UPPER CALCASIEU RIVER WATERSHED TMDL
FOR BIOCHEMICAL OXYGEN-DEMAND SUBSTANCES OR POLLUTANTS

SUBSEGMENT 030101

SURVEYED: JULY 24-25, 2001

TMDL REPORT

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EXECUTIVE SUMMARY

This report presents the results of a watershed based, calibrated modeling analysis of Upper Calcasieu River. The modeling was conducted to establish a TMDL for biochemical oxygen-demanding pollutants in the Upper Calcasieu River watershed. The model extends from its headwaters to its subsegment boundary at the Hwy 8 Bridge. The Upper Calcasieu River watershed is subsegment 030101 of the Calcasieu River Basin (Basin 03). Subsegment 030101 is comprised of Upper Calcasieu River and several unnamed intermittent tributaries. The watershed is 30,710 acres in area. The area is sparsely populated and land use is dominated by upland and wetland forest. Only four treatment facilities were found to have loads, which could affect the dissolved oxygen in the tributaries feeding the mainstem water body. However they should have no appreciable affect on the dissolved oxygen in the 305b listed water body. These were not included in the modeling effort but were addressed in the TMDL calculation using their existing state policy based permit limits.

Input data for the calibration model was developed from data collected during the July, 2001 intensive survey; data collected by LDEQ at monitoring stations in the watershed; the LDEQ Reference Stream Studies; USGS low flow publications; and data garnered from several previous LDEQ studies on non-point source loadings. A satisfactory calibration was achieved for the main stem. In those cases where the calibration was not as accurate, the difference was in the conservative direction. For the projection models, data was taken from the ambient water temperature records. The Louisiana Total Maximum Daily Load Technical Procedures (06/15/2001), where applicable, have been followed in this study.

Upon review of several long-term LDEQ ambient stations in the area, it was determined that the critical period for dissolved oxygen is the summer (low flow) condition. Thus, seasonal modeling was limited to low flow/high season temperature scenarios. The model used was LAQUAL, a modified version of QUAL-TX, which has been adapted to address specific needs of Louisiana waters.

Upper Calcasieu River, Subsegment 030101, was not on any 303(d) list; however, the subsegment was part of the 1999 ambient monitoring program and listed in the 2000 305(b) report. The subsegment was found to be "not supporting" its designated use of Fish and Wildlife. It was "fully supporting" the Primary and Secondary Contact Recreation as well as it's agricultural uses. Upper Calcasieu River was subsequently scheduled for TMDL development with other listed waters in the Calcasieu River Basin. The suspected causes of impairment are organic enrichment/low D.O.. The suspected sources of impairment are natural sources. This TMDL addresses the organic enrichment/low DO impairment.

The results of the projection modeling show that the water quality standard for dissolved oxygen of 5.0 mg/l can be maintained during the summer critical season with an 82.5% reduction of the total non-point pollution. The projection model minimum DO of 5.04 mg/l was from RK 0.3 to RK 0.0, where the baseline zero river kilometer is located at Hwy 8 the subsegment boundary.

As stated in the 2000 305b report, the majority of total non-point dissolved oxygen loading is natural background. This fact and the high reduction in the total non-point loading, indicates that the current criteria is inappropriate for this subsegment. A reassessment of the dissolved oxygen criteria is recommended.

Table 1. Total Maximum Daily Load (Sum of CBOD, NH_3-N, and SOD)

ALLOCATION	Annual	
	% Reduction Required	(Jan-Dec) (lbs/day)
Point Source WLA	0	9.04
Point Source Reserve MOS	0	2.27
Total Nonpoint Source LA	82.50	132.93
Total Nonpoint Source Reserve MOS	0	33.23
TMDL		177.47

The results of the winter projection model show that the water quality criterion for dissolved oxygen of 5.0 mg/l can be maintained during the winter critical season with same 82.5% reduction in total non-point source pollution that was used in the critical season projection.

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.

2002 - Red and Sabine River Basins
2003 - Mermentau and Vermilion-Teche River Basins

2004 - Calcasieu and Ouachita River Basins
2005 - Barataria and Terrebonne Basins
2006 - Lake Pontchartrain Basin and Pearl River Basin
(Atchafalaya and Mississippi Rivers will be sampled continuously.)

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1. Introduction

Upper Calcasieu River, Subsegment 030101 of the Calcasieu River Basin, was part of the 1999 ambient sampling. Upon analysis of a 1999 study of water quality data, the waterbody 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. A water quality survey was performed, and upon completion, a calibrated water quality model for the Upper Calcasieu River watershed was developed. Based on the calibration model, projections were run to quantify the nonpoint source load allocations (LAs), wasteloads (WLAs) and margin of safety (MOS) required to meet established dissolved oxygen criteria. This TMDL establishes load limitations for oxygen-demanding substances and goals for reduction of those pollutants. This report presents the model development and results.

2. Study Area Description

2.1 General Information

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 approximately 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 end around Calcasieu Lake.

Table 2. Land Uses in 030101

LAND USE	ACRES	PERCENT
Wetland Forest Deciduous	1,361	4.43
Wetland Forest Mixed	339	1.11
Upland Forest Deciduous	335	1.09
Upland Forest Evergreen	15,568	50.69
Upland Forest Mixed	1,551	5.05
Dense Pine Thicket	1,365	4.44
Wetland Forest Mixed	57	0.19
Upland Forest Evergreen	761	2.48
Upland Forest Mixed	6,489	21.13
Dense Pine Thicket	1,784	5.81
Water	1,099	3.58

Figure 1. Vector Diagram

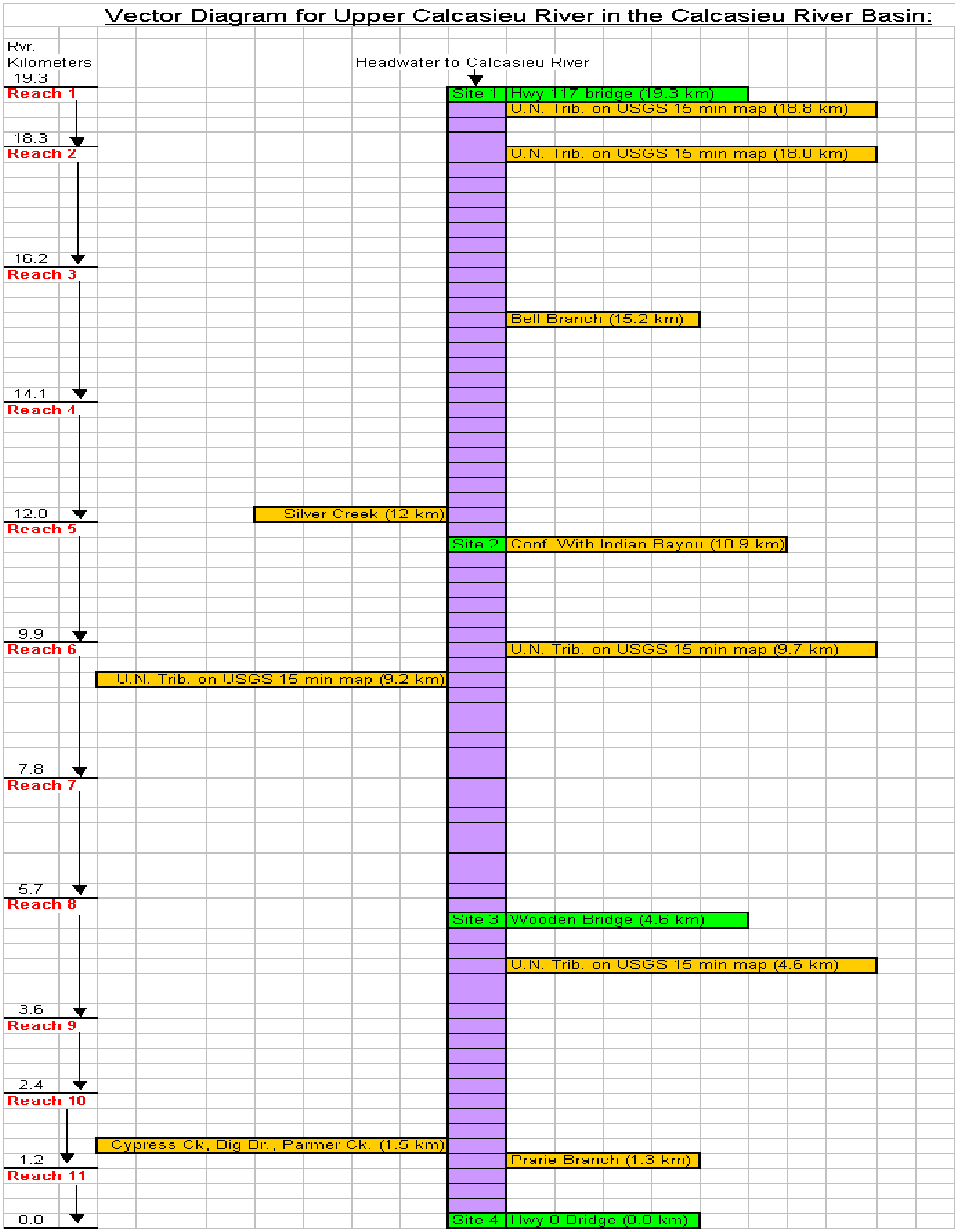
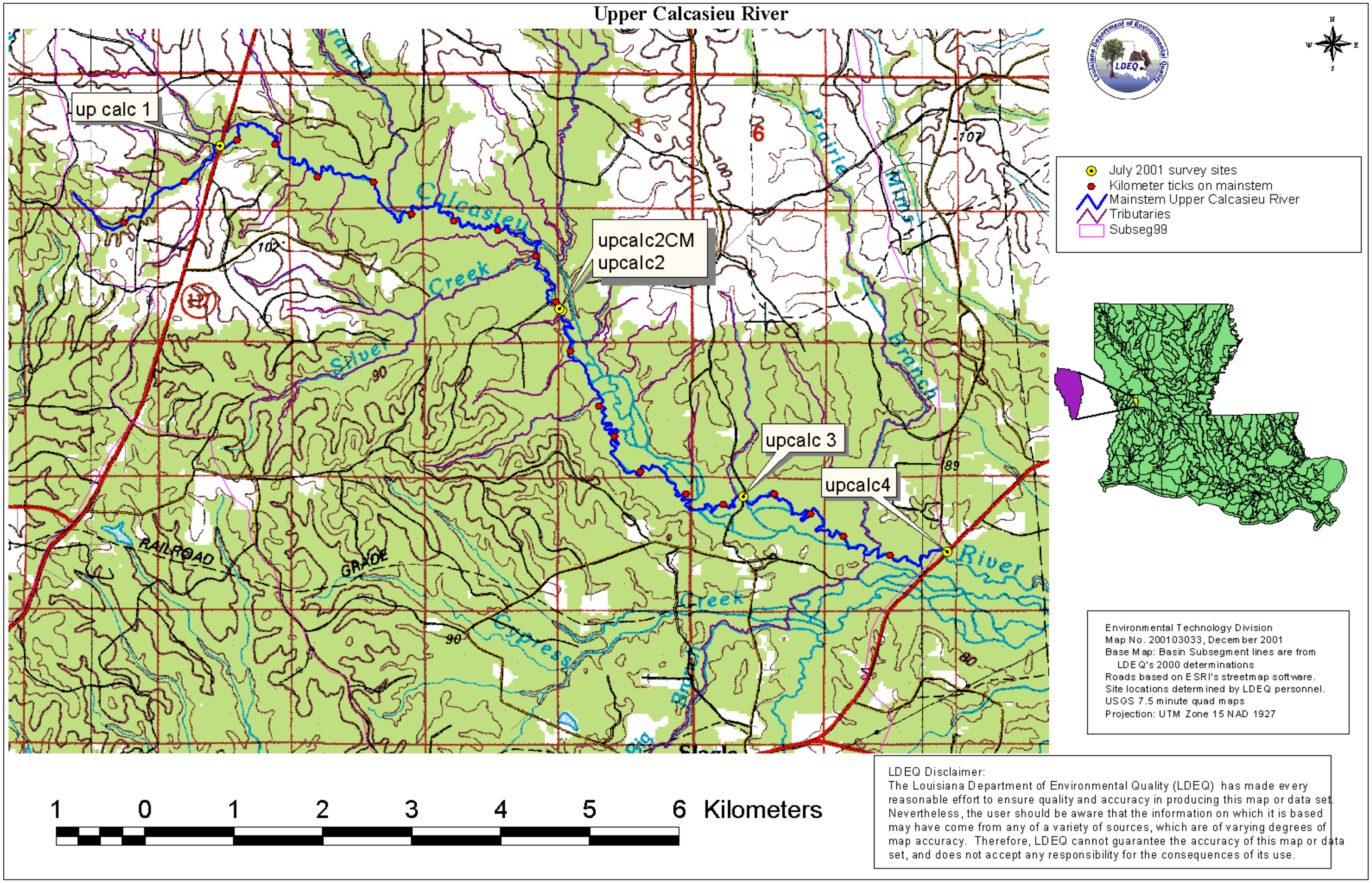


Figure 2. Map of Study Area



2.2 Water Quality Standards

The Water Quality criteria and designated uses for Upper Calcasieu River (030101) watershed are shown in Table 3.

Table 3. Water Quality Numerical Criteria and Designated Uses

Subsegment	030101
Stream Description	Upper Calcasieu River
Designated Uses	A,B,C,F
Criteria:	
Cl	65
SO_4	35
DO	5
pH	6.0 – 8.5
BAC	1
EC	32
TDS	225

USES: A – primary contact recreation; B – secondary contact recreation; C – propagation of fish and wildlife; D – drinking water supply; E – oyster propagation; F – agriculture; G – outstanding natural resource water; L – limited aquatic life and wildlife use.

Note 1 – 200 colonies/100 mL maximum log mean and no more than 25% of samples exceeding 400 colonies/100 mL for the period May through October; 1,000 colonies/100mL maximum log mean and no more than 25% of samples exceeding 2,000 colonies/100mL for the period November through April.

2.3 Wastewater Discharges

A facility review was performed and is included in Table 4. Most of the dischargers in this watershed are small and located on tributaries or ditches to the Upper Calcasieu River. These were not included in the TMDL model. It is unlikely that they will have an impact on the targeted waterbody due to the small load and/or the distance from the Upper Calcasieu River. These dischargers are included in the TMDL load calculations using their current state policy based permit limits along with their anticipated flows.

Table 4. Discharger Inventory for Subsegment 030701

FACILITY	FILE_NUM	Out-fall No.	OUTFALL DESCRIPTION	FAC_TYPE	REC_WATER	EXPECTED FLOW, GPD	Monthly Avg. BOD, mg/L	Monthly Avg. TSS, mg/L	MODELING COMMENTS
BLANSETT APTS.	LAG530087	001	Sanitary outfall	APT. COMPLEX STP	PALMER CREEK-WHISKEY CHITTO	1,620	45	45	Small discharge will be included in the TMDL calculations but not the model.
MAGEES TRAILER PK	LAG530348	001	Sanitary outfall	2 2-CELL OX POND	DITCH-PARMER CREEK-CALCASIEU RIVER	2,850	45	45	Small discharge will be included in the TMDL calculations but not the model.
MOORE'S TRAILER PARK	LAG530381	001	Sanitary outfall	TRAILER PARK 3-CELL OXID. POND	PARMER CREEK-CALCASIEU RIVER	1,800	45	45	Small discharge will be included in the TMDL calculations but not the model.
MARSHALL TRAILER PARK	LAG530353	001	Sanitary outfall	1600 GPD 2-CELL OXID. POND	BIG BRANCH-CALCASIEU RIVER	1,200	45	45	Small discharge will be included in the TMDL calculations but not the model

2.4 Water Quality Conditions/Assessment

Subsegment 030101, Upper Calcasieu River is not supporting its designated use of fish and wildlife propagation according to the 2000 305(b) Water Quality assessment for Louisiana. The suspected sources affecting the dissolved oxygen in the waterbody are natural sources. Upper Calcasieu River, Subsegment 030101, was not on any previous 303(d) list for fish and wildlife propagation; however, it was part of the 1999 enhanced ambient monitoring program. This new data showed dissolved oxygen standard exceedences prompting its inclusion on the list of TMDL targets. Upper Calcasieu River was subsequently scheduled for TMDL development with the other listed waters in the Calcasieu River Basin.

2.5 Prior Studies

LDEQ had one monthly water quality sampling station on Upper Calcasieu River. LDEQ WQ site 0819 has a period of record from Jan. 1999 to Dec. 1999. Data collected during the Eularian survey conducted in July 24-25, 2001, included discharge data, cross-section data, field in-situ data, continuous in-situ monitor and lab water quality data. Also additional discharge data was collected subsequent to the July,2000 survey to assist in the determination of hydraulic coefficients and exponents. This data was used to establish the input for the model calibration and is presented in Appendix C.

3. Documentation of Calibration Model

3.1 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. LA-QUAL 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. 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 in to 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 which 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 which 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, which 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, which were measured. In other words, the model produces a value of the dissolved oxygen, temperature, or other parameters, which 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 said to be 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 said to be 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 which 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.

3.2 Input Data Documentation

Data collected during an intensive survey conducted from July 24-25, 2001, was used to establish the input for the model calibration and is presented in Appendix C. The flows in each reach and headwater were based on the measured survey discharges and extrapolated for the reaches between measurement sites.

Field and laboratory water quality data were entered in a spreadsheet for ease of analysis. Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD and Nonconservative Material (NCM) in the LAQUAL model. NBOD was modeled as organic nitrogen, ammonia nitrogen and nitrate/nitrite nitrogen. The Louisiana BOD program was applied to the BOD data in a separate spreadsheet and values were computed for each sample taken of ultimate CBOD1, CBOD1 decay rate, CBOD1 lag time, ultimate CBOD2, CBOD2 decay rate, and CBOD2 lag time as well as the ultimate NBOD, NBOD decay rate, and NBOD lag time. The survey data was the primary source of the model input data for initial conditions, decay rates, mainstem water temperature, dissolved oxygen loading, headwater temperature and DO data. Two other sources of data also figured prominently in developing the input data set: reference stream data and previous determinations of nonpoint source loadings for several heavily impacted streams. As shown in Figure 3, the DO during the time of the survey was not meeting the standards at any location within the modeled reach.

3.2.1 Model Schematics and Maps

A vector diagram of the modeled area is presented in Figure 1 and Appendix F3. The vector diagram shows the locations of survey stations, the reach design, and reach lengths. An ARCVIEW map of the stream and subsegment showing river kilometers, survey stations and other points of interest is also included in Figure 2 and in Appendix F2.

3.2.2 Model Options, Data Type 2

Six constituents were modeled during the calibration process. These were dissolved oxygen, carbonaceous biochemical oxygen demand components 1 & 2, organic nitrogen, ammonia nitrogen and nitrate/nitrite. The continuous monitors did show small diurnal swings, which indicates some algal activity. The algal cycle was not modeled, however the measured chlorophyll A values were included in the initial conditions. This allowed the model to simulate the oxygen production associated with algae without modeling the entire algal cycle.

3.2.3 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

In the 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).

3.2.4 Reach Identification Data, Data Type 8

Model reach breaks were derived from the location of available survey sites and measured stream geometry data. The majority of the reach breaks were spaced uniformly between the survey site locations. The calibration model includes 11 reaches, 193 elements, one headwater, zero wasteloads and tributaries. The projection model did include one tributary into which all four dischargers flow. The tributary was not included in the calibration model because it was not flowing during the July, 2001 survey.

3.2.5 Advective Hydraulic Coefficients, Data Type 9

Rather than directly inputting the widths and depths of the stream, the model requires entry of the advective hydraulic characteristics (Modified Leopold Coefficients, Exponents, and Constants, Waldon, 2001). These values were derived from the measured values during the July, 2001 survey and a subsequent trip for flow measurement purposes. Site 4 had two flow measurements while the other three sites had only one discharge measurement. With the exception of Site 4, the Leopold coefficients were used for depth and width and the coefficient was determined based on the single flow measurement at the individual site. The measured flow data was used to determine the depth and width coefficients and exponents for Site 4. These assumptions adequately simulated the streams widths and depths during low flow critical conditions. However, in a scenario depicted by higher flow rates, due to storm events, these widths and depths coefficients and exponents should not be used.

3.2.6 Initial Conditions, Data Type 11

The initial conditions are used to reduce the number of iterations required by the model and to set certain parameters for each reach. The values required for this model were temperature, DO, macrophytes and chlorophyll "a" by reach. The input values came from the survey stations located in the vicinity of the reach and were adjusted linearly between sites or from an average of samples taken from adjacent streams considered similar. The exception was macrophytes, these values were determined via calibration. The macrophytes were assumed to be riparian zone plant uptake of flow and nutrients. The incremental flows being simulated by the model would be the differential of the total incremental flow and the plant uptake. Because it was assumed that the macrophyte uptake was attributable to the riparian zone, the oxygen production due to macrophytes was set to zero in the Data Type 3 inputs. The input data and sources are shown in Appendix A3.

3.2.7 Reaeration Rates, Data Type 12

A review of the measured depths and velocities of the waterbody was performed and showed that the Louisiana Equation was an acceptable equation to use on this waterbody. It was the optimum equation based on the available options. The LAQUAL model did compare the calculated Louisiana Equations value to the minimum KL based value and used the higher of the two for each element. Due to the shallow depths in this waterbody the model's maximum K2 value was adjusted from 10 to 20 (1/day) to accommodate the model's calculated K2 values.

3.2.8 Sediment Oxygen Demand, Data Type 12

The SOD values were achieved through calibration. The SOD value for each reach is shown in Appendix A3. The conversion ratio of settled CBOD and settled Organic Nitrogen to SOD was considered to be zero for all reaches.

3.2.9 Carbonaceous BOD Decay and Settling Rates, Data Type 12

The decay rates used were based on the bottle rates from the survey or averages of the bottle rates for appropriate groups of stations. Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying decay rates and lag times. The first component started its decay almost immediately with decay rates ranging from 0.09 to 0.17 per day. The second component had substantial lag times ranging from 12.0 to 13.51 days and decay rates from 0.0108 to 0.0298 per day. The total CBOD curves presented in Appendix C5 are the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD and Nonconservative Material (NCM) in the LAQUAL model. The decay and settling rates used for each reach are shown in Appendix A3.

3.2.10 Nitrogen Decay Cycle and Settling Rates, Data Type 13

The organic nitrogen, ammonia nitrogen and nitrate/nitrite were modeled as calibration parameters. The organic nitrogen to ammonia nitrogen decay rates were based on the NBOD bottle rates and the settling rate was based on the LTP CBOD settling rate. The ammonia nitrogen to nitrate/nitrite decay rates were set to the maximum rate as described in the EPA Rates, Constants, and Kinetics Formulations manual. This rate was an unknown value, so the maximum rate was used as a conservative assumption. The restrictive rate of this process is the organic nitrogen to ammonia nitrogen decay, which is why this rate was set to the measured bottle NBOD rates. The decay and settling rates used for each reach are shown in Appendix A3.

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

The incremental conditions are used in the calibration to represent nonpoint source loads associated with flows. Based on the measured flow rates as well as chloride and other conservative parameters, it was determined that there were significant incremental flows entering the system during the survey. Subsequently the incremental flows were determined via calibration in comparison to the measured downstream flows. The flows determined via calibration are the differential of the total incremental flows and the flows associated with plant uptake.

The dissolved oxygen for this inflow was set to 2.0 mg/l and the source loading was set to zero. The assumption was that groundwater would have minimal dissolved oxygen demand loads with low dissolved oxygen values entering the stream. Any dissolved oxygen demand loading associated with these flows will be simulated using the Nonpoint Source (Data Type 19) loads. The data and its source for each reach and a summary of the reference stream findings are presented in Appendix A3.

3.2.12 Nonpoint Sources, Data Type 19

Nonpoint source loads, which are not associated with flow are input into this part of the model. These can be most easily understood as resuspended load from the bottom sediments and are modeled as SOD, CBOD1, CBOD2 and organic nitrogen loads. The data and sources are presented in Appendix A3.

3.2.13 Headwaters, Data Types 20, 21, and 22

The Headwater to Upper Calcasieu River is the outflow from two small/unnamed intermittent tributaries. The data and sources are presented in Appendix A3.

3.2.14 Wasteloads, Data Types 24, 25, and 26

A facility review was performed on the subsegment and no major dischargers were found. Four small municipal discharges were located, not discharging directly into Upper Calcasieu River. These dischargers were included in the TMDL calculation but were not included in the model. See Table 4 for a list of the dischargers. No tributaries were found to be flowing during the water quality survey and thus were not added into the calibration model. Since all four dischargers flowed into the same series of tributaries, their flows were combined and entered into the projection models at background loading conditions. The data and sources are presented in Appendix A3.

3.2.15 Boundary Conditions, Data Type 27

The lower boundary conditions were assumed to be equivalent to the measurements taken at survey station UpCalc4.

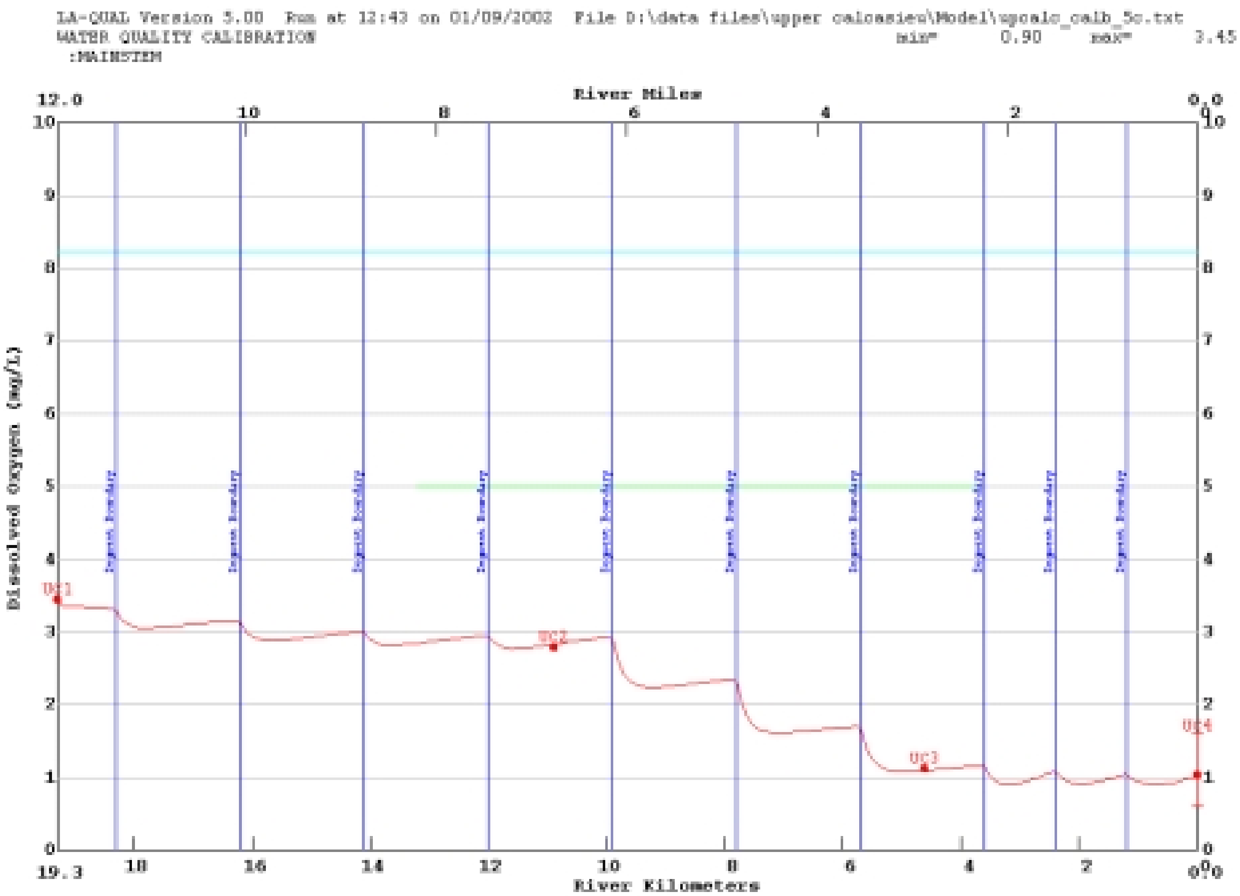
3.3 Model Discussion and Results

The calibration model input and output are presented in Appendix A2. 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 3.

The calibration to flow, depth and width was fairly good from the headwaters to the Hwy 8 bridge at the bottom of the modeled reach. Due to the influence of incremental groundwater and a lack of available chloride data for this inflow a conservative chloride calibration was not attempted. The survey crew was able to obtain discharge measurements at numerous sites along the modeled area. These flows were used to obtain a hydrologic calibration, assuming no additional inflows were occurring during the survey time period. This assumption was supported by visual observations of the survey crew.

An adequate calibration was achieved for DO, UCBOD1, UCBOD2, organic nitrogen, ammonia nitrogen and nitrate/nitrite on the main stem. The calibration model shows that during July 2001 survey period, the DO standard of 5 mg/l was not being met in Upper Calcasieu River over any of the modeled reaches. The calibration model minimum DO on the main stem was 0.90 mg/l near RK 0.7.

Figure 3. Calibration Model Dissolved Oxygen versus River Kilometer



- numbered points indicate survey stations and their site designation number
- vertical blue lines indicate beginning of reach
- the horizontal green line indicates the DO Criterion
- the horizontal plotted blue line indicates DO saturation
- the plotted red line indicates calibration model output

4. Water Quality Projections

The traditional summer critical projection loading scenario was performed at the current annual DO standard. This scenario was based on reduced total nonpoint loads at summer season critical conditions (ie. 90th percentile seasonal temperatures and 7Q10 flows) in accordance with the LTP. An additional winter projection was run based on the percent reduction of total nonpoint loads determined with the summer critical conditions. This projection was used to verify the model's predicted dissolved oxygen for winter critical conditions would meet the criteria. Normally the winter projection run would also allow the modeler to address seasonal permit limits for the dischargers, however in this case this was not necessary.

4.1 Critical Conditions, 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 Upper Calcasieu River TMDL, an analysis of LDEQ ambient data has been employed to determine critical seasonal conditions and an appropriate margin of safety.

Critical conditions for dissolved oxygen were determined for Upper Calcasieu River using LDEQ ambient water quality site data from Calcasieu River at the Hwy 8 bridge, LDEQ Ambient Monitoring Network number 0819. Based on the 90th percentile temperature for each season, the corresponding 90% of saturation DO was determined. Ambient temperature data, critical temperature and DO saturation determinations are shown in Appendix B. Graphical and regression analysis techniques have been used by LDEQ historically to evaluate the temperature and dissolved oxygen data from the Ambient Monitoring Network and run-off determinations from the Louisiana Office of Climatology water budget. Since nonpoint loading is conveyed by run-off, this was a reasonable correlation to use. Temperature is strongly inversely proportional to dissolved oxygen and moderately inversely proportional to run-off. Dissolved oxygen and run-off are also moderately directly proportional. The analysis concluded that the critical conditions for stream dissolved oxygen concentrations were those of negligible nonpoint run-off and low stream flow combined with high stream temperature, all of which combined characterize the summer season.

When the rainfall run-off (and non-point loading) and stream flow are high, turbulence is higher due to the higher flow and the temperature is lowered by the run-off. In addition, run-off 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. Reaeration rates and DO saturation 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 is interpreted in TMDL modeling by assuming that nonpoint loading associated with flows into the stream are responsible for the benthic blanket which accumulates on the stream bottom and that the accumulated benthic blanket of the stream, expressed as SOD and/or resuspended BOD in the calibration model, has reached steady state or normal conditions over the long term and that short term additions to the blanket are off set by short term losses. This accumulated loading has its greatest impact on the stream 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. The only mechanism for changing this normal benthic blanket condition is to implement best management practices and reduce the amount of nonpoint source loading entering the stream and feeding the benthic blanket.

Critical season conditions were simulated in Upper Calcasieu River dissolved oxygen TMDL projection modeling by using the default flows from the Louisiana Technical Procedures Manual, and the 90th percentile temperature. Incremental flow was assumed to be zero, based on the USGS historical 7Q10 determination of 0.0 cfs on the Calcasieu River at the Hwy 8 bridge. Model loading was input using sediment oxygen demand, headwater loads, and resuspension loading of the two CBOD components and organic nitrogen sediments.

In reality, the highest temperatures occur in July-August, the lowest stream flows occur in October-November, and the maximum point source discharge occurs following a significant rainfall, i.e., high-flow conditions. The summer projection model is established as if all these conditions happened at the same time. The winter projection model accounts for the seasonal differences in flows and BMP efficiencies. Other conservative assumptions regarding rates and loadings are also made during the modeling process. In addition to the conservative implicit measures, an explicit MOS was used for all loads to account for future growth, safety, model uncertainty and data inadequacies. An explicit 20% MOS was applied to the point source loads with a 20% MOS for the nonpoint sources.

4.2 Input Data Documentation

The flow in the headwater was set at 0.1 cfs = 0.00283 cms for summer critical conditions in accordance with the LTP. The headwater was set at 1.0 cfs = 0.0283 cms for winter projection conditions in accordance with the LTP.

4.2.1 Model Options, Data Type 2

Six constituents were modeled during the projection process. These were dissolved oxygen, the two components of carbonaceous biochemical oxygen demand, organic nitrogen, ammonia nitrogen, and nitrite/nitrate.

4.2.2 Temperature Correction of Kinetics, Data Type 4

The temperature correction factors specified in the LTP were entered in the model or were automatic defaults in the model.

4.2.3 Reach Identification Data, Data Type 8

The reach-element design from the calibration was used in the projection modeling.

4.2.4 Advective Hydraulic Coefficients, Data Type 9

The hydraulic coefficients, exponents and constants determined for the calibration were used in the projection model. These values were determined during a critical flow period and their use should be acceptable during low flow conditions, such as those simulated in the summer and winter projection models. However, in a scenario, which depicts higher flow rates due to storm events, these hydraulic coefficients and exponents should not be used.

4.2.5 Initial Conditions, Data Type 11

The initial conditions were set to the 90^{th} percentile critical season temperature in accordance with the LTP. The dissolved oxygen values for the initial conditions were set at the stream criteria. The median flowing chlorophyll a concentration based on Louisiana's reference stream studies was 2.4 ug/l. A conservative value of 2.0 ug/l was used for chlorophyll a in all reaches in each projection. This value also coincides with the TNRCC default headwater value for this parameter. The macrophyte values determined during the calibration were used in both projection scenarios.

4.2.6 Reaeration Rates, Carbonaceous BOD Decay and Settling Rates, Nitrogenous BOD Decay and Settling Rates, Data Types 12 and 15

The model input values for the reaeration rate equations, the two CBOD components, organic nitrogen, and ammonia nitrogen decay and settling rates were not changed from the calibration.

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

For the projection runs, the incremental flows were set to zero to emulate the critical conditions for dissolved oxygen. This assumption was supported by the USGS determined historical 7Q10 discharge value of 0.0 cfs (LEE, 2000).

4.2.8 Sediment Oxygen Demand, Nonpoint Sources, Headwaters, Wasteloads, Data Type 12, 19, 20, 21, 22, 24, 25, and 26

LDEQ has collected and measured the CBOD and NBOD oxygen demand loading components for a number of years. These loads have been found in all streams including the non-impacted reference streams. It is LDEQ's opinion that much of this loading is attributable to runoff loads, which are flushed into the stream during run-off events, and subsequently settle to the bottom in our slow moving streams. These benthic loads decay and breakdown during the year, becoming easily resuspended into the water column during the low flow/high temperature season. This season has historically been identified as the critical dissolved oxygen season.

