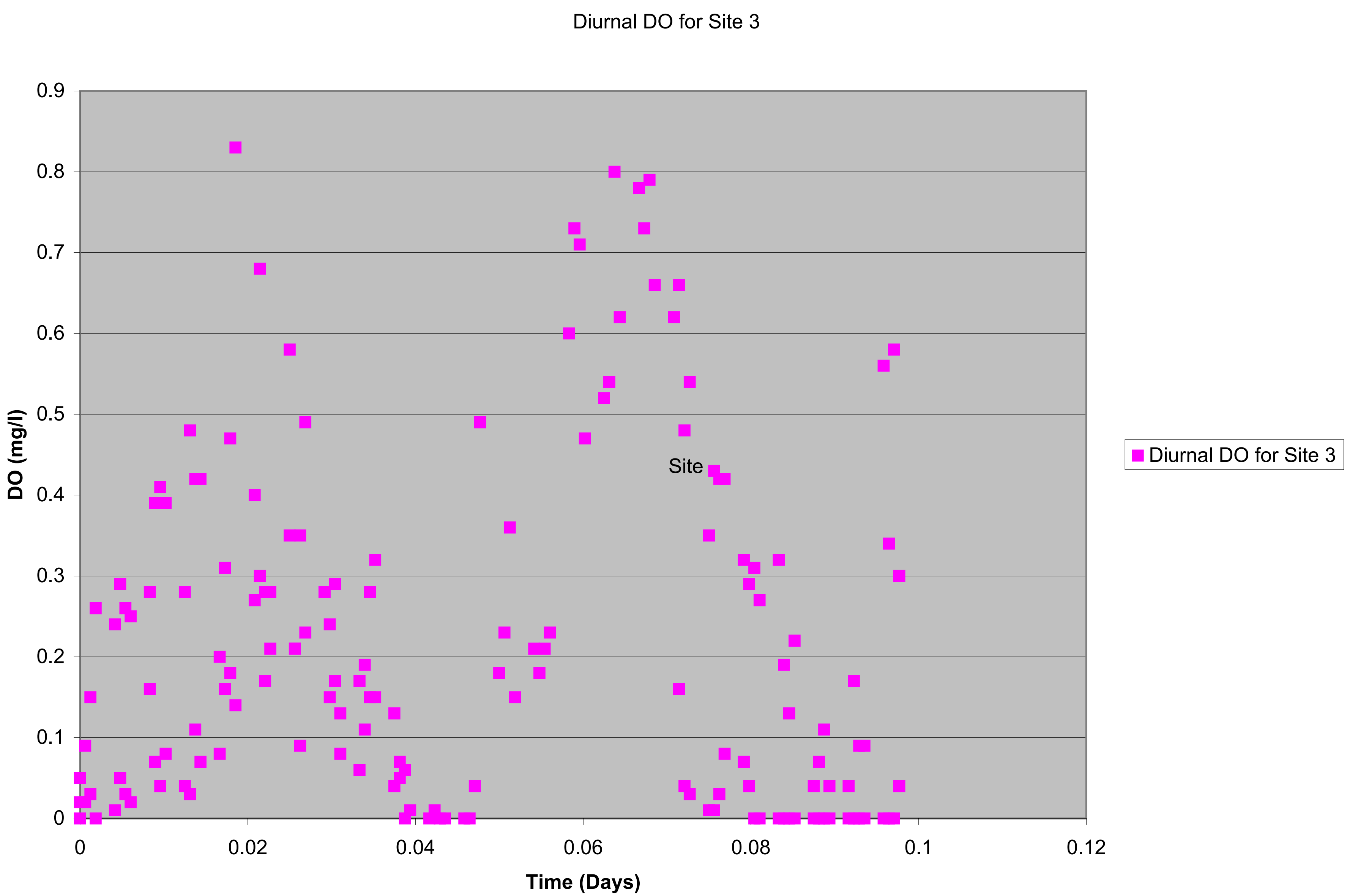
1.05	ppm	6/15/2000	6/15/2000	
1	ppm	6/15/2000	6/15/2000	
0	% deviation	6/15/2000	6/15/2000	
108	ppm	6/15/2000	6/15/2000	
0.02	ppm	6/15/2000	6/15/2000	
0.1	ppm	6/20/2000	6/20/2000	
0.37	ppm	6/20/2000	6/20/2000	
Not detected	ppm	6/20/2000	6/20/2000	
6.1	ppm	7/5/2000	7/6/2000	
0.7	ppm	6/15/2000	6/16/2000	
2.1	ppm	6/15/2000	6/19/2000	
2.8	ppm	6/15/2000	6/21/2000	
3.4	ppm	6/15/2000	6/23/2000	
4.2	ppm	6/15/2000	6/26/2000	
4.6	ppm	6/15/2000	6/28/2000	
4.8	ppm	6/15/2000	6/30/2000	
5.3	ppm	6/15/2000	7/5/2000	
6.2	ppm	6/15/2000	7/14/2000	
7	ppm	6/15/2000	7/25/2000	
7.6	ppm	6/15/2000	8/4/2000	
8.1	ppm	6/15/2000	8/14/2000	
0.33	ppm	6/15/2000	6/15/2000	
0.3	ppm	6/15/2000	6/21/2000	6/16/2000
0.31	ppm	6/15/2000	6/21/2000	6/19/2000
0.33	ppm	6/15/2000	6/21/2000	6/21/2000
0.42	ppm	6/15/2000	6/23/2000	6/23/2000
0.43	ppm	6/15/2000	6/29/2000	6/26/2000
0.48	ppm	6/15/2000	6/29/2000	6/28/2000
0.48	ppm	6/15/2000	7/7/2000	6/30/2000
0.46	ppm	6/15/2000	7/7/2000	7/5/2000
0.51	ppm	6/15/2000	7/19/2000	7/14/2000
0.56	ppm	6/15/2000	7/26/2000	7/25/2000
0.57	ppm	6/15/2000	8/9/2000	8/4/2000
0.61	ppm	6/15/2000	8/16/2000	8/14/2000
0.35	ppm	6/15/2000	8/15/2000	8/14/2000
NR	M	6/14/2000	6/14/2000	
NR	ft	6/14/2000	6/14/2000	
NR		6/14/2000	6/14/2000	
NR	degrees C	6/14/2000	6/14/2000	
NR	ppm	6/14/2000	6/14/2000	
NR	umhos	6/14/2000	6/14/2000	
NR	inches	6/14/2000	6/14/2000	
NR	ppt	6/14/2000	6/14/2000	
Not detected	ppm	6/19/2000	6/19/2000	
6	ppm	6/15/2000	6/15/2000	
164	umhos/cm	6/16/2000	6/16/2000	
Not detected	PCU	6/15/2000	6/15/2000	
14.2	ppm	6/26/2000	6/26/2000	
not detected	ppm	6/26/2000	6/26/2000	
<1.0	ppm	6/16/2000	6/16/2000	
Not detected	ppm	6/15/2000	6/15/2000	
0.02	ppm	6/15/2000	6/15/2000	