LDEQ simulates part of the non-point source oxygen demand loading as resuspended benthic load and SOD. The calibrated non-point loads, UCBOD, UNBOD, AND SOD, are summed to produce the total calibrated benthic load. The total calibrated benthic load is then reduced by the total background benthic load (determined from LDEQ's reference stream research) to determine the total manmade benthic loading. The manmade portion is then reduced incrementally on a percentage basis to determine the necessary percentage reduction of manmade loading required to meet the water body's dissolved oxygen criteria. These reductions are applied uniformly to all reaches sharing similar hydrology and land uses.

Following the same protocol as the point source discharges, the total reduced manmade benthic load is adjusted for the margin of safety by dividing the value by one minus the margin of safety. This adjusted load is added back to the total background benthic value to obtain the total projection model benthic load. This total projection benthic load is then broken out into its components of SOD, resuspended CBOD and resuspended NBOD by multiplying the total projection benthic load by the ratio of each calibrated component to the total calibrated benthic load.

LDEQ has found variations in the breakdown of the individual CBOD and NBOD components. While the total BOD is reliable, the carbonaceous and nitrogenous component allocation is subject to the type of test method. In the past, LDEQ used a method which suppressed the nitrogenous component to obtain the carbonaceous component value, which was then subtracted from the total measured BOD to determine the nitrogenous value. The suppressant in this method was only reliable for twenty days thus leading to the assumption that the majority of the carbonaceous loading was depleted within that period of time. The test results supported this assumption. Recently the suppressant started failing around day seven and the manufacturer of the suppressant will only guarantee it's potency for a five day period. LDEQ felt a five day test would not adequately depict the water quality of streams and began a search for a new test method. The research found a new proposed method for testing long term BODs in Standard Methods.

This proposed method is a sixty day test which measures the incremental total BOD of the sample while at the same time measuring the increase in nitrite/nitrate in the sample. This increase in nitrite/nitrate allows LDEQ to calculate the incremental nitrogenous portion by multiplying the increase by 4.57 to determine the NBOD daily readings. These NBOD daily readings are then subtracted from the daily reading for total BOD to determine the CBOD daily values. A curve fit algorithm is then applied to the daily component readings to obtain the estimated ultimate values of each component as well as the decay rate and lag times of the first order equations.

LDEQ has implemented the new test method over the last two survey seasons. The results obtained using the new method showed that a portion of the CBOD first order equation does begin to level off prior to the twentieth day, however a secondary CBOD component begins to use dissolved oxygen sometime between day ten and day twenty-five. This secondary CBOD component was not being assessed as CBOD using the previous method but was being included in the NBOD load. Thus the CBOD and NBOD component loading used in the reference stream studies is not consistent with the results using the new proposed 60 day method and the individual values should not be used to determine background values for samples processed using the new test method. However, the sum of CBOD and NBOD should be about the same for both new and old test methods. For this reason LDEQ decided to use the sum of reference stream benthic loads as background values.

The resuspended total non-point CBOD1, CBOD2 and NBOD loading was reduced by 82.5% for reaches 1-11 in the summer critical projection scenario to meet the summer water quality criterion for dissolved oxygen. Since LDEQ assumes these benthic loads are long-term loads brought to the stream by various sources throughout the year, the same percentage reductions were made in the winter projection model as were in the summer critical projection model. These reductions met the summer dissolved oxygen criteria and well surpassed requirements in the non-critical winter projection.

The reductions were determined using the calibrated values for nonpoint CBOD1, CBOD2 & organic nitrogen. These values were summed by reach, as justified above, an adjusted for the margin of safety.

Each reach's total benthic non-point load was then reduced to meet the dissolved oxygen criteria in each reach. Using the ratios determined in calibration, this reduced total non-point load was then broken into its components of CBOD1, CBOD2, organic nitrogen (resuspension) and SOD. The percentage reduction within mainstem was calculated based on the comparison of the reduced total non-point benthic load to the calibration total non-point benthic load. These calculations are shown in Appendix E. The value and sources of CBOD1, CBOD2 and organic nitrogen for each projection run are presented in Appendix B.

4.2.9 Boundary Conditions, Data Type 27

The lower boundary conditions were set at the 90^{th} percentile projection season temperature for all projections and scenarios. The median reference stream chlorophyll a concentration was 2.4 ug/l. A conservative value of 2.0 ug/l was used for chlorophyll a in all projections. This value also coincides with the TNRCC default headwater value for this parameter.

4.3 Model Discussion and Results

The projection's model input and output data sets as well as the justification charts are presented in Appendix B.

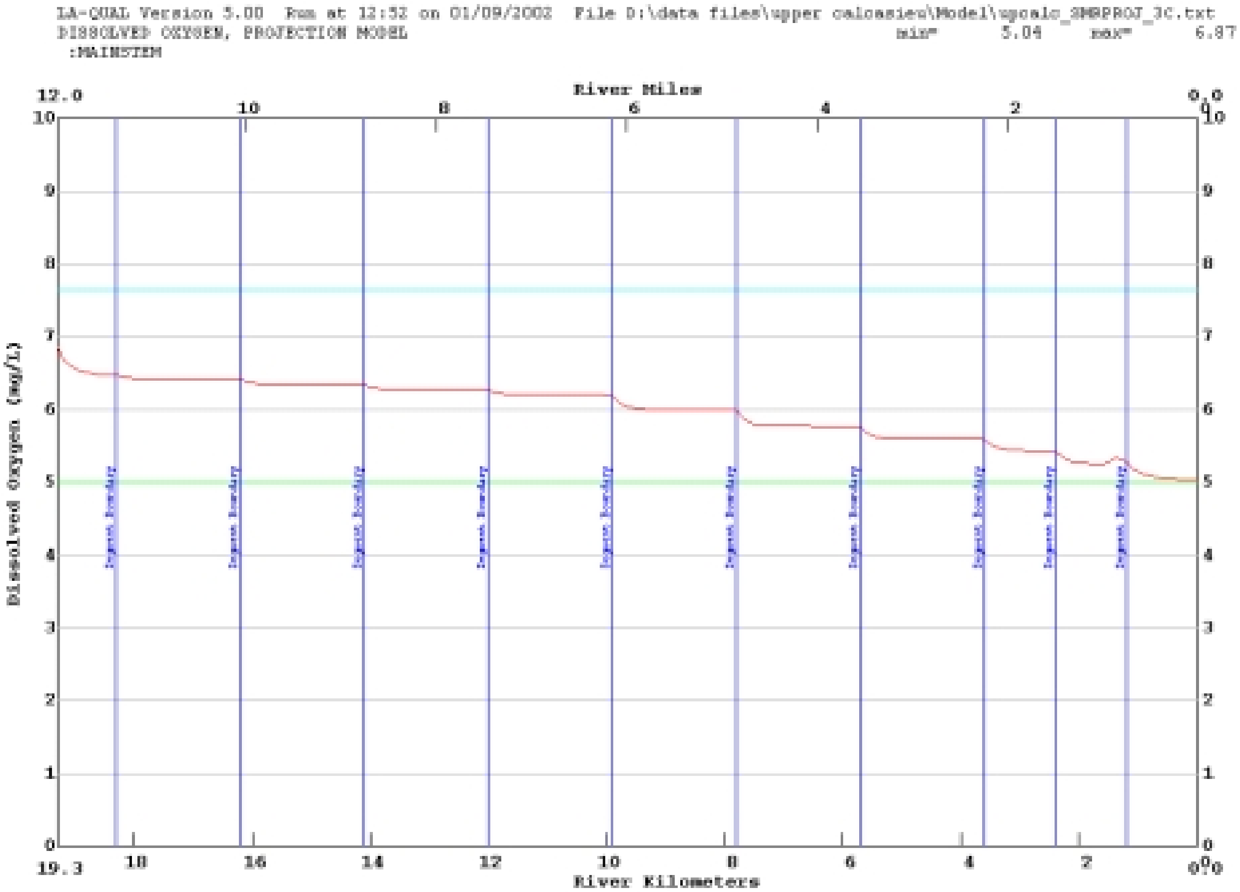
4.3.1 No Load Scenario

A summer, no load projection scenario, was not feasible or necessary. Based on the 2000 LDEQ 305b report the major source of the problem was from natural sources, thus the man-made component would be negligible and a no-load run would not be substantially different from the summer critical projection run which required a 82.5% reduction in total loading. Also no valid reference stream background loads were available for such a run.

4.3.2 Summer Projection

Summer critical season projections were run for the current standard of 5.0 mg/L May – November. In order to meet the standard, an 82.5% reduction in reaches 1-11 of total non-point sources is necessary. With these percentage reductions in the benthic oxygen demand loads, the bayou meets the dissolved oxygen criterion. The minimum DO on the main stem is 5.04 mg/L. A graph of the dissolved oxygen concentrations versus river kilometers for the summer projection is presented in Figure 4.

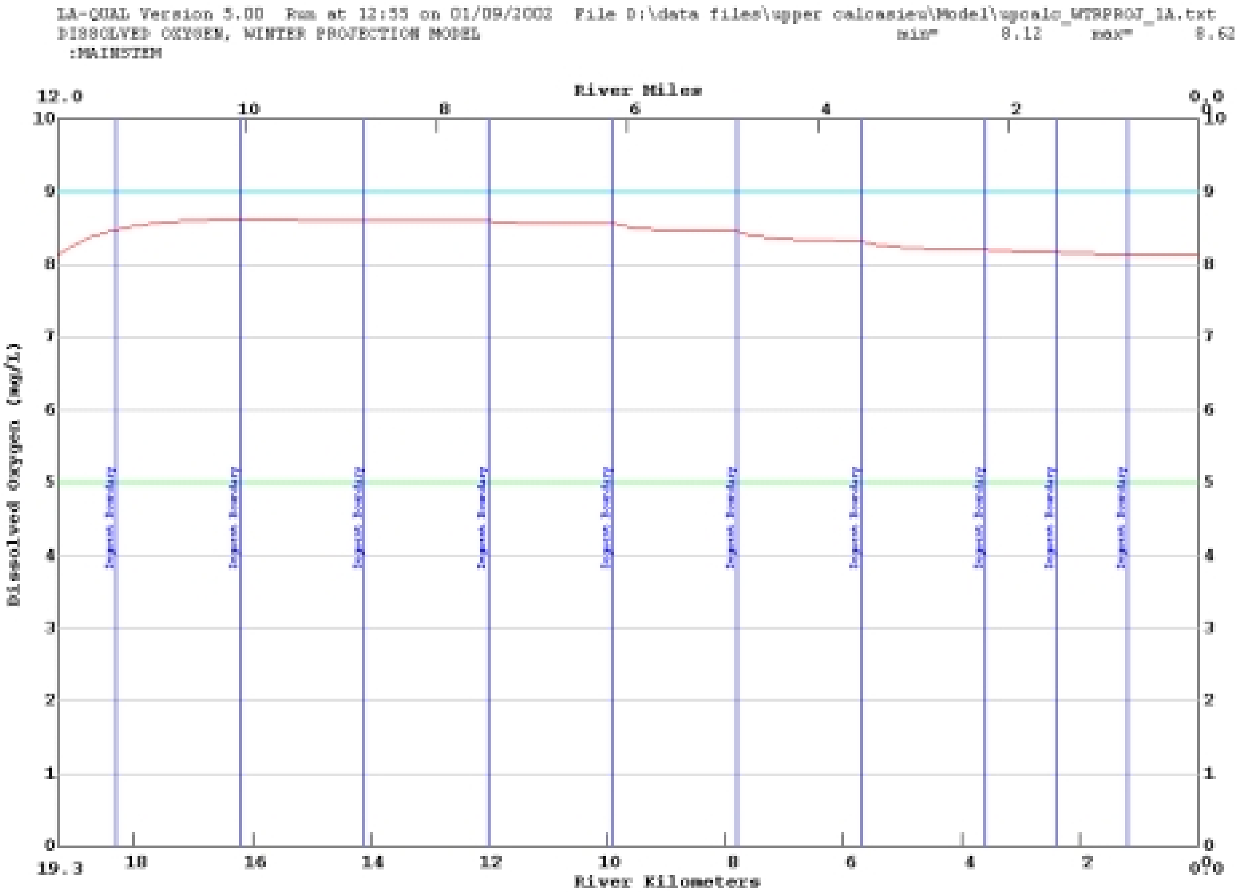
Figure 4. Summer Projection Model--Dissolved Oxygen versus River Kilometer



4.3.3 Winter Projection

Winter projections were run at the current standard of 5.0 mg/L for November - April. Using the percentage reduction of the total nonpoint loading, as determined in the summer critical projection model, no additional reductions are required in the winter projection model to meet the dissolved oxygen criteria. As shown in the output graph, the bayou meets and exceeds the DO criterion. The minimum DO on the main stem is 8.12 mg/L. A graph of the projected winter dissolved oxygen concentration versus river kilometer is presented in Figure 5.

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



4.4 Calculated TMDL, WLAs and LAs

4.4.1 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.

4.4.1.1 The calibration total benthic loading was determined as follows:

- Calibration resuspension and SOD loads were summed for each reach as gm O_2/m^2-day to get the calibration benthic loading.

4.4.1.2 Projection benthic loads are determined by trial and error during the modeling process using a uniform percent reduction for resuspension and SOD. Point sources are reduced as necessary to subsequently more stringent levels of treatment consistent with the size of the treatment facility as much as possible. Point source design flows are increased to obtain an explicit MOS of 20%. Headwater and tributary concentrations of CBOD1, CBOD2, Organic nitrogen, ammonia nitrogen, nitrate/nitrite, and DO range from reference stream levels to calibration levels based on the character of the headwater. Where headwaters and tributaries exhibit man-made pollutant loads in excess of reference stream values, the loadings are reduced by the same uniform percent reduction as the benthic loads.

- The projection benthic loading at 20°C is calculated as the sum of the projection resuspension and SOD components expressed as gm O_2/m^2-day.

- The percent reduction of total loads for each reach is determined from the difference between the projected total non-point load and the total non-point load found during calibration.

- The projection loads are also computed in units of lb/d and kg/d for each reach.

4.4.1.4 The total stream loading capacity at critical water temperature is calculated as the sum of:

- Headwater and tributary CBOD and NBOD loading in lb/d and kg/d.

- The natural and man-made projection benthic loading for all reaches of the stream is converted to the loading at critical temperature and summed in lb/d and kg/d.

- Point source CBOD and NBOD loading in lb/d and kg/d.

- The margin of safety in lb/d and kg/d.

4.4.2 Upper Calcasieu River TMDL

The TMDLs for the biochemical oxygen demanding constituents [CBOD(sum of components), NBOD, and SOD], have been calculated for the critical season. The TMDL's for the Upper Calcasieu River watershed were set equal to the total stream loading capacity. They are presented in Appendix E by point source and reach. A summary of the loads is presented in Table 5.

Table 5. Total Maximum Daily Load (Sum of CBOD, NH_3-N, and SOD)

ALLOCATION	ANNUAL	
	% Reduction Required	(JAN-DEC) (lbs/day)
Point Source WLA	0	9.04
Point Source Reserve MOS	0	2.27
Total Nonpoint Source LA	82.5	132.93
Total Nonpoint Source Reserve MOS	0	33.23
TMDL		177.47

5. 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 LAQUAL 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 projection value. Thus the sensitivity of each parameter is reviewed separately. A sensitivity analysis was performed on the calibration model run. The sensitivity of the model's minimum DO projections to these parameters is presented in Appendix A4. Parameters were varied by +/- 30%, except temperature, which was adjusted +/- 2 degrees Centigrade.

As shown in the summary table, benthal demand is the parameter to which DO is most sensitive (–100.0% to 225.2%). The other parameters creating major variations in the minimum DO values are Reaeration (-100.0% to 173.5%), Initial Temperature (-98.8% to 93.8%), Stream Velocity (-99.0% to 54.5%), Stream Depth (-68.5% to 74.6%), and Stream Baseflow (-76.7 % to 41.7%). The model was only slightly sensitive to the rest of the parameters reviewed, with percentage changes in the minimum dissolved oxygen ranging between –2.0% and 2.0%.

Table 6. 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 Baseflow	30	1.28	41.7	-30	0.21	-76.7
Initial Chorophyll a	30	0.91	1.1	-30	0.89	-1.5
Stream Velocity	30	1.4	54.5	-30	0.01	-99
Initial Temperature	2	0.01	-98.8	-2	1.75	93.8
BOD Decay Rate	30	0.9	-0.8	-30	0.91	0.9
BOD Settling Rate	30	0.91	0.1	-30	0.9	-0.2
Nonconservative Decay	30	0.9	-0.3	-30	0.91	0.3
Nonconservative Settling	30	0.9	0.1	-30	0.9	-0.1
Benthal Demand	30	0	-100	-30	2.94	225.2
Stream Dispersion	30	0.9	0	-30	0.9	0
Stream Reaeration	30	2.47	173.5	-30	0	-100
Headwater Flow	30	0.92	2	-30	0.89	-2
Headwater Nonconservative	30	0.9	0	-30	0.9	0
Headwater DO	30	0.9	0	-30	0.9	0
Headwater BOD	30	0.9	0	-30	0.9	0
Stream Depth	30	0.28	-68.5	-30	1.58	74.6

6. Conclusions

The modeling, which has been conducted for this TMDL, is conservative and based on limited information. The TMDL requires a watershed-wide 82.5% decrease in total non-point source loads in order to meet the DO criterion in the summer critical season. The existing point sources within Subsegment 030101 discharge into tributaries of the Calcasieu River and have little or no impact on the main stem of Upper Calcasieu River and require no changes to their current permitted discharge limits.

The results of the projection modeling show that the water quality standard for dissolved oxygen of 5.0 mg/l can be maintained during the summer critical season with an 82.5% reduction of the total non-point pollution. The summer critical season projection model minimum DO was 5.04 mg/l ranging from RK 0.3 km to RK 0.0 km. The baseline zero river kilometer is located at Hwy 8 the subsegment boundary.

As stated in the LDEQ 2000 305b report, the majority of total non-point dissolved oxygen loading is attributable to natural sources. This is supported by recent land use data showing that the watershed consists primarily of forested lands and the fact that there are only four dischargers in the watershed. These facts and the high projected reduction in the total non-point loading indicate that the current criterion is inappropriate for this subsegment. A reassessment of the dissolved oxygen criterion is recommended.

This TMDL has been developed in accordance with the State's antidegradation policy (LAC 33:IX.1109).

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.

2002 - Red and Sabine River Basins
2003 - Mermentau and Vermilion-Teche River Basins
2004 - Calcasieu and Ouachita River Basins
2005 - Barataria and Terrebonne Basins
2006 - Lake Pontchartrain Basin and Pearl River Basin
(Atchafalaya and Mississippi Rivers will be sampled continuously.)

7. References

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8.0 Appendices

See Attached Appendices A - I.

Appendix A

Calibration Model Development

Appendix A1

Calibration Model Development

Reach parameter calculations

Estimation of decay rates, hydraulic (coeff., exponents, constants), and Chlorophyll a values in reaches where no data was available.

			Width coeff., exp., & const.			Depth coeff., exp., & const.						
Reach	Begin Rkm	End Rkm	a	b	c	d	e	f	Chlorophyll a	CBOD2 decay rate	NBOD decay rate	CBOD1 decay rate
1	19.3	18.3	0.924	0.300	1.370	0.039	0.360	0.220	9.800	0.029	0.030	0.170
2	18.3	16.2	1.533	0.300	1.374	0.104	0.360	0.173	8.700	0.025	0.083	0.158
3	16.2	14.1	2.141	0.300	1.378	0.170	0.360	0.127	6.400	0.021	0.135	0.145
4	14.1	12	2.749	0.300	1.383	0.235	0.360	0.080	4.000	0.016	0.188	0.133
5	12	9.9	3.358	0.300	1.387	0.300	0.360	0.034	1.600	0.012	0.240	0.120
6	9.9	7.8	3.807	0.300	1.636	0.327	0.360	0.040	1.600	0.012	0.193	0.120
7	7.8	5.7	4.257	0.300	1.885	0.354	0.360	0.047	2.400	0.012	0.147	0.120
8	5.7	3.6	4.706	0.300	2.133	0.381	0.360	0.053	3.100	0.012	0.100	0.120
9	3.6	2.4	3.825	0.300	1.806	0.407	0.360	0.066	3.100	0.012	0.120	0.120
10	2.4	1.2	2.944	0.300	1.479	0.434	0.360	0.079	4.300	0.012	0.140	0.120
11	1.2	0	2.063	0.300	1.152	0.460	0.360	0.091	5.300	0.012	0.160	0.120

Measured or determined values

Estimated values from measured or determined values

Estimated values were based on a linear regression between known values.

Appendix A2

Calibration Model Development

Calibration model input/output and graphs

```
LA-QUAL Version 5.00
Louisiana Department of Environmental Quality

Input file is D:\data files\upper calcasieu\Model\upcalc_calb_5c.txt
Output produced at 12:43 on 01/09/2002

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

CARD TYPE        CONTROL TITLES

TITLE01          UPPER CALCASIEU RIVER (030101)- STREAM MODEL
TITLE02          WATER QUALITY CALIBRATION
CNTROL11   NO    SEQUENCING OUTPUT
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   NO    CONSERVATIVE MATERIAL  I = CHLORIDES                  IN MG/L
MODOPT04   NO    CONSERVATIVE MATERIAL II = SULFATES                   IN MG/L
MODOPT05  YES    DISSOLVED OXYGEN
MODOPT06  YES    BIOCHEMICAL OXYGEN DEMAND
MODOPT07  YES    NITROGEN
MODOPT08   NO    PHOSPHORUS
MODOPT09   NO    CHLOROPHYLL A
MODOPT10   NO    MACROPHYTES
MODOPT11   NO    COLIFORM
MODOPT12  YES    NONCONSERVATIVE MATERIAL = CBOD2                      IN MG/L
ENDATA02

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

CARD TYPE        DESCRIPTION OF CONSTANT                      VALUE

PROGRAM          MAXIMUM ITERATION LIMIT          =       200.00000
PROGRAM          PLOT TYPE                        =         3.00000
PROGRAM          FINAL REPORT TYPE                =         1.00000
PROGRAM          BOD OXYGEN UPTAKE RATE           =         1.00000
PROGRAM          KL MINIMUM                       =         0.70000
PROGRAM          K2 MAXIMUM                       =        20.00000
PROGRAM          N ALGAL UPTAKE                   =         0.00250
PROGRAM          N PREFERENCE                     =         0.35000
PROGRAM          N MACROPHYTE UPTAKE              =         0.00250
PROGRAM          N INHIBITION EQUATION            =         1.00000
PROGRAM          MACROPHYTE OXYGEN PROD           =         0.00000
PROGRAM          NCM OXYGEN UPTAKE RATE           =         1.00000
PROGRAM          INHIBITION CONTROL VALUE         =         3.00000
PROGRAM          OCEAN EXCHANGE RATIO             =         0.00000
PROGRAM          HYDRAULIC CALCULATION METHOD     =         2.00000
```

PROGRAM	SETTLED RATE UNITS	=	2.00000
PROGRAM	ALGAE OXYGEN PROD	=	0.05000
PROGRAM	EFFECTIVE BOD DUE TO ALGAE	=	0.10000
PROGRAM	NH3 OXYGEN UPTAKE RATE	=	4.33000

ENDATA03

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

CARD TYPE	RATE CODE	THETA VALUE
THETA	NCM DECA	1.04700

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	CL	UPPER CALCASIEU RIVER REACH 1	19.30	TO	18.30	0.1000	1.00	10	1	10
REACH ID	2	CL	UPPER CALCASIEU RIVER REACH 2	18.30	TO	16.20	0.1000	2.10	21	11	31
REACH ID	3	CL	UPPER CALCASIEU RIVER REACH 3	16.20	TO	14.10	0.1000	2.10	21	32	52
REACH ID	4	CL	UPPER CALCASIEU RIVER REACH 4	14.10	TO	12.00	0.1000	2.10	21	53	73
REACH ID	5	CL	UPPER CALCASIEU RIVER REACH 5	12.00	TO	9.90	0.1000	2.10	21	74	94
REACH ID	6	CL	UPPER CALCASIEU RIVER REACH 6	9.90	TO	7.80	0.1000	2.10	21	95	115
REACH ID	7	CL	UPPER CALCASIEU RIVER REACH 7	7.80	TO	5.70	0.1000	2.10	21	116	136
REACH ID	8	CL	UPPER CALCASIEU RIVER REACH 8	5.70	TO	3.60	0.1000	2.10	21	137	157
REACH ID	9	CL	UPPER CALCASIEU RIVER REACH 9	3.60	TO	2.40	0.1000	1.20	12	158	169
REACH ID	10	CL	UPPER CALCASIEU RIVER REACH 10	2.40	TO	1.20	0.1000	1.20	12	170	181
REACH ID	11	CL	UPPER CALCASIEU RIVER REACH 11	1.20	TO	0.00	0.1000	1.20	12	182	193

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	CL	0.924	0.300	1.370	0.039	0.360	0.220	0.00000	0.030
HYDR-1	2	CL	1.533	0.300	1.374	0.104	0.360	0.173	0.00000	0.030
HYDR-1	3	CL	2.141	0.300	1.378	0.170	0.360	0.127	0.00000	0.030
HYDR-1	4	CL	2.749	0.300	1.383	0.235	0.360	0.080	0.00000	0.030
HYDR-1	5	CL	3.358	0.300	1.387	0.300	0.360	0.034	0.00000	0.030
HYDR-1	6	CL	3.807	0.300	1.636	0.327	0.360	0.040	0.00000	0.030
HYDR-1	7	CL	4.257	0.300	1.885	0.354	0.360	0.047	0.00000	0.030
HYDR-1	8	CL	4.706	0.300	2.133	0.381	0.360	0.053	0.00000	0.030
HYDR-1	9	CL	3.825	0.300	1.806	0.407	0.360	0.066	0.00000	0.030
HYDR-1	10	CL	2.944	0.300	1.479	0.434	0.360	0.079	0.00000	0.030
HYDR-1	11	CL	2.063	0.300	1.152	0.460	0.360	0.091	0.00000	0.030

ENDATA09

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

CARD TYPE	REACH	ID	TIDAL RANGE	DISPERSION "A"	DISPERSION "B"	DISPERSION "C"	DISPERSION "D"
HYDR	1	CL	0.00	0.300	0.000	0.000	0.000
HYDR	2	CL	0.00	0.300	0.000	0.000	0.000
HYDR	3	CL	0.00	0.300	0.000	0.000	0.000
HYDR	4	CL	0.00	0.300	0.000	0.000	0.000
HYDR	5	CL	0.00	0.300	0.000	0.000	0.000
HYDR	6	CL	0.00	0.300	0.000	0.000	0.000
HYDR	7	CL	0.00	0.300	0.000	0.000	0.000
HYDR	8	CL	0.00	0.300	0.000	0.000	0.000
HYDR	9	CL	0.00	0.300	0.000	0.000	0.000
HYDR	10	CL	0.00	0.300	0.000	0.000	0.000
HYDR	11	CL	0.00	0.300	0.000	0.000	0.000

ENDATA10

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

CARD TYPE	REACH	ID	TEMP	SALIN	DO	NH3	NO3+2	PHOS	CHL A	MACRO
INITIAL	1	CL	25.21	0.00	5.00	0.00	0.00	0.00	9.80	0.00
INITIAL	2	CL	25.21	0.00	5.00	0.00	0.00	0.00	8.70	0.00
INITIAL	3	CL	25.21	0.00	5.00	0.00	0.00	0.00	6.40	25.00
INITIAL	4	CL	25.21	0.00	5.00	0.00	0.00	0.00	4.00	45.00
INITIAL	5	CL	25.21	0.00	5.00	0.00	0.00	0.00	1.60	65.00
INITIAL	6	CL	25.21	0.00	5.00	0.00	0.00	0.00	1.60	65.00
INITIAL	7	CL	25.21	0.00	5.00	0.00	0.00	0.00	2.40	55.00
INITIAL	8	CL	25.21	0.00	5.00	0.00	0.00	0.00	3.10	20.00
INITIAL	9	CL	25.21	0.00	5.00	0.00	0.00	0.00	3.10	18.00
INITIAL	10	CL	25.21	0.00	5.00	0.00	0.00	0.00	4.30	18.00
INITIAL	11	CL	25.21	0.00	5.00	0.00	0.00	0.00	5.30	18.00

ENDATA11

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

CARD TYPE	REACH	ID	K2 OPT	K2 "A"	K2 "B"	K2 "C"	BKGRND SOD	AEROB BOD DECAY	BOD SETT	BOD CONV TO SOD	ANAER BOD DECAY
COEF-1	1	CL	15 LOUISIANA	0.700	0.000	0.000	2.600	0.170	0.050	0.000	0.000

COEF-1	2	CL	15 LOUISIANA	0.700	0.000	0.000	2.850	0.158	0.050	0.000	0.000
COEF-1	3	CL	15 LOUISIANA	0.700	0.000	0.000	3.150	0.145	0.050	0.000	0.000
COEF-1	4	CL	15 LOUISIANA	0.700	0.000	0.000	3.500	0.133	0.050	0.000	0.000
COEF-1	5	CL	15 LOUISIANA	0.700	0.000	0.000	4.100	0.120	0.050	0.000	0.000
COEF-1	6	CL	15 LOUISIANA	0.700	0.000	0.000	4.350	0.120	0.050	0.000	0.000
COEF-1	7	CL	15 LOUISIANA	0.700	0.000	0.000	4.650	0.120	0.050	0.000	0.000
COEF-1	8	CL	15 LOUISIANA	0.700	0.000	0.000	4.900	0.120	0.050	0.000	0.000
COEF-1	9	CL	15 LOUISIANA	0.700	0.000	0.000	5.300	0.120	0.050	0.000	0.000
COEF-1	10	CL	15 LOUISIANA	0.700	0.000	0.000	5.800	0.120	0.050	0.000	0.000
COEF-1	11	CL	15 LOUISIANA	0.700	0.000	0.000	6.600	0.120	0.050	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
COEF-2	1	CL	0.03	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	2	CL	0.08	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	3	CL	0.14	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	4	CL	0.19	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	5	CL	0.24	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	6	CL	0.19	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	7	CL	0.15	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	8	CL	0.10	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	9	CL	0.12	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	10	CL	0.14	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	11	CL	0.16	0.05	0.00	0.50	0.00	0.00	0.00

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	CL	0.00	0.03	0.05	0.00
COEF-4	2	CL	0.00	0.03	0.05	0.00
COEF-4	3	CL	0.00	0.02	0.05	0.00
COEF-4	4	CL	0.00	0.02	0.05	0.00
COEF-4	5	CL	0.00	0.01	0.05	0.00
COEF-4	6	CL	0.00	0.01	0.05	0.00
COEF-4	7	CL	0.00	0.01	0.05	0.00
COEF-4	8	CL	0.00	0.01	0.05	0.00
COEF-4	9	CL	0.00	0.01	0.05	0.00
COEF-4	10	CL	0.00	0.01	0.05	0.00
COEF-4	11	CL	0.00	0.01	0.05	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
INCR-1	1	CL	0.00000	0.00060	25.21	0.00	0.00	0.00	0.00060	0.00000
INCR-1	2	CL	0.00000	0.00060	25.21	0.00	0.00	0.00	0.00029	0.00000
INCR-1	3	CL	0.00000	0.00060	25.21	0.00	0.00	0.00	0.00029	0.00000
INCR-1	4	CL	0.00000	0.00060	25.21	0.00	0.00	0.00	0.00029	0.00000
INCR-1	5	CL	0.00000	0.00060	25.21	0.00	0.00	0.00	0.00029	0.00000
INCR-1	6	CL	0.00000	0.00060	25.21	0.00	0.00	0.00	0.00029	0.00000
INCR-1	7	CL	0.00000	0.00060	25.21	0.00	0.00	0.00	0.00029	0.00000
INCR-1	8	CL	0.00000	0.00060	25.21	0.00	0.00	0.00	0.00029	0.00000
INCR-1	9	CL	0.00000	0.00180	25.21	0.00	0.00	0.00	0.00150	0.00000
INCR-1	10	CL	0.00000	0.00180	25.21	0.00	0.00	0.00	0.00150	0.00000
INCR-1	11	CL	0.00000	0.00180	25.21	0.00	0.00	0.00	0.00150	0.00000

ENDATA16

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

CARD TYPE	REACH	ID	DO	BOD	ORG-N	NH3	NO3+2
INCR-2	1	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	2	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	3	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	4	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	5	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	6	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	7	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	8	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	9	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	10	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	11	CL	2.00	0.00	0.00	0.00	0.00

ENDATA17

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

CARD TYPE	REACH	ID	PHOS	CHL A	COLI	NCM
INCR-3	1	CL	0.00	0.00	0.00	0.00
INCR-3	2	CL	0.00	0.00	0.00	0.00
INCR-3	3	CL	0.00	0.00	0.00	0.00
INCR-3	4	CL	0.00	0.00	0.00	0.00
INCR-3	5	CL	0.00	0.00	0.00	0.00
INCR-3	6	CL	0.00	0.00	0.00	0.00
INCR-3	7	CL	0.00	0.00	0.00	0.00
INCR-3	8	CL	0.00	0.00	0.00	0.00
INCR-3	9	CL	0.00	0.00	0.00	0.00
INCR-3	10	CL	0.00	0.00	0.00	0.00
INCR-3	11	CL	0.00	0.00	0.00	0.00

ENDATA18

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

CARD TYPE	REACH	ID	BOD	ORG-N	COLI	NCM	DO
NONPOINT	1	CL	0.57	0.06	0.00	0.50	0.00
NONPOINT	2	CL	0.81	0.12	0.00	0.83	0.00
NONPOINT	3	CL	0.61	0.14	0.00	0.83	0.00
NONPOINT	4	CL	0.46	0.14	0.00	0.83	0.00
NONPOINT	5	CL	0.36	0.12	0.00	0.82	0.00
NONPOINT	6	CL	0.36	0.12	0.00	0.75	0.00
NONPOINT	7	CL	0.51	0.12	0.00	0.75	0.00
NONPOINT	8	CL	0.56	0.12	0.00	1.20	0.00
NONPOINT	9	CL	0.81	0.20	0.00	2.20	0.00
NONPOINT	10	CL	0.86	0.20	0.00	2.60	0.00
NONPOINT	11	CL	0.96	0.22	0.00	2.70	0.00

ENDATA19

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

CARD TYPE	ELEMENT	NAME	UNIT	FLOW	TEMP	SALIN	CM-I	CM-II
HDWTR-1	1	UPPER CALCASIEU RVR	0	0.00028	25.210	0.000	0.000	0.000

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	UPPER CALCASIEU RVR	3.45	5.06	0.65	0.05	0.03

ENDATA21

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

CARD TYPE	ELEMENT	NAME	PHOS	CHL A	COLI	NCM
HDWTR-3	1	UPPER CALCASIEU RVR	0.00	9.80	0.00	5.31

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	TEMP	SAL	CM-I	CM-II

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

ENDATA25

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

CARD TYPE     ELEMENT   NAME                       PHOS     CHL A      COLI       NCM

ENDATA26

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

CARD TYPE    CONSTITUENT                    CONCENTRATION

LOWER BC     TEMPERATURE                        =     25.210 deg C
LOWER BC     SALINITY                           =      0.000 ppt
LOWER BC     CONSERVATIVE MATERIAL I            =      0.000 MG/L
LOWER BC     CONSERVATIVE MATERIAL II           =      0.000 MG/L
LOWER BC     DISSOLVED OXYGEN                   =      0.000 mg/L
LOWER BC     BIOCHEMICAL OXYGEN DEMAND          =      0.000 mg/L
LOWER BC     ORGANIC NITROGEN                   =      0.000 mg/L
LOWER BC     AMMONIA NITROGEN                   =      0.000 mg/L
LOWER BC     NITRATE + NITRITE                  =      0.000 mg/L
LOWER BC     PHOSPHORUS                         =      0.000 mg/L
LOWER BC     CHLOROPHYLL A                      =      6.300 µg/L
LOWER BC     COLIFORM                           =      0.000 #/100 mL
LOWER BC     NONCONSERVATIVE MATERIAL           =      0.000 MG/L
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 =  11
PLOT RCH  1  2  3  4  5  6  7  8  9 10 11
NUMBER OF REACHES IN PLOT 2 =  11
PLOT RCH  1  2  3  4  5  6  7  8  9 10 11
ENDATA30