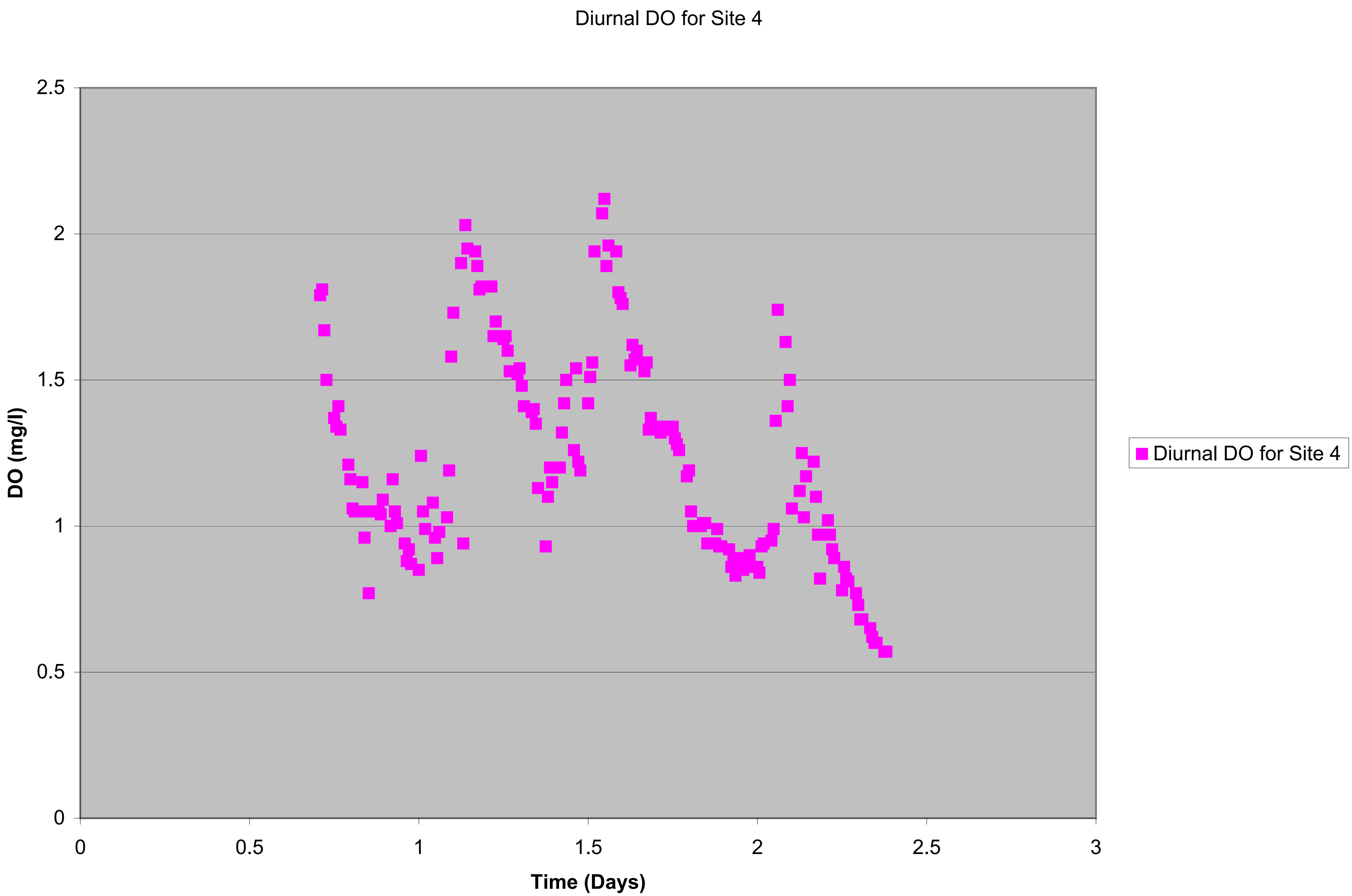
Not detected	ppm	6/20/2000	6/20/2000	
ND	ppm	6/20/2000	6/20/2000	
Not detected	ppm	6/20/2000	6/20/2000	
10	ppm	7/5/2000	7/6/2000	
10.9	ppm	7/5/2000	7/6/2000	
10.8	ppm	7/5/2000	7/6/2000	
0.461	% deviation	7/5/2000	7/6/2000	
Not detected	ppm	7/5/2000	7/6/2000	
0.1	ppm	6/15/2000	6/16/2000	
0.4	ppm	6/15/2000	6/19/2000	
0.5	ppm	6/15/2000	6/21/2000	
0.5	ppm	6/15/2000	6/23/2000	
0.6	ppm	6/15/2000	6/26/2000	
0.6	ppm	6/15/2000	6/28/2000	
0.6	ppm	6/15/2000	6/30/2000	
0.6	ppm	6/15/2000	7/5/2000	
0.7	ppm	6/15/2000	7/14/2000	
0.7	ppm	6/15/2000	7/25/2000	
0.7	ppm	6/15/2000	8/4/2000	
0.9	ppm	6/15/2000	8/14/2000	
0.03	ppm	6/15/2000	6/15/2000	
0.02	ppm	6/15/2000	6/21/2000	6/16/2000
0.03	ppm	6/15/2000	6/21/2000	6/19/2000
0.03	ppm	6/15/2000	6/21/2000	6/21/2000
0.03	ppm	6/15/2000	6/23/2000	6/23/2000
0.03	ppm	6/15/2000	6/29/2000	6/26/2000
0.02	ppm	6/15/2000	6/29/2000	6/28/2000
0.03	ppm	6/15/2000	7/7/2000	6/30/2000
0.03	ppm	6/15/2000	7/7/2000	7/5/2000
0.03	ppm	6/15/2000	7/19/2000	7/14/2000
0.02	ppm	6/15/2000	7/26/2000	7/25/2000
0.03	ppm	6/15/2000	8/9/2000	8/4/2000
0.02	ppm	6/15/2000	8/16/2000	8/14/2000
Not detected	ppm	6/15/2000	8/21/2000	8/14/2000



Diurnal DO Site 1
DO (mg/l)
3.5
3
2.5
2
1.5
1
0.5
0
0
0.5
1
1.5
2
2.5
3
Time (Days)
Diurnal DO Site 1


Diurnal DO for Site 2
DO (mg/l)
2.5
2
1.5
1
0.5
0
0
0.5
1
1.5
2
2.5
3
Time (Days)
Diurnal DO for Site 2

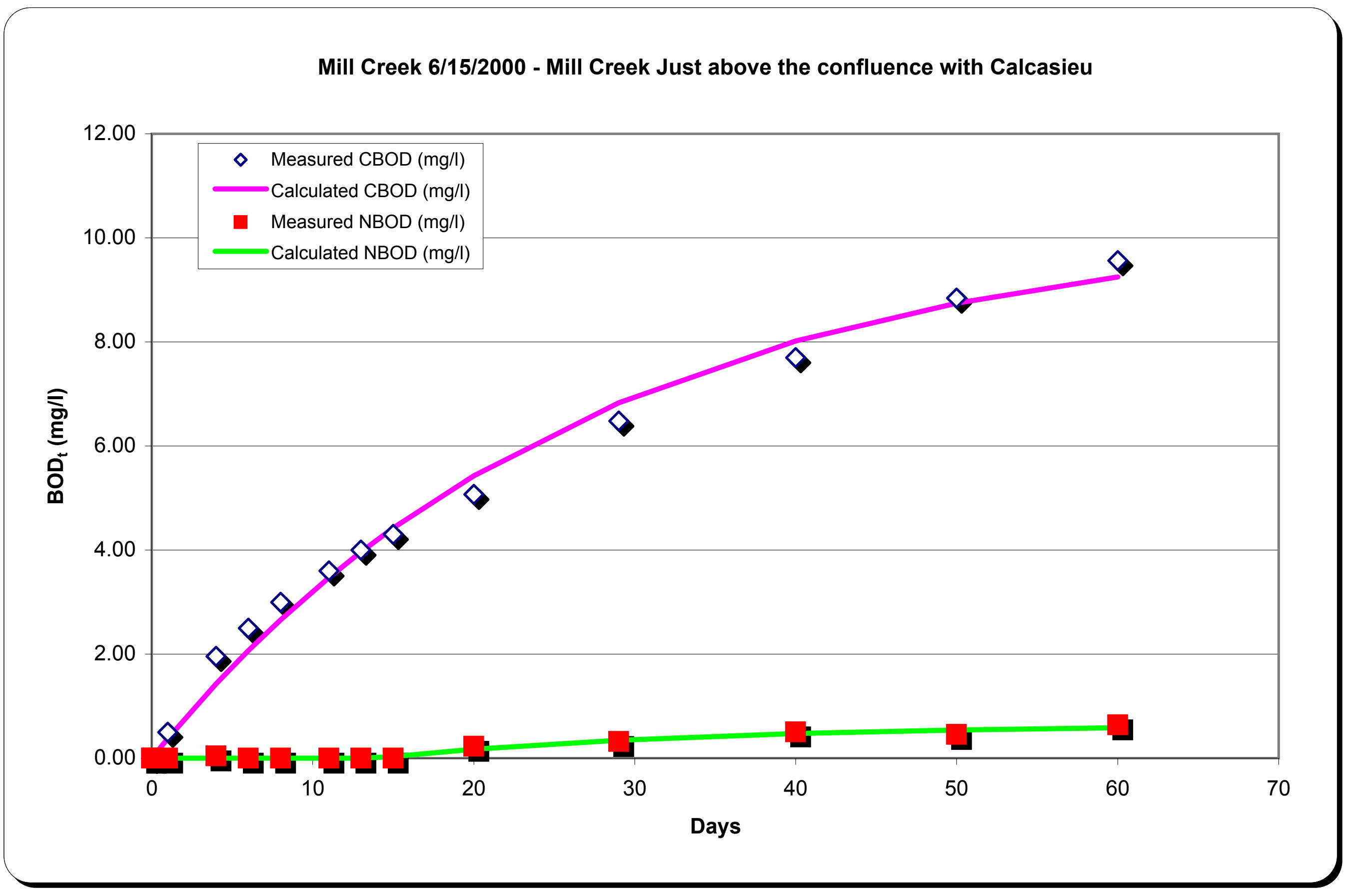

Diurnal DO for Site 3
DO (mg/l)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.02
0.04
0.06
0.08
0.1
0.12
Time (Days)
Site
Diurnal DO for Site 3



Diurnal DO for Site 4
DO (mg/l)
2.5
2
1.5
1
0.5
0
0
0.5
1
1.5
2
2.5
3
Time (Days)
Diurnal DO for Site 4

BOD Analysis of the for: **Mill Creek 6/15/2000 - Mill Creek Just above the confluence with Calcasieu**