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


OVERLAY 1 UpCalcov1.txt                    :MAINSTEM
OVERLAY 2 UpCalcov2.txt                    :MAINSTEM
ENDATA31
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     .....NO ERRORS DETECTED IN INPUT DATA
     .....HYDRAULIC CALCULATIONS COMPLETED
     .....TRIDIAGONAL MATRIX TERMS INITIALIZED
     .....OXYGEN DEPENDENT RATES CONVERGENT IN  25 ITERATIONS
     .....CONSTITUENT CALCULATIONS COMPLETED
***** WARNING:  NEGATIVE CONCENTRATIONS SET TO ZERO FOR Nitrate+Nitrite Nitrogen
     .....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 11
     .....GRAPHICS DATA FOR PLOT 2 WRITTEN TO UNIT 12
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SPECIAL REPORT: UPPER CALCASIEU RVR
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	19.200	25.21	0.0	0.0	0.0	3.36	4.07	5.04	0.71	0.02	0.02	0.76	0.00	9.7	0.0	0.	5.67
2	19.100	25.21	0.0	0.0	0.0	3.35	4.07	5.03	0.72	0.02	0.02	0.76	0.00	9.6	0.0	0.	5.73
3	19.000	25.21	0.0	0.0	0.0	3.35	4.06	5.01	0.73	0.02	0.02	0.77	0.00	9.5	0.0	0.	5.78
4	18.900	25.21	0.0	0.0	0.0	3.35	4.06	5.00	0.74	0.02	0.01	0.77	0.00	9.4	0.0	0.	5.82
5	18.800	25.21	0.0	0.0	0.0	3.35	4.06	4.98	0.75	0.01	0.01	0.77	0.00	9.2	0.0	0.	5.85
6	18.700	25.21	0.0	0.0	0.0	3.34	4.05	4.97	0.75	0.01	0.01	0.78	0.00	9.1	0.0	0.	5.88
7	18.600	25.21	0.0	0.0	0.0	3.34	4.05	4.95	0.75	0.01	0.01	0.78	0.00	9.0	0.0	0.	5.90
8	18.500	25.21	0.0	0.0	0.0	3.34	4.04	4.93	0.76	0.02	0.01	0.78	0.00	8.9	0.0	0.	5.93
9	18.400	25.21	0.0	0.0	0.0	3.33	4.04	4.92	0.76	0.02	0.01	0.79	0.00	8.8	0.0	0.	5.97
10	18.300	25.21	0.0	0.0	0.0	3.30	4.03	4.90	0.76	0.02	0.01	0.80	0.00	8.7	0.0	0.	6.02
11	18.200	25.21	0.0	0.0	0.0	3.16	4.02	4.88	0.77	0.03	0.02	0.82	0.00	8.6	1.2	0.	6.13
12	18.100	25.21	0.0	0.0	0.0	3.10	4.02	4.86	0.77	0.04	0.02	0.83	0.00	8.5	2.4	0.	6.23
13	18.000	25.21	0.0	0.0	0.0	3.07	4.01	4.85	0.77	0.05	0.03	0.85	0.00	8.4	3.6	0.	6.32
14	17.900	25.21	0.0	0.0	0.0	3.06	4.00	4.83	0.77	0.05	0.03	0.86	0.00	8.3	4.8	0.	6.41
15	17.800	25.21	0.0	0.0	0.0	3.06	4.00	4.81	0.78	0.06	0.04	0.87	0.00	8.2	6.0	0.	6.49
16	17.700	25.21	0.0	0.0	0.0	3.06	3.99	4.79	0.78	0.06	0.04	0.88	0.00	8.0	7.1	0.	6.56
17	17.600	25.21	0.0	0.0	0.0	3.07	3.98	4.78	0.78	0.06	0.05	0.89	0.00	7.9	8.3	0.	6.63
18	17.500	25.21	0.0	0.0	0.0	3.07	3.98	4.76	0.78	0.06	0.05	0.89	0.00	7.8	9.5	0.	6.69
19	17.400	25.21	0.0	0.0	0.0	3.08	3.97	4.74	0.78	0.06	0.05	0.90	0.00	7.7	10.7	0.	6.74
20	17.300	25.21	0.0	0.0	0.0	3.09	3.97	4.73	0.78	0.06	0.05	0.90	0.00	7.6	11.9	0.	6.80
21	17.200	25.21	0.0	0.0	0.0	3.09	3.96	4.71	0.79	0.06	0.06	0.90	0.00	7.5	13.1	0.	6.85
22	17.100	25.21	0.0	0.0	0.0	3.10	3.96	4.70	0.79	0.06	0.06	0.90	0.00	7.4	14.3	0.	6.89
23	17.000	25.21	0.0	0.0	0.0	3.11	3.95	4.68	0.79	0.06	0.06	0.91	0.00	7.3	15.5	0.	6.94
24	16.900	25.21	0.0	0.0	0.0	3.12	3.95	4.66	0.79	0.06	0.06	0.90	0.00	7.2	16.7	0.	6.98
25	16.800	25.21	0.0	0.0	0.0	3.13	3.94	4.65	0.79	0.06	0.06	0.90	0.00	7.1	17.9	0.	7.01
26	16.700	25.21	0.0	0.0	0.0	3.13	3.94	4.63	0.79	0.05	0.06	0.90	0.00	6.9	19.0	0.	7.05
27	16.600	25.21	0.0	0.0	0.0	3.14	3.94	4.62	0.79	0.05	0.06	0.90	0.00	6.8	20.2	0.	7.08
28	16.500	25.21	0.0	0.0	0.0	3.15	3.93	4.60	0.79	0.05	0.06	0.89	0.00	6.7	21.4	0.	7.11
29	16.400	25.21	0.0	0.0	0.0	3.16	3.93	4.59	0.79	0.05	0.05	0.89	0.00	6.6	22.6	0.	7.14
30	16.300	25.21	0.0	0.0	0.0	3.16	3.92	4.57	0.79	0.05	0.05	0.89	0.00	6.5	23.8	0.	7.17
31	16.200	25.21	0.0	0.0	0.0	3.14	3.91	4.55	0.79	0.05	0.05	0.89	0.00	6.4	25.0	0.	7.21
32	16.100	25.21	0.0	0.0	0.0	3.01	3.89	4.52	0.79	0.05	0.05	0.89	0.00	6.3	26.0	0.	7.26
33	16.000	25.21	0.0	0.0	0.0	2.94	3.87	4.48	0.80	0.06	0.05	0.90	0.00	6.2	26.9	0.	7.31
34	15.900	25.21	0.0	0.0	0.0	2.90	3.84	4.45	0.80	0.06	0.04	0.90	0.00	6.1	27.9	0.	7.36
35	15.800	25.21	0.0	0.0	0.0	2.89	3.82	4.42	0.80	0.06	0.04	0.91	0.00	5.9	28.8	0.	7.40

36	15.700	25.21	0.0	0.0	0.0	2.89	3.81	4.39	0.80	0.07	0.04	0.91	0.00	5.8	29.8	0.	7.44
37	15.600	25.21	0.0	0.0	0.0	2.89	3.79	4.36	0.80	0.07	0.04	0.92	0.00	5.7	30.7	0.	7.49
38	15.500	25.21	0.0	0.0	0.0	2.90	3.77	4.33	0.81	0.07	0.04	0.92	0.00	5.6	31.7	0.	7.52
39	15.400	25.21	0.0	0.0	0.0	2.90	3.76	4.31	0.81	0.07	0.04	0.92	0.00	5.5	32.6	0.	7.56
40	15.300	25.21	0.0	0.0	0.0	2.91	3.74	4.28	0.81	0.07	0.04	0.92	0.00	5.4	33.6	0.	7.60
41	15.200	25.21	0.0	0.0	0.0	2.92	3.73	4.25	0.81	0.07	0.04	0.92	0.00	5.3	34.5	0.	7.63
42	15.100	25.21	0.0	0.0	0.0	2.93	3.71	4.23	0.81	0.07	0.04	0.92	0.00	5.1	35.5	0.	7.66
43	15.000	25.21	0.0	0.0	0.0	2.93	3.70	4.20	0.81	0.07	0.04	0.92	0.00	5.0	36.4	0.	7.69
44	14.900	25.21	0.0	0.0	0.0	2.94	3.69	4.18	0.81	0.07	0.04	0.92	0.00	4.9	37.4	0.	7.72
45	14.800	25.21	0.0	0.0	0.0	2.95	3.68	4.16	0.81	0.07	0.04	0.92	0.00	4.8	38.3	0.	7.75
46	14.700	25.21	0.0	0.0	0.0	2.96	3.67	4.14	0.81	0.07	0.03	0.92	0.00	4.7	39.3	0.	7.78
47	14.600	25.21	0.0	0.0	0.0	2.97	3.66	4.11	0.81	0.07	0.03	0.92	0.00	4.6	40.2	0.	7.80
48	14.500	25.21	0.0	0.0	0.0	2.98	3.65	4.09	0.81	0.07	0.03	0.92	0.00	4.5	41.2	0.	7.82
49	14.400	25.21	0.0	0.0	0.0	2.99	3.64	4.07	0.81	0.07	0.03	0.91	0.00	4.3	42.1	0.	7.85
50	14.300	25.21	0.0	0.0	0.0	3.00	3.63	4.05	0.81	0.07	0.03	0.91	0.00	4.2	43.1	0.	7.87
51	14.200	25.21	0.0	0.0	0.0	3.00	3.62	4.03	0.81	0.07	0.03	0.91	0.00	4.1	44.0	0.	7.89
52	14.100	25.21	0.0	0.0	0.0	3.00	3.61	4.01	0.81	0.07	0.02	0.91	0.00	4.0	45.0	0.	7.92
53	14.000	25.21	0.0	0.0	0.0	2.90	3.60	3.98	0.81	0.07	0.02	0.91	0.00	3.9	46.0	0.	7.96
54	13.900	25.21	0.0	0.0	0.0	2.85	3.58	3.96	0.81	0.08	0.02	0.91	0.00	3.8	46.9	0.	8.00
55	13.800	25.21	0.0	0.0	0.0	2.83	3.57	3.94	0.81	0.08	0.02	0.91	0.00	3.7	47.9	0.	8.04
56	13.700	25.21	0.0	0.0	0.0	2.82	3.56	3.91	0.81	0.08	0.02	0.92	0.00	3.5	48.8	0.	8.08
57	13.600	25.21	0.0	0.0	0.0	2.82	3.54	3.89	0.81	0.09	0.02	0.92	0.00	3.4	49.8	0.	8.12
58	13.500	25.21	0.0	0.0	0.0	2.83	3.53	3.86	0.81	0.09	0.02	0.92	0.00	3.3	50.7	0.	8.16
59	13.400	25.21	0.0	0.0	0.0	2.83	3.52	3.84	0.81	0.09	0.01	0.92	0.00	3.2	51.7	0.	8.20
60	13.300	25.21	0.0	0.0	0.0	2.84	3.51	3.82	0.81	0.09	0.01	0.92	0.00	3.1	52.6	0.	8.23
61	13.200	25.21	0.0	0.0	0.0	2.85	3.50	3.80	0.81	0.09	0.01	0.92	0.00	3.0	53.6	0.	8.27
62	13.100	25.21	0.0	0.0	0.0	2.86	3.49	3.78	0.81	0.09	0.01	0.92	0.00	2.9	54.5	0.	8.30
63	13.000	25.21	0.0	0.0	0.0	2.87	3.48	3.75	0.81	0.09	0.01	0.92	0.00	2.7	55.5	0.	8.33
64	12.900	25.21	0.0	0.0	0.0	2.88	3.47	3.73	0.81	0.09	0.01	0.92	0.00	2.6	56.4	0.	8.36
65	12.800	25.21	0.0	0.0	0.0	2.89	3.46	3.71	0.81	0.09	0.01	0.92	0.00	2.5	57.4	0.	8.39
66	12.700	25.21	0.0	0.0	0.0	2.90	3.45	3.69	0.81	0.09	0.01	0.91	0.00	2.4	58.3	0.	8.42
67	12.600	25.21	0.0	0.0	0.0	2.91	3.44	3.67	0.81	0.09	0.01	0.91	0.00	2.3	59.3	0.	8.44
68	12.500	25.21	0.0	0.0	0.0	2.92	3.43	3.65	0.81	0.09	0.00	0.91	0.00	2.2	60.2	0.	8.47
69	12.400	25.21	0.0	0.0	0.0	2.93	3.43	3.63	0.81	0.09	0.00	0.91	0.00	2.1	61.2	0.	8.50
70	12.300	25.21	0.0	0.0	0.0	2.94	3.42	3.61	0.81	0.09	0.00	0.91	0.00	1.9	62.1	0.	8.52
71	12.200	25.21	0.0	0.0	0.0	2.95	3.41	3.59	0.81	0.09	0.00	0.90	0.00	1.8	63.1	0.	8.54
72	12.100	25.21	0.0	0.0	0.0	2.95	3.40	3.57	0.81	0.09	0.00	0.90	0.00	1.7	64.0	0.	8.57
73	12.000	25.21	0.0	0.0	0.0	2.95	3.40	3.56	0.81	0.09	0.00	0.90	0.00	1.6	65.0	0.	8.59
74	11.900	25.21	0.0	0.0	0.0	2.86	3.39	3.55	0.81	0.09	0.00	0.90	0.00	1.6	65.0	0.	8.63
75	11.800	25.21	0.0	0.0	0.0	2.81	3.39	3.55	0.81	0.10	0.00	0.90	0.00	1.6	65.0	0.	8.67
76	11.700	25.21	0.0	0.0	0.0	2.78	3.38	3.54	0.81	0.10	0.00	0.90	0.00	1.6	65.0	0.	8.71
77	11.600	25.21	0.0	0.0	0.0	2.78	3.38	3.54	0.81	0.10	0.00	0.90	0.00	1.6	65.0	0.	8.74
78	11.500	25.21	0.0	0.0	0.0	2.78	3.38	3.54	0.80	0.10	0.00	0.90	0.00	1.6	65.0	0.	8.78
79	11.400	25.21	0.0	0.0	0.0	2.78	3.37	3.53	0.80	0.10	0.00	0.91	0.00	1.6	65.0	0.	8.81
80	11.300	25.21	0.0	0.0	0.0	2.79	3.37	3.53	0.80	0.10	0.00	0.91	0.00	1.6	65.0	0.	8.85
81	11.200	25.21	0.0	0.0	0.0	2.80	3.37	3.53	0.80	0.11	0.00	0.91	0.00	1.6	65.0	0.	8.88
82	11.100	25.21	0.0	0.0	0.0	2.81	3.36	3.52	0.80	0.11	0.00	0.91	0.00	1.6	65.0	0.	8.91
83	11.000	25.21	0.0	0.0	0.0	2.82	3.36	3.52	0.80	0.11	0.00	0.91	0.00	1.6	65.0	0.	8.94
84	10.900	25.21	0.0	0.0	0.0	2.84	3.35	3.51	0.80	0.11	0.00	0.91	0.00	1.6	65.0	0.	8.98
85	10.800	25.21	0.0	0.0	0.0	2.85	3.35	3.51	0.80	0.11	0.00	0.91	0.00	1.6	65.0	0.	9.01
86	10.700	25.21	0.0	0.0	0.0	2.86	3.35	3.51	0.79	0.11	0.00	0.91	0.00	1.6	65.0	0.	9.03
87	10.600	25.21	0.0	0.0	0.0	2.87	3.34	3.50	0.79	0.11	0.00	0.91	0.00	1.6	65.0	0.	9.06
88	10.500	25.21	0.0	0.0	0.0	2.88	3.34	3.50	0.79	0.11	0.00	0.91	0.00	1.6	65.0	0.	9.09
89	10.400	25.21	0.0	0.0	0.0	2.89	3.34	3.50	0.79	0.11	0.00	0.91	0.00	1.6	65.0	0.	9.12

90	10.300	25.21	0.0	0.0	0.0	2.90	3.33	3.49	0.79	0.12	0.00	0.91	0.00	1.6	65.0	0.	9.14
91	10.200	25.21	0.0	0.0	0.0	2.91	3.33	3.49	0.79	0.12	0.00	0.91	0.00	1.6	65.0	0.	9.17
92	10.100	25.21	0.0	0.0	0.0	2.92	3.32	3.48	0.79	0.12	0.00	0.90	0.00	1.6	65.0	0.	9.19
93	10.000	25.21	0.0	0.0	0.0	2.93	3.32	3.48	0.79	0.12	0.00	0.90	0.00	1.6	65.0	0.	9.22
94	9.900	25.21	0.0	0.0	0.0	2.92	3.32	3.48	0.79	0.12	0.00	0.90	0.00	1.6	65.0	0.	9.24
95	9.800	25.21	0.0	0.0	0.0	2.59	3.30	3.46	0.78	0.12	0.00	0.90	0.00	1.6	64.5	0.	9.24
96	9.700	25.21	0.0	0.0	0.0	2.41	3.29	3.45	0.78	0.11	0.00	0.89	0.00	1.7	64.0	0.	9.24
97	9.600	25.21	0.0	0.0	0.0	2.32	3.27	3.44	0.78	0.11	0.00	0.89	0.00	1.7	63.6	0.	9.24
98	9.500	25.21	0.0	0.0	0.0	2.27	3.26	3.43	0.78	0.11	0.00	0.89	0.00	1.8	63.1	0.	9.24
99	9.400	25.21	0.0	0.0	0.0	2.25	3.25	3.42	0.77	0.11	0.00	0.88	0.00	1.8	62.6	0.	9.24
100	9.300	25.21	0.0	0.0	0.0	2.24	3.23	3.42	0.77	0.11	0.00	0.88	0.00	1.8	62.1	0.	9.24
101	9.200	25.21	0.0	0.0	0.0	2.24	3.22	3.41	0.77	0.11	0.00	0.88	0.00	1.9	61.7	0.	9.24
102	9.100	25.21	0.0	0.0	0.0	2.24	3.21	3.40	0.77	0.11	0.00	0.87	0.00	1.9	61.2	0.	9.24
103	9.000	25.21	0.0	0.0	0.0	2.25	3.20	3.39	0.76	0.11	0.00	0.87	0.00	1.9	60.7	0.	9.24
104	8.900	25.21	0.0	0.0	0.0	2.26	3.18	3.38	0.76	0.11	0.00	0.87	0.00	2.0	60.2	0.	9.24
105	8.800	25.21	0.0	0.0	0.0	2.27	3.17	3.37	0.76	0.11	0.00	0.87	0.00	2.0	59.8	0.	9.24
106	8.700	25.21	0.0	0.0	0.0	2.28	3.16	3.37	0.76	0.10	0.00	0.86	0.00	2.1	59.3	0.	9.24
107	8.600	25.21	0.0	0.0	0.0	2.29	3.15	3.36	0.76	0.10	0.00	0.86	0.00	2.1	58.8	0.	9.24
108	8.500	25.21	0.0	0.0	0.0	2.29	3.14	3.35	0.75	0.10	0.00	0.86	0.00	2.1	58.3	0.	9.24
109	8.400	25.21	0.0	0.0	0.0	2.30	3.13	3.35	0.75	0.10	0.00	0.86	0.00	2.2	57.9	0.	9.24
110	8.300	25.21	0.0	0.0	0.0	2.31	3.12	3.34	0.75	0.10	0.00	0.85	0.00	2.2	57.4	0.	9.24
111	8.200	25.21	0.0	0.0	0.0	2.32	3.11	3.33	0.75	0.10	0.00	0.85	0.00	2.2	56.9	0.	9.24
112	8.100	25.21	0.0	0.0	0.0	2.33	3.10	3.33	0.75	0.10	0.00	0.85	0.00	2.3	56.4	0.	9.24
113	8.000	25.21	0.0	0.0	0.0	2.34	3.09	3.32	0.75	0.10	0.00	0.85	0.00	2.3	56.0	0.	9.24
114	7.900	25.21	0.0	0.0	0.0	2.35	3.08	3.31	0.74	0.10	0.00	0.85	0.00	2.4	55.5	0.	9.24
115	7.800	25.21	0.0	0.0	0.0	2.33	3.07	3.31	0.74	0.10	0.00	0.84	0.00	2.4	55.0	0.	9.24
116	7.700	25.21	0.0	0.0	0.0	2.00	3.07	3.31	0.74	0.10	0.00	0.84	0.00	2.4	53.3	0.	9.22
117	7.600	25.21	0.0	0.0	0.0	1.81	3.08	3.32	0.74	0.10	0.00	0.83	0.00	2.5	51.7	0.	9.21
118	7.500	25.21	0.0	0.0	0.0	1.71	3.08	3.33	0.74	0.09	0.00	0.83	0.00	2.5	50.0	0.	9.20
119	7.400	25.21	0.0	0.0	0.0	1.66	3.09	3.34	0.73	0.09	0.00	0.83	0.00	2.5	48.3	0.	9.19
120	7.300	25.21	0.0	0.0	0.0	1.63	3.09	3.35	0.73	0.09	0.00	0.82	0.00	2.6	46.7	0.	9.18
121	7.200	25.21	0.0	0.0	0.0	1.62	3.10	3.36	0.73	0.09	0.00	0.82	0.00	2.6	45.0	0.	9.18
122	7.100	25.21	0.0	0.0	0.0	1.62	3.11	3.37	0.73	0.09	0.00	0.82	0.00	2.6	43.3	0.	9.17
123	7.000	25.21	0.0	0.0	0.0	1.62	3.11	3.38	0.73	0.09	0.00	0.82	0.00	2.7	41.7	0.	9.16
124	6.900	25.21	0.0	0.0	0.0	1.62	3.12	3.39	0.72	0.09	0.00	0.81	0.00	2.7	40.0	0.	9.15
125	6.800	25.21	0.0	0.0	0.0	1.63	3.12	3.40	0.72	0.09	0.00	0.81	0.00	2.7	38.3	0.	9.14
126	6.700	25.21	0.0	0.0	0.0	1.64	3.13	3.40	0.72	0.09	0.00	0.81	0.00	2.8	36.7	0.	9.13
127	6.600	25.21	0.0	0.0	0.0	1.64	3.13	3.41	0.72	0.09	0.00	0.81	0.00	2.8	35.0	0.	9.12
128	6.500	25.21	0.0	0.0	0.0	1.65	3.14	3.42	0.72	0.09	0.00	0.81	0.00	2.8	33.3	0.	9.11
129	6.400	25.21	0.0	0.0	0.0	1.66	3.14	3.43	0.72	0.09	0.00	0.81	0.00	2.9	31.7	0.	9.10
130	6.300	25.21	0.0	0.0	0.0	1.67	3.14	3.43	0.71	0.09	0.00	0.81	0.00	2.9	30.0	0.	9.09
131	6.200	25.21	0.0	0.0	0.0	1.67	3.15	3.44	0.71	0.09	0.00	0.81	0.00	2.9	28.3	0.	9.08
132	6.100	25.21	0.0	0.0	0.0	1.68	3.15	3.45	0.71	0.09	0.00	0.81	0.00	3.0	26.7	0.	9.08
133	6.000	25.21	0.0	0.0	0.0	1.69	3.15	3.45	0.71	0.10	0.00	0.81	0.00	3.0	25.0	0.	9.07
134	5.900	25.21	0.0	0.0	0.0	1.70	3.16	3.46	0.71	0.10	0.00	0.81	0.00	3.0	23.3	0.	9.06
135	5.800	25.21	0.0	0.0	0.0	1.70	3.16	3.46	0.71	0.10	0.00	0.81	0.00	3.1	21.7	0.	9.05
136	5.700	25.21	0.0	0.0	0.0	1.68	3.16	3.47	0.70	0.10	0.00	0.81	0.00	3.1	20.0	0.	9.05
137	5.600	25.21	0.0	0.0	0.0	1.41	3.17	3.48	0.70	0.10	0.00	0.80	0.00	3.1	19.9	0.	9.09
138	5.500	25.21	0.0	0.0	0.0	1.26	3.17	3.48	0.70	0.10	0.00	0.80	0.00	3.1	19.8	0.	9.13
139	5.400	25.21	0.0	0.0	0.0	1.17	3.18	3.49	0.70	0.10	0.00	0.80	0.00	3.1	19.7	0.	9.16
140	5.300	25.21	0.0	0.0	0.0	1.13	3.19	3.50	0.70	0.10	0.00	0.80	0.00	3.1	19.6	0.	9.20
141	5.200	25.21	0.0	0.0	0.0	1.10	3.20	3.51	0.70	0.10	0.00	0.80	0.00	3.1	19.5	0.	9.24
142	5.100	25.21	0.0	0.0	0.0	1.09	3.21	3.52	0.70	0.10	0.00	0.80	0.00	3.1	19.4	0.	9.27
143	5.000	25.21	0.0	0.0	0.0	1.09	3.22	3.53	0.70	0.10	0.00	0.80	0.00	3.1	19.3	0.	9.31

144	4.900	25.21	0.0	0.0	0.0	1.09	3.23	3.54	0.70	0.10	0.00	0.80	0.00	3.1	19.2	0.	9.34
145	4.800	25.21	0.0	0.0	0.0	1.09	3.24	3.55	0.70	0.10	0.00	0.80	0.00	3.1	19.1	0.	9.37
146	4.700	25.21	0.0	0.0	0.0	1.10	3.25	3.56	0.70	0.10	0.00	0.80	0.00	3.1	19.0	0.	9.41
147	4.600	25.21	0.0	0.0	0.0	1.10	3.25	3.56	0.70	0.10	0.00	0.80	0.00	3.1	19.0	0.	9.44
148	4.500	25.21	0.0	0.0	0.0	1.11	3.26	3.57	0.70	0.10	0.00	0.79	0.00	3.1	18.9	0.	9.47
149	4.400	25.21	0.0	0.0	0.0	1.12	3.27	3.58	0.70	0.10	0.00	0.79	0.00	3.1	18.8	0.	9.50
150	4.300	25.21	0.0	0.0	0.0	1.12	3.28	3.59	0.69	0.10	0.00	0.79	0.00	3.1	18.7	0.	9.53
151	4.200	25.21	0.0	0.0	0.0	1.13	3.28	3.59	0.69	0.10	0.00	0.79	0.00	3.1	18.6	0.	9.56
152	4.100	25.21	0.0	0.0	0.0	1.14	3.29	3.60	0.69	0.10	0.00	0.79	0.00	3.1	18.5	0.	9.59
153	4.000	25.21	0.0	0.0	0.0	1.14	3.29	3.60	0.69	0.10	0.00	0.79	0.00	3.1	18.4	0.	9.62
154	3.900	25.21	0.0	0.0	0.0	1.15	3.30	3.61	0.69	0.10	0.00	0.79	0.00	3.1	18.3	0.	9.65
155	3.800	25.21	0.0	0.0	0.0	1.16	3.30	3.61	0.69	0.10	0.00	0.79	0.00	3.1	18.2	0.	9.67
156	3.700	25.21	0.0	0.0	0.0	1.16	3.31	3.62	0.69	0.10	0.00	0.79	0.00	3.1	18.1	0.	9.70
157	3.600	25.21	0.0	0.0	0.0	1.15	3.32	3.63	0.69	0.10	0.00	0.79	0.00	3.1	18.0	0.	9.74
158	3.500	25.21	0.0	0.0	0.0	1.02	3.34	3.66	0.70	0.10	0.00	0.80	0.00	3.2	18.0	0.	9.82
159	3.400	25.21	0.0	0.0	0.0	0.94	3.36	3.69	0.70	0.10	0.00	0.80	0.00	3.3	18.0	0.	9.89
160	3.300	25.21	0.0	0.0	0.0	0.91	3.38	3.72	0.71	0.10	0.00	0.81	0.00	3.4	18.0	0.	9.96
161	3.200	25.21	0.0	0.0	0.0	0.91	3.40	3.75	0.71	0.10	0.01	0.81	0.00	3.5	18.0	0.	10.03
162	3.100	25.21	0.0	0.0	0.0	0.91	3.42	3.78	0.72	0.10	0.01	0.82	0.00	3.6	18.0	0.	10.09
163	3.000	25.21	0.0	0.0	0.0	0.93	3.43	3.80	0.72	0.10	0.01	0.82	0.00	3.7	18.0	0.	10.15
164	2.900	25.21	0.0	0.0	0.0	0.95	3.45	3.83	0.73	0.09	0.01	0.83	0.00	3.8	18.0	0.	10.20
165	2.800	25.21	0.0	0.0	0.0	0.98	3.46	3.85	0.73	0.09	0.01	0.83	0.00	3.9	18.0	0.	10.25
166	2.700	25.21	0.0	0.0	0.0	1.00	3.47	3.87	0.73	0.09	0.01	0.83	0.00	4.0	18.0	0.	10.30
167	2.600	25.21	0.0	0.0	0.0	1.03	3.48	3.89	0.74	0.09	0.01	0.84	0.00	4.1	18.0	0.	10.35
168	2.500	25.21	0.0	0.0	0.0	1.06	3.49	3.91	0.74	0.09	0.01	0.84	0.00	4.2	18.0	0.	10.39
169	2.400	25.21	0.0	0.0	0.0	1.08	3.50	3.93	0.74	0.09	0.01	0.84	0.00	4.3	18.0	0.	10.44
170	2.300	25.21	0.0	0.0	0.0	0.99	3.52	3.96	0.74	0.10	0.01	0.85	0.00	4.4	18.0	0.	10.54
171	2.200	25.21	0.0	0.0	0.0	0.94	3.54	3.98	0.75	0.10	0.01	0.85	0.00	4.5	18.0	0.	10.63
172	2.100	25.21	0.0	0.0	0.0	0.92	3.55	4.01	0.75	0.10	0.01	0.85	0.00	4.6	18.0	0.	10.72
173	2.000	25.21	0.0	0.0	0.0	0.91	3.57	4.03	0.75	0.10	0.01	0.86	0.00	4.6	18.0	0.	10.80
174	1.900	25.21	0.0	0.0	0.0	0.91	3.58	4.06	0.75	0.10	0.01	0.86	0.00	4.7	18.0	0.	10.89
175	1.800	25.21	0.0	0.0	0.0	0.92	3.60	4.08	0.75	0.10	0.01	0.86	0.00	4.8	18.0	0.	10.96
176	1.700	25.21	0.0	0.0	0.0	0.94	3.61	4.10	0.75	0.10	0.01	0.86	0.00	4.9	18.0	0.	11.04
177	1.600	25.21	0.0	0.0	0.0	0.96	3.63	4.12	0.76	0.10	0.01	0.87	0.00	5.0	18.0	0.	11.11
178	1.500	25.21	0.0	0.0	0.0	0.98	3.64	4.14	0.76	0.10	0.01	0.87	0.00	5.1	18.0	0.	11.18
179	1.400	25.21	0.0	0.0	0.0	1.00	3.65	4.16	0.76	0.10	0.01	0.87	0.00	5.1	18.0	0.	11.24
180	1.300	25.21	0.0	0.0	0.0	1.03	3.66	4.18	0.76	0.10	0.01	0.87	0.00	5.2	18.0	0.	11.30
181	1.200	25.21	0.0	0.0	0.0	1.05	3.67	4.20	0.76	0.10	0.01	0.87	0.00	5.3	18.0	0.	11.36
182	1.100	25.21	0.0	0.0	0.0	0.98	3.69	4.23	0.76	0.10	0.01	0.88	0.00	5.4	18.0	0.	11.44
183	1.000	25.21	0.0	0.0	0.0	0.94	3.72	4.26	0.77	0.10	0.01	0.88	0.00	5.5	18.0	0.	11.51
184	0.900	25.21	0.0	0.0	0.0	0.92	3.74	4.29	0.77	0.11	0.01	0.89	0.00	5.6	18.0	0.	11.58
185	0.800	25.21	0.0	0.0	0.0	0.91	3.76	4.32	0.77	0.11	0.01	0.89	0.00	5.6	18.0	0.	11.64
186	0.700	25.21	0.0	0.0	0.0	0.90	3.78	4.35	0.78	0.11	0.01	0.90	0.00	5.7	18.0	0.	11.71
187	0.600	25.21	0.0	0.0	0.0	0.91	3.80	4.38	0.78	0.11	0.01	0.90	0.00	5.8	18.0	0.	11.77
188	0.500	25.21	0.0	0.0	0.0	0.92	3.82	4.41	0.78	0.11	0.01	0.90	0.00	5.9	18.0	0.	11.83
189	0.400	25.21	0.0	0.0	0.0	0.93	3.84	4.44	0.78	0.11	0.01	0.91	0.00	6.0	18.0	0.	11.89
190	0.300	25.21	0.0	0.0	0.0	0.95	3.86	4.46	0.79	0.11	0.01	0.91	0.00	6.1	18.0	0.	11.94
191	0.200	25.21	0.0	0.0	0.0	0.97	3.88	4.49	0.79	0.11	0.01	0.91	0.00	6.1	18.0	0.	11.99
192	0.100	25.21	0.0	0.0	0.0	0.99	3.89	4.51	0.79	0.11	0.01	0.92	0.00	6.2	18.0	0.	12.05
193	0.000	25.21	0.0	0.0	0.0	1.02	3.91	4.54	0.79	0.11	0.01	0.92	0.00	6.3	18.0	0.	12.09

SPECIAL REPORT: UPPER CALCASIEU RVR
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	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	19.200	8.23	3.48	0.22	0.06	0.00	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.00	0.04	0.06		
2	19.100	8.23	3.48	0.22	0.06	0.00	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.00	0.04	0.06		
3	19.000	8.23	3.48	0.22	0.06	0.00	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.00	0.04	0.06		
4	18.900	8.23	3.47	0.22	0.06	0.00	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.00	0.04	0.06		
5	18.800	8.23	3.47	0.22	0.06	0.00	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.00	0.04	0.06		
6	18.700	8.23	3.47	0.22	0.06	0.00	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.00	0.04	0.06		
7	18.600	8.23	3.47	0.22	0.06	0.00	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.00	0.04	0.06		
8	18.500	8.23	3.47	0.22	0.06	0.00	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.00	0.04	0.06		
9	18.400	8.23	3.47	0.22	0.06	0.00	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.00	0.04	0.06		
10	18.300	8.23	3.48	0.22	0.06	0.00	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.00	0.04	0.06		
11	18.200	8.23	4.32	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.00	0.03	0.06		
12	18.100	8.23	4.33	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
13	18.000	8.23	4.34	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
14	17.900	8.23	4.34	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
15	17.800	8.23	4.35	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
16	17.700	8.23	4.35	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
17	17.600	8.23	4.36	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
18	17.500	8.23	4.37	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
19	17.400	8.23	4.37	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
20	17.300	8.23	4.38	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
21	17.200	8.23	4.38	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
22	17.100	8.23	4.39	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
23	17.000	8.23	4.40	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.00	0.03	0.06		
24	16.900	8.23	4.40	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.00	0.03	0.06		
25	16.800	8.23	4.41	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.00	0.03	0.06		
26	16.700	8.23	4.42	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.00	0.03	0.06		
27	16.600	8.23	4.42	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.00	0.03	0.06		
28	16.500	8.23	4.43	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.00	0.03	0.06		
29	16.400	8.23	4.43	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.00	0.03	0.06		
30	16.300	8.23	4.44	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.00	0.03	0.06		
31	16.200	8.23	4.45	0.20	0.06	0.00	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.00	0.03	0.06		
32	16.100	8.23	5.80	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
33	16.000	8.23	5.81	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.00	0.03	0.06		
34	15.900	8.23	5.82	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.00	0.03	0.06		
35	15.800	8.23	5.82	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.00	0.03	0.06		
36	15.700	8.23	5.83	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.00	0.03	0.06		
37	15.600	8.23	5.84	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.00	0.03	0.06		
38	15.500	8.23	5.85	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.00	0.03	0.06		
39	15.400	8.23	5.85	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.00	0.03	0.06		
40	15.300	8.23	5.86	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.00	0.03	0.06		
41	15.200	8.23	5.87	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.00	0.03	0.06		
42	15.100	8.23	5.88	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.00	0.03	0.06		
43	15.000	8.23	5.88	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.00	0.03	0.06		
44	14.900	8.23	5.89	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.00	0.03	0.06		
45	14.800	8.23	5.90	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.00	0.03	0.06		
46	14.700	8.23	5.91	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
47	14.600	8.23	5.91	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
48	14.500	8.23	5.92	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		
49	14.400	8.23	5.93	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06		