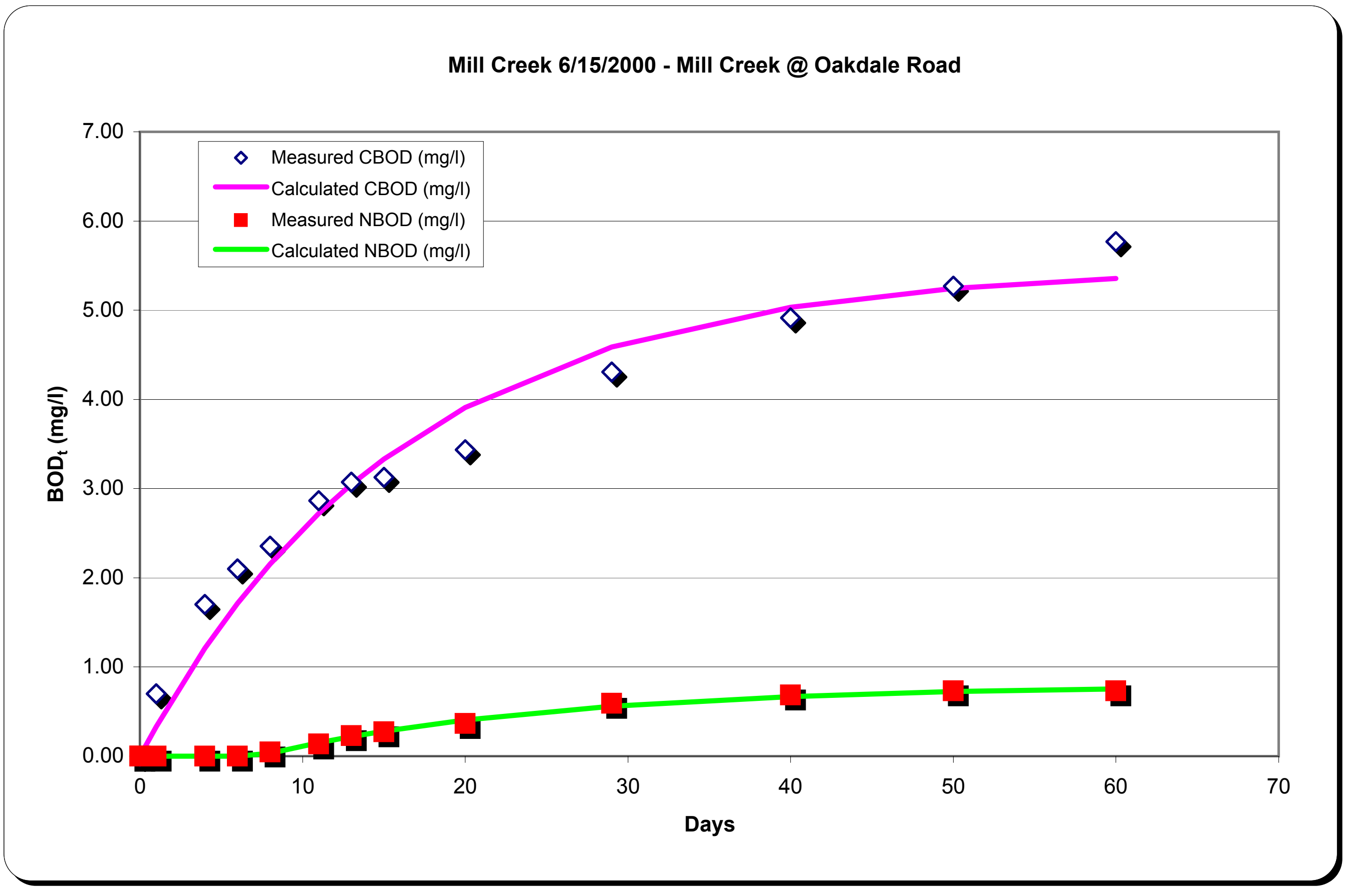
Measured Data					Calculated Data		
Days	***Total BOD (mg/l)***	***NOx as N (mg/l)***	***NBOD (mg/l)***	***CBOD (mg/l)***	***NBOD (mg/l)***	***CBOD (mg/l)***	
Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7	
0		0.04					
0	0.00	0.00			0.00	0.00	
0	0.00	0.00			0.00	0.00	
1	0.5	0.03	0.00	0.50	0.00	0.38	
4	2	0.05	0.05	1.95	0.00	1.43	
6	2.5	0.03	0.00	2.50	0.00	2.07	
8	3	0.03	0.00	3.00	0.00	2.66	
11	3.6	0.03	0.00	3.60	0.00	3.47	
13	4	0.03	0.00	4.00	0.00	3.97	
15	4.3	0.04	0.00	4.30	0.03	4.42	
20	5.3	0.09	0.23	5.07	0.17	5.43	
29	6.8	0.11	0.32	6.48	0.35	6.83	
40	8.2	0.15	0.50	7.70	0.48	8.02	
50	9.3	0.14	0.46	8.84	0.54	8.74	
60	10.2	0.18	0.64	9.56	0.58	9.25	
					0.64	10.37	**UBOD (mg/l)**
					0.05	0.04	**k rate (1/day)**
					14.05	0.00	**Lag time (days)**



Note 1 - Days from the BOD test start date.
Note 2 - Measured total BOD at time in "Days" column.
Note 3 - Measured (NO_2 + NO_3 as nitrogen) at time in "Days" column.
Note 4 - Calculated by multipling the measured (NO_2 +NO_3 as nitrogen) minus the day zero (NO_2 +NO_3 as nitrogen) by 4.57.
Note 5 - Determined by subtracting the calculated NBOD from the measured total BOD.
Note 6 - Calculated from the formula {NBODt=UNBOD[1-e-(k(t-lag))]} using the listed values of UNBOD, k decay rate and lag time.
Note 7 - Calculated from the formula {CBODt=UCBOD[1-e-(k(t-lag))]} using the listed values of UCBOD, k decay rate and lag time.

BOD Analysis of the for: **<u>Mill Creek 6/15/2000 - Mill Creek @ Oakdale Road</u>**

Measured Data					Calculated Data		
Days	***Total BOD (mg/l)***	***NOx as N (mg/l)***	***NBOD (mg/l)***	***CBOD (mg/l)***	***NBOD (mg/l)***	***CBOD (mg/l)***	
Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7	
0		0.05					
0	0.00	0.00			0.00	0.00	
0	0.00	0.00			0.00	0.00	
1	0.7	0.03	0.00	0.70	0.00	0.33	
4	1.7	0.03	0.00	1.70	0.00	1.21	
6	2.1	0.03	0.00	2.10	0.00	1.71	
8	2.4	0.06	0.05	2.35	0.03	2.15	
11	3	0.08	0.14	2.86	0.15	2.72	
13	3.3	0.1	0.23	3.07	0.22	3.05	
15	3.4	0.11	0.27	3.13	0.28	3.33	
20	3.8	0.13	0.37	3.43	0.41	3.91	
29	4.9	0.18	0.59	4.31	0.56	4.59	
40	5.6	0.2	0.69	4.91	0.67	5.03	
50	6	0.21	0.73	5.27	0.72	5.24	
60	6.5	0.21	0.73	5.77	0.75	5.36	
					0.80	5.49	**UBOD (mg/l)**
					0.06	0.06	**k rate (1/day)**
					7.28	0.00	**Lag time (days)**



Note 1 - Days from the BOD test start date.

Note 2 - Measured total BOD at time in "Days" column.

Note 3 - Measured (NO_2 + NO_3 as nitrogen) at time in "Days" column.

Note 4 - Calculated by multipling the measured (NO_2 +NO_3 as nitrogen) minus the day zero (NO_2 +NO_3 as nitrogen) by 4.57.