50	14.300	8.23	5.94	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06
51	14.200	8.23	5.94	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06
52	14.100	8.23	5.95	0.18	0.06	0.00	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.00	0.03	0.06
53	14.000	8.23	8.59	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
54	13.900	8.23	8.60	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
55	13.800	8.23	8.61	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
56	13.700	8.23	8.62	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
57	13.600	8.23	8.63	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
58	13.500	8.23	8.64	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
59	13.400	8.23	8.64	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
60	13.300	8.23	8.65	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
61	13.200	8.23	8.66	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
62	13.100	8.23	8.67	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
63	13.000	8.23	8.68	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
64	12.900	8.23	8.69	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
65	12.800	8.23	8.70	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
66	12.700	8.23	8.70	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
67	12.600	8.23	8.71	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
68	12.500	8.23	8.72	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
69	12.400	8.23	8.73	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
70	12.300	8.23	8.74	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
71	12.200	8.23	8.75	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
72	12.100	8.23	8.76	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.60	0.00	0.00	0.00	0.00	0.02	0.06
73	12.000	8.23	8.77	0.17	0.06	0.00	4.86	4.86	0.24	0.06	0.60	0.00	0.00	0.00	0.00	0.02	0.06
74	11.900	8.23	15.01	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
75	11.800	8.23	15.02	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.00	0.02	0.06
76	11.700	8.23	15.02	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.00	0.02	0.06
77	11.600	8.23	15.03	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.00	0.02	0.06
78	11.500	8.23	15.04	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.00	0.02	0.06
79	11.400	8.23	15.04	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.00	0.02	0.06
80	11.300	8.23	15.05	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.00	0.02	0.06
81	11.200	8.23	15.05	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.00	0.02	0.06
82	11.100	8.23	15.06	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.00	0.02	0.06
83	11.000	8.23	15.06	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
84	10.900	8.23	15.07	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
85	10.800	8.23	15.07	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
86	10.700	8.23	15.08	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
87	10.600	8.23	15.09	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
88	10.500	8.23	15.09	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
89	10.400	8.23	15.10	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
90	10.300	8.23	15.10	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
91	10.200	8.23	15.11	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
92	10.100	8.23	15.12	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
93	10.000	8.23	15.12	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
94	9.900	8.23	15.13	0.15	0.06	0.00	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.00	0.02	0.06
95	9.800	8.23	12.32	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.57	0.00	0.00	0.00	0.00	0.02	0.06
96	9.700	8.23	12.32	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.55	0.00	0.00	0.00	0.00	0.02	0.06
97	9.600	8.23	12.32	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
98	9.500	8.23	12.32	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
99	9.400	8.23	12.33	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
100	9.300	8.23	12.33	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
101	9.200	8.23	12.33	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
102	9.100	8.23	12.33	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
103	9.000	8.23	12.33	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06

104	8.900	8.23	12.33	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
105	8.800	8.23	12.34	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
106	8.700	8.23	12.34	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
107	8.600	8.23	12.34	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
108	8.500	8.23	12.34	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
109	8.400	8.23	12.34	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
110	8.300	8.23	12.35	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
111	8.200	8.23	12.35	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
112	8.100	8.23	12.35	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
113	8.000	8.23	12.35	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.55	0.00	0.00	0.00	0.00	0.02	0.06
114	7.900	8.23	12.35	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.55	0.00	0.00	0.00	0.00	0.02	0.06
115	7.800	8.23	12.36	0.15	0.06	0.00	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.00	0.02	0.06
116	7.700	8.23	10.25	0.15	0.06	0.00	6.46	6.46	0.19	0.06	0.51	0.00	0.00	0.00	0.00	0.02	0.06
117	7.600	8.23	10.25	0.14	0.06	0.00	6.46	6.46	0.19	0.06	0.49	0.00	0.00	0.00	0.00	0.01	0.06
118	7.500	8.23	10.25	0.13	0.06	0.00	6.46	6.46	0.19	0.06	0.48	0.00	0.00	0.00	0.00	0.01	0.06
119	7.400	8.23	10.25	0.13	0.06	0.00	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.00	0.01	0.06
120	7.300	8.23	10.25	0.12	0.06	0.00	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.00	0.01	0.06
121	7.200	8.23	10.25	0.12	0.06	0.00	6.46	6.46	0.19	0.06	0.46	0.00	0.00	0.00	0.00	0.01	0.06
122	7.100	8.23	10.25	0.12	0.06	0.00	6.46	6.46	0.19	0.06	0.46	0.00	0.00	0.00	0.00	0.01	0.06
123	7.000	8.23	10.25	0.12	0.06	0.00	6.46	6.46	0.19	0.06	0.46	0.00	0.00	0.00	0.00	0.01	0.06
124	6.900	8.23	10.25	0.12	0.06	0.00	6.46	6.46	0.19	0.06	0.46	0.00	0.00	0.00	0.00	0.01	0.06
125	6.800	8.23	10.25	0.12	0.06	0.00	6.46	6.46	0.19	0.06	0.46	0.00	0.00	0.00	0.00	0.01	0.06
126	6.700	8.23	10.25	0.12	0.06	0.00	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.00	0.01	0.06
127	6.600	8.23	10.25	0.13	0.06	0.00	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.00	0.01	0.06
128	6.500	8.23	10.25	0.13	0.06	0.00	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.00	0.01	0.06
129	6.400	8.23	10.25	0.13	0.06	0.00	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.00	0.01	0.06
130	6.300	8.23	10.25	0.13	0.06	0.00	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.00	0.01	0.06
131	6.200	8.23	10.25	0.13	0.06	0.00	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.00	0.01	0.06
132	6.100	8.23	10.25	0.13	0.06	0.00	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.00	0.01	0.06
133	6.000	8.23	10.25	0.13	0.06	0.00	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.00	0.01	0.06
134	5.900	8.23	10.25	0.13	0.06	0.00	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.00	0.01	0.06
135	5.800	8.23	10.25	0.13	0.06	0.00	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.00	0.01	0.06
136	5.700	8.23	10.25	0.13	0.06	0.00	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.00	0.01	0.06
137	5.600	8.23	8.83	0.11	0.06	0.00	6.80	6.80	0.13	0.06	0.43	0.00	0.00	0.00	0.00	0.01	0.06
138	5.500	8.23	8.83	0.10	0.06	0.00	6.80	6.80	0.13	0.06	0.41	0.00	0.00	0.00	0.00	0.01	0.06
139	5.400	8.23	8.83	0.09	0.06	0.00	6.80	6.80	0.13	0.06	0.39	0.00	0.00	0.00	0.00	0.01	0.06
140	5.300	8.23	8.83	0.09	0.06	0.00	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.00	0.01	0.06
141	5.200	8.23	8.83	0.08	0.06	0.00	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.00	0.01	0.06
142	5.100	8.23	8.83	0.08	0.06	0.00	6.80	6.80	0.13	0.06	0.37	0.00	0.00	0.00	0.00	0.01	0.06
143	5.000	8.23	8.83	0.08	0.06	0.00	6.80	6.80	0.13	0.06	0.37	0.00	0.00	0.00	0.00	0.01	0.06
144	4.900	8.23	8.83	0.08	0.06	0.00	6.80	6.80	0.13	0.06	0.37	0.00	0.00	0.00	0.00	0.01	0.06
145	4.800	8.23	8.83	0.08	0.06	0.00	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.00	0.01	0.06
146	4.700	8.23	8.82	0.08	0.06	0.00	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.00	0.01	0.06
147	4.600	8.23	8.82	0.08	0.06	0.00	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.00	0.01	0.06
148	4.500	8.23	8.82	0.08	0.06	0.00	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.00	0.01	0.06
149	4.400	8.23	8.82	0.09	0.06	0.00	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.00	0.01	0.06
150	4.300	8.23	8.82	0.09	0.06	0.00	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.00	0.01	0.06
151	4.200	8.23	8.82	0.09	0.06	0.00	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.00	0.01	0.06
152	4.100	8.23	8.82	0.09	0.06	0.00	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.00	0.01	0.06
153	4.000	8.23	8.82	0.09	0.06	0.00	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.00	0.01	0.06
154	3.900	8.23	8.82	0.09	0.06	0.00	6.80	6.80	0.13	0.06	0.39	0.00	0.00	0.00	0.00	0.01	0.06
155	3.800	8.23	8.82	0.09	0.06	0.00	6.80	6.80	0.13	0.06	0.39	0.00	0.00	0.00	0.00	0.01	0.06
156	3.700	8.23	8.82	0.09	0.06	0.00	6.80	6.80	0.13	0.06	0.39	0.00	0.00	0.00	0.00	0.01	0.06
157	3.600	8.23	8.82	0.09	0.06	0.00	6.80	6.80	0.13	0.06	0.39	0.00	0.00	0.00	0.00	0.01	0.06

158	3.500	8.23	7.71	0.08	0.06	0.00	7.36	7.36	0.15	0.06	0.36	0.00	0.00	0.00	0.00	0.01	0.06
159	3.400	8.23	7.72	0.07	0.06	0.00	7.36	7.36	0.15	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
160	3.300	8.23	7.72	0.07	0.06	0.00	7.36	7.36	0.15	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
161	3.200	8.23	7.72	0.07	0.06	0.00	7.36	7.36	0.15	0.06	0.33	0.00	0.00	0.00	0.00	0.01	0.06
162	3.100	8.23	7.73	0.07	0.06	0.00	7.36	7.36	0.15	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
163	3.000	8.23	7.73	0.07	0.06	0.00	7.36	7.36	0.15	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
164	2.900	8.23	7.74	0.07	0.06	0.00	7.36	7.36	0.15	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
165	2.800	8.23	7.74	0.07	0.06	0.00	7.36	7.36	0.15	0.06	0.35	0.00	0.00	0.00	0.00	0.01	0.06
166	2.700	8.23	7.74	0.08	0.06	0.00	7.36	7.36	0.15	0.06	0.36	0.00	0.00	0.00	0.00	0.01	0.06
167	2.600	8.23	7.75	0.08	0.06	0.00	7.36	7.36	0.15	0.06	0.36	0.00	0.00	0.00	0.00	0.01	0.06
168	2.500	8.23	7.75	0.08	0.06	0.00	7.36	7.36	0.15	0.06	0.37	0.00	0.00	0.00	0.00	0.01	0.06
169	2.400	8.23	7.76	0.08	0.06	0.00	7.36	7.36	0.15	0.06	0.37	0.00	0.00	0.00	0.00	0.01	0.06
170	2.300	8.23	7.07	0.08	0.06	0.00	8.05	8.05	0.18	0.06	0.35	0.00	0.00	0.00	0.00	0.01	0.06
171	2.200	8.23	7.08	0.07	0.06	0.00	8.05	8.05	0.18	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
172	2.100	8.23	7.09	0.07	0.06	0.00	8.05	8.05	0.18	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
173	2.000	8.23	7.10	0.07	0.06	0.00	8.05	8.05	0.18	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
174	1.900	8.23	7.11	0.07	0.06	0.00	8.05	8.05	0.18	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
175	1.800	8.23	7.12	0.07	0.06	0.00	8.05	8.05	0.18	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
176	1.700	8.23	7.13	0.07	0.06	0.00	8.05	8.05	0.18	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
177	1.600	8.23	7.14	0.07	0.06	0.00	8.05	8.05	0.18	0.06	0.35	0.00	0.00	0.00	0.00	0.01	0.06
178	1.500	8.23	7.15	0.07	0.06	0.00	8.05	8.05	0.18	0.06	0.35	0.00	0.00	0.00	0.00	0.01	0.06
179	1.400	8.23	7.16	0.08	0.06	0.00	8.05	8.05	0.18	0.06	0.36	0.00	0.00	0.00	0.00	0.01	0.06
180	1.300	8.23	7.17	0.08	0.06	0.00	8.05	8.05	0.18	0.06	0.36	0.00	0.00	0.00	0.00	0.01	0.06
181	1.200	8.23	7.18	0.08	0.06	0.00	8.05	8.05	0.18	0.06	0.37	0.00	0.00	0.00	0.00	0.01	0.06
182	1.100	8.23	6.96	0.08	0.06	0.00	9.16	9.16	0.20	0.06	0.35	0.00	0.00	0.00	0.00	0.01	0.06
183	1.000	8.23	6.97	0.07	0.06	0.00	9.16	9.16	0.20	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
184	0.900	8.23	6.99	0.07	0.06	0.00	9.16	9.16	0.20	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
185	0.800	8.23	7.00	0.07	0.06	0.00	9.16	9.16	0.20	0.06	0.33	0.00	0.00	0.00	0.00	0.01	0.06
186	0.700	8.23	7.01	0.07	0.06	0.00	9.16	9.16	0.20	0.06	0.33	0.00	0.00	0.00	0.00	0.01	0.06
187	0.600	8.23	7.03	0.07	0.06	0.00	9.16	9.16	0.20	0.06	0.33	0.00	0.00	0.00	0.00	0.01	0.06
188	0.500	8.23	7.04	0.07	0.06	0.00	9.16	9.16	0.20	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
189	0.400	8.23	7.06	0.07	0.06	0.00	9.16	9.16	0.20	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
190	0.300	8.23	7.07	0.07	0.06	0.00	9.16	9.16	0.20	0.06	0.34	0.00	0.00	0.00	0.00	0.01	0.06
191	0.200	8.23	7.08	0.07	0.06	0.00	9.16	9.16	0.20	0.06	0.35	0.00	0.00	0.00	0.00	0.01	0.06
192	0.100	8.23	7.10	0.08	0.06	0.00	9.16	9.16	0.20	0.06	0.35	0.00	0.00	0.00	0.00	0.01	0.06
193	0.000	8.23	7.11	0.08	0.06	0.00	9.16	9.16	0.20	0.06	0.35	0.00	0.00	0.00	0.00	0.01	0.06

SPECIAL REPORT: UPPER CALCASIEU RVR
HYDRAULIC PARAMETER VALUES

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	ADVCTV VELO m/s	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
1	19.30	19.20	0.0003	0.001	0.22	1.5	32.	145.4	0.3	0.	0.000	0.300	0.001
2	19.20	19.10	0.0004	0.001	0.22	1.5	32.	145.8	0.3	0.	0.000	0.300	0.001
3	19.10	19.00	0.0005	0.001	0.22	1.5	33.	146.2	0.3	0.	0.000	0.300	0.001
4	19.00	18.90	0.0005	0.002	0.22	1.5	33.	146.6	0.3	0.	0.000	0.300	0.002
5	18.90	18.80	0.0006	0.002	0.22	1.5	33.	146.9	0.3	0.	0.000	0.300	0.002
6	18.80	18.70	0.0006	0.002	0.22	1.5	33.	147.2	0.3	0.	0.000	0.300	0.002
7	18.70	18.60	0.0007	0.002	0.22	1.5	33.	147.5	0.3	0.	0.000	0.300	0.002
8	18.60	18.50	0.0008	0.002	0.22	1.5	33.	147.7	0.3	0.	0.000	0.300	0.002
9	18.50	18.40	0.0008	0.002	0.22	1.5	33.	148.0	0.3	0.	0.000	0.300	0.002

10	18.40	18.30	0.0009	0.003	0.22	1.5	33.	148.2	0.3	0.	0.000	0.300	0.003
11	18.30	18.20	0.0009	0.003	0.18	1.6	28.	156.2	0.3	0.	0.000	0.300	0.003
12	18.20	18.10	0.0009	0.003	0.18	1.6	28.	156.3	0.3	0.	0.000	0.300	0.003
13	18.10	18.00	0.0010	0.003	0.18	1.6	28.	156.5	0.3	0.	0.000	0.300	0.003
14	18.00	17.90	0.0010	0.003	0.18	1.6	28.	156.7	0.3	0.	0.000	0.300	0.003
15	17.90	17.80	0.0010	0.004	0.18	1.6	28.	156.8	0.3	0.	0.000	0.300	0.004
16	17.80	17.70	0.0011	0.004	0.18	1.6	29.	157.0	0.3	0.	0.000	0.300	0.004
17	17.70	17.60	0.0011	0.004	0.18	1.6	29.	157.2	0.3	0.	0.000	0.300	0.004
18	17.60	17.50	0.0011	0.004	0.18	1.6	29.	157.3	0.3	0.	0.000	0.300	0.004
19	17.50	17.40	0.0011	0.004	0.18	1.6	29.	157.5	0.3	0.	0.000	0.300	0.004
20	17.40	17.30	0.0012	0.004	0.18	1.6	29.	157.6	0.3	0.	0.000	0.300	0.004
21	17.30	17.20	0.0012	0.004	0.18	1.6	29.	157.8	0.3	0.	0.000	0.300	0.004
22	17.20	17.10	0.0012	0.004	0.18	1.6	29.	157.9	0.3	0.	0.000	0.300	0.004
23	17.10	17.00	0.0013	0.004	0.18	1.6	29.	158.0	0.3	0.	0.000	0.300	0.004
24	17.00	16.90	0.0013	0.004	0.18	1.6	29.	158.2	0.3	0.	0.000	0.300	0.004
25	16.90	16.80	0.0013	0.005	0.18	1.6	29.	158.3	0.3	0.	0.000	0.300	0.005
26	16.80	16.70	0.0013	0.005	0.18	1.6	29.	158.5	0.3	0.	0.000	0.300	0.005
27	16.70	16.60	0.0014	0.005	0.18	1.6	29.	158.6	0.3	0.	0.000	0.300	0.005
28	16.60	16.50	0.0014	0.005	0.18	1.6	29.	158.7	0.3	0.	0.000	0.300	0.005
29	16.50	16.40	0.0014	0.005	0.18	1.6	29.	158.9	0.3	0.	0.000	0.300	0.005
30	16.40	16.30	0.0015	0.005	0.18	1.6	29.	159.0	0.3	0.	0.000	0.300	0.005
31	16.30	16.20	0.0015	0.005	0.18	1.6	29.	159.1	0.3	0.	0.000	0.300	0.005
32	16.20	16.10	0.0015	0.006	0.14	1.7	24.	168.3	0.2	0.	0.000	0.300	0.006
33	16.10	16.00	0.0015	0.006	0.14	1.7	24.	168.5	0.2	0.	0.000	0.300	0.006
34	16.00	15.90	0.0016	0.006	0.14	1.7	24.	168.6	0.2	0.	0.000	0.300	0.006
35	15.90	15.80	0.0016	0.007	0.14	1.7	24.	168.8	0.2	0.	0.000	0.300	0.007
36	15.80	15.70	0.0016	0.007	0.14	1.7	24.	169.0	0.2	0.	0.000	0.300	0.007
37	15.70	15.60	0.0017	0.007	0.14	1.7	24.	169.1	0.2	0.	0.000	0.300	0.007
38	15.60	15.50	0.0017	0.007	0.14	1.7	24.	169.3	0.2	0.	0.000	0.300	0.007
39	15.50	15.40	0.0017	0.007	0.14	1.7	24.	169.5	0.2	0.	0.000	0.300	0.007
40	15.40	15.30	0.0017	0.007	0.14	1.7	24.	169.6	0.2	0.	0.000	0.300	0.007
41	15.30	15.20	0.0018	0.007	0.14	1.7	25.	169.8	0.2	0.	0.000	0.300	0.007
42	15.20	15.10	0.0018	0.007	0.14	1.7	25.	169.9	0.2	0.	0.000	0.300	0.007
43	15.10	15.00	0.0018	0.007	0.14	1.7	25.	170.1	0.2	0.	0.000	0.300	0.007
44	15.00	14.90	0.0019	0.008	0.14	1.7	25.	170.2	0.2	0.	0.000	0.300	0.008
45	14.90	14.80	0.0019	0.008	0.14	1.7	25.	170.4	0.2	0.	0.000	0.300	0.008
46	14.80	14.70	0.0019	0.008	0.14	1.7	25.	170.5	0.2	0.	0.000	0.300	0.008
47	14.70	14.60	0.0019	0.008	0.14	1.7	25.	170.7	0.2	0.	0.000	0.300	0.008
48	14.60	14.50	0.0020	0.008	0.15	1.7	25.	170.8	0.2	0.	0.000	0.300	0.008
49	14.50	14.40	0.0020	0.008	0.15	1.7	25.	171.0	0.2	0.	0.000	0.300	0.008
50	14.40	14.30	0.0020	0.008	0.15	1.7	25.	171.1	0.2	0.	0.000	0.300	0.008
51	14.30	14.20	0.0021	0.008	0.15	1.7	25.	171.2	0.2	0.	0.000	0.300	0.008
52	14.20	14.10	0.0021	0.008	0.15	1.7	25.	171.4	0.2	0.	0.000	0.300	0.008
53	14.10	14.00	0.0021	0.011	0.11	1.8	19.	181.6	0.2	0.	0.000	0.300	0.011
54	14.00	13.90	0.0021	0.011	0.11	1.8	19.	181.8	0.2	0.	0.000	0.300	0.011
55	13.90	13.80	0.0022	0.011	0.11	1.8	19.	181.9	0.2	0.	0.000	0.300	0.011
56	13.80	13.70	0.0022	0.011	0.11	1.8	19.	182.1	0.2	0.	0.000	0.300	0.011
57	13.70	13.60	0.0022	0.011	0.11	1.8	19.	182.3	0.2	0.	0.000	0.300	0.011
58	13.60	13.50	0.0023	0.012	0.11	1.8	19.	182.4	0.2	0.	0.000	0.300	0.012
59	13.50	13.40	0.0023	0.012	0.11	1.8	19.	182.6	0.2	0.	0.000	0.300	0.012
60	13.40	13.30	0.0023	0.012	0.11	1.8	19.	182.8	0.2	0.	0.000	0.300	0.012
61	13.30	13.20	0.0023	0.012	0.11	1.8	19.	182.9	0.2	0.	0.000	0.300	0.012
62	13.20	13.10	0.0024	0.012	0.11	1.8	20.	183.1	0.2	0.	0.000	0.300	0.012
63	13.10	13.00	0.0024	0.012	0.11	1.8	20.	183.3	0.2	0.	0.000	0.300	0.012

64	13.00	12.90	0.0024	0.012	0.11	1.8	20.	183.4	0.2	0.	0.000	0.300	0.012
65	12.90	12.80	0.0025	0.012	0.11	1.8	20.	183.6	0.2	0.	0.000	0.300	0.012
66	12.80	12.70	0.0025	0.013	0.11	1.8	20.	183.7	0.2	0.	0.000	0.300	0.013
67	12.70	12.60	0.0025	0.013	0.11	1.8	20.	183.9	0.2	0.	0.000	0.300	0.013
68	12.60	12.50	0.0025	0.013	0.11	1.8	20.	184.1	0.2	0.	0.000	0.300	0.013
69	12.50	12.40	0.0026	0.013	0.11	1.8	20.	184.2	0.2	0.	0.000	0.300	0.013
70	12.40	12.30	0.0026	0.013	0.11	1.8	20.	184.4	0.2	0.	0.000	0.300	0.013
71	12.30	12.20	0.0026	0.013	0.11	1.8	20.	184.5	0.2	0.	0.000	0.300	0.013
72	12.20	12.10	0.0027	0.013	0.11	1.8	20.	184.7	0.2	0.	0.000	0.300	0.013
73	12.10	12.00	0.0027	0.013	0.11	1.8	20.	184.8	0.2	0.	0.000	0.300	0.013
74	12.00	11.90	0.0027	0.020	0.07	2.0	14.	195.7	0.1	0.	0.000	0.300	0.020
75	11.90	11.80	0.0027	0.020	0.07	2.0	14.	195.9	0.1	0.	0.000	0.300	0.020
76	11.80	11.70	0.0028	0.020	0.07	2.0	14.	196.1	0.1	0.	0.000	0.300	0.020
77	11.70	11.60	0.0028	0.020	0.07	2.0	14.	196.2	0.1	0.	0.000	0.300	0.020
78	11.60	11.50	0.0028	0.020	0.07	2.0	14.	196.4	0.1	0.	0.000	0.300	0.020
79	11.50	11.40	0.0029	0.021	0.07	2.0	14.	196.6	0.1	0.	0.000	0.300	0.021
80	11.40	11.30	0.0029	0.021	0.07	2.0	14.	196.8	0.1	0.	0.000	0.300	0.021
81	11.30	11.20	0.0029	0.021	0.07	2.0	14.	196.9	0.1	0.	0.000	0.300	0.021
82	11.20	11.10	0.0029	0.021	0.07	2.0	14.	197.1	0.1	0.	0.000	0.300	0.021
83	11.10	11.00	0.0030	0.021	0.07	2.0	14.	197.3	0.1	0.	0.000	0.300	0.021
84	11.00	10.90	0.0030	0.021	0.07	2.0	14.	197.4	0.1	0.	0.000	0.300	0.021
85	10.90	10.80	0.0030	0.021	0.07	2.0	14.	197.6	0.1	0.	0.000	0.300	0.021
86	10.80	10.70	0.0031	0.022	0.07	2.0	14.	197.8	0.1	0.	0.000	0.300	0.022
87	10.70	10.60	0.0031	0.022	0.07	2.0	14.	197.9	0.1	0.	0.000	0.300	0.022
88	10.60	10.50	0.0031	0.022	0.07	2.0	14.	198.1	0.1	0.	0.000	0.300	0.022
89	10.50	10.40	0.0031	0.022	0.07	2.0	14.	198.3	0.1	0.	0.000	0.300	0.022
90	10.40	10.30	0.0032	0.022	0.07	2.0	14.	198.4	0.1	0.	0.000	0.300	0.022
91	10.30	10.20	0.0032	0.022	0.07	2.0	14.	198.6	0.1	0.	0.000	0.300	0.022
92	10.20	10.10	0.0032	0.023	0.07	2.0	14.	198.8	0.1	0.	0.000	0.300	0.023
93	10.10	10.00	0.0033	0.023	0.07	2.0	14.	198.9	0.1	0.	0.000	0.300	0.023
94	10.00	9.90	0.0033	0.023	0.07	2.0	14.	199.1	0.1	0.	0.000	0.300	0.023
95	9.90	9.80	0.0033	0.017	0.08	2.3	19.	232.2	0.2	0.	0.000	0.300	0.017
96	9.80	9.70	0.0033	0.018	0.08	2.3	19.	232.4	0.2	0.	0.000	0.300	0.018
97	9.70	9.60	0.0034	0.018	0.08	2.3	19.	232.6	0.2	0.	0.000	0.300	0.018
98	9.60	9.50	0.0034	0.018	0.08	2.3	19.	232.8	0.2	0.	0.000	0.300	0.018
99	9.50	9.40	0.0034	0.018	0.08	2.3	19.	232.9	0.2	0.	0.000	0.300	0.018
100	9.40	9.30	0.0035	0.018	0.08	2.3	19.	233.1	0.2	0.	0.000	0.300	0.018
101	9.30	9.20	0.0035	0.018	0.08	2.3	19.	233.3	0.2	0.	0.000	0.300	0.018
102	9.20	9.10	0.0035	0.018	0.08	2.3	19.	233.4	0.2	0.	0.000	0.300	0.018
103	9.10	9.00	0.0035	0.018	0.08	2.3	19.	233.6	0.2	0.	0.000	0.300	0.018
104	9.00	8.90	0.0036	0.018	0.08	2.3	19.	233.8	0.2	0.	0.000	0.300	0.018
105	8.90	8.80	0.0036	0.018	0.08	2.3	19.	234.0	0.2	0.	0.000	0.300	0.018
106	8.80	8.70	0.0036	0.019	0.08	2.3	19.	234.1	0.2	0.	0.000	0.300	0.019
107	8.70	8.60	0.0037	0.019	0.08	2.3	20.	234.3	0.2	0.	0.000	0.300	0.019
108	8.60	8.50	0.0037	0.019	0.08	2.3	20.	234.4	0.2	0.	0.000	0.300	0.019
109	8.50	8.40	0.0037	0.019	0.08	2.3	20.	234.6	0.2	0.	0.000	0.300	0.019
110	8.40	8.30	0.0037	0.019	0.08	2.3	20.	234.8	0.2	0.	0.000	0.300	0.019
111	8.30	8.20	0.0038	0.019	0.08	2.3	20.	234.9	0.2	0.	0.000	0.300	0.019
112	8.20	8.10	0.0038	0.019	0.08	2.4	20.	235.1	0.2	0.	0.000	0.300	0.019
113	8.10	8.00	0.0038	0.019	0.08	2.4	20.	235.3	0.2	0.	0.000	0.300	0.019
114	8.00	7.90	0.0039	0.019	0.08	2.4	20.	235.4	0.2	0.	0.000	0.300	0.019
115	7.90	7.80	0.0039	0.020	0.08	2.4	20.	235.6	0.2	0.	0.000	0.300	0.020
116	7.80	7.70	0.0039	0.015	0.10	2.7	26.	269.2	0.3	0.	0.000	0.300	0.015
117	7.70	7.60	0.0039	0.015	0.10	2.7	26.	269.3	0.3	0.	0.000	0.300	0.015

118	7.60	7.50	0.0040	0.015	0.10	2.7	26.	269.5	0.3	0.	0.000	0.300	0.015
119	7.50	7.40	0.0040	0.016	0.10	2.7	26.	269.7	0.3	0.	0.000	0.300	0.016
120	7.40	7.30	0.0040	0.016	0.10	2.7	26.	269.9	0.3	0.	0.000	0.300	0.016
121	7.30	7.20	0.0041	0.016	0.10	2.7	26.	270.0	0.3	0.	0.000	0.300	0.016
122	7.20	7.10	0.0041	0.016	0.10	2.7	26.	270.2	0.3	0.	0.000	0.300	0.016
123	7.10	7.00	0.0041	0.016	0.10	2.7	26.	270.4	0.3	0.	0.000	0.300	0.016
124	7.00	6.90	0.0041	0.016	0.10	2.7	26.	270.6	0.3	0.	0.000	0.300	0.016
125	6.90	6.80	0.0042	0.016	0.10	2.7	26.	270.7	0.3	0.	0.000	0.300	0.016
126	6.80	6.70	0.0042	0.016	0.10	2.7	26.	270.9	0.3	0.	0.000	0.300	0.016
127	6.70	6.60	0.0042	0.016	0.10	2.7	26.	271.1	0.3	0.	0.000	0.300	0.016
128	6.60	6.50	0.0043	0.016	0.10	2.7	26.	271.2	0.3	0.	0.000	0.300	0.016
129	6.50	6.40	0.0043	0.016	0.10	2.7	26.	271.4	0.3	0.	0.000	0.300	0.016
130	6.40	6.30	0.0043	0.016	0.10	2.7	26.	271.6	0.3	0.	0.000	0.300	0.016
131	6.30	6.20	0.0043	0.016	0.10	2.7	26.	271.7	0.3	0.	0.000	0.300	0.016
132	6.20	6.10	0.0044	0.017	0.10	2.7	26.	271.9	0.3	0.	0.000	0.300	0.017
133	6.10	6.00	0.0044	0.017	0.10	2.7	26.	272.1	0.3	0.	0.000	0.300	0.017
134	6.00	5.90	0.0044	0.017	0.10	2.7	26.	272.2	0.3	0.	0.000	0.300	0.017
135	5.90	5.80	0.0045	0.017	0.10	2.7	27.	272.4	0.3	0.	0.000	0.300	0.017
136	5.80	5.70	0.0045	0.017	0.10	2.7	27.	272.5	0.3	0.	0.000	0.300	0.017
137	5.70	5.60	0.0045	0.014	0.11	3.1	33.	306.4	0.3	0.	0.000	0.300	0.014
138	5.60	5.50	0.0045	0.014	0.11	3.1	33.	306.6	0.3	0.	0.000	0.300	0.014
139	5.50	5.40	0.0046	0.014	0.11	3.1	33.	306.7	0.3	0.	0.000	0.300	0.014
140	5.40	5.30	0.0046	0.014	0.11	3.1	33.	306.9	0.3	0.	0.000	0.300	0.014
141	5.30	5.20	0.0046	0.014	0.11	3.1	33.	307.1	0.3	0.	0.000	0.300	0.014
142	5.20	5.10	0.0047	0.014	0.11	3.1	33.	307.3	0.3	0.	0.000	0.300	0.014
143	5.10	5.00	0.0047	0.014	0.11	3.1	33.	307.4	0.3	0.	0.000	0.300	0.014
144	5.00	4.90	0.0047	0.014	0.11	3.1	33.	307.6	0.3	0.	0.000	0.300	0.014
145	4.90	4.80	0.0047	0.014	0.11	3.1	33.	307.8	0.3	0.	0.000	0.300	0.014
146	4.80	4.70	0.0048	0.014	0.11	3.1	33.	307.9	0.3	0.	0.000	0.300	0.014
147	4.70	4.60	0.0048	0.014	0.11	3.1	33.	308.1	0.3	0.	0.000	0.300	0.014
148	4.60	4.50	0.0048	0.014	0.11	3.1	34.	308.3	0.3	0.	0.000	0.300	0.014
149	4.50	4.40	0.0049	0.014	0.11	3.1	34.	308.5	0.3	0.	0.000	0.300	0.014
150	4.40	4.30	0.0049	0.014	0.11	3.1	34.	308.6	0.3	0.	0.000	0.300	0.014
151	4.30	4.20	0.0049	0.015	0.11	3.1	34.	308.8	0.3	0.	0.000	0.300	0.015
152	4.20	4.10	0.0049	0.015	0.11	3.1	34.	309.0	0.3	0.	0.000	0.300	0.015
153	4.10	4.00	0.0050	0.015	0.11	3.1	34.	309.1	0.3	0.	0.000	0.300	0.015
154	4.00	3.90	0.0050	0.015	0.11	3.1	34.	309.3	0.3	0.	0.000	0.300	0.015
155	3.90	3.80	0.0050	0.015	0.11	3.1	34.	309.4	0.3	0.	0.000	0.300	0.015
156	3.80	3.70	0.0051	0.015	0.11	3.1	34.	309.6	0.3	0.	0.000	0.300	0.015
157	3.70	3.60	0.0051	0.015	0.11	3.1	34.	309.8	0.3	0.	0.000	0.300	0.015
158	3.60	3.50	0.0052	0.016	0.13	2.6	33.	259.7	0.3	0.	0.000	0.300	0.016
159	3.50	3.40	0.0054	0.016	0.13	2.6	33.	260.4	0.3	0.	0.000	0.300	0.016
160	3.40	3.30	0.0055	0.016	0.13	2.6	34.	261.0	0.3	0.	0.000	0.300	0.016
161	3.30	3.20	0.0057	0.017	0.13	2.6	34.	261.7	0.3	0.	0.000	0.300	0.017
162	3.20	3.10	0.0058	0.017	0.13	2.6	34.	262.3	0.3	0.	0.000	0.300	0.017
163	3.10	3.00	0.0060	0.017	0.13	2.6	34.	262.9	0.3	0.	0.000	0.300	0.017
164	3.00	2.90	0.0061	0.018	0.13	2.6	35.	263.6	0.3	0.	0.000	0.300	0.018
165	2.90	2.80	0.0063	0.018	0.13	2.6	35.	264.2	0.3	0.	0.000	0.300	0.018
166	2.80	2.70	0.0064	0.018	0.13	2.6	35.	264.8	0.3	0.	0.000	0.300	0.018
167	2.70	2.60	0.0066	0.019	0.13	2.7	35.	265.3	0.4	0.	0.000	0.300	0.019
168	2.60	2.50	0.0067	0.019	0.13	2.7	35.	265.9	0.4	0.	0.000	0.300	0.019
169	2.50	2.40	0.0069	0.019	0.13	2.7	36.	266.5	0.4	0.	0.000	0.300	0.019
170	2.40	2.30	0.0070	0.022	0.15	2.1	33.	214.4	0.3	0.	0.000	0.300	0.022
171	2.30	2.20	0.0072	0.022	0.15	2.1	33.	214.9	0.3	0.	0.000	0.300	0.022

172	2.20	2.10	0.0073	0.022	0.15	2.2	33.	215.3	0.3	0.	0.000	0.300	0.022
173	2.10	2.00	0.0075	0.023	0.15	2.2	33.	215.7	0.3	0.	0.000	0.300	0.023
174	2.00	1.90	0.0076	0.023	0.15	2.2	33.	216.1	0.3	0.	0.000	0.300	0.023
175	1.90	1.80	0.0078	0.023	0.15	2.2	33.	216.5	0.3	0.	0.000	0.300	0.023
176	1.80	1.70	0.0079	0.024	0.16	2.2	34.	216.9	0.3	0.	0.000	0.300	0.024
177	1.70	1.60	0.0081	0.024	0.16	2.2	34.	217.3	0.3	0.	0.000	0.300	0.024
178	1.60	1.50	0.0082	0.024	0.16	2.2	34.	217.7	0.3	0.	0.000	0.300	0.024
179	1.50	1.40	0.0084	0.025	0.16	2.2	34.	218.0	0.3	0.	0.000	0.300	0.025
180	1.40	1.30	0.0085	0.025	0.16	2.2	34.	218.4	0.3	0.	0.000	0.300	0.025
181	1.30	1.20	0.0087	0.025	0.16	2.2	34.	218.8	0.3	0.	0.000	0.300	0.025
182	1.20	1.10	0.0088	0.031	0.17	1.7	29.	165.1	0.3	0.	0.000	0.300	0.031
183	1.10	1.00	0.0090	0.031	0.18	1.7	29.	165.4	0.3	0.	0.000	0.300	0.031
184	1.00	0.90	0.0091	0.031	0.18	1.7	29.	165.6	0.3	0.	0.000	0.300	0.031
185	0.90	0.80	0.0093	0.032	0.18	1.7	29.	165.9	0.3	0.	0.000	0.300	0.032
186	0.80	0.70	0.0094	0.032	0.18	1.7	29.	166.1	0.3	0.	0.000	0.300	0.032
187	0.70	0.60	0.0096	0.032	0.18	1.7	29.	166.4	0.3	0.	0.000	0.300	0.032
188	0.60	0.50	0.0097	0.033	0.18	1.7	30.	166.6	0.3	0.	0.000	0.300	0.033
189	0.50	0.40	0.0099	0.033	0.18	1.7	30.	166.8	0.3	0.	0.000	0.300	0.033
190	0.40	0.30	0.0100	0.034	0.18	1.7	30.	167.1	0.3	0.	0.000	0.300	0.034
191	0.30	0.20	0.0102	0.034	0.18	1.7	30.	167.3	0.3	0.	0.000	0.300	0.034
192	0.20	0.10	0.0103	0.034	0.18	1.7	30.	167.5	0.3	0.	0.000	0.300	0.034
193	0.10	0.00	0.0105	0.035	0.18	1.7	30.	167.8	0.3	0.	0.000	0.300	0.035

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 1   UPPER CALCASIEU RIVER REACH 1   WATER QUALITY CALIBRATION

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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	0.00028	25.21	0.00	0.00	0.00	3.45	4.08	5.06	0.65	0.05	0.03	0.00	9.80	0.00	5.31
EACH	INCR	0.0001	25.21	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
1	19.30	19.20	0.00034	0.00	0.00105	1.10	0.22	1.45	32.31	145.42	0.32	0.00	0.000	0.300	0.001
2	19.20	19.10	0.00040	0.00	0.00123	0.94	0.22	1.46	32.42	145.84	0.32	0.00	0.000	0.300	0.001
3	19.10	19.00	0.00046	0.00	0.00141	0.82	0.22	1.46	32.53	146.22	0.33	0.00	0.000	0.300	0.001
4	19.00	18.90	0.00052	0.00	0.00159	0.73	0.22	1.47	32.62	146.56	0.33	0.00	0.000	0.300	0.002
5	18.90	18.80	0.00058	0.00	0.00177	0.65	0.22	1.47	32.70	146.88	0.33	0.00	0.000	0.300	0.002
6	18.80	18.70	0.00064	0.00	0.00195	0.59	0.22	1.47	32.79	147.17	0.33	0.00	0.000	0.300	0.002
7	18.70	18.60	0.00070	0.00	0.00213	0.54	0.22	1.47	32.86	147.45	0.33	0.00	0.000	0.300	0.002
8	18.60	18.50	0.00076	0.00	0.00231	0.50	0.22	1.48	32.93	147.71	0.33	0.00	0.000	0.300	0.002
9	18.50	18.40	0.00082	0.00	0.00248	0.47	0.22	1.48	33.00	147.96	0.33	0.00	0.000	0.300	0.002
10	18.40	18.30	0.00088	0.00	0.00266	0.43	0.22	1.48	33.06	148.19	0.33	0.00	0.000	0.300	0.003

TOT		6.77			327.22	1469.40	
AVG	0.00171		0.22	1.47			0.33
CUM		6.77					

** 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	19.200	8.23	3.48	0.22	0.06	0.00	3.61	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.62	0.00	0.00	0.04	0.06
2	19.100	8.23	3.48	0.22	0.06	0.00	3.61	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.61	0.00	0.00	0.04	0.06
3	19.000	8.23	3.48	0.22	0.06	0.00	3.61	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.60	0.00	0.00	0.04	0.06
4	18.900	8.23	3.47	0.22	0.06	0.00	3.61	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.59	0.00	0.00	0.04	0.06
5	18.800	8.23	3.47	0.22	0.06	0.00	3.61	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.59	0.00	0.00	0.04	0.06
6	18.700	8.23	3.47	0.22	0.06	0.00	3.61	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.58	0.00	0.00	0.04	0.06
7	18.600	8.23	3.47	0.22	0.06	0.00	3.61	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.57	0.00	0.00	0.04	0.06
8	18.500	8.23	3.47	0.22	0.06	0.00	3.61	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.57	0.00	0.00	0.04	0.06
9	18.400	8.23	3.47	0.22	0.06	0.00	3.61	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.56	0.00	0.00	0.04	0.06
10	18.300	8.23	3.48	0.22	0.06	0.00	3.61	3.61	3.61	0.04	0.06	0.62	0.00	0.00	0.00	0.55	0.00	0.00	0.04	0.06
20 DEG C RATE				0.17		0.00	2.60			0.03		0.50	0.00	0.00	0.00			0.00	0.03	
AVG 20 DEG C RATE			3.14		0.05						0.05									0.05

* g/sq m/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	19.200	25.21	0.00	0.00	0.00	3.36	4.07	5.04	0.71	0.02	0.02	0.76	0.00	9.69	0.00	0.00	5.67
2	19.100	25.21	0.00	0.00	0.00	3.35	4.07	5.03	0.72	0.02	0.02	0.76	0.00	9.58	0.00	0.00	5.73
3	19.000	25.21	0.00	0.00	0.00	3.35	4.06	5.01	0.73	0.02	0.02	0.77	0.00	9.47	0.00	0.00	5.78
4	18.900	25.21	0.00	0.00	0.00	3.35	4.06	5.00	0.74	0.02	0.01	0.77	0.00	9.36	0.00	0.00	5.82
5	18.800	25.21	0.00	0.00	0.00	3.35	4.06	4.98	0.75	0.01	0.01	0.77	0.00	9.25	0.00	0.00	5.85
6	18.700	25.21	0.00	0.00	0.00	3.34	4.05	4.97	0.75	0.01	0.01	0.78	0.00	9.14	0.00	0.00	5.88
7	18.600	25.21	0.00	0.00	0.00	3.34	4.05	4.95	0.75	0.01	0.01	0.78	0.00	9.03	0.00	0.00	5.90
8	18.500	25.21	0.00	0.00	0.00	3.34	4.04	4.93	0.76	0.02	0.01	0.78	0.00	8.92	0.00	0.00	5.93
9	18.400	25.21	0.00	0.00	0.00	3.33	4.04	4.92	0.76	0.02	0.01	0.79	0.00	8.81	0.00	0.00	5.97
10	18.300	25.21	0.00	0.00	0.00	3.30	4.03	4.90	0.76	0.02	0.01	0.80	0.00	8.70	0.00	0.00	6.02

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 2   UPPER CALCASIEU RIVER REACH 2   WATER QUALITY CALIBRATION

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
11	UPR RCH	0.00088	25.21	0.00	0.00	0.00	3.30	4.03	4.90	0.76	0.02	0.01	0.00	8.70	0.00	6.02
EACH	INCR	0.0000	25.21	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00

*** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
11	18.30	18.20	0.00091	0.00	0.00321	0.36	0.18	1.56	28.32	156.15	0.28	0.00	0.000	0.300	0.003
12	18.20	18.10	0.00094	0.00	0.00330	0.35	0.18	1.56	28.37	156.33	0.28	0.00	0.000	0.300	0.003
13	18.10	18.00	0.00097	0.00	0.00340	0.34	0.18	1.56	28.41	156.50	0.28	0.00	0.000	0.300	0.003
14	18.00	17.90	0.00099	0.00	0.00349	0.33	0.18	1.57	28.46	156.67	0.28	0.00	0.000	0.300	0.003
15	17.90	17.80	0.00102	0.00	0.00359	0.32	0.18	1.57	28.50	156.83	0.28	0.00	0.000	0.300	0.004
16	17.80	17.70	0.00105	0.00	0.00368	0.31	0.18	1.57	28.54	156.99	0.29	0.00	0.000	0.300	0.004
17	17.70	17.60	0.00108	0.00	0.00378	0.31	0.18	1.57	28.58	157.15	0.29	0.00	0.000	0.300	0.004
18	17.60	17.50	0.00111	0.00	0.00387	0.30	0.18	1.57	28.63	157.31	0.29	0.00	0.000	0.300	0.004
19	17.50	17.40	0.00114	0.00	0.00397	0.29	0.18	1.57	28.67	157.46	0.29	0.00	0.000	0.300	0.004
20	17.40	17.30	0.00117	0.00	0.00406	0.29	0.18	1.58	28.71	157.61	0.29	0.00	0.000	0.300	0.004
21	17.30	17.20	0.00119	0.00	0.00415	0.28	0.18	1.58	28.75	157.76	0.29	0.00	0.000	0.300	0.004
22	17.20	17.10	0.00122	0.00	0.00425	0.27	0.18	1.58	28.79	157.90	0.29	0.00	0.000	0.300	0.004
23	17.10	17.00	0.00125	0.00	0.00434	0.27	0.18	1.58	28.82	158.04	0.29	0.00	0.000	0.300	0.004
24	17.00	16.90	0.00128	0.00	0.00444	0.26	0.18	1.58	28.86	158.18	0.29	0.00	0.000	0.300	0.004
25	16.90	16.80	0.00131	0.00	0.00453	0.26	0.18	1.58	28.90	158.32	0.29	0.00	0.000	0.300	0.005
26	16.80	16.70	0.00134	0.00	0.00462	0.25	0.18	1.58	28.93	158.46	0.29	0.00	0.000	0.300	0.005
27	16.70	16.60	0.00137	0.00	0.00471	0.25	0.18	1.59	28.97	158.59	0.29	0.00	0.000	0.300	0.005
28	16.60	16.50	0.00139	0.00	0.00481	0.24	0.18	1.59	29.01	158.72	0.29	0.00	0.000	0.300	0.005
29	16.50	16.40	0.00142	0.00	0.00490	0.24	0.18	1.59	29.04	158.85	0.29	0.00	0.000	0.300	0.005
30	16.40	16.30	0.00145	0.00	0.00499	0.23	0.18	1.59	29.08	158.98	0.29	0.00	0.000	0.300	0.005
31	16.30	16.20	0.00148	0.00	0.00508	0.23	0.18	1.59	29.11	159.11	0.29	0.00	0.000	0.300	0.005
TOT						5.97			603.43	3311.90					
AVG					0.00407		0.18	1.58			0.29				
CUM						12.74									

*** 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
11	18.200	8.23	4.32	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.55	0.00	0.00	0.03	0.06
12	18.100	8.23	4.33	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.54	0.00	0.00	0.03	0.06
13	18.000	8.23	4.34	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.53	0.00	0.00	0.03	0.06
14	17.900	8.23	4.34	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.52	0.00	0.00	0.03	0.06
15	17.800	8.23	4.35	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.52	0.00	0.00	0.03	0.06
16	17.700	8.23	4.35	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.51	0.00	0.00	0.03	0.06
17	17.600	8.23	4.36	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.50	0.00	0.00	0.03	0.06

18	17.500	8.23	4.37	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.50	0.00	0.00	0.03	0.06
19	17.400	8.23	4.37	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.49	0.00	0.00	0.03	0.06
20	17.300	8.23	4.38	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.48	0.00	0.00	0.03	0.06
21	17.200	8.23	4.38	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.48	0.00	0.00	0.03	0.06
22	17.100	8.23	4.39	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.60	0.00	0.00	0.00	0.47	0.00	0.00	0.03	0.06
23	17.000	8.23	4.40	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.46	0.00	0.00	0.03	0.06
24	16.900	8.23	4.40	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.46	0.00	0.00	0.03	0.06
25	16.800	8.23	4.41	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.45	0.00	0.00	0.03	0.06
26	16.700	8.23	4.42	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.44	0.00	0.00	0.03	0.06
27	16.600	8.23	4.42	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.43	0.00	0.00	0.03	0.06
28	16.500	8.23	4.43	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.43	0.00	0.00	0.03	0.06
29	16.400	8.23	4.43	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.42	0.00	0.00	0.03	0.06
30	16.300	8.23	4.44	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.41	0.00	0.00	0.03	0.06
31	16.200	8.23	4.45	0.20	0.06	0.00	3.96	3.96	3.96	0.11	0.06	0.61	0.00	0.00	0.00	0.41	0.00	0.00	0.03	0.06
20 DEG C RATE				0.16		0.00	2.85			0.08		0.50	0.00	0.00	0.00			0.00	0.03	
AVG 20 DEG C RATE			3.97		0.05						0.05									0.05

* g/sq m/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 *
11	18.200	25.21	0.00	0.00	0.00	3.16	4.02	4.88	0.77	0.03	0.02	0.82	0.00	8.59	1.19	0.00	6.13
12	18.100	25.21	0.00	0.00	0.00	3.10	4.02	4.86	0.77	0.04	0.02	0.83	0.00	8.48	2.38	0.00	6.23
13	18.000	25.21	0.00	0.00	0.00	3.07	4.01	4.85	0.77	0.05	0.03	0.85	0.00	8.37	3.57	0.00	6.32
14	17.900	25.21	0.00	0.00	0.00	3.06	4.00	4.83	0.77	0.05	0.03	0.86	0.00	8.26	4.76	0.00	6.41
15	17.800	25.21	0.00	0.00	0.00	3.06	4.00	4.81	0.78	0.06	0.04	0.87	0.00	8.15	5.95	0.00	6.49
16	17.700	25.21	0.00	0.00	0.00	3.06	3.99	4.79	0.78	0.06	0.04	0.88	0.00	8.04	7.14	0.00	6.56
17	17.600	25.21	0.00	0.00	0.00	3.07	3.98	4.78	0.78	0.06	0.05	0.89	0.00	7.93	8.33	0.00	6.63
18	17.500	25.21	0.00	0.00	0.00	3.07	3.98	4.76	0.78	0.06	0.05	0.89	0.00	7.82	9.52	0.00	6.69
19	17.400	25.21	0.00	0.00	0.00	3.08	3.97	4.74	0.78	0.06	0.05	0.90	0.00	7.71	10.71	0.00	6.74
20	17.300	25.21	0.00	0.00	0.00	3.09	3.97	4.73	0.78	0.06	0.05	0.90	0.00	7.60	11.90	0.00	6.80
21	17.200	25.21	0.00	0.00	0.00	3.09	3.96	4.71	0.79	0.06	0.06	0.90	0.00	7.50	13.10	0.00	6.85
22	17.100	25.21	0.00	0.00	0.00	3.10	3.96	4.70	0.79	0.06	0.06	0.90	0.00	7.39	14.29	0.00	6.89
23	17.000	25.21	0.00	0.00	0.00	3.11	3.95	4.68	0.79	0.06	0.06	0.91	0.00	7.28	15.48	0.00	6.94
24	16.900	25.21	0.00	0.00	0.00	3.12	3.95	4.66	0.79	0.06	0.06	0.90	0.00	7.17	16.67	0.00	6.98
25	16.800	25.21	0.00	0.00	0.00	3.13	3.94	4.65	0.79	0.06	0.06	0.90	0.00	7.06	17.86	0.00	7.01
26	16.700	25.21	0.00	0.00	0.00	3.13	3.94	4.63	0.79	0.05	0.06	0.90	0.00	6.95	19.05	0.00	7.05
27	16.600	25.21	0.00	0.00	0.00	3.14	3.94	4.62	0.79	0.05	0.06	0.90	0.00	6.84	20.24	0.00	7.08
28	16.500	25.21	0.00	0.00	0.00	3.15	3.93	4.60	0.79	0.05	0.06	0.89	0.00	6.73	21.43	0.00	7.11
29	16.400	25.21	0.00	0.00	0.00	3.16	3.93	4.59	0.79	0.05	0.05	0.89	0.00	6.62	22.62	0.00	7.14
30	16.300	25.21	0.00	0.00	0.00	3.16	3.92	4.57	0.79	0.05	0.05	0.89	0.00	6.51	23.81	0.00	7.17
31	16.200	25.21	0.00	0.00	0.00	3.14	3.91	4.55	0.79	0.05	0.05	0.89	0.00	6.40	25.00	0.00	7.21

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM = CBOD2 MG/L
** g/cu m

REACH NO. 3 UPPER CALCASIEU RIVER REACH 3 WATER QUALITY CALIBRATION

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
32	UPR RCH	0.00148	25.21	0.00	0.00	0.00	3.14	3.91	4.55	0.79	0.05	0.05	0.00	6.40	0.00	7.21
EACH	INCR	0.0000	25.21	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
32	16.20	16.10	0.00151	0.00	0.00625	0.19	0.14	1.68	24.13	168.29	0.24	0.00	0.000	0.300	0.006
33	16.10	16.00	0.00154	0.00	0.00636	0.18	0.14	1.68	24.18	168.46	0.24	0.00	0.000	0.300	0.006
34	16.00	15.90	0.00157	0.00	0.00646	0.18	0.14	1.69	24.22	168.63	0.24	0.00	0.000	0.300	0.006
35	15.90	15.80	0.00159	0.00	0.00657	0.18	0.14	1.69	24.26	168.80	0.24	0.00	0.000	0.300	0.007
36	15.80	15.70	0.00162	0.00	0.00668	0.17	0.14	1.69	24.30	168.97	0.24	0.00	0.000	0.300	0.007
37	15.70	15.60	0.00165	0.00	0.00678	0.17	0.14	1.69	24.34	169.13	0.24	0.00	0.000	0.300	0.007
38	15.60	15.50	0.00168	0.00	0.00689	0.17	0.14	1.69	24.39	169.29	0.24	0.00	0.000	0.300	0.007
39	15.50	15.40	0.00171	0.00	0.00699	0.17	0.14	1.69	24.43	169.45	0.24	0.00	0.000	0.300	0.007
40	15.40	15.30	0.00174	0.00	0.00710	0.16	0.14	1.70	24.47	169.61	0.24	0.00	0.000	0.300	0.007
41	15.30	15.20	0.00177	0.00	0.00721	0.16	0.14	1.70	24.51	169.77	0.25	0.00	0.000	0.300	0.007
42	15.20	15.10	0.00179	0.00	0.00731	0.16	0.14	1.70	24.55	169.92	0.25	0.00	0.000	0.300	0.007
43	15.10	15.00	0.00182	0.00	0.00741	0.16	0.14	1.70	24.58	170.07	0.25	0.00	0.000	0.300	0.007
44	15.00	14.90	0.00185	0.00	0.00752	0.15	0.14	1.70	24.62	170.22	0.25	0.00	0.000	0.300	0.008
45	14.90	14.80	0.00188	0.00	0.00762	0.15	0.14	1.70	24.66	170.37	0.25	0.00	0.000	0.300	0.008
46	14.80	14.70	0.00191	0.00	0.00773	0.15	0.14	1.71	24.70	170.52	0.25	0.00	0.000	0.300	0.008
47	14.70	14.60	0.00194	0.00	0.00783	0.15	0.14	1.71	24.74	170.67	0.25	0.00	0.000	0.300	0.008
48	14.60	14.50	0.00197	0.00	0.00793	0.15	0.15	1.71	24.77	170.81	0.25	0.00	0.000	0.300	0.008
49	14.50	14.40	0.00199	0.00	0.00804	0.14	0.15	1.71	24.81	170.96	0.25	0.00	0.000	0.300	0.008
50	14.40	14.30	0.00202	0.00	0.00814	0.14	0.15	1.71	24.85	171.10	0.25	0.00	0.000	0.300	0.008
51	14.30	14.20	0.00205	0.00	0.00824	0.14	0.15	1.71	24.88	171.24	0.25	0.00	0.000	0.300	0.008
52	14.20	14.10	0.00208	0.00	0.00835	0.14	0.15	1.71	24.92	171.38	0.25	0.00	0.000	0.300	0.008
TOT						3.35			515.30	3567.67					
AVG					0.00725		0.14	1.70			0.25				
CUM						16.09									

*** 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
32	16.100	8.23	5.80	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.40	0.00	0.00	0.03	0.06
33	16.000	8.23	5.81	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.39	0.00	0.00	0.03	0.06
34	15.900	8.23	5.82	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.38	0.00	0.00	0.03	0.06

35	15.800	8.23	5.82	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.38	0.00	0.00	0.03	0.06
36	15.700	8.23	5.83	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.37	0.00	0.00	0.03	0.06
37	15.600	8.23	5.84	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.36	0.00	0.00	0.03	0.06
38	15.500	8.23	5.85	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.36	0.00	0.00	0.03	0.06
39	15.400	8.23	5.85	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.35	0.00	0.00	0.03	0.06
40	15.300	8.23	5.86	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.34	0.00	0.00	0.03	0.06
41	15.200	8.23	5.87	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.33	0.00	0.00	0.03	0.06
42	15.100	8.23	5.88	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.33	0.00	0.00	0.03	0.06
43	15.000	8.23	5.88	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.32	0.00	0.00	0.03	0.06
44	14.900	8.23	5.89	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.31	0.00	0.00	0.03	0.06
45	14.800	8.23	5.90	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.59	0.00	0.00	0.00	0.30	0.00	0.00	0.03	0.06
46	14.700	8.23	5.91	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.30	0.00	0.00	0.03	0.06
47	14.600	8.23	5.91	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.29	0.00	0.00	0.03	0.06
48	14.500	8.23	5.92	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.28	0.00	0.00	0.03	0.06
49	14.400	8.23	5.93	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.28	0.00	0.00	0.03	0.06
50	14.300	8.23	5.94	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.27	0.00	0.00	0.03	0.06
51	14.200	8.23	5.94	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.26	0.00	0.00	0.03	0.06
52	14.100	8.23	5.95	0.18	0.06	0.00	4.37	4.37	4.37	0.17	0.06	0.60	0.00	0.00	0.00	0.25	0.00	0.00	0.03	0.06
20 DEG C RATE				0.14		0.00	3.15			0.14		0.50	0.00	0.00	0.00			0.00	0.02	
AVG 20 DEG C RATE			5.32		0.05						0.05									0.05

* g/sq m/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 *
32	16.100	25.21	0.00	0.00	0.00	3.01	3.89	4.52	0.79	0.05	0.05	0.89	0.00	6.29	25.95	0.00	7.26
33	16.000	25.21	0.00	0.00	0.00	2.94	3.87	4.48	0.80	0.06	0.05	0.90	0.00	6.17	26.90	0.00	7.31
34	15.900	25.21	0.00	0.00	0.00	2.90	3.84	4.45	0.80	0.06	0.04	0.90	0.00	6.06	27.86	0.00	7.36
35	15.800	25.21	0.00	0.00	0.00	2.89	3.82	4.42	0.80	0.06	0.04	0.91	0.00	5.94	28.81	0.00	7.40
36	15.700	25.21	0.00	0.00	0.00	2.89	3.81	4.39	0.80	0.07	0.04	0.91	0.00	5.83	29.76	0.00	7.44
37	15.600	25.21	0.00	0.00	0.00	2.89	3.79	4.36	0.80	0.07	0.04	0.92	0.00	5.71	30.71	0.00	7.49
38	15.500	25.21	0.00	0.00	0.00	2.90	3.77	4.33	0.81	0.07	0.04	0.92	0.00	5.60	31.67	0.00	7.52
39	15.400	25.21	0.00	0.00	0.00	2.90	3.76	4.31	0.81	0.07	0.04	0.92	0.00	5.49	32.62	0.00	7.56
40	15.300	25.21	0.00	0.00	0.00	2.91	3.74	4.28	0.81	0.07	0.04	0.92	0.00	5.37	33.57	0.00	7.60
41	15.200	25.21	0.00	0.00	0.00	2.92	3.73	4.25	0.81	0.07	0.04	0.92	0.00	5.26	34.52	0.00	7.63
42	15.100	25.21	0.00	0.00	0.00	2.93	3.71	4.23	0.81	0.07	0.04	0.92	0.00	5.14	35.48	0.00	7.66
43	15.000	25.21	0.00	0.00	0.00	2.93	3.70	4.20	0.81	0.07	0.04	0.92	0.00	5.03	36.43	0.00	7.69
44	14.900	25.21	0.00	0.00	0.00	2.94	3.69	4.18	0.81	0.07	0.04	0.92	0.00	4.91	37.38	0.00	7.72
45	14.800	25.21	0.00	0.00	0.00	2.95	3.68	4.16	0.81	0.07	0.04	0.92	0.00	4.80	38.33	0.00	7.75
46	14.700	25.21	0.00	0.00	0.00	2.96	3.67	4.14	0.81	0.07	0.03	0.92	0.00	4.69	39.29	0.00	7.78
47	14.600	25.21	0.00	0.00	0.00	2.97	3.66	4.11	0.81	0.07	0.03	0.92	0.00	4.57	40.24	0.00	7.80
48	14.500	25.21	0.00	0.00	0.00	2.98	3.65	4.09	0.81	0.07	0.03	0.92	0.00	4.46	41.19	0.00	7.82
49	14.400	25.21	0.00	0.00	0.00	2.99	3.64	4.07	0.81	0.07	0.03	0.91	0.00	4.34	42.14	0.00	7.85
50	14.300	25.21	0.00	0.00	0.00	3.00	3.63	4.05	0.81	0.07	0.03	0.91	0.00	4.23	43.10	0.00	7.87
51	14.200	25.21	0.00	0.00	0.00	3.00	3.62	4.03	0.81	0.07	0.03	0.91	0.00	4.11	44.05	0.00	7.89
52	14.100	25.21	0.00	0.00	0.00	3.00	3.61	4.01	0.81	0.07	0.02	0.91	0.00	4.00	45.00	0.00	7.92

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L

** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 4   UPPER CALCASIEU RIVER REACH 4   WATER QUALITY CALIBRATION

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
53	UPR RCH	0.00208	25.21	0.00	0.00	0.00	3.00	3.61	4.01	0.81	0.07	0.02	0.00	4.00	0.00	7.92
EACH	INCR	0.0000	25.21	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
53	14.10	14.00	0.00211	0.00	0.01100	0.11	0.11	1.82	19.17	181.59	0.19	0.00	0.000	0.300	0.011
54	14.00	13.90	0.00214	0.00	0.01112	0.10	0.11	1.82	19.21	181.76	0.19	0.00	0.000	0.300	0.011
55	13.90	13.80	0.00217	0.00	0.01125	0.10	0.11	1.82	19.25	181.94	0.19	0.00	0.000	0.300	0.011
56	13.80	13.70	0.00219	0.00	0.01137	0.10	0.11	1.82	19.29	182.11	0.19	0.00	0.000	0.300	0.011
57	13.70	13.60	0.00222	0.00	0.01150	0.10	0.11	1.82	19.33	182.28	0.19	0.00	0.000	0.300	0.011
58	13.60	13.50	0.00225	0.00	0.01162	0.10	0.11	1.82	19.37	182.45	0.19	0.00	0.000	0.300	0.012
59	13.50	13.40	0.00228	0.00	0.01175	0.10	0.11	1.83	19.41	182.62	0.19	0.00	0.000	0.300	0.012
60	13.40	13.30	0.00231	0.00	0.01187	0.10	0.11	1.83	19.45	182.78	0.19	0.00	0.000	0.300	0.012
61	13.30	13.20	0.00234	0.00	0.01199	0.10	0.11	1.83	19.49	182.95	0.19	0.00	0.000	0.300	0.012
62	13.20	13.10	0.00237	0.00	0.01211	0.10	0.11	1.83	19.53	183.11	0.20	0.00	0.000	0.300	0.012
63	13.10	13.00	0.00239	0.00	0.01224	0.09	0.11	1.83	19.57	183.27	0.20	0.00	0.000	0.300	0.012
64	13.00	12.90	0.00242	0.00	0.01236	0.09	0.11	1.83	19.61	183.43	0.20	0.00	0.000	0.300	0.012
65	12.90	12.80	0.00245	0.00	0.01248	0.09	0.11	1.84	19.64	183.59	0.20	0.00	0.000	0.300	0.012
66	12.80	12.70	0.00248	0.00	0.01260	0.09	0.11	1.84	19.68	183.75	0.20	0.00	0.000	0.300	0.013
67	12.70	12.60	0.00251	0.00	0.01272	0.09	0.11	1.84	19.72	183.90	0.20	0.00	0.000	0.300	0.013
68	12.60	12.50	0.00254	0.00	0.01284	0.09	0.11	1.84	19.75	184.06	0.20	0.00	0.000	0.300	0.013
69	12.50	12.40	0.00257	0.00	0.01296	0.09	0.11	1.84	19.79	184.21	0.20	0.00	0.000	0.300	0.013
70	12.40	12.30	0.00259	0.00	0.01308	0.09	0.11	1.84	19.83	184.37	0.20	0.00	0.000	0.300	0.013
71	12.30	12.20	0.00262	0.00	0.01320	0.09	0.11	1.85	19.86	184.52	0.20	0.00	0.000	0.300	0.013
72	12.20	12.10	0.00265	0.00	0.01332	0.09	0.11	1.85	19.90	184.67	0.20	0.00	0.000	0.300	0.013
73	12.10	12.00	0.00268	0.00	0.01344	0.09	0.11	1.85	19.94	184.82	0.20	0.00	0.000	0.300	0.013
TOT						1.99			410.80	3848.16					
AVG					0.01219		0.11	1.83			0.20				
CUM						18.09									

*** 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

53	14.000	8.23	8.59	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.25	0.00	0.00	0.02	0.06
54	13.900	8.23	8.60	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.24	0.00	0.00	0.02	0.06
55	13.800	8.23	8.61	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.23	0.00	0.00	0.02	0.06
56	13.700	8.23	8.62	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.23	0.00	0.00	0.02	0.06
57	13.600	8.23	8.63	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.22	0.00	0.00	0.02	0.06
58	13.500	8.23	8.64	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.21	0.00	0.00	0.02	0.06
59	13.400	8.23	8.64	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.20	0.00	0.00	0.02	0.06
60	13.300	8.23	8.65	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.20	0.00	0.00	0.02	0.06
61	13.200	8.23	8.66	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.19	0.00	0.00	0.02	0.06
62	13.100	8.23	8.67	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.18	0.00	0.00	0.02	0.06
63	13.000	8.23	8.68	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.17	0.00	0.00	0.02	0.06
64	12.900	8.23	8.69	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.17	0.00	0.00	0.02	0.06
65	12.800	8.23	8.70	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.16	0.00	0.00	0.02	0.06
66	12.700	8.23	8.70	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
67	12.600	8.23	8.71	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
68	12.500	8.23	8.72	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.14	0.00	0.00	0.02	0.06
69	12.400	8.23	8.73	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.13	0.00	0.00	0.02	0.06
70	12.300	8.23	8.74	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.12	0.00	0.00	0.02	0.06
71	12.200	8.23	8.75	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.59	0.00	0.00	0.00	0.12	0.00	0.00	0.02	0.06
72	12.100	8.23	8.76	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.60	0.00	0.00	0.00	0.11	0.00	0.00	0.02	0.06
73	12.000	8.23	8.77	0.17	0.06	0.00	4.86	4.86	4.86	0.24	0.06	0.60	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
20 DEG C RATE				0.13		0.00	3.50			0.19		0.50	0.00	0.00	0.00			0.00	0.02	
AVG 20 DEG C RATE			7.86		0.05						0.05									0.05

* g/sq m/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 *
53	14.000	25.21	0.00	0.00	0.00	2.90	3.60	3.98	0.81	0.07	0.02	0.91	0.00	3.89	45.95	0.00	7.96
54	13.900	25.21	0.00	0.00	0.00	2.85	3.58	3.96	0.81	0.08	0.02	0.91	0.00	3.77	46.90	0.00	8.00
55	13.800	25.21	0.00	0.00	0.00	2.83	3.57	3.94	0.81	0.08	0.02	0.91	0.00	3.66	47.86	0.00	8.04
56	13.700	25.21	0.00	0.00	0.00	2.82	3.56	3.91	0.81	0.08	0.02	0.92	0.00	3.54	48.81	0.00	8.08
57	13.600	25.21	0.00	0.00	0.00	2.82	3.54	3.89	0.81	0.09	0.02	0.92	0.00	3.43	49.76	0.00	8.12
58	13.500	25.21	0.00	0.00	0.00	2.83	3.53	3.86	0.81	0.09	0.02	0.92	0.00	3.31	50.71	0.00	8.16
59	13.400	25.21	0.00	0.00	0.00	2.83	3.52	3.84	0.81	0.09	0.01	0.92	0.00	3.20	51.67	0.00	8.20
60	13.300	25.21	0.00	0.00	0.00	2.84	3.51	3.82	0.81	0.09	0.01	0.92	0.00	3.09	52.62	0.00	8.23
61	13.200	25.21	0.00	0.00	0.00	2.85	3.50	3.80	0.81	0.09	0.01	0.92	0.00	2.97	53.57	0.00	8.27
62	13.100	25.21	0.00	0.00	0.00	2.86	3.49	3.78	0.81	0.09	0.01	0.92	0.00	2.86	54.52	0.00	8.30
63	13.000	25.21	0.00	0.00	0.00	2.87	3.48	3.75	0.81	0.09	0.01	0.92	0.00	2.74	55.48	0.00	8.33
64	12.900	25.21	0.00	0.00	0.00	2.88	3.47	3.73	0.81	0.09	0.01	0.92	0.00	2.63	56.43	0.00	8.36
65	12.800	25.21	0.00	0.00	0.00	2.89	3.46	3.71	0.81	0.09	0.01	0.92	0.00	2.51	57.38	0.00	8.39
66	12.700	25.21	0.00	0.00	0.00	2.90	3.45	3.69	0.81	0.09	0.01	0.91	0.00	2.40	58.33	0.00	8.42
67	12.600	25.21	0.00	0.00	0.00	2.91	3.44	3.67	0.81	0.09	0.01	0.91	0.00	2.29	59.29	0.00	8.44
68	12.500	25.21	0.00	0.00	0.00	2.92	3.43	3.65	0.81	0.09	0.00	0.91	0.00	2.17	60.24	0.00	8.47
69	12.400	25.21	0.00	0.00	0.00	2.93	3.43	3.63	0.81	0.09	0.00	0.91	0.00	2.06	61.19	0.00	8.50
70	12.300	25.21	0.00	0.00	0.00	2.94	3.42	3.61	0.81	0.09	0.00	0.91	0.00	1.94	62.14	0.00	8.52
71	12.200	25.21	0.00	0.00	0.00	2.95	3.41	3.59	0.81	0.09	0.00	0.90	0.00	1.83	63.10	0.00	8.54
72	12.100	25.21	0.00	0.00	0.00	2.95	3.40	3.57	0.81	0.09	0.00	0.90	0.00	1.71	64.05	0.00	8.57