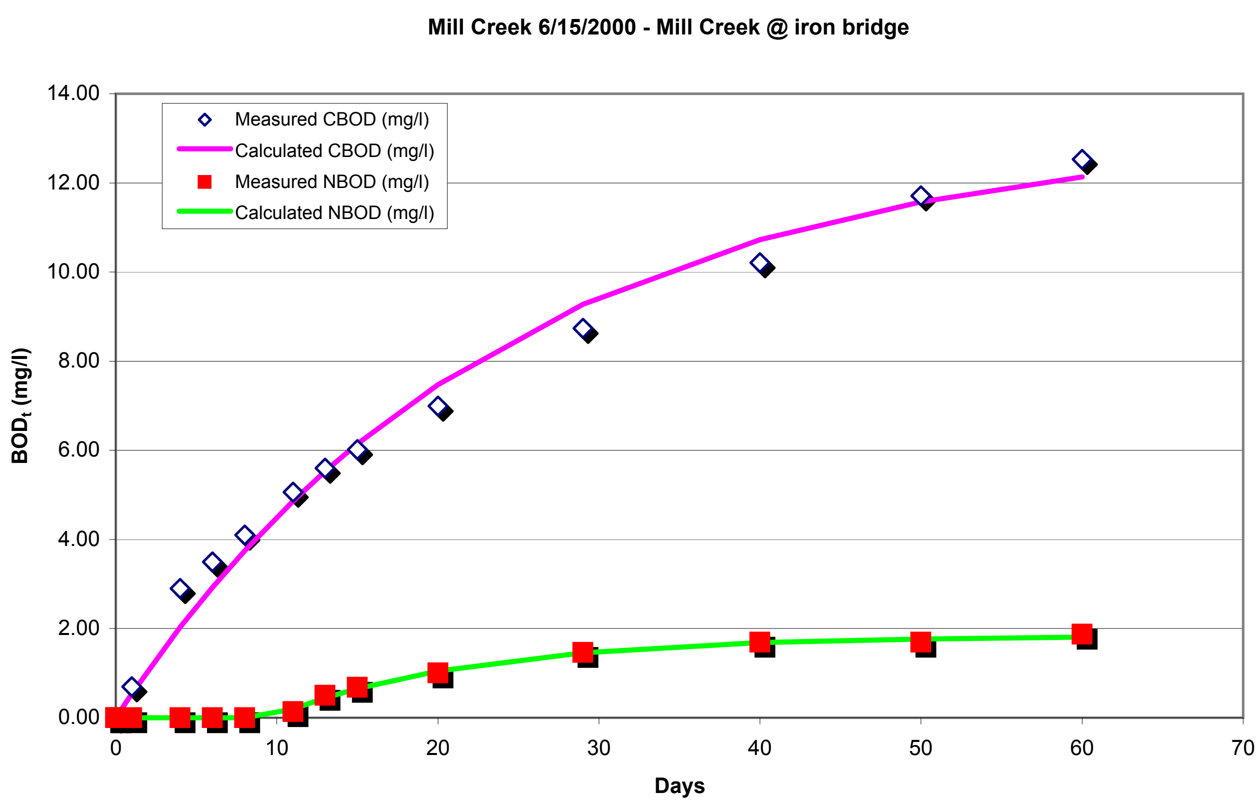
Note 5 - Determined by subtracting the calculated NBOD from the measured total BOD.

Note 6 - Calculated from the formula {NBODt=UNBOD[1-e-(k(t-lag))]} using the listed values of UNBOD, k decay rate and lag time.

Note 7 - Calculated from the formula {CBODt=UCBOD[1-e-(k(t-lag))]} using the listed values of UCBOD, k decay rate and lag time.

BOD Analysis of the for: **Mill Creek 6/15/2000 - Mill Creek @ iron bridge**

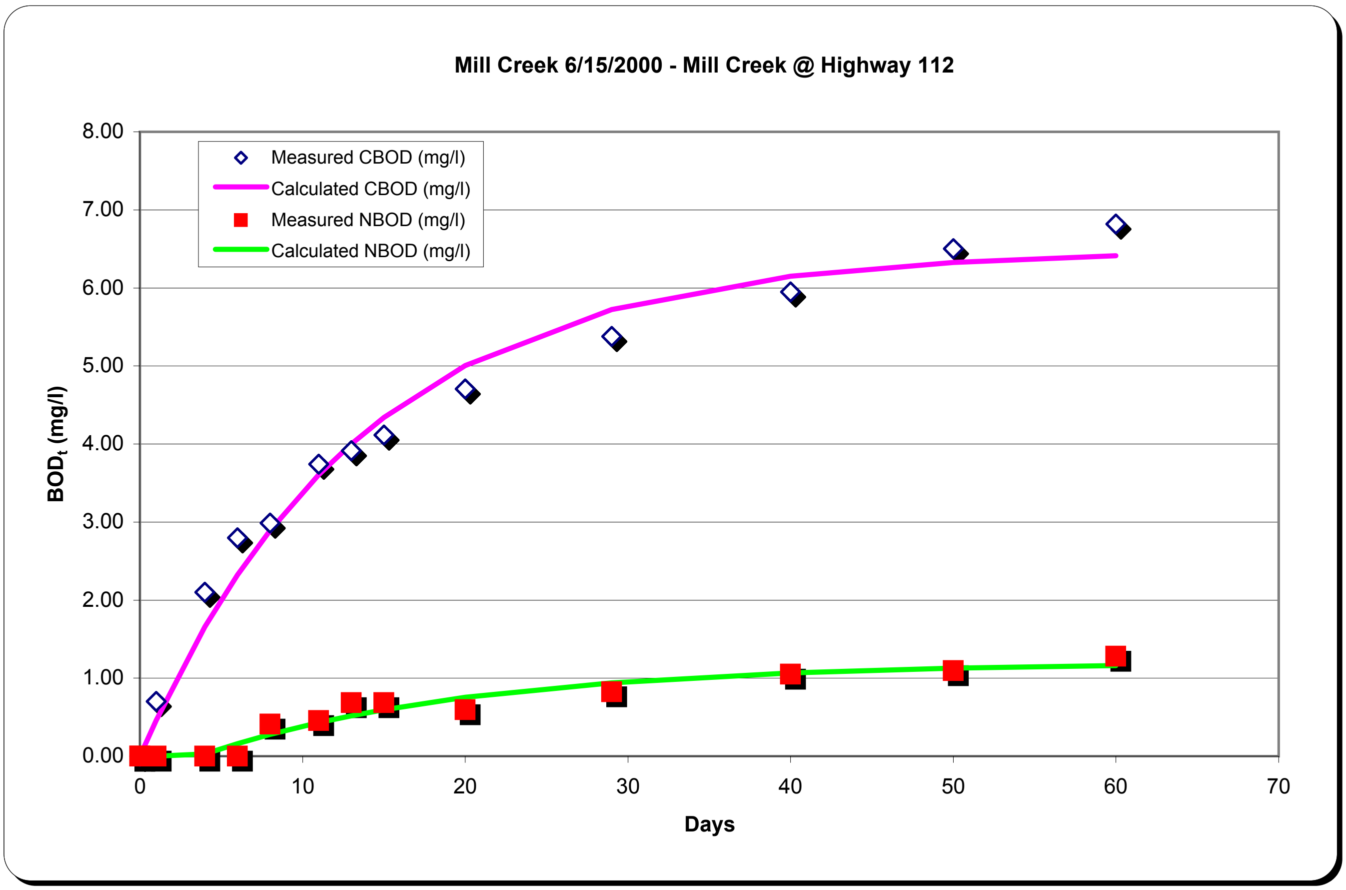
Measured Data					Calculated Data		
Days	***Total BOD (mg/l)***	***NOx as N (mg/l)***	***NBOD (mg/l)***	***CBOD (mg/l)***	***NBOD (mg/l)***	***CBOD (mg/l)***	
Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7	
0		0.06					
0	0.00	0.00			0.00	0.00	
0	0.00	0.00			0.00	0.00	
1	0.7	0.04	0.00	0.70	0.00	0.54	
4	2.9	0.04	0.00	2.90	0.00	2.03	
6	3.5	0.04	0.00	3.50	0.00	2.92	
8	4.1	0.06	0.00	4.10	0.00	3.75	
11	5.2	0.09	0.14	5.06	0.20	4.86	
13	6.1	0.17	0.50	5.60	0.44	5.53	
15	6.7	0.21	0.69	6.01	0.65	6.14	
20	8	0.28	1.01	6.99	1.05	7.48	
29	10.2	0.38	1.46	8.74	1.46	9.27	
40	11.9	0.43	1.69	10.21	1.68	10.72	
50	13.4	0.43	1.69	11.71	1.77	11.58	
60	14.4	0.47	1.87	12.53	1.81	12.14	
					1.84	13.22	**UBOD (mg/l)**
					0.08	0.04	**k rate (1/day)**
					9.63	0.00	**Lag time (days)**