73	12.000	25.21	0.00	0.00	0.00	2.95	3.40	3.56	0.81	0.09	0.00	0.90	0.00	1.60	65.00	0.00	8.59

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L

** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL

REACH NO. 5   UPPER CALCASIEU RIVER REACH 5   WATER QUALITY CALIBRATION

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
74	UPR RCH	0.00268	25.21	0.00	0.00	0.00	2.95	3.40	3.56	0.81	0.09	0.00	0.00	1.60	0.00	8.59
EACH	INCR	0.0000	25.21	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
74	12.00	11.90	0.00271	0.00	0.01985	0.06	0.07	1.96	13.64	195.70	0.14	0.00	0.000	0.300	0.020
75	11.90	11.80	0.00274	0.00	0.02000	0.06	0.07	1.96	13.68	195.88	0.14	0.00	0.000	0.300	0.020
76	11.80	11.70	0.00277	0.00	0.02016	0.06	0.07	1.96	13.72	196.06	0.14	0.00	0.000	0.300	0.020
77	11.70	11.60	0.00279	0.00	0.02031	0.06	0.07	1.96	13.76	196.24	0.14	0.00	0.000	0.300	0.020
78	11.60	11.50	0.00282	0.00	0.02046	0.06	0.07	1.96	13.80	196.41	0.14	0.00	0.000	0.300	0.020
79	11.50	11.40	0.00285	0.00	0.02061	0.06	0.07	1.97	13.84	196.59	0.14	0.00	0.000	0.300	0.021
80	11.40	11.30	0.00288	0.00	0.02076	0.06	0.07	1.97	13.88	196.76	0.14	0.00	0.000	0.300	0.021
81	11.30	11.20	0.00291	0.00	0.02091	0.06	0.07	1.97	13.91	196.94	0.14	0.00	0.000	0.300	0.021
82	11.20	11.10	0.00294	0.00	0.02105	0.05	0.07	1.97	13.95	197.11	0.14	0.00	0.000	0.300	0.021
83	11.10	11.00	0.00297	0.00	0.02120	0.05	0.07	1.97	13.99	197.28	0.14	0.00	0.000	0.300	0.021
84	11.00	10.90	0.00299	0.00	0.02135	0.05	0.07	1.97	14.03	197.44	0.14	0.00	0.000	0.300	0.021
85	10.90	10.80	0.00302	0.00	0.02150	0.05	0.07	1.98	14.06	197.61	0.14	0.00	0.000	0.300	0.021
86	10.80	10.70	0.00305	0.00	0.02164	0.05	0.07	1.98	14.10	197.78	0.14	0.00	0.000	0.300	0.022
87	10.70	10.60	0.00308	0.00	0.02179	0.05	0.07	1.98	14.14	197.94	0.14	0.00	0.000	0.300	0.022
88	10.60	10.50	0.00311	0.00	0.02193	0.05	0.07	1.98	14.17	198.11	0.14	0.00	0.000	0.300	0.022
89	10.50	10.40	0.00314	0.00	0.02208	0.05	0.07	1.98	14.21	198.27	0.14	0.00	0.000	0.300	0.022
90	10.40	10.30	0.00317	0.00	0.02222	0.05	0.07	1.98	14.24	198.43	0.14	0.00	0.000	0.300	0.022
91	10.30	10.20	0.00319	0.00	0.02237	0.05	0.07	1.99	14.28	198.60	0.14	0.00	0.000	0.300	0.022
92	10.20	10.10	0.00322	0.00	0.02251	0.05	0.07	1.99	14.32	198.76	0.14	0.00	0.000	0.300	0.023
93	10.10	10.00	0.00325	0.00	0.02266	0.05	0.07	1.99	14.35	198.91	0.14	0.00	0.000	0.300	0.023
94	10.00	9.90	0.00328	0.00	0.02280	0.05	0.07	1.99	14.39	199.07	0.14	0.00	0.000	0.300	0.023
TOT						1.14			294.45	4145.90					
AVG					0.02130		0.07	1.97			0.14				
CUM						19.23									

** 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
74	11.900	8.23	15.01	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
75	11.800	8.23	15.02	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
76	11.700	8.23	15.02	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
77	11.600	8.23	15.03	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
78	11.500	8.23	15.04	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
79	11.400	8.23	15.04	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
80	11.300	8.23	15.05	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
81	11.200	8.23	15.05	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
82	11.100	8.23	15.06	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.58	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
83	11.000	8.23	15.06	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
84	10.900	8.23	15.07	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
85	10.800	8.23	15.07	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
86	10.700	8.23	15.08	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
87	10.600	8.23	15.09	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
88	10.500	8.23	15.09	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
89	10.400	8.23	15.10	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
90	10.300	8.23	15.10	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
91	10.200	8.23	15.11	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
92	10.100	8.23	15.12	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
93	10.000	8.23	15.12	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
94	9.900	8.23	15.13	0.15	0.06	0.00	5.69	5.69	5.69	0.30	0.06	0.59	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
20 DEG C RATE				0.12		0.00	4.10			0.24		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			13.64		0.05						0.05									0.05

* g/sq m/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 *
74	11.900	25.21	0.00	0.00	0.00	2.86	3.39	3.55	0.81	0.09	0.00	0.90	0.00	1.60	65.00	0.00	8.63
75	11.800	25.21	0.00	0.00	0.00	2.81	3.39	3.55	0.81	0.10	0.00	0.90	0.00	1.60	65.00	0.00	8.67
76	11.700	25.21	0.00	0.00	0.00	2.78	3.38	3.54	0.81	0.10	0.00	0.90	0.00	1.60	65.00	0.00	8.71
77	11.600	25.21	0.00	0.00	0.00	2.78	3.38	3.54	0.81	0.10	0.00	0.90	0.00	1.60	65.00	0.00	8.74
78	11.500	25.21	0.00	0.00	0.00	2.78	3.38	3.54	0.80	0.10	0.00	0.90	0.00	1.60	65.00	0.00	8.78
79	11.400	25.21	0.00	0.00	0.00	2.78	3.37	3.53	0.80	0.10	0.00	0.91	0.00	1.60	65.00	0.00	8.81
80	11.300	25.21	0.00	0.00	0.00	2.79	3.37	3.53	0.80	0.10	0.00	0.91	0.00	1.60	65.00	0.00	8.85
81	11.200	25.21	0.00	0.00	0.00	2.80	3.37	3.53	0.80	0.11	0.00	0.91	0.00	1.60	65.00	0.00	8.88
82	11.100	25.21	0.00	0.00	0.00	2.81	3.36	3.52	0.80	0.11	0.00	0.91	0.00	1.60	65.00	0.00	8.91
83	11.000	25.21	0.00	0.00	0.00	2.82	3.36	3.52	0.80	0.11	0.00	0.91	0.00	1.60	65.00	0.00	8.94
84	10.900	25.21	0.00	0.00	0.00	2.84	3.35	3.51	0.80	0.11	0.00	0.91	0.00	1.60	65.00	0.00	8.98
85	10.800	25.21	0.00	0.00	0.00	2.85	3.35	3.51	0.80	0.11	0.00	0.91	0.00	1.60	65.00	0.00	9.01
86	10.700	25.21	0.00	0.00	0.00	2.86	3.35	3.51	0.79	0.11	0.00	0.91	0.00	1.60	65.00	0.00	9.03
87	10.600	25.21	0.00	0.00	0.00	2.87	3.34	3.50	0.79	0.11	0.00	0.91	0.00	1.60	65.00	0.00	9.06
88	10.500	25.21	0.00	0.00	0.00	2.88	3.34	3.50	0.79	0.11	0.00	0.91	0.00	1.60	65.00	0.00	9.09
89	10.400	25.21	0.00	0.00	0.00	2.89	3.34	3.50	0.79	0.11	0.00	0.91	0.00	1.60	65.00	0.00	9.12

90	10.300	25.21	0.00	0.00	0.00	2.90	3.33	3.49	0.79	0.12	0.00	0.91	0.00	1.60	65.00	0.00	9.14
91	10.200	25.21	0.00	0.00	0.00	2.91	3.33	3.49	0.79	0.12	0.00	0.91	0.00	1.60	65.00	0.00	9.17
92	10.100	25.21	0.00	0.00	0.00	2.92	3.32	3.48	0.79	0.12	0.00	0.90	0.00	1.60	65.00	0.00	9.19
93	10.000	25.21	0.00	0.00	0.00	2.93	3.32	3.48	0.79	0.12	0.00	0.90	0.00	1.60	65.00	0.00	9.22
94	9.900	25.21	0.00	0.00	0.00	2.92	3.32	3.48	0.79	0.12	0.00	0.90	0.00	1.60	65.00	0.00	9.24

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 6   UPPER CALCASIEU RIVER REACH 6   WATER QUALITY CALIBRATION

** REACH INPUTS ***

ELEM NO.	TYPE	FLOW cms	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 *
95	UPR RCH	0.00328	25.21	0.00	0.00	0.00	2.92	3.32	3.48	0.79	0.12	0.00	0.00	1.60	0.00	9.24
EACH	INCR	0.0000	25.21	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
95	9.90	9.80	0.00331	0.00	0.01741	0.07	0.08	2.32	19.01	232.22	0.19	0.00	0.000	0.300	0.017
96	9.80	9.70	0.00334	0.00	0.01752	0.07	0.08	2.32	19.05	232.40	0.19	0.00	0.000	0.300	0.018
97	9.70	9.60	0.00337	0.00	0.01763	0.07	0.08	2.33	19.09	232.58	0.19	0.00	0.000	0.300	0.018
98	9.60	9.50	0.00339	0.00	0.01773	0.07	0.08	2.33	19.14	232.75	0.19	0.00	0.000	0.300	0.018
99	9.50	9.40	0.00342	0.00	0.01784	0.06	0.08	2.33	19.18	232.93	0.19	0.00	0.000	0.300	0.018
100	9.40	9.30	0.00345	0.00	0.01795	0.06	0.08	2.33	19.23	233.10	0.19	0.00	0.000	0.300	0.018
101	9.30	9.20	0.00348	0.00	0.01806	0.06	0.08	2.33	19.27	233.27	0.19	0.00	0.000	0.300	0.018
102	9.20	9.10	0.00351	0.00	0.01817	0.06	0.08	2.33	19.31	233.44	0.19	0.00	0.000	0.300	0.018
103	9.10	9.00	0.00354	0.00	0.01827	0.06	0.08	2.34	19.36	233.61	0.19	0.00	0.000	0.300	0.018
104	9.00	8.90	0.00357	0.00	0.01838	0.06	0.08	2.34	19.40	233.78	0.19	0.00	0.000	0.300	0.018
105	8.90	8.80	0.00359	0.00	0.01849	0.06	0.08	2.34	19.44	233.95	0.19	0.00	0.000	0.300	0.018
106	8.80	8.70	0.00362	0.00	0.01859	0.06	0.08	2.34	19.49	234.12	0.19	0.00	0.000	0.300	0.019
107	8.70	8.60	0.00365	0.00	0.01870	0.06	0.08	2.34	19.53	234.28	0.20	0.00	0.000	0.300	0.019
108	8.60	8.50	0.00368	0.00	0.01880	0.06	0.08	2.34	19.57	234.45	0.20	0.00	0.000	0.300	0.019
109	8.50	8.40	0.00371	0.00	0.01891	0.06	0.08	2.35	19.61	234.61	0.20	0.00	0.000	0.300	0.019
110	8.40	8.30	0.00374	0.00	0.01901	0.06	0.08	2.35	19.66	234.78	0.20	0.00	0.000	0.300	0.019
111	8.30	8.20	0.00377	0.00	0.01912	0.06	0.08	2.35	19.70	234.94	0.20	0.00	0.000	0.300	0.019
112	8.20	8.10	0.00379	0.00	0.01922	0.06	0.08	2.35	19.74	235.10	0.20	0.00	0.000	0.300	0.019
113	8.10	8.00	0.00382	0.00	0.01933	0.06	0.08	2.35	19.78	235.26	0.20	0.00	0.000	0.300	0.019
114	8.00	7.90	0.00385	0.00	0.01943	0.06	0.08	2.35	19.82	235.42	0.20	0.00	0.000	0.300	0.019
115	7.90	7.80	0.00388	0.00	0.01953	0.06	0.08	2.36	19.86	235.58	0.20	0.00	0.000	0.300	0.020
TOT						1.32			408.24	4912.60					
AVG					0.01846		0.08	2.34			0.19				

CUM 20.55

*** 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
95	9.800	8.23	12.32	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.57	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.06
96	9.700	8.23	12.32	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.55	0.00	0.00	0.00	0.11	0.00	0.00	0.02	0.06
97	9.600	8.23	12.32	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.11	0.00	0.00	0.02	0.06
98	9.500	8.23	12.32	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.11	0.00	0.00	0.02	0.06
99	9.400	8.23	12.33	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.11	0.00	0.00	0.02	0.06
100	9.300	8.23	12.33	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.12	0.00	0.00	0.02	0.06
101	9.200	8.23	12.33	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.12	0.00	0.00	0.02	0.06
102	9.100	8.23	12.33	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.12	0.00	0.00	0.02	0.06
103	9.000	8.23	12.33	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.12	0.00	0.00	0.02	0.06
104	8.900	8.23	12.33	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.13	0.00	0.00	0.02	0.06
105	8.800	8.23	12.34	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.13	0.00	0.00	0.02	0.06
106	8.700	8.23	12.34	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.13	0.00	0.00	0.02	0.06
107	8.600	8.23	12.34	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.13	0.00	0.00	0.02	0.06
108	8.500	8.23	12.34	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.14	0.00	0.00	0.02	0.06
109	8.400	8.23	12.34	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.14	0.00	0.00	0.02	0.06
110	8.300	8.23	12.35	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.14	0.00	0.00	0.02	0.06
111	8.200	8.23	12.35	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.14	0.00	0.00	0.02	0.06
112	8.100	8.23	12.35	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
113	8.000	8.23	12.35	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.55	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
114	7.900	8.23	12.35	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.55	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
115	7.800	8.23	12.36	0.15	0.06	0.00	6.04	6.04	6.04	0.25	0.06	0.54	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
20 DEG C RATE				0.12		0.00	4.35			0.19		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			11.17		0.05						0.05									0.05

* g/sq m/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 *
95	9.800	25.21	0.00	0.00	0.00	2.59	3.30	3.46	0.78	0.12	0.00	0.90	0.00	1.64	64.52	0.00	9.24
96	9.700	25.21	0.00	0.00	0.00	2.41	3.29	3.45	0.78	0.11	0.00	0.89	0.00	1.68	64.05	0.00	9.24
97	9.600	25.21	0.00	0.00	0.00	2.32	3.27	3.44	0.78	0.11	0.00	0.89	0.00	1.71	63.57	0.00	9.24
98	9.500	25.21	0.00	0.00	0.00	2.27	3.26	3.43	0.78	0.11	0.00	0.89	0.00	1.75	63.10	0.00	9.24
99	9.400	25.21	0.00	0.00	0.00	2.25	3.25	3.42	0.77	0.11	0.00	0.88	0.00	1.79	62.62	0.00	9.24
100	9.300	25.21	0.00	0.00	0.00	2.24	3.23	3.42	0.77	0.11	0.00	0.88	0.00	1.83	62.14	0.00	9.24
101	9.200	25.21	0.00	0.00	0.00	2.24	3.22	3.41	0.77	0.11	0.00	0.88	0.00	1.87	61.67	0.00	9.24
102	9.100	25.21	0.00	0.00	0.00	2.24	3.21	3.40	0.77	0.11	0.00	0.87	0.00	1.90	61.19	0.00	9.24
103	9.000	25.21	0.00	0.00	0.00	2.25	3.20	3.39	0.76	0.11	0.00	0.87	0.00	1.94	60.71	0.00	9.24
104	8.900	25.21	0.00	0.00	0.00	2.26	3.18	3.38	0.76	0.11	0.00	0.87	0.00	1.98	60.24	0.00	9.24
105	8.800	25.21	0.00	0.00	0.00	2.27	3.17	3.37	0.76	0.11	0.00	0.87	0.00	2.02	59.76	0.00	9.24
106	8.700	25.21	0.00	0.00	0.00	2.28	3.16	3.37	0.76	0.10	0.00	0.86	0.00	2.06	59.29	0.00	9.24

107	8.600	25.21	0.00	0.00	0.00	2.29	3.15	3.36	0.76	0.10	0.00	0.86	0.00	2.10	58.81	0.00	9.24
108	8.500	25.21	0.00	0.00	0.00	2.29	3.14	3.35	0.75	0.10	0.00	0.86	0.00	2.13	58.33	0.00	9.24
109	8.400	25.21	0.00	0.00	0.00	2.30	3.13	3.35	0.75	0.10	0.00	0.86	0.00	2.17	57.86	0.00	9.24
110	8.300	25.21	0.00	0.00	0.00	2.31	3.12	3.34	0.75	0.10	0.00	0.85	0.00	2.21	57.38	0.00	9.24
111	8.200	25.21	0.00	0.00	0.00	2.32	3.11	3.33	0.75	0.10	0.00	0.85	0.00	2.25	56.90	0.00	9.24
112	8.100	25.21	0.00	0.00	0.00	2.33	3.10	3.33	0.75	0.10	0.00	0.85	0.00	2.29	56.43	0.00	9.24
113	8.000	25.21	0.00	0.00	0.00	2.34	3.09	3.32	0.75	0.10	0.00	0.85	0.00	2.32	55.95	0.00	9.24
114	7.900	25.21	0.00	0.00	0.00	2.35	3.08	3.31	0.74	0.10	0.00	0.85	0.00	2.36	55.48	0.00	9.24
115	7.800	25.21	0.00	0.00	0.00	2.33	3.07	3.31	0.74	0.10	0.00	0.84	0.00	2.40	55.00	0.00	9.24

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 7   UPPER CALCASIEU RIVER REACH 7   WATER QUALITY CALIBRATION

** REACH INPUTS ***

ELEM NO.	TYPE	FLOW cms	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 *
116	UPR RCH	0.00388	25.21	0.00	0.00	0.00	2.33	3.07	3.31	0.74	0.10	0.00	0.00	2.40	0.00	9.24
EACH	INCR	0.0000	25.21	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00

*** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
116	7.80	7.70	0.00391	0.00	0.01527	0.08	0.10	2.69	25.60	269.17	0.26	0.00	0.000	0.300	0.015
117	7.70	7.60	0.00394	0.00	0.01535	0.08	0.10	2.69	25.65	269.35	0.26	0.00	0.000	0.300	0.015
118	7.60	7.50	0.00397	0.00	0.01543	0.08	0.10	2.70	25.70	269.52	0.26	0.00	0.000	0.300	0.015
119	7.50	7.40	0.00399	0.00	0.01551	0.07	0.10	2.70	25.75	269.70	0.26	0.00	0.000	0.300	0.016
120	7.40	7.30	0.00402	0.00	0.01559	0.07	0.10	2.70	25.80	269.87	0.26	0.00	0.000	0.300	0.016
121	7.30	7.20	0.00405	0.00	0.01567	0.07	0.10	2.70	25.85	270.04	0.26	0.00	0.000	0.300	0.016
122	7.20	7.10	0.00408	0.00	0.01575	0.07	0.10	2.70	25.90	270.21	0.26	0.00	0.000	0.300	0.016
123	7.10	7.00	0.00411	0.00	0.01583	0.07	0.10	2.70	25.95	270.39	0.26	0.00	0.000	0.300	0.016
124	7.00	6.90	0.00414	0.00	0.01591	0.07	0.10	2.71	26.00	270.56	0.26	0.00	0.000	0.300	0.016
125	6.90	6.80	0.00417	0.00	0.01599	0.07	0.10	2.71	26.05	270.73	0.26	0.00	0.000	0.300	0.016
126	6.80	6.70	0.00419	0.00	0.01607	0.07	0.10	2.71	26.10	270.90	0.26	0.00	0.000	0.300	0.016
127	6.70	6.60	0.00422	0.00	0.01615	0.07	0.10	2.71	26.15	271.06	0.26	0.00	0.000	0.300	0.016
128	6.60	6.50	0.00425	0.00	0.01623	0.07	0.10	2.71	26.19	271.23	0.26	0.00	0.000	0.300	0.016
129	6.50	6.40	0.00428	0.00	0.01631	0.07	0.10	2.71	26.24	271.40	0.26	0.00	0.000	0.300	0.016
130	6.40	6.30	0.00431	0.00	0.01639	0.07	0.10	2.72	26.29	271.56	0.26	0.00	0.000	0.300	0.016
131	6.30	6.20	0.00434	0.00	0.01647	0.07	0.10	2.72	26.34	271.73	0.26	0.00	0.000	0.300	0.016
132	6.20	6.10	0.00437	0.00	0.01654	0.07	0.10	2.72	26.39	271.89	0.26	0.00	0.000	0.300	0.017
133	6.10	6.00	0.00439	0.00	0.01662	0.07	0.10	2.72	26.44	272.05	0.26	0.00	0.000	0.300	0.017
134	6.00	5.90	0.00442	0.00	0.01670	0.07	0.10	2.72	26.48	272.22	0.26	0.00	0.000	0.300	0.017
135	5.90	5.80	0.00445	0.00	0.01678	0.07	0.10	2.72	26.53	272.38	0.27	0.00	0.000	0.300	0.017

136	5.80	5.70	0.00448	0.00	0.01686	0.07	0.10	2.73	26.58	272.54	0.27	0.00	0.000	0.300	0.017
TOT						1.51			547.96	5688.49					
AVG					0.01605		0.10	2.71			0.26				
CUM						22.06									

** 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
116	7.700	8.23	10.25	0.15	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.51	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
117	7.600	8.23	10.25	0.14	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.49	0.00	0.00	0.00	0.16	0.00	0.00	0.01	0.06
118	7.500	8.23	10.25	0.13	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.48	0.00	0.00	0.00	0.16	0.00	0.00	0.01	0.06
119	7.400	8.23	10.25	0.13	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.16	0.00	0.00	0.01	0.06
120	7.300	8.23	10.25	0.12	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.16	0.00	0.00	0.01	0.06
121	7.200	8.23	10.25	0.12	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.46	0.00	0.00	0.00	0.17	0.00	0.00	0.01	0.06
122	7.100	8.23	10.25	0.12	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.46	0.00	0.00	0.00	0.17	0.00	0.00	0.01	0.06
123	7.000	8.23	10.25	0.12	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.46	0.00	0.00	0.00	0.17	0.00	0.00	0.01	0.06
124	6.900	8.23	10.25	0.12	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.46	0.00	0.00	0.00	0.17	0.00	0.00	0.01	0.06
125	6.800	8.23	10.25	0.12	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.46	0.00	0.00	0.00	0.17	0.00	0.00	0.01	0.06
126	6.700	8.23	10.25	0.12	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.18	0.00	0.00	0.01	0.06
127	6.600	8.23	10.25	0.13	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.18	0.00	0.00	0.01	0.06
128	6.500	8.23	10.25	0.13	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.18	0.00	0.00	0.01	0.06
129	6.400	8.23	10.25	0.13	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.18	0.00	0.00	0.01	0.06
130	6.300	8.23	10.25	0.13	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.18	0.00	0.00	0.01	0.06
131	6.200	8.23	10.25	0.13	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.19	0.00	0.00	0.01	0.06
132	6.100	8.23	10.25	0.13	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.19	0.00	0.00	0.01	0.06
133	6.000	8.23	10.25	0.13	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.19	0.00	0.00	0.01	0.06
134	5.900	8.23	10.25	0.13	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.19	0.00	0.00	0.01	0.06
135	5.800	8.23	10.25	0.13	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.19	0.00	0.00	0.01	0.06
136	5.700	8.23	10.25	0.13	0.06	0.00	6.46	6.46	6.46	0.19	0.06	0.47	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
20 DEG C RATE				0.12		0.00	4.65			0.15		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			9.28		0.05						0.05									0.05

* g/sq m/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 *
116	7.700	25.21	0.00	0.00	0.00	2.00	3.07	3.31	0.74	0.10	0.00	0.84	0.00	2.43	53.33	0.00	9.22
117	7.600	25.21	0.00	0.00	0.00	1.81	3.08	3.32	0.74	0.10	0.00	0.83	0.00	2.47	51.67	0.00	9.21
118	7.500	25.21	0.00	0.00	0.00	1.71	3.08	3.33	0.74	0.09	0.00	0.83	0.00	2.50	50.00	0.00	9.20
119	7.400	25.21	0.00	0.00	0.00	1.66	3.09	3.34	0.73	0.09	0.00	0.83	0.00	2.53	48.33	0.00	9.19
120	7.300	25.21	0.00	0.00	0.00	1.63	3.09	3.35	0.73	0.09	0.00	0.82	0.00	2.57	46.67	0.00	9.18
121	7.200	25.21	0.00	0.00	0.00	1.62	3.10	3.36	0.73	0.09	0.00	0.82	0.00	2.60	45.00	0.00	9.18
122	7.100	25.21	0.00	0.00	0.00	1.62	3.11	3.37	0.73	0.09	0.00	0.82	0.00	2.63	43.33	0.00	9.17
123	7.000	25.21	0.00	0.00	0.00	1.62	3.11	3.38	0.73	0.09	0.00	0.82	0.00	2.67	41.67	0.00	9.16

124	6.900	25.21	0.00	0.00	0.00	1.62	3.12	3.39	0.72	0.09	0.00	0.81	0.00	2.70	40.00	0.00	9.15
125	6.800	25.21	0.00	0.00	0.00	1.63	3.12	3.40	0.72	0.09	0.00	0.81	0.00	2.73	38.33	0.00	9.14
126	6.700	25.21	0.00	0.00	0.00	1.64	3.13	3.40	0.72	0.09	0.00	0.81	0.00	2.77	36.67	0.00	9.13
127	6.600	25.21	0.00	0.00	0.00	1.64	3.13	3.41	0.72	0.09	0.00	0.81	0.00	2.80	35.00	0.00	9.12
128	6.500	25.21	0.00	0.00	0.00	1.65	3.14	3.42	0.72	0.09	0.00	0.81	0.00	2.83	33.33	0.00	9.11
129	6.400	25.21	0.00	0.00	0.00	1.66	3.14	3.43	0.72	0.09	0.00	0.81	0.00	2.87	31.67	0.00	9.10
130	6.300	25.21	0.00	0.00	0.00	1.67	3.14	3.43	0.71	0.09	0.00	0.81	0.00	2.90	30.00	0.00	9.09
131	6.200	25.21	0.00	0.00	0.00	1.67	3.15	3.44	0.71	0.09	0.00	0.81	0.00	2.93	28.33	0.00	9.08
132	6.100	25.21	0.00	0.00	0.00	1.68	3.15	3.45	0.71	0.09	0.00	0.81	0.00	2.97	26.67	0.00	9.08
133	6.000	25.21	0.00	0.00	0.00	1.69	3.15	3.45	0.71	0.10	0.00	0.81	0.00	3.00	25.00	0.00	9.07
134	5.900	25.21	0.00	0.00	0.00	1.70	3.16	3.46	0.71	0.10	0.00	0.81	0.00	3.03	23.33	0.00	9.06
135	5.800	25.21	0.00	0.00	0.00	1.70	3.16	3.46	0.71	0.10	0.00	0.81	0.00	3.07	21.67	0.00	9.05
136	5.700	25.21	0.00	0.00	0.00	1.68	3.16	3.47	0.70	0.10	0.00	0.81	0.00	3.10	20.00	0.00	9.05

* CM-I = CHLORIDES MG/L　　CM-II = SULFATES MG/L　　NCM = CBOD2 MG/L

** g/cu m

FINAL REPORT　UPPER CALCASIEU RVR　　UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 8　UPPER CALCASIEU RIVER REACH 8　　WATER QUALITY CALIBRATION

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
137	UPR RCH	0.00448	25.21	0.00	0.00	0.00	1.68	3.16	3.47	0.70	0.10	0.00	0.00	3.10	0.00	9.05
EACH	INCR	0.0000	25.21	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
137	5.70	5.60	0.00451	0.00	0.01369	0.08	0.11	3.06	32.94	306.38	0.33	0.00	0.000	0.300	0.014
138	5.60	5.50	0.00454	0.00	0.01375	0.08	0.11	3.07	32.99	306.56	0.33	0.00	0.000	0.300	0.014
139	5.50	5.40	0.00457	0.00	0.01381	0.08	0.11	3.07	33.05	306.73	0.33	0.00	0.000	0.300	0.014
140	5.40	5.30	0.00459	0.00	0.01388	0.08	0.11	3.07	33.11	306.91	0.33	0.00	0.000	0.300	0.014
141	5.30	5.20	0.00462	0.00	0.01394	0.08	0.11	3.07	33.16	307.08	0.33	0.00	0.000	0.300	0.014
142	5.20	5.10	0.00465	0.00	0.01400	0.08	0.11	3.07	33.22	307.26	0.33	0.00	0.000	0.300	0.014
143	5.10	5.00	0.00468	0.00	0.01406	0.08	0.11	3.07	33.27	307.43	0.33	0.00	0.000	0.300	0.014
144	5.00	4.90	0.00471	0.00	0.01413	0.08	0.11	3.08	33.33	307.60	0.33	0.00	0.000	0.300	0.014
145	4.90	4.80	0.00474	0.00	0.01419	0.08	0.11	3.08	33.39	307.77	0.33	0.00	0.000	0.300	0.014
146	4.80	4.70	0.00477	0.00	0.01425	0.08	0.11	3.08	33.44	307.94	0.33	0.00	0.000	0.300	0.014
147	4.70	4.60	0.00479	0.00	0.01431	0.08	0.11	3.08	33.50	308.11	0.33	0.00	0.000	0.300	0.014
148	4.60	4.50	0.00482	0.00	0.01437	0.08	0.11	3.08	33.55	308.28	0.34	0.00	0.000	0.300	0.014
149	4.50	4.40	0.00485	0.00	0.01444	0.08	0.11	3.08	33.61	308.45	0.34	0.00	0.000	0.300	0.014
150	4.40	4.30	0.00488	0.00	0.01450	0.08	0.11	3.09	33.66	308.62	0.34	0.00	0.000	0.300	0.014
151	4.30	4.20	0.00491	0.00	0.01456	0.08	0.11	3.09	33.72	308.79	0.34	0.00	0.000	0.300	0.015
152	4.20	4.10	0.00494	0.00	0.01462	0.08	0.11	3.09	33.77	308.95	0.34	0.00	0.000	0.300	0.015

153	4.10	4.00	0.00497	0.00	0.01468	0.08	0.11	3.09	33.83	309.12	0.34	0.00	0.000	0.300	0.015
154	4.00	3.90	0.00499	0.00	0.01474	0.08	0.11	3.09	33.88	309.28	0.34	0.00	0.000	0.300	0.015
155	3.90	3.80	0.00502	0.00	0.01480	0.08	0.11	3.09	33.93	309.45	0.34	0.00	0.000	0.300	0.015
156	3.80	3.70	0.00505	0.00	0.01486	0.08	0.11	3.10	33.99	309.61	0.34	0.00	0.000	0.300	0.015
157	3.70	3.60	0.00508	0.00	0.01492	0.08	0.11	3.10	34.04	309.77	0.34	0.00	0.000	0.300	0.015
TOT						1.70			703.37	6470.11					
AVG					0.01430		0.11	3.08			0.33				
CUM						23.76									

** 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
137	5.600	8.23	8.83	0.11	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.43	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
138	5.500	8.23	8.83	0.10	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.41	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
139	5.400	8.23	8.83	0.09	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.39	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
140	5.300	8.23	8.83	0.09	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
141	5.200	8.23	8.83	0.08	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
142	5.100	8.23	8.83	0.08	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.37	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
143	5.000	8.23	8.83	0.08	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.37	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
144	4.900	8.23	8.83	0.08	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.37	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
145	4.800	8.23	8.83	0.08	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
146	4.700	8.23	8.82	0.08	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
147	4.600	8.23	8.82	0.08	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
148	4.500	8.23	8.82	0.08	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
149	4.400	8.23	8.82	0.09	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
150	4.300	8.23	8.82	0.09	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
151	4.200	8.23	8.82	0.09	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
152	4.100	8.23	8.82	0.09	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
153	4.000	8.23	8.82	0.09	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.38	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
154	3.900	8.23	8.82	0.09	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.39	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
155	3.800	8.23	8.82	0.09	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.39	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
156	3.700	8.23	8.82	0.09	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.39	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
157	3.600	8.23	8.82	0.09	0.06	0.00	6.80	6.80	6.80	0.13	0.06	0.39	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
20 DEG C RATE				0.12		0.00	4.90			0.10		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			7.99		0.05						0.05									0.05

* g/sq m/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 *
137	5.600	25.21	0.00	0.00	0.00	1.41	3.17	3.48	0.70	0.10	0.00	0.80	0.00	3.10	19.90	0.00	9.09
138	5.500	25.21	0.00	0.00	0.00	1.26	3.17	3.48	0.70	0.10	0.00	0.80	0.00	3.10	19.81	0.00	9.13
139	5.400	25.21	0.00	0.00	0.00	1.17	3.18	3.49	0.70	0.10	0.00	0.80	0.00	3.10	19.71	0.00	9.16
140	5.300	25.21	0.00	0.00	0.00	1.13	3.19	3.50	0.70	0.10	0.00	0.80	0.00	3.10	19.62	0.00	9.20

141	5.200	25.21	0.00	0.00	0.00	1.10	3.20	3.51	0.70	0.10	0.00	0.80	0.00	3.10	19.52	0.00	9.24
142	5.100	25.21	0.00	0.00	0.00	1.09	3.21	3.52	0.70	0.10	0.00	0.80	0.00	3.10	19.43	0.00	9.27
143	5.000	25.21	0.00	0.00	0.00	1.09	3.22	3.53	0.70	0.10	0.00	0.80	0.00	3.10	19.33	0.00	9.31
144	4.900	25.21	0.00	0.00	0.00	1.09	3.23	3.54	0.70	0.10	0.00	0.80	0.00	3.10	19.24	0.00	9.34
145	4.800	25.21	0.00	0.00	0.00	1.09	3.24	3.55	0.70	0.10	0.00	0.80	0.00	3.10	19.14	0.00	9.37
146	4.700	25.21	0.00	0.00	0.00	1.10	3.25	3.56	0.70	0.10	0.00	0.80	0.00	3.10	19.05	0.00	9.41
147	4.600	25.21	0.00	0.00	0.00	1.10	3.25	3.56	0.70	0.10	0.00	0.80	0.00	3.10	18.95	0.00	9.44
148	4.500	25.21	0.00	0.00	0.00	1.11	3.26	3.57	0.70	0.10	0.00	0.79	0.00	3.10	18.86	0.00	9.47
149	4.400	25.21	0.00	0.00	0.00	1.12	3.27	3.58	0.70	0.10	0.00	0.79	0.00	3.10	18.76	0.00	9.50
150	4.300	25.21	0.00	0.00	0.00	1.12	3.28	3.59	0.69	0.10	0.00	0.79	0.00	3.10	18.67	0.00	9.53
151	4.200	25.21	0.00	0.00	0.00	1.13	3.28	3.59	0.69	0.10	0.00	0.79	0.00	3.10	18.57	0.00	9.56
152	4.100	25.21	0.00	0.00	0.00	1.14	3.29	3.60	0.69	0.10	0.00	0.79	0.00	3.10	18.48	0.00	9.59
153	4.000	25.21	0.00	0.00	0.00	1.14	3.29	3.60	0.69	0.10	0.00	0.79	0.00	3.10	18.38	0.00	9.62
154	3.900	25.21	0.00	0.00	0.00	1.15	3.30	3.61	0.69	0.10	0.00	0.79	0.00	3.10	18.29	0.00	9.65
155	3.800	25.21	0.00	0.00	0.00	1.16	3.30	3.61	0.69	0.10	0.00	0.79	0.00	3.10	18.19	0.00	9.67
156	3.700	25.21	0.00	0.00	0.00	1.16	3.31	3.62	0.69	0.10	0.00	0.79	0.00	3.10	18.10	0.00	9.70
157	3.600	25.21	0.00	0.00	0.00	1.15	3.32	3.63	0.69	0.10	0.00	0.79	0.00	3.10	18.00	0.00	9.74

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L

** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 9   UPPER CALCASIEU RIVER REACH 9   WATER QUALITY CALIBRATION

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
158	UPR RCH	0.00508	25.21	0.00	0.00	0.00	1.15	3.32	3.63	0.69	0.10	0.00	0.00	3.10	0.00	9.74
EACH	INCR	0.0001	25.21	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
158	3.60	3.50	0.00523	0.00	0.01581	0.07	0.13	2.60	33.09	259.70	0.33	0.00	0.000	0.300	0.016
159	3.50	3.40	0.00538	0.00	0.01614	0.07	0.13	2.60	33.34	260.37	0.33	0.00	0.000	0.300	0.016
160	3.40	3.30	0.00553	0.00	0.01647	0.07	0.13	2.61	33.58	261.04	0.34	0.00	0.000	0.300	0.016
161	3.30	3.20	0.00568	0.00	0.01679	0.07	0.13	2.62	33.83	261.68	0.34	0.00	0.000	0.300	0.017
162	3.20	3.10	0.00583	0.00	0.01711	0.07	0.13	2.62	34.07	262.32	0.34	0.00	0.000	0.300	0.017
163	3.10	3.00	0.00598	0.00	0.01743	0.07	0.13	2.63	34.30	262.95	0.34	0.00	0.000	0.300	0.017
164	3.00	2.90	0.00613	0.00	0.01775	0.07	0.13	2.64	34.53	263.56	0.35	0.00	0.000	0.300	0.018
165	2.90	2.80	0.00628	0.00	0.01807	0.06	0.13	2.64	34.76	264.16	0.35	0.00	0.000	0.300	0.018
166	2.80	2.70	0.00643	0.00	0.01838	0.06	0.13	2.65	34.99	264.76	0.35	0.00	0.000	0.300	0.018
167	2.70	2.60	0.00658	0.00	0.01869	0.06	0.13	2.65	35.21	265.34	0.35	0.00	0.000	0.300	0.019
168	2.60	2.50	0.00673	0.00	0.01899	0.06	0.13	2.66	35.43	265.92	0.35	0.00	0.000	0.300	0.019
169	2.50	2.40	0.00688	0.00	0.01930	0.06	0.13	2.66	35.65	266.48	0.36	0.00	0.000	0.300	0.019

TOT		0.79			412.78	3158.29	
AVG	0.01751		0.13	2.63			0.34
CUM		24.55					

** 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
158	3.500	8.23	7.71	0.08	0.06	0.00	7.36	7.36	7.36	0.15	0.06	0.36	0.00	0.00	0.00	0.20	0.00	0.00	0.01	0.06
159	3.400	8.23	7.72	0.07	0.06	0.00	7.36	7.36	7.36	0.15	0.06	0.34	0.00	0.00	0.00	0.21	0.00	0.00	0.01	0.06
160	3.300	8.23	7.72	0.07	0.06	0.00	7.36	7.36	7.36	0.15	0.06	0.34	0.00	0.00	0.00	0.22	0.00	0.00	0.01	0.06
161	3.200	8.23	7.72	0.07	0.06	0.00	7.36	7.36	7.36	0.15	0.06	0.33	0.00	0.00	0.00	0.22	0.00	0.00	0.01	0.06
162	3.100	8.23	7.73	0.07	0.06	0.00	7.36	7.36	7.36	0.15	0.06	0.34	0.00	0.00	0.00	0.23	0.00	0.00	0.01	0.06
163	3.000	8.23	7.73	0.07	0.06	0.00	7.36	7.36	7.36	0.15	0.06	0.34	0.00	0.00	0.00	0.24	0.00	0.00	0.01	0.06
164	2.900	8.23	7.74	0.07	0.06	0.00	7.36	7.36	7.36	0.15	0.06	0.34	0.00	0.00	0.00	0.24	0.00	0.00	0.01	0.06
165	2.800	8.23	7.74	0.07	0.06	0.00	7.36	7.36	7.36	0.15	0.06	0.35	0.00	0.00	0.00	0.25	0.00	0.00	0.01	0.06
166	2.700	8.23	7.74	0.08	0.06	0.00	7.36	7.36	7.36	0.15	0.06	0.36	0.00	0.00	0.00	0.25	0.00	0.00	0.01	0.06
167	2.600	8.23	7.75	0.08	0.06	0.00	7.36	7.36	7.36	0.15	0.06	0.36	0.00	0.00	0.00	0.26	0.00	0.00	0.01	0.06
168	2.500	8.23	7.75	0.08	0.06	0.00	7.36	7.36	7.36	0.15	0.06	0.37	0.00	0.00	0.00	0.27	0.00	0.00	0.01	0.06
169	2.400	8.23	7.76	0.08	0.06	0.00	7.36	7.36	7.36	0.15	0.06	0.37	0.00	0.00	0.00	0.27	0.00	0.00	0.01	0.06
20 DEG C RATE				0.12		0.00	5.30			0.12		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			7.00		0.05						0.05									0.05

* g/sq m/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 *
158	3.500	25.21	0.00	0.00	0.00	1.02	3.34	3.66	0.70	0.10	0.00	0.80	0.00	3.20	18.00	0.00	9.82
159	3.400	25.21	0.00	0.00	0.00	0.94	3.36	3.69	0.70	0.10	0.00	0.80	0.00	3.30	18.00	0.00	9.89
160	3.300	25.21	0.00	0.00	0.00	0.91	3.38	3.72	0.71	0.10	0.00	0.81	0.00	3.40	18.00	0.00	9.96
161	3.200	25.21	0.00	0.00	0.00	0.91	3.40	3.75	0.71	0.10	0.01	0.81	0.00	3.50	18.00	0.00	10.03
162	3.100	25.21	0.00	0.00	0.00	0.91	3.42	3.78	0.72	0.10	0.01	0.82	0.00	3.60	18.00	0.00	10.09
163	3.000	25.21	0.00	0.00	0.00	0.93	3.43	3.80	0.72	0.10	0.01	0.82	0.00	3.70	18.00	0.00	10.15
164	2.900	25.21	0.00	0.00	0.00	0.95	3.45	3.83	0.73	0.09	0.01	0.83	0.00	3.80	18.00	0.00	10.20
165	2.800	25.21	0.00	0.00	0.00	0.98	3.46	3.85	0.73	0.09	0.01	0.83	0.00	3.90	18.00	0.00	10.25
166	2.700	25.21	0.00	0.00	0.00	1.00	3.47	3.87	0.73	0.09	0.01	0.83	0.00	4.00	18.00	0.00	10.30
167	2.600	25.21	0.00	0.00	0.00	1.03	3.48	3.89	0.74	0.09	0.01	0.84	0.00	4.10	18.00	0.00	10.35
168	2.500	25.21	0.00	0.00	0.00	1.06	3.49	3.91	0.74	0.09	0.01	0.84	0.00	4.20	18.00	0.00	10.39
169	2.400	25.21	0.00	0.00	0.00	1.08	3.50	3.93	0.74	0.09	0.01	0.84	0.00	4.30	18.00	0.00	10.44

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT UPPER CALCASIEU RVR UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 10 UPPER CALCASIEU RIVER REACH 10 WATER QUALITY CALIBRATION

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
170	UPR RCH	0.00688	25.21	0.00	0.00	0.00	1.08	3.50	3.93	0.74	0.09	0.01	0.00	4.30	0.00	10.44
EACH	INCR	0.0001	25.21	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
170	2.40	2.30	0.00703	0.00	0.02159	0.05	0.15	2.14	32.56	214.43	0.33	0.00	0.000	0.300	0.022
171	2.30	2.20	0.00718	0.00	0.02193	0.05	0.15	2.15	32.74	214.85	0.33	0.00	0.000	0.300	0.022
172	2.20	2.10	0.00733	0.00	0.02226	0.05	0.15	2.15	32.93	215.27	0.33	0.00	0.000	0.300	0.022
173	2.10	2.00	0.00748	0.00	0.02259	0.05	0.15	2.16	33.10	215.68	0.33	0.00	0.000	0.300	0.023
174	2.00	1.90	0.00763	0.00	0.02293	0.05	0.15	2.16	33.28	216.09	0.33	0.00	0.000	0.300	0.023
175	1.90	1.80	0.00778	0.00	0.02325	0.05	0.15	2.16	33.46	216.49	0.33	0.00	0.000	0.300	0.023
176	1.80	1.70	0.00793	0.00	0.02358	0.05	0.16	2.17	33.63	216.88	0.34	0.00	0.000	0.300	0.024
177	1.70	1.60	0.00808	0.00	0.02390	0.05	0.16	2.17	33.80	217.27	0.34	0.00	0.000	0.300	0.024
178	1.60	1.50	0.00823	0.00	0.02422	0.05	0.16	2.18	33.97	217.65	0.34	0.00	0.000	0.300	0.024
179	1.50	1.40	0.00838	0.00	0.02454	0.05	0.16	2.18	34.14	218.03	0.34	0.00	0.000	0.300	0.025
180	1.40	1.30	0.00853	0.00	0.02486	0.05	0.16	2.18	34.31	218.41	0.34	0.00	0.000	0.300	0.025
181	1.30	1.20	0.00868	0.00	0.02518	0.05	0.16	2.19	34.48	218.78	0.34	0.00	0.000	0.300	0.025
TOT						0.59			402.42	2599.82					
AVG					0.02335		0.15	2.17			0.34				
CUM						25.15									

** 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
170	2.300	8.23	7.07	0.08	0.06	0.00	8.05	8.05	8.05	0.18	0.06	0.35	0.00	0.00	0.00	0.28	0.00	0.00	0.01	0.06
171	2.200	8.23	7.08	0.07	0.06	0.00	8.05	8.05	8.05	0.18	0.06	0.34	0.00	0.00	0.00	0.28	0.00	0.00	0.01	0.06
172	2.100	8.23	7.09	0.07	0.06	0.00	8.05	8.05	8.05	0.18	0.06	0.34	0.00	0.00	0.00	0.29	0.00	0.00	0.01	0.06
173	2.000	8.23	7.10	0.07	0.06	0.00	8.05	8.05	8.05	0.18	0.06	0.34	0.00	0.00	0.00	0.29	0.00	0.00	0.01	0.06
174	1.900	8.23	7.11	0.07	0.06	0.00	8.05	8.05	8.05	0.18	0.06	0.34	0.00	0.00	0.00	0.30	0.00	0.00	0.01	0.06
175	1.800	8.23	7.12	0.07	0.06	0.00	8.05	8.05	8.05	0.18	0.06	0.34	0.00	0.00	0.00	0.30	0.00	0.00	0.01	0.06
176	1.700	8.23	7.13	0.07	0.06	0.00	8.05	8.05	8.05	0.18	0.06	0.34	0.00	0.00	0.00	0.31	0.00	0.00	0.01	0.06
177	1.600	8.23	7.14	0.07	0.06	0.00	8.05	8.05	8.05	0.18	0.06	0.35	0.00	0.00	0.00	0.32	0.00	0.00	0.01	0.06
178	1.500	8.23	7.15	0.07	0.06	0.00	8.05	8.05	8.05	0.18	0.06	0.35	0.00	0.00	0.00	0.32	0.00	0.00	0.01	0.06
179	1.400	8.23	7.16	0.08	0.06	0.00	8.05	8.05	8.05	0.18	0.06	0.36	0.00	0.00	0.00	0.33	0.00	0.00	0.01	0.06
180	1.300	8.23	7.17	0.08	0.06	0.00	8.05	8.05	8.05	0.18	0.06	0.36	0.00	0.00	0.00	0.33	0.00	0.00	0.01	0.06

181	1.200	8.23	7.18	0.08	0.06	0.00	8.05	8.05	8.05	0.18	0.06	0.37	0.00	0.00	0.00	0.34	0.00	0.00	0.01	0.06
20 DEG C RATE				0.12		0.00	5.80			0.14		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			6.45		0.05						0.05									0.05

* g/sq m/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 *
170	2.300	25.21	0.00	0.00	0.00	0.99	3.52	3.96	0.74	0.10	0.01	0.85	0.00	4.38	18.00	0.00	10.54
171	2.200	25.21	0.00	0.00	0.00	0.94	3.54	3.98	0.75	0.10	0.01	0.85	0.00	4.47	18.00	0.00	10.63
172	2.100	25.21	0.00	0.00	0.00	0.92	3.55	4.01	0.75	0.10	0.01	0.85	0.00	4.55	18.00	0.00	10.72
173	2.000	25.21	0.00	0.00	0.00	0.91	3.57	4.03	0.75	0.10	0.01	0.86	0.00	4.63	18.00	0.00	10.80
174	1.900	25.21	0.00	0.00	0.00	0.91	3.58	4.06	0.75	0.10	0.01	0.86	0.00	4.72	18.00	0.00	10.89
175	1.800	25.21	0.00	0.00	0.00	0.92	3.60	4.08	0.75	0.10	0.01	0.86	0.00	4.80	18.00	0.00	10.96
176	1.700	25.21	0.00	0.00	0.00	0.94	3.61	4.10	0.75	0.10	0.01	0.86	0.00	4.88	18.00	0.00	11.04
177	1.600	25.21	0.00	0.00	0.00	0.96	3.63	4.12	0.76	0.10	0.01	0.87	0.00	4.97	18.00	0.00	11.11
178	1.500	25.21	0.00	0.00	0.00	0.98	3.64	4.14	0.76	0.10	0.01	0.87	0.00	5.05	18.00	0.00	11.18
179	1.400	25.21	0.00	0.00	0.00	1.00	3.65	4.16	0.76	0.10	0.01	0.87	0.00	5.13	18.00	0.00	11.24
180	1.300	25.21	0.00	0.00	0.00	1.03	3.66	4.18	0.76	0.10	0.01	0.87	0.00	5.22	18.00	0.00	11.30
181	1.200	25.21	0.00	0.00	0.00	1.05	3.67	4.20	0.76	0.10	0.01	0.87	0.00	5.30	18.00	0.00	11.36

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT UPPER CALCASIEU RVR UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 11 UPPER CALCASIEU RIVER REACH 11 WATER QUALITY CALIBRATION

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW cms	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 *
182	UPR RCH	0.00868	25.21	0.00	0.00	0.00	1.05	3.67	4.20	0.76	0.10	0.01	0.00	5.30	0.00	11.36
EACH	INCR	0.0001	25.21	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
182	1.20	1.10	0.00883	0.00	0.03059	0.04	0.17	1.65	28.87	165.12	0.29	0.00	0.000	0.300	0.031
183	1.10	1.00	0.00898	0.00	0.03097	0.04	0.18	1.65	28.99	165.37	0.29	0.00	0.000	0.300	0.031
184	1.00	0.90	0.00913	0.00	0.03135	0.04	0.18	1.66	29.12	165.62	0.29	0.00	0.000	0.300	0.031
185	0.90	0.80	0.00928	0.00	0.03173	0.04	0.18	1.66	29.25	165.87	0.29	0.00	0.000	0.300	0.032

186	0.80	0.70	0.00943	0.00	0.03210	0.04	0.18	1.66	29.37	166.12	0.29	0.00	0.000	0.300	0.032
187	0.70	0.60	0.00958	0.00	0.03248	0.04	0.18	1.66	29.50	166.36	0.29	0.00	0.000	0.300	0.032
188	0.60	0.50	0.00973	0.00	0.03285	0.04	0.18	1.67	29.62	166.60	0.30	0.00	0.000	0.300	0.033
189	0.50	0.40	0.00988	0.00	0.03322	0.03	0.18	1.67	29.74	166.83	0.30	0.00	0.000	0.300	0.033
190	0.40	0.30	0.01003	0.00	0.03359	0.03	0.18	1.67	29.86	167.07	0.30	0.00	0.000	0.300	0.034
191	0.30	0.20	0.01018	0.00	0.03395	0.03	0.18	1.67	29.98	167.30	0.30	0.00	0.000	0.300	0.034
192	0.20	0.10	0.01033	0.00	0.03432	0.03	0.18	1.68	30.10	167.53	0.30	0.00	0.000	0.300	0.034
193	0.10	0.00	0.01048	0.00	0.03468	0.03	0.18	1.68	30.22	167.75	0.30	0.00	0.000	0.300	0.035
TOT						0.43			354.62	1997.54					
AVG					0.03260		0.18	1.66			0.30				
CUM						25.57									

** 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
182	1.100	8.23	6.96	0.08	0.06	0.00	9.16	9.16	9.16	0.20	0.06	0.35	0.00	0.00	0.00	0.34	0.00	0.00	0.01	0.06
183	1.000	8.23	6.97	0.07	0.06	0.00	9.16	9.16	9.16	0.20	0.06	0.34	0.00	0.00	0.00	0.35	0.00	0.00	0.01	0.06
184	0.900	8.23	6.99	0.07	0.06	0.00	9.16	9.16	9.16	0.20	0.06	0.34	0.00	0.00	0.00	0.35	0.00	0.00	0.01	0.06
185	0.800	8.23	7.00	0.07	0.06	0.00	9.16	9.16	9.16	0.20	0.06	0.33	0.00	0.00	0.00	0.36	0.00	0.00	0.01	0.06
186	0.700	8.23	7.01	0.07	0.06	0.00	9.16	9.16	9.16	0.20	0.06	0.33	0.00	0.00	0.00	0.36	0.00	0.00	0.01	0.06
187	0.600	8.23	7.03	0.07	0.06	0.00	9.16	9.16	9.16	0.20	0.06	0.33	0.00	0.00	0.00	0.37	0.00	0.00	0.01	0.06
188	0.500	8.23	7.04	0.07	0.06	0.00	9.16	9.16	9.16	0.20	0.06	0.34	0.00	0.00	0.00	0.37	0.00	0.00	0.01	0.06
189	0.400	8.23	7.06	0.07	0.06	0.00	9.16	9.16	9.16	0.20	0.06	0.34	0.00	0.00	0.00	0.38	0.00	0.00	0.01	0.06
190	0.300	8.23	7.07	0.07	0.06	0.00	9.16	9.16	9.16	0.20	0.06	0.34	0.00	0.00	0.00	0.38	0.00	0.00	0.01	0.06
191	0.200	8.23	7.08	0.07	0.06	0.00	9.16	9.16	9.16	0.20	0.06	0.35	0.00	0.00	0.00	0.39	0.00	0.00	0.01	0.06
192	0.100	8.23	7.10	0.08	0.06	0.00	9.16	9.16	9.16	0.20	0.06	0.35	0.00	0.00	0.00	0.39	0.00	0.00	0.01	0.06
193	0.000	8.23	7.11	0.08	0.06	0.00	9.16	9.16	9.16	0.20	0.06	0.35	0.00	0.00	0.00	0.40	0.00	0.00	0.01	0.06
20 DEG C RATE				0.12		0.00	6.60			0.16		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			6.37		0.05						0.05									0.05

* g/sq m/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 *
182	1.100	25.21	0.00	0.00	0.00	0.98	3.69	4.23	0.76	0.10	0.01	0.88	0.00	5.38	18.00	0.00	11.44
183	1.000	25.21	0.00	0.00	0.00	0.94	3.72	4.26	0.77	0.10	0.01	0.88	0.00	5.47	18.00	0.00	11.51
184	0.900	25.21	0.00	0.00	0.00	0.92	3.74	4.29	0.77	0.11	0.01	0.89	0.00	5.55	18.00	0.00	11.58
185	0.800	25.21	0.00	0.00	0.00	0.91	3.76	4.32	0.77	0.11	0.01	0.89	0.00	5.63	18.00	0.00	11.64
186	0.700	25.21	0.00	0.00	0.00	0.90	3.78	4.35	0.78	0.11	0.01	0.90	0.00	5.72	18.00	0.00	11.71
187	0.600	25.21	0.00	0.00	0.00	0.91	3.80	4.38	0.78	0.11	0.01	0.90	0.00	5.80	18.00	0.00	11.77
188	0.500	25.21	0.00	0.00	0.00	0.92	3.82	4.41	0.78	0.11	0.01	0.90	0.00	5.88	18.00	0.00	11.83
189	0.400	25.21	0.00	0.00	0.00	0.93	3.84	4.44	0.78	0.11	0.01	0.91	0.00	5.97	18.00	0.00	11.89
190	0.300	25.21	0.00	0.00	0.00	0.95	3.86	4.46	0.79	0.11	0.01	0.91	0.00	6.05	18.00	0.00	11.94
191	0.200	25.21	0.00	0.00	0.00	0.97	3.88	4.49	0.79	0.11	0.01	0.91	0.00	6.13	18.00	0.00	11.99

192	0.100	25.21	0.00	0.00	0.00	0.99	3.89	4.51	0.79	0.11	0.01	0.92	0.00	6.22	18.00	0.00	12.05
193	0.000	25.21	0.00	0.00	0.00	1.02	3.91	4.54	0.79	0.11	0.01	0.92	0.00	6.30	18.00	0.00	12.09

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 * CM-I = CHLORIDES                         CM-II = SULFATES                          NCM = CBOD2
          MG/L                                      MG/L                                  MG/L
 ** g/cu m
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STREAM SUMMARY                                                  UPPER CALCASIEU RIVER (030101)- STREAM MODEL
UPPER CALCASIEU RVR                                             WATER QUALITY CALIBRATION

 TRAVEL TIME      =          25.57 DAYS

 MAXIMUM EFFLUENT =           0.00 PERCENT

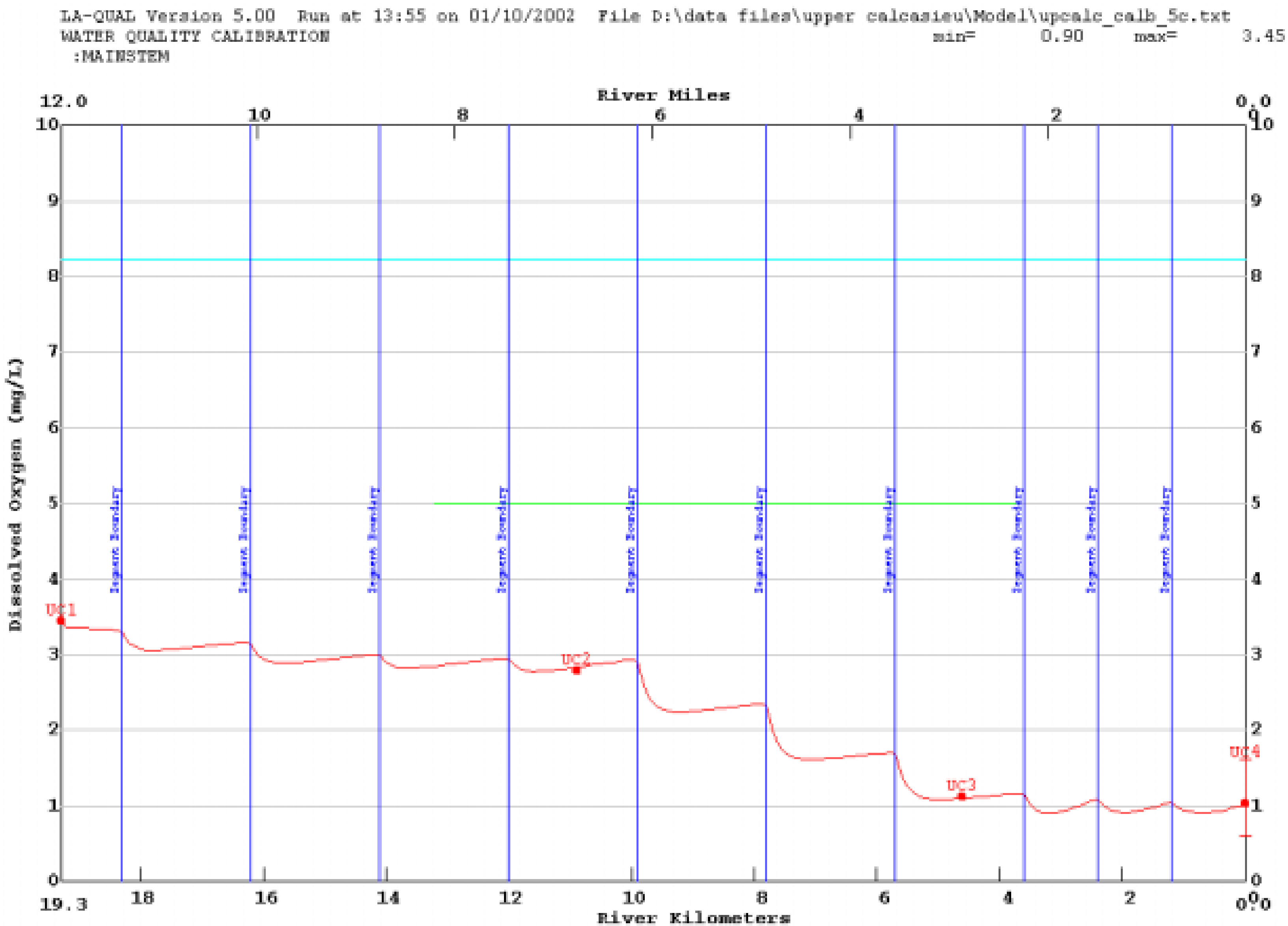
 FLOW             =   0.00034 TO    0.01048 cms
 DISPERSION       =   0.3000  TO    0.3000  sq m/s
 VELOCITY         =   0.00105 TO    0.03468 m/s
 DEPTH            =   0.07    TO    0.22    m
 WIDTH            =   1.45    TO    3.10    m

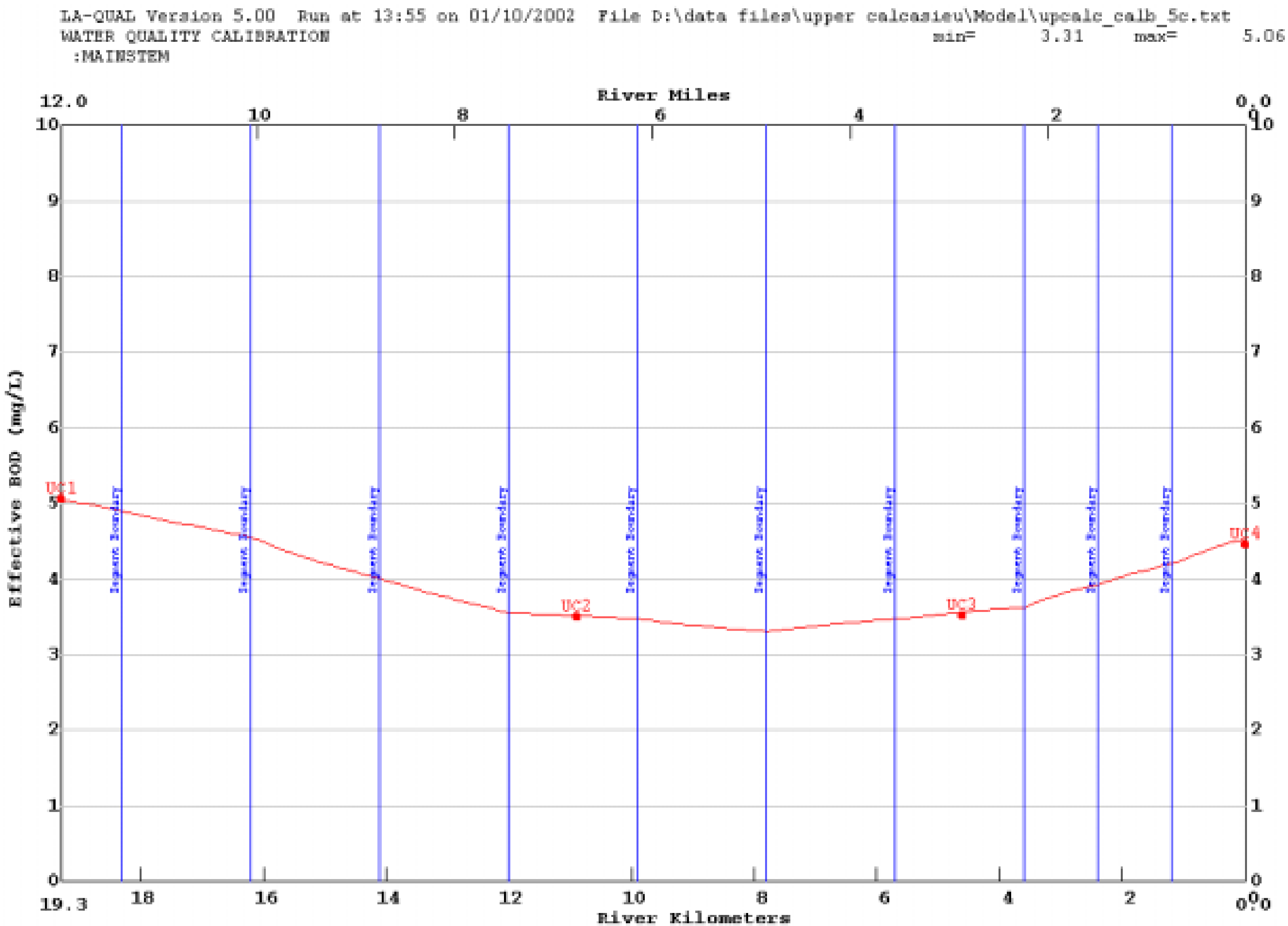
 BOD DECAY        =    0.07   TO    0.22    per day
 NH3 DECAY        =    0.33   TO    0.62    per day
 SDMNT OXYGEN DMND=    3.61   TO    9.16    g/sq m/d
 NH3 SOURCE       =    0.00   TO    0.00    g/sq m/d
 REAERATION       =    3.47   TO   15.13    per day
 BOD SETTLING     =    0.06   TO    0.06    per day
 ORGN DECAY       =    0.04   TO    0.30    per day
 ORGN SETTLING    =    0.06   TO    0.06    per day