Note 1 - Days from the BOD test start date.
Note 2 - Measured total BOD at time in "Days" column.
Note 3 - Measured (NO_2 + NO_3 as nitrogen) at time in "Days" column.
Note 4 - Calculated by multipling the measured (NO_2 +NO_3 as nitrogen) minus the day zero (NO_2 +NO_3 as nitrogen) by 4.57.
Note 5 - Determined by subtracting the calculated NBOD from the measured total BOD.
Note 6 - Calculated from the formula {NBODt=UNBOD[1-e-(k(t-lag))]} using the listed values of UNBOD, k decay rate and lag time.
Note 7 - Calculated from the formula {CBODt=UCBOD[1-e-(k(t-lag))]} using the listed values of UCBOD, k decay rate and lag time.

BOD Analysis of the for: **<u>Mill Creek 6/15/2000 - Mill Creek @ Highway 112</u>**

Measured Data					Calculated Data		
Days	***Total BOD (mg/l)***	***NOx as N (mg/l)***	***NBOD (mg/l)***	***CBOD (mg/l)***	***NBOD (mg/l)***	***CBOD (mg/l)***	
Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7	
0		0.33					
0	0.00	0.00			0.00	0.00	
0	0.00	0.00			0.00	0.00	
1	0.7	0.3	0.00	0.70	0.00	0.46	
4	2.1	0.31	0.00	2.10	0.03	1.66	
6	2.8	0.33	0.00	2.80	0.16	2.32	
8	3.4	0.42	0.41	2.99	0.28	2.89	
11	4.2	0.43	0.46	3.74	0.43	3.61	
13	4.6	0.48	0.69	3.91	0.52	4.00	
15	4.8	0.48	0.69	4.11	0.60	4.34	
20	5.3	0.46	0.59	4.71	0.75	5.00	
29	6.2	0.51	0.82	5.38	0.94	5.72	
40	7	0.56	1.05	5.95	1.07	6.15	
50	7.6	0.57	1.10	6.50	1.13	6.33	
60	8.1	0.61	1.28	6.82	1.16	6.41	
					1.20	6.49	**UBOD (mg/l)**
					0.06	0.07	**k rate (1/day)**
					3.60	0.00	**Lag time (days)**



Note 1 - Days from the BOD test start date.

Note 2 - Measured total BOD at time in "Days" column.

Note 3 - Measured (NO_2 + NO_3 as nitrogen) at time in "Days" column.

Note 4 - Calculated by multipling the measured (NO_2 +NO_3 as nitrogen) minus the day zero (NO_2 +NO_3 as nitrogen) by 4.57.

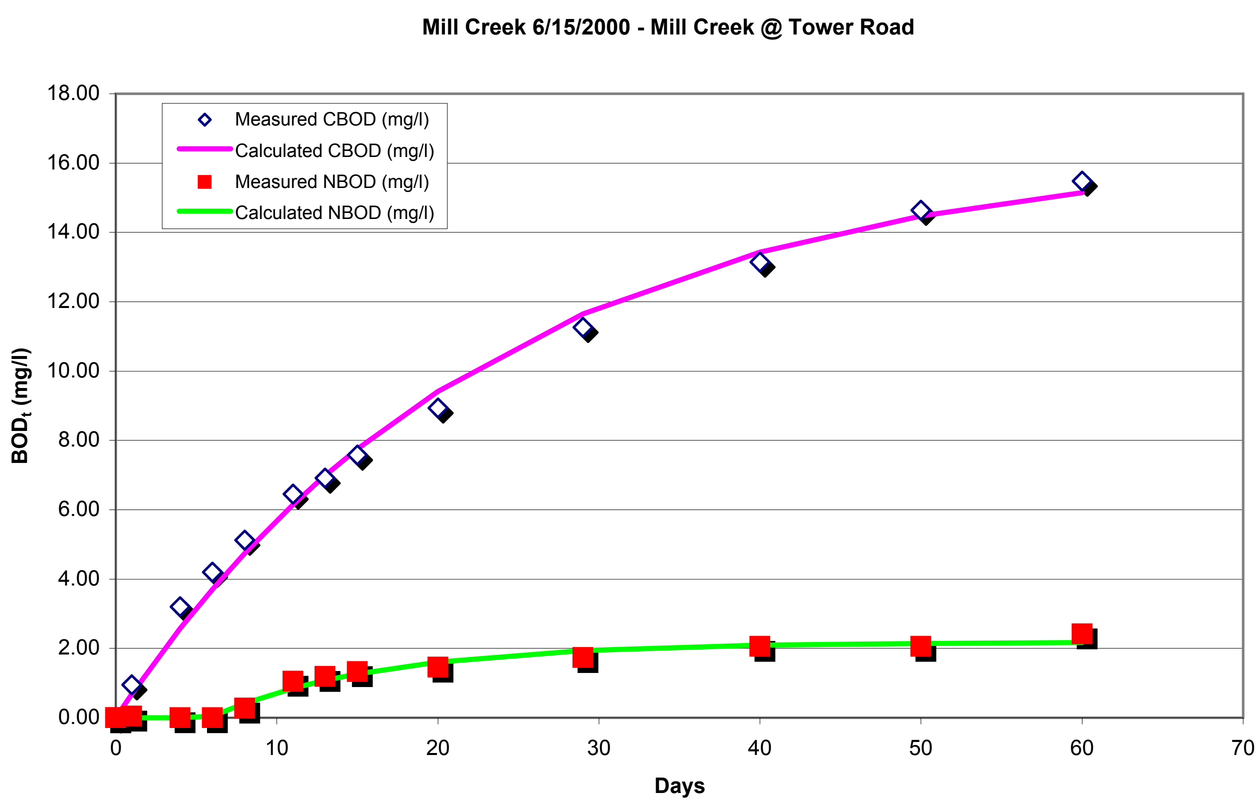
Note 5 - Determined by subtracting the calculated NBOD from the measured total BOD.

Note 6 - Calculated from the formula {NBODt=UNBOD[1-e-(k(t-lag))]} using the listed values of UNBOD, k decay rate and lag time.

Note 7 - Calculated from the formula {CBODt=UCBOD[1-e-(k(t-lag))]} using the listed values of UCBOD, k decay rate and lag time.

BOD Analysis of the for: **Mill Creek 6/15/2000 - Mill Creek @ Tower Road**

Measured Data					Calculated Data		
Days	***Total BOD (mg/l)***	***NOx as N (mg/l)***	***NBOD (mg/l)***	***CBOD (mg/l)***	***NBOD (mg/l)***	***CBOD (mg/l)***	
Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7	
0		0.04					
0	0.00	0.00			0.00	0.00	
0	0.00	0.00			0.00	0.00	
1	1	0.05	0.05	0.95	0.00	0.69	
4	3.2	0.04	0.00	3.20	0.00	2.57	
6	4.2	0.04	0.00	4.20	0.04	3.70	
8	5.4	0.1	0.27	5.13	0.41	4.74	
11	7.5	0.27	1.05	6.45	0.85	6.15	
13	8.1	0.3	1.19	6.91	1.08	6.98	
15	8.9	0.33	1.33	7.57	1.27	7.76	
20	10.4	0.36	1.46	8.94	1.61	9.42	
29	13	0.42	1.74	11.26	1.93	11.65	
40	15.2	0.49	2.06	13.14	2.09	13.43	
50	16.7	0.49	2.06	14.64	2.14	14.47	
60	17.9	0.57	2.42	15.48	2.17	15.15	
					2.18	16.42	**UBOD (mg/l)**
					0.09	0.04	**k rate (1/day)**
					5.78	0.00	**Lag time (days)**



Note 1 - Days from the BOD test start date.

Note 2 - Measured total BOD at time in "Days" column.

Note 3 - Measured (NO_2 + NO_3 as nitrogen) at time in "Days" column.

Note 4 - Calculated by multipling the measured (NO_2 +NO_3 as nitrogen) minus the day zero (NO_2 +NO_3 as nitrogen) by 4.57.

Note 5 - Determined by subtracting the calculated NBOD from the measured total BOD.

Note 6 - Calculated from the formula {NBODt=UNBOD[1-e-(k(t-lag))]} using the listed values of UNBOD, k decay rate and lag time.

Note 7 - Calculated from the formula {CBODt=UCBOD[1-e-(k(t-lag))]} using the listed values of UCBOD, k decay rate and lag time.

Appendix D

Historical and Ambient Data

Critical Temperature and DO Sat Determinations for Propo

Site Description:	Mill Creek Southwest of Elizabeth, Louisiana, 0821

Input values into shaded area

Raw Data				
Date			DO	Temperature
Mo	D	Yr	(mg/l)	(C^o)
12	15	99	1.82	10.05
11	8	99	0.55	11.88
10	13	99	5.61	20.85
9	14	99	0.65	23.08
8	11	99	0.36	26.54
7	14	99	4.07	24.16
6	9	99	0.28	24.05
5	12	99	2.8	20.5
4	14	99	1.82	20.2
3	10	99	5.36	15.77
2	10	99	3.8	19.64
1	13	99	7.9	10.8

Summer Chlorinity	**0**
Winter Chlorinity	**0**
Summer Season 90th Percentile, Temperature(^{o}C):	**25.8**
Winter Season 90th Percentile, Temperature(^{o}C):	**21.6**
Summer Season 90 percent DO Sat	**7.3**
Winter Season 90 percent DO Sat	**7.9**

Summer Season
7
8
9
10

Winter Season
11
12
1
2
3
4
5
6

Critical Temperature and DO Sat Determinations for Curre

Site Description: Mill Creek Southwest of Elizabeth, Louisiana, 0821

Input values into shaded area

Raw Data				
Date			DO	Temperature
Mo	D	Yr	(mg/l)	(C^o)
12	15	99	1.82	10.05
11	8	99	0.55	11.88
10	13	99	5.61	20.85
9	14	99	0.65	23.08
8	11	99	0.36	26.54
7	14	99	4.07	24.16
6	9	99	0.28	24.05
5	12	99	2.8	20.5
4	14	99	1.82	20.2
3	10	99	5.36	15.77
2	10	99	3.8	19.64
1	13	99	7.9	10.8

Summer Chlorinity	**0**
Winter Chlorinity	**0**
Summer Season 90th Percentile, Temperature(^{o}C):	**25.4**
Winter Season 90th Percentile, Temperature(^{o}C):	**19.9**
Summer Season 90 percent DO Sat	**7.4**
Winter Season 90 percent DO Sat	**8.2**

Summer Season
5
6
7
8
9
10

Winter Season
11
12
1
2
3
4

MILL CREEK

LAND USE	ACRES	PERCENT
Agricultural land	1681.6260	3.25302
Forest land	26929.3310	52.09343
Rangeland	13041.0790	25.22731
Water	808.1860	1.56339
Wetland	9234.0740	17.86285

Appendix E

Recommended TMDL

Summer TMDL Summary:

Mill Creek - Current Standards

Calculation of the TMDL - Kilograms per day			
Load description	WLA (kg/day)	LA (kg/day)	MOS Load (kg/day)
Point Source loads	17		4
Headwater / Tributatary loads		50	4
Benthic loads		58	6
Incremental Loads		0	0
SUB-TOTAL	**17**	**108**	**14**
TMDL = WLA + LA + MOS	*139 kg/day*		

Calculation of the TMDL - Pounds per day			
Load description	WLA (lbs/day) (1)	LA (lbs/day) (1)	MOS Load (lbs/day) (1)
Point Source loads	37		9
Headwater / Tributatary loads		110	9
Benthic loads		128	13
Incremental Loads		0	0
SUB-TOTAL	**37**	**238**	**31**
TMDL = WLA + LA + MOS	*306 lbs/day*		

Notes:

(1) - Load(lbs/day) = Load(kg/day) x 2.205

Calculation of the TMDL - Kilograms per day			
Load description	WLA (kg/day)	LA (kg/day)	MOS Load (kg/day)
Point Source loads	17		4
Natural Nonpoint Loads		96	
Manmade Nonpoint Loads		12	10
SUB-TOTAL	**17**	**108**	**14**
TMDL = WLA + LA + MOS	*139 lbs/day*		

Calculation of the TMDL - Pounds per day			
Load description	WLA (lbs/day)	LA (lbs/day)	MOS Load (lbs/day)
Point Source loads	37		9
Natural Nonpoint Loads		212	
Manmade Nonpoint Loads		26	22
SUB-TOTAL	**37**	**238**	**31**
TMDL = WLA + LA + MOS	*306 lbs/day*		

Winter TMDL Summary:

Mill Creek - Current Standards

Calculation of the TMDL - Kilograms per day			
Load description	WLA (kg/day)	LA (kg/day)	MOS Load (kg/day)
Point Source loads	17		4
Headwater / Tributatary loads		134	11
Benthic loads		46	4
Incremental Loads		0	0
SUB-TOTAL	**17**	**180**	**19**
TMDL = WLA + LA + MOS	*216 kg/day*		

Calculation of the TMDL - Pounds per day			
Load description	WLA (lbs/day) (1)	LA (lbs/day) (1)	MOS Load (lbs/day) (1)
Point Source loads	37		9
Headwater / Tributatary loads		295	24
Benthic loads		101	9
Incremental Loads		0	0
SUB-TOTAL	**37**	**396**	**42**
TMDL = WLA + LA + MOS	*475 lbs/day*		

Notes:

(1) - Load(lbs/day) = Load(kg/day) x 2.205

Calculation of the TMDL - Kilograms per day			
Load description	WLA (kg/day)	LA (kg/day)	MOS Load (kg/day)
Point Source loads	17		4
Natural Nonpoint Loads		135	
Manmade Nonpoint Loads		45	15
SUB-TOTAL	**17**	**180**	**19**
TMDL = WLA + LA + MOS	*216 lbs/day*		

Calculation of the TMDL - Pounds per day			
Load description	WLA (lbs/day)	LA (lbs/day)	MOS Load (lbs/day)
Point Source loads	37		9
Natural Nonpoint Loads		297	
Manmade Nonpoint Loads		99	33
SUB-TOTAL	**37**	**396**	**42**
TMDL = WLA + LA + MOS	*475 lbs/day*		

Summer TMDL Summary:

Mill Creek - Proposed Standards

Calculation of the TMDL - Kilograms per day			
Load description	WLA (kg/day)	LA (kg/day)	MOS Load (kg/day)
Point Source loads	17		4
Headwater / Tributatary loads		75	10
Benthic loads		97	15
Incremental Loads		0	0
SUB-TOTAL	**17**	**172**	**29**
TMDL = WLA + LA + MOS	***218 kg/day***		

Calculation of the TMDL - Pounds per day			
Load description	WLA (lbs/day) (1)	LA (lbs/day) (1)	MOS Load (lbs/day) (1)
Point Source loads	37		9
Headwater / Tributatary loads		165	22
Benthic loads		214	33
Incremental Loads		0	0
SUB-TOTAL	**37**	**379**	**64**
TMDL = WLA + LA + MOS	***480 lbs/day***		

Notes:

(1) - Load(lbs/day) = Load(kg/day) x 2.205

Calculation of the TMDL - Kilograms per day			
Load description	WLA (kg/day)	LA (kg/day)	MOS Load (kg/day)
Point Source loads	17		4
Natural Nonpoint Loads		97	
Manmade Nonpoint Loads		76	25
SUB-TOTAL	**17**	**172**	**29**
TMDL = WLA + LA + MOS	***218 lbs/day***		

Calculation of the TMDL - Pounds per day			
Load description	WLA (lbs/day)	LA (lbs/day)	MOS Load (lbs/day)
Point Source loads	37		9
Natural Nonpoint Loads		214	
Manmade Nonpoint Loads		167	55
SUB-TOTAL	**37**	**381**	**64**
TMDL = WLA + LA + MOS	***482 lbs/day***		

Winter TMDL Summary:

Mill Creek - Proposed Standards

Calculation of the TMDL - Kilograms per day			
Load description	WLA (kg/day)	LA (kg/day)	MOS Load (kg/day)
Point Source loads	17		4
Headwater / Tributatary loads		206	29
Benthic loads		81	13
Incremental Loads		0	0
SUB-TOTAL	**17**	**287**	**46**
TMDL = WLA + LA + MOS	**350 kg/day**		

Calculation of the TMDL - Pounds per day			
Load description	WLA (lbs/day) (1)	LA (lbs/day) (1)	MOS Load (lbs/day) (1)
Point Source loads	37		9
Headwater / Tributatary loads		454	64
Benthic loads		179	29
Incremental Loads		0	0
SUB-TOTAL	**37**	**633**	**102**
TMDL = WLA + LA + MOS	**772 lbs/day**		

Notes:

(1) - Load(lbs/day) = Load(kg/day) x 2.205

Calculation of the TMDL - Kilograms per day			
Load description	WLA (kg/day)	LA (kg/day)	MOS Load (kg/day)
Point Source loads	17		4
Natural Nonpoint Loads		137	
Manmade Nonpoint Loads		150	42
SUB-TOTAL	**17**	**287**	**46**
TMDL = WLA + LA + MOS	**350 lbs/day**		

Calculation of the TMDL - Pounds per day			
Load description	WLA (lbs/day)	LA (lbs/day)	MOS Load (lbs/day)
Point Source loads	37		9
Natural Nonpoint Loads		302	
Manmade Nonpoint Loads		331	93
SUB-TOTAL	**37**	**633**	**102**
TMDL = WLA + LA + MOS	**772 lbs/day**		

Appendix F

Maps and Diagrams