 TEMPERATURE      =   25.21   TO   25.21    deg C
 DISSOLVED OXYGEN =    0.90   TO    3.36    mg/L


     .....EXECUTION COMPLETED
```

Upper Calcasieu River – Subsegment 030101
Water Quality Calibration for Dissolved Oxygen based on July 2001 Survey
Orginated: January 10, 2002

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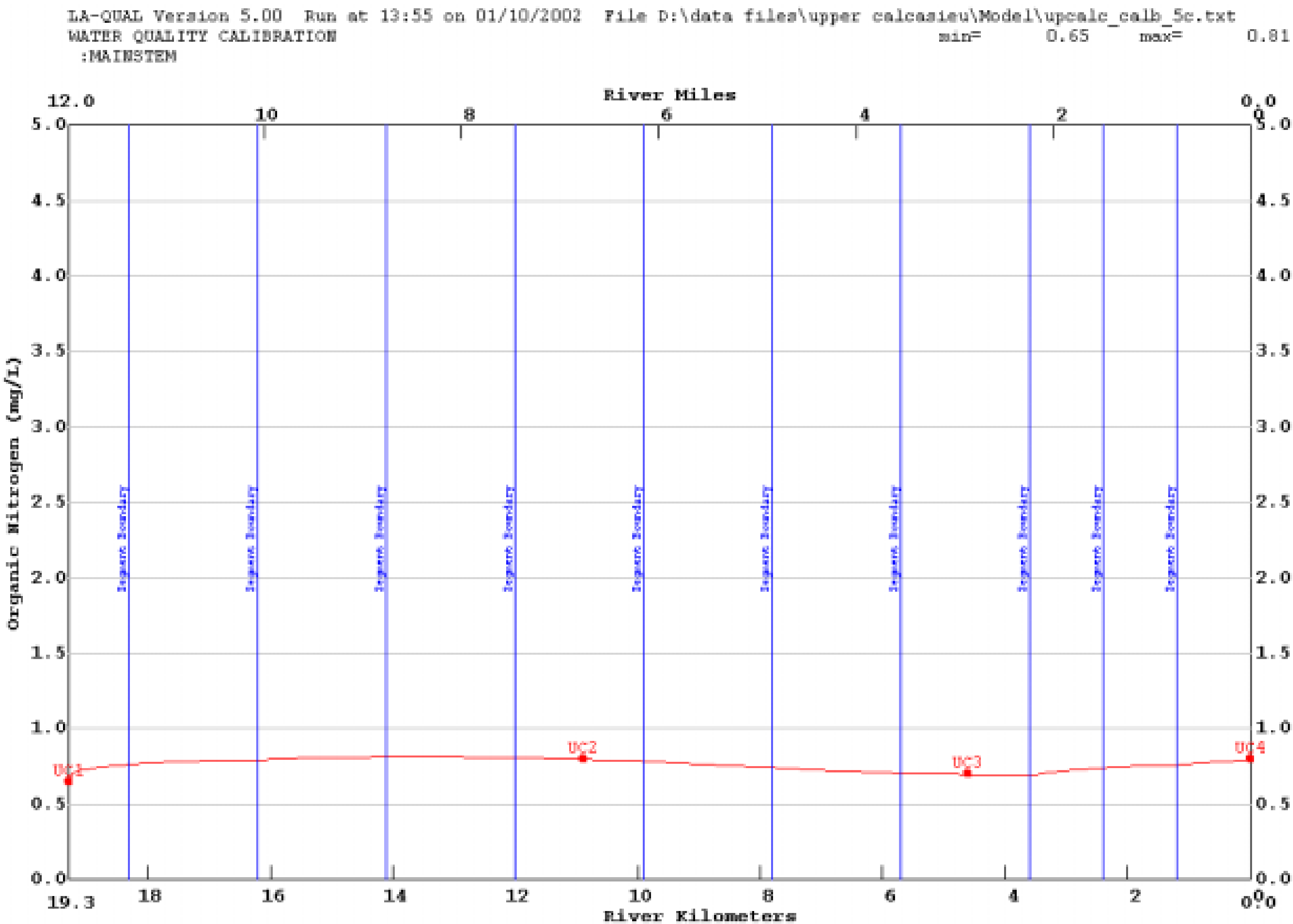
WATER QUALITY CALIBRATION
min= 3.31 max= 5.06
:MAINSTEM
River Miles
Effective BOD (mg/L)
River Kilometers
UC1
UC2
UC3
UC4
Segment Boundary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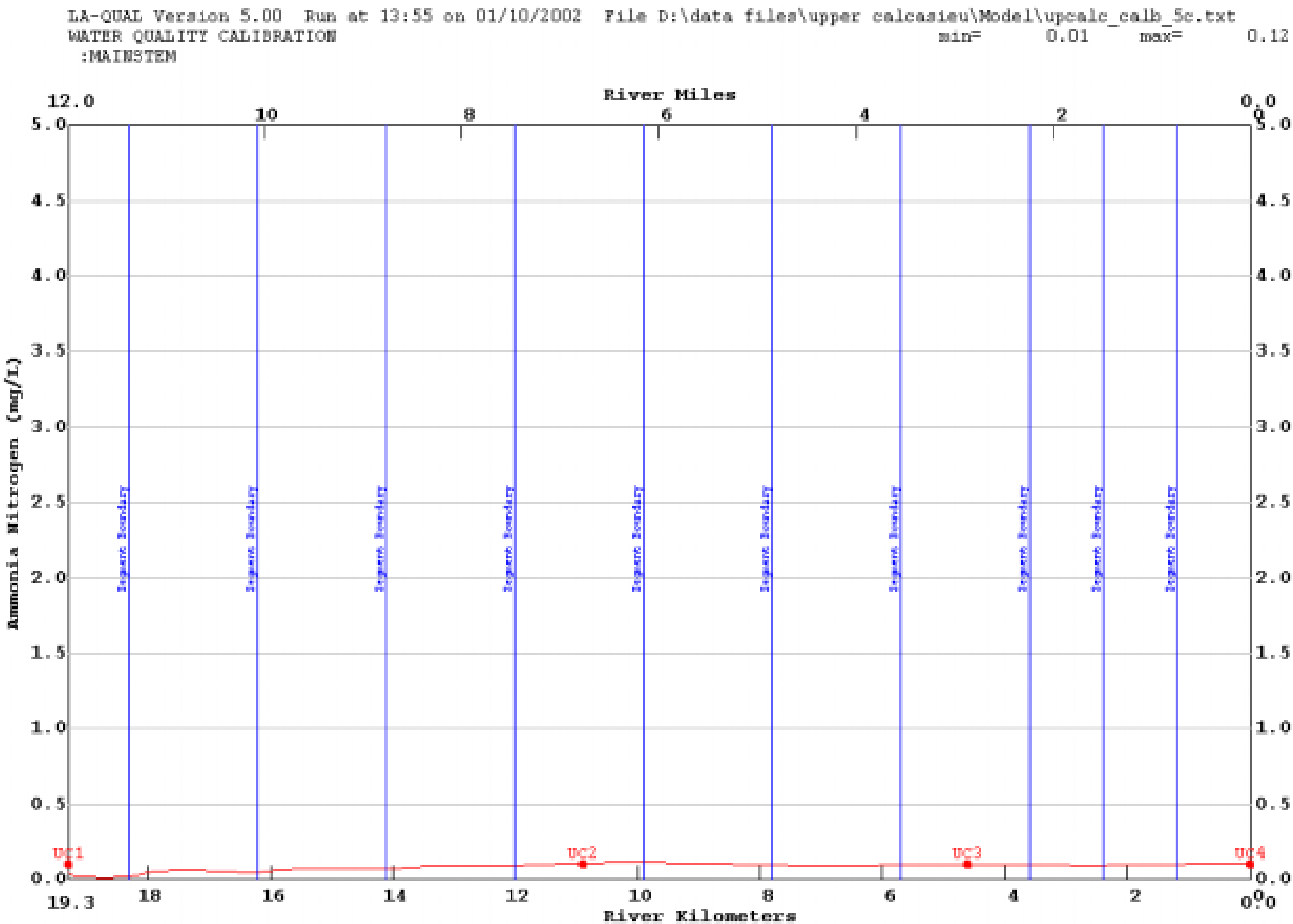
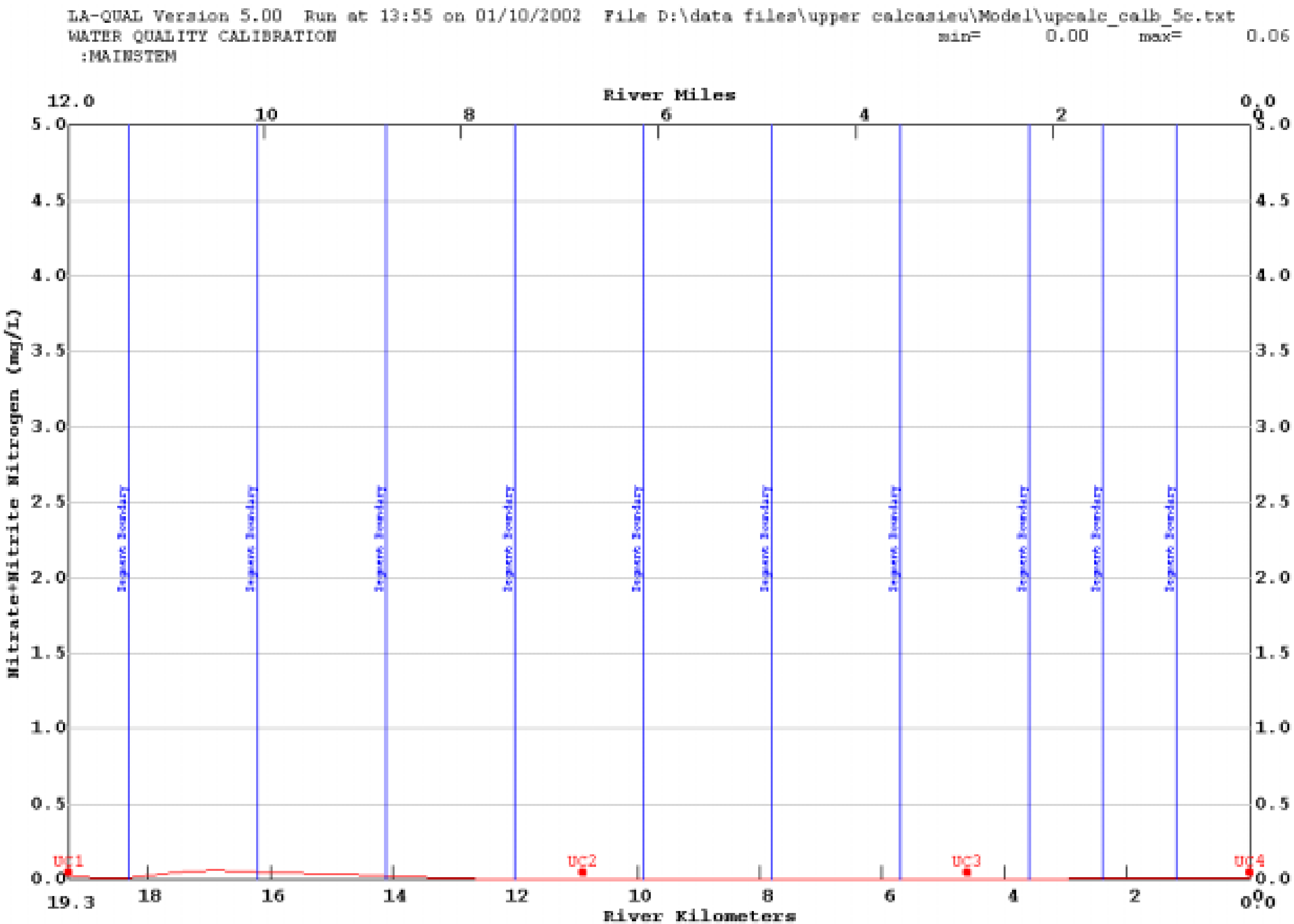
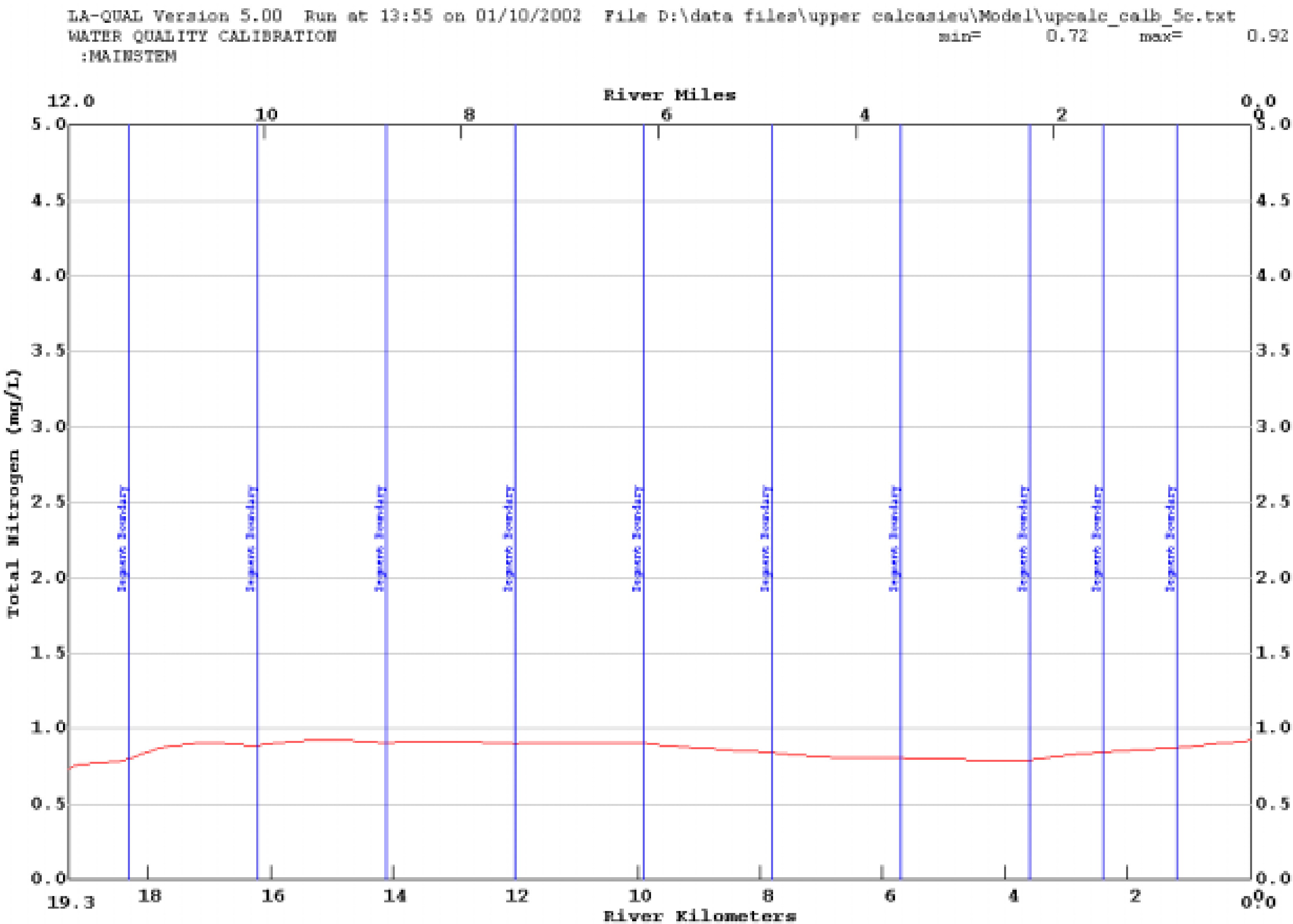
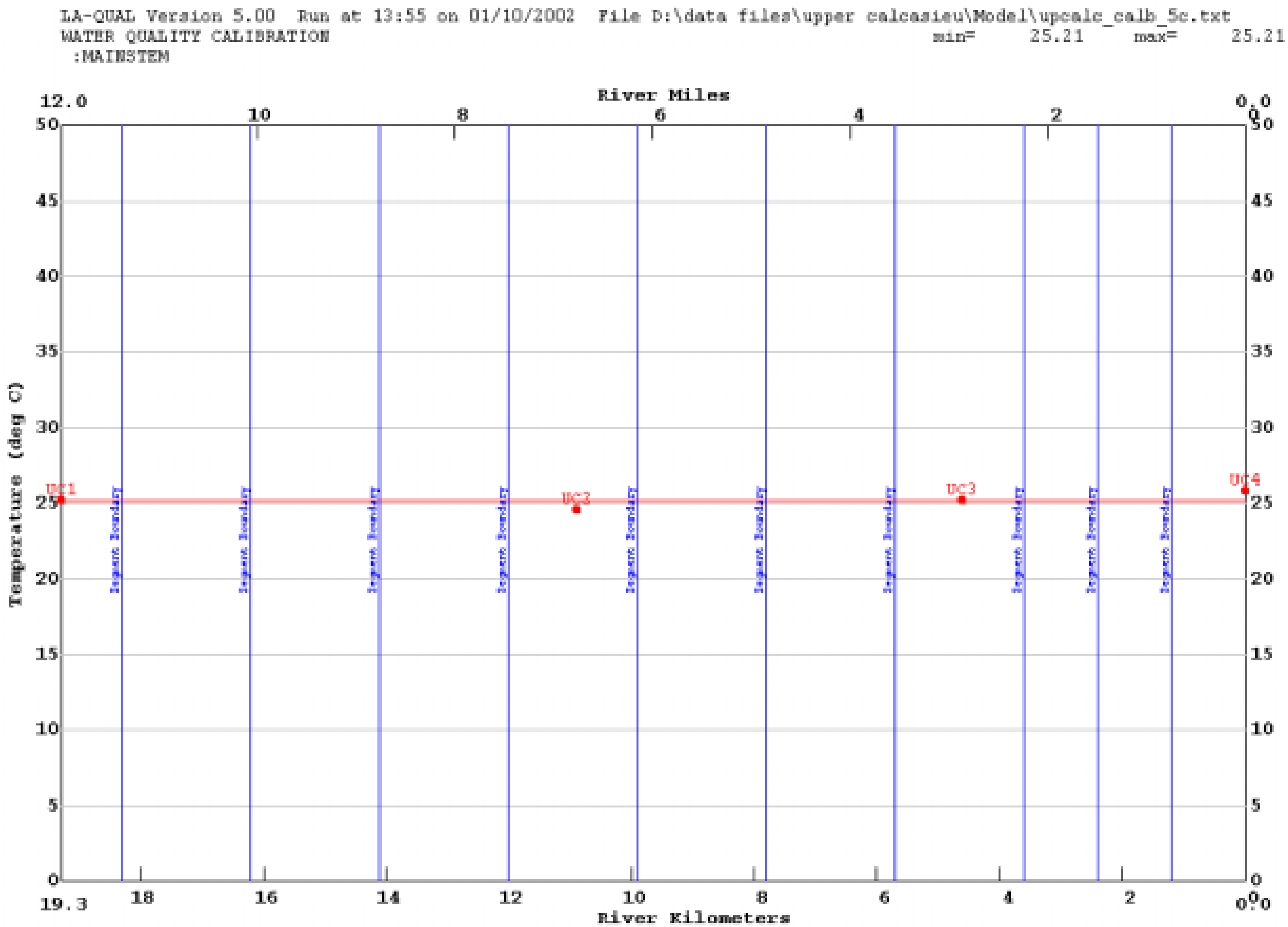
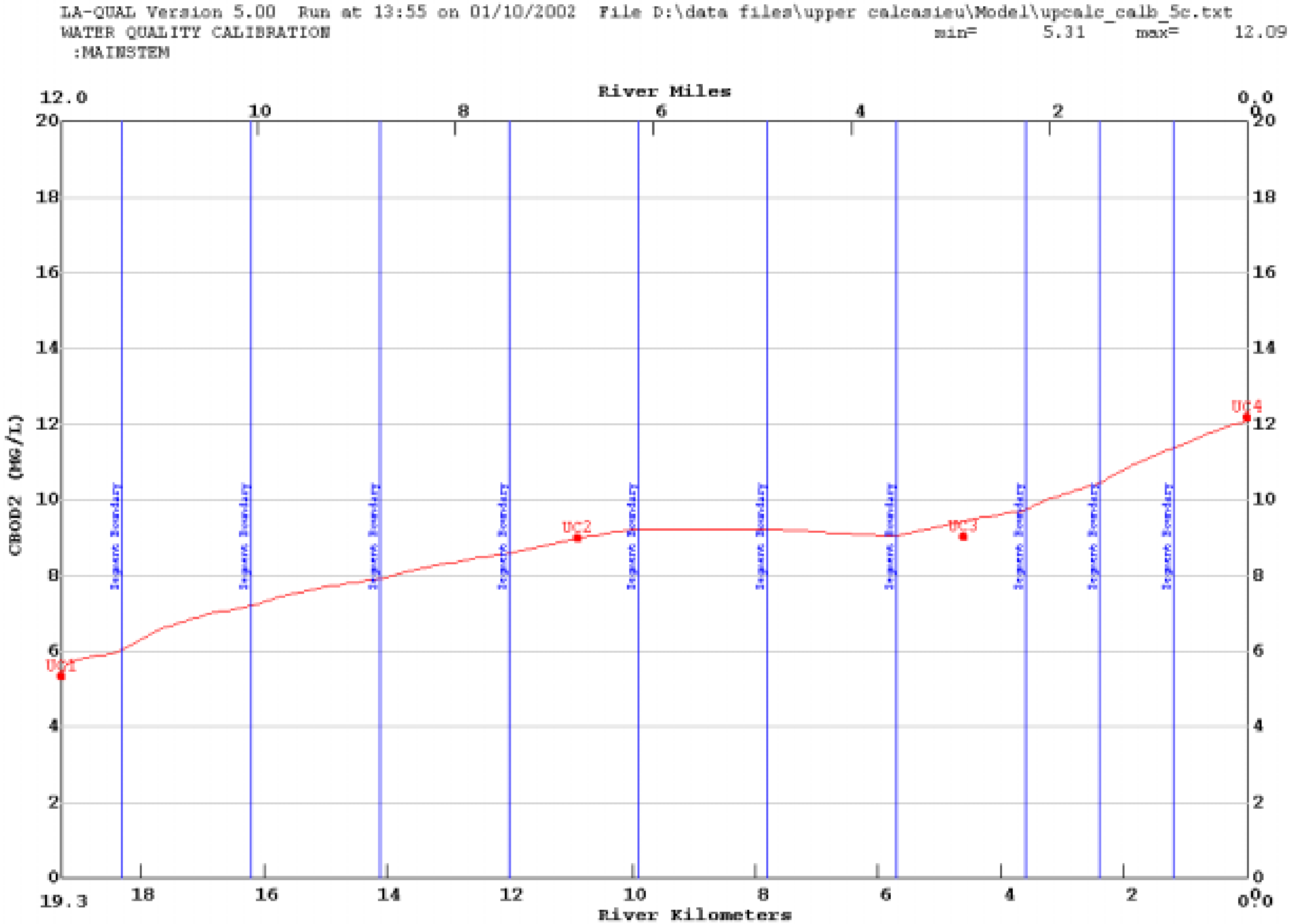
WATER QUALITY CALIBRATION
min= 0.65 max= 0.81
:MAINSTEM
River Miles
12.0
10
8
6
4
2
0.0
Organic Nitrogen (mg/L)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Segment Boundary
UC1
UC2
UC3
UC4
19.3
18
16
14
12
10
8
6
4
2
0.0
River Kilometers

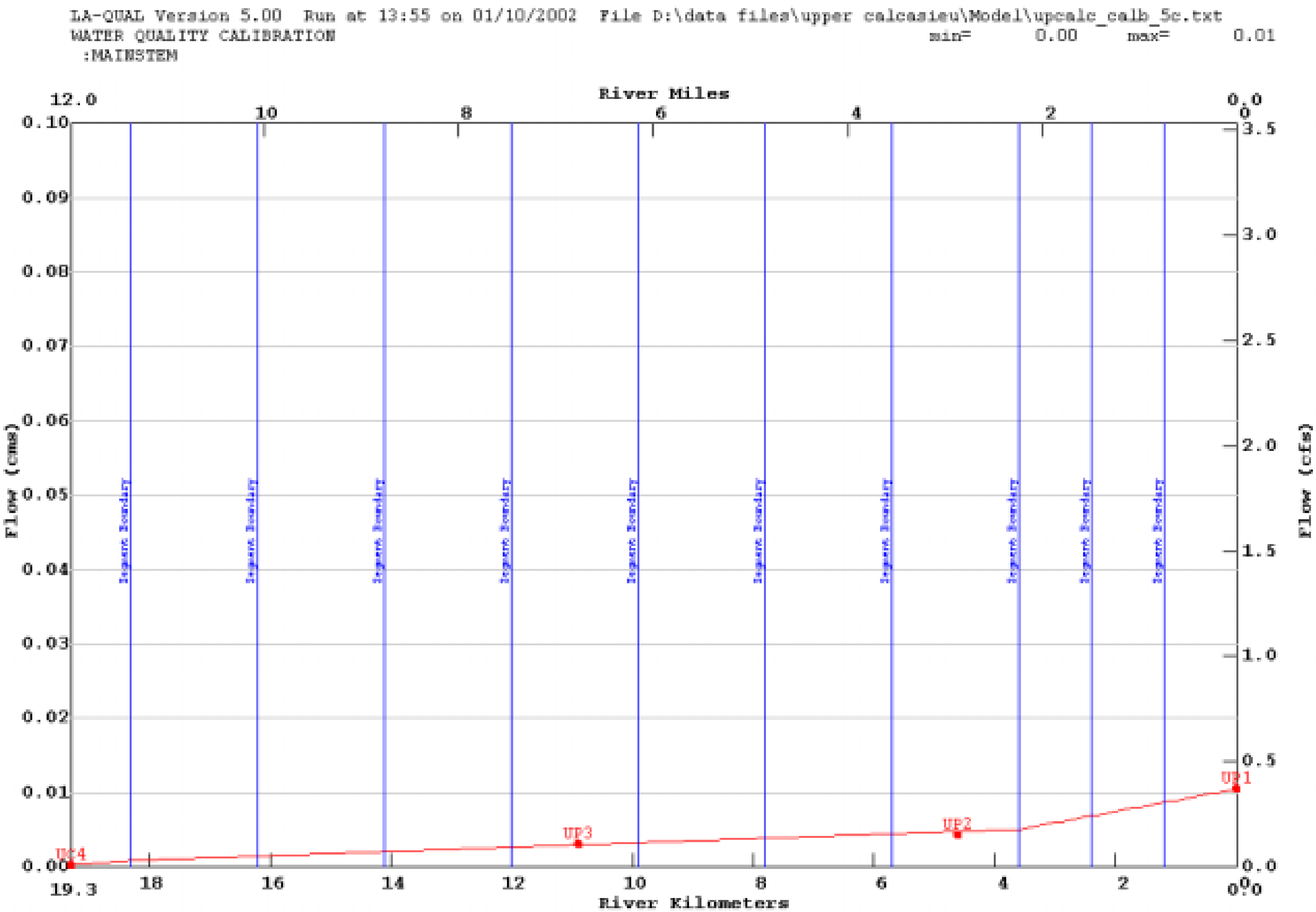

LA-QUAL Version 5.00 Run at 13:55 on 01/10/2002 File D:\data files\upper calcasieu\Model\upcalc_calb_5c.txt
WATER QUALITY CALIBRATION
:MAINSTEM
min= 0.01 max= 0.12
River Miles
12.0
10
8
6
4
2
0.0
Ammonia Nitrogen (mg/L)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Segment Boundary
UC1
UC2
UC3
UC4
19.3
18
16
14
12
10
8
6
4
2
0.0
River Kilometers


LA-QUAL Version 5.00 Run at 13:55 on 01/10/2002 File D:\data files\upper calcasieu\Model\upcalc_calb_5c.txt
WATER QUALITY CALIBRATION
:MAINSTEM
min= 0.00 max= 0.06
River Miles
12.0
10
8
6
4
2
0.0
Nitrate+Nitrite Nitrogen (mg/L)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Segment Boundary
UC1
UC2
UC3
UC4
19.3
18
16
14
12
10
8
6
4
2
0.0
River Kilometers

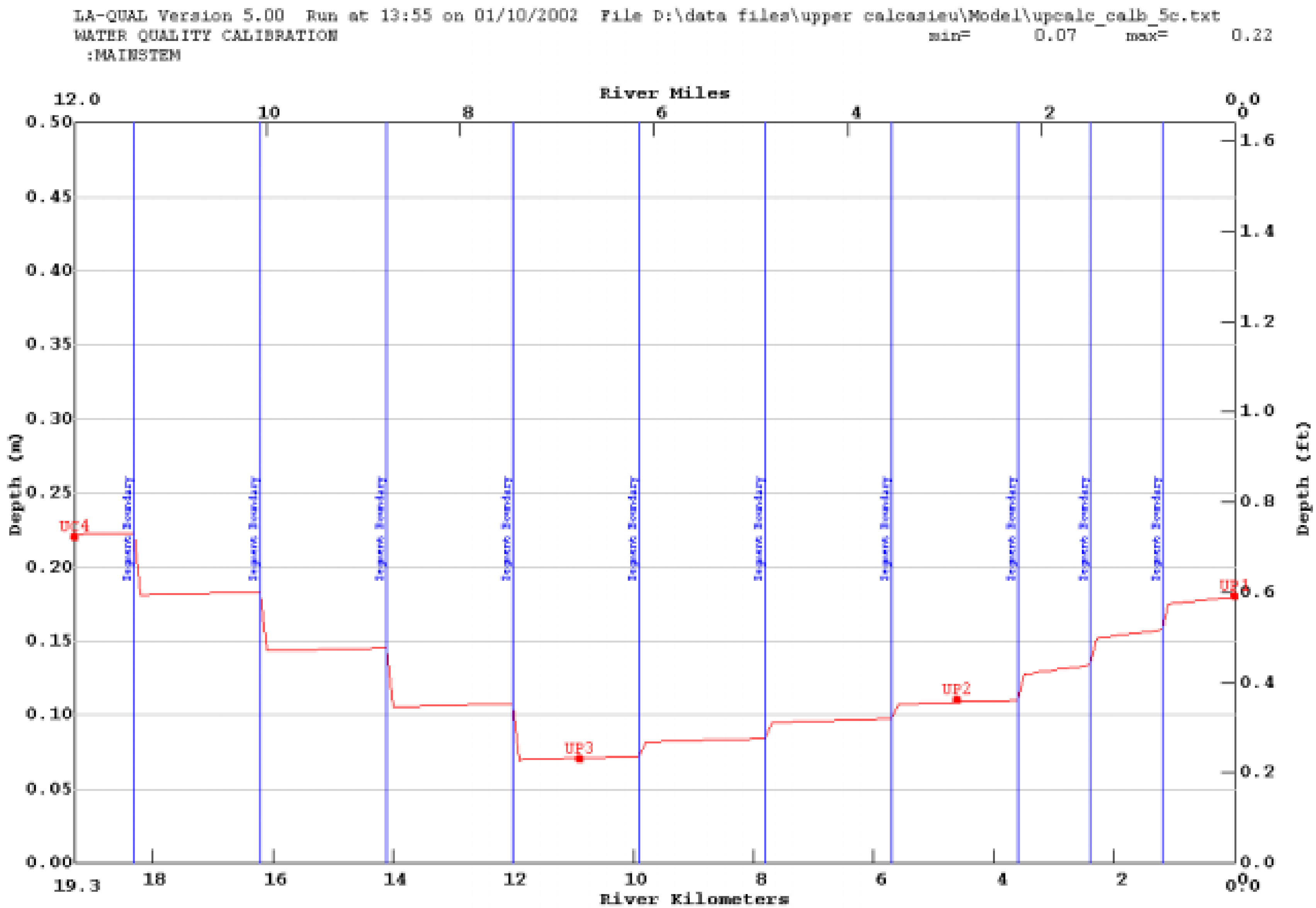

LA-QUAL Version 5.00 Run at 13:55 on 01/10/2002 File D:\data files\upper calcasieu\Model\upcalc_calb_5c.txt
WATER QUALITY CALIBRATION
:MAINSTEM
min= 0.72 max= 0.92
River Miles
12.0
10
8
6
4
2
0.0
Total Nitrogen (mg/L)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Segment Boundary
19.3
18
16
14
12
10
8
6
4
2
0.0
River Kilometers

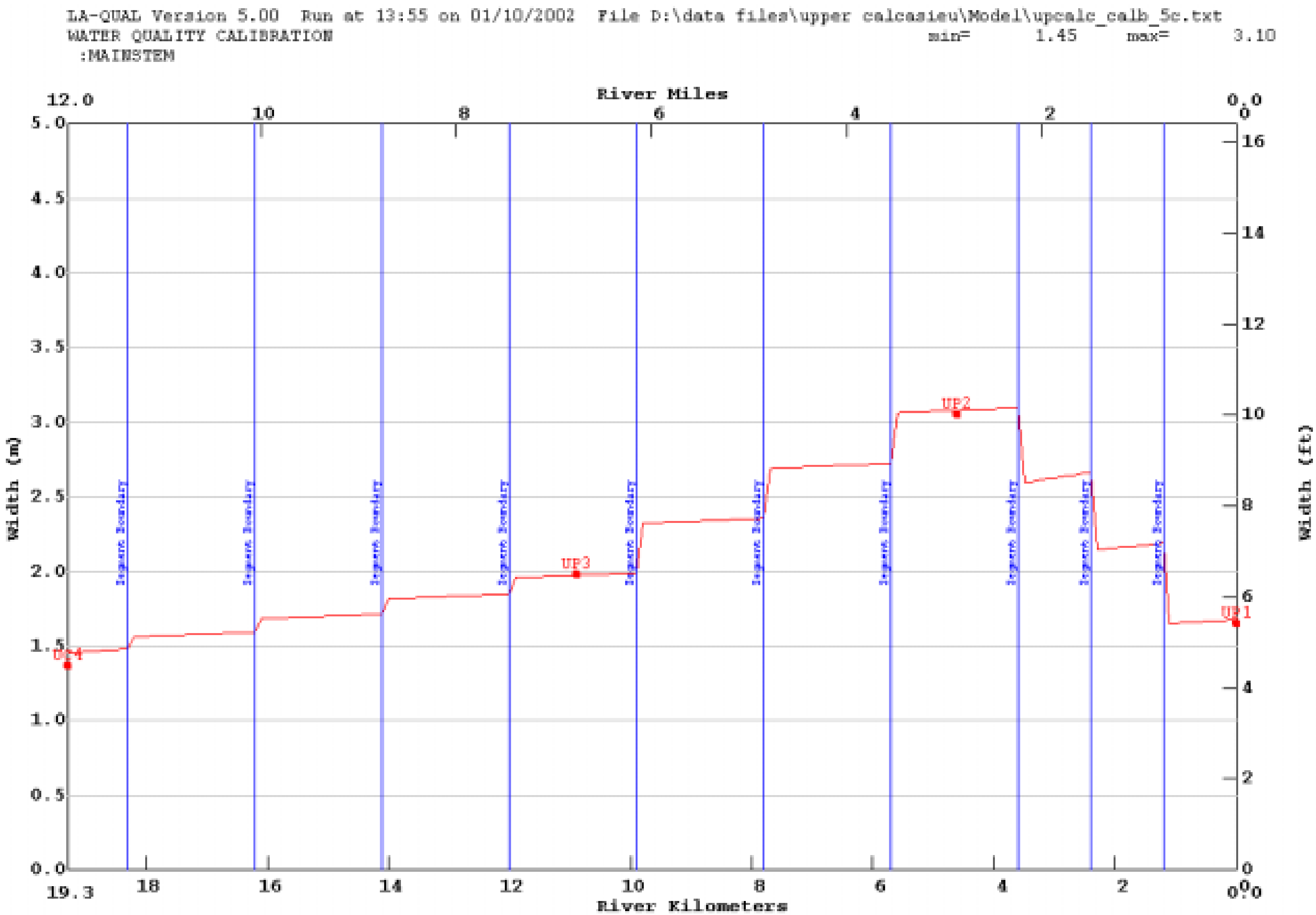

LA-QUAL Version 5.00 Run at 13:55 on 01/10/2002 File D:\data files\upper calcasieu\Model\upcalc_calb_5c.txt
WATER QUALITY CALIBRATION
min= 25.21 max= 25.21
:MAINSTEM
River Miles
12.0
10
8
6
4
2
0.0
50
45
40
35
30
25
20
15
10
5
0
Temperature (deg C)
UC1
UC2
UC3
UC4
19.3
18
16
14
12
10
8
6
4
2
0.0
River Kilometers

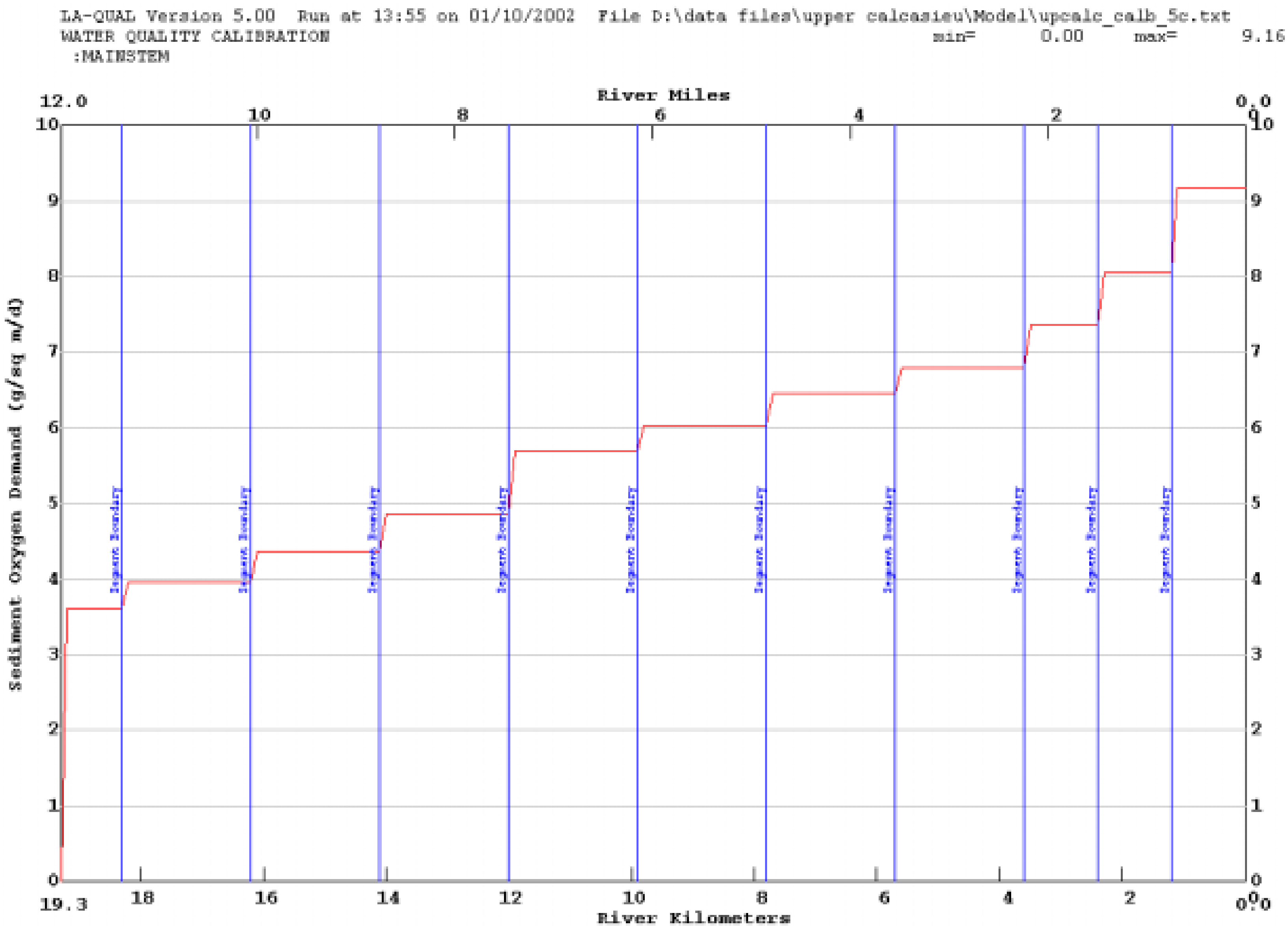

LA-QUAL Version 5.00 Run at 13:55 on 01/10/2002 File D:\data files\upper calcasieu\Model\upcalc_calb_5c.txt
WATER QUALITY CALIBRATION
:MAINSTEM
min= 5.31 max= 12.09
River Miles
12.0
10
8
6
4
2
0.0
CBOD2 (MG/L)
UC1
UC2
UC3
UC4
River Kilometers
19.3
18
16
14
12
10
8
6
4
2
0.0


LA-QUAL Version 5.00 Run at 13:55 on 01/10/2002 File D:\data files\upper calcasieu\Model\upcalc_calb_5c.txt
WATER QUALITY CALIBRATION
min= 0.00 max= 0.01
:MAINSTEM
River Miles
12.0
10
8
6
4
2
0.0
0
Flow (cms)
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
Flow (cfs)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
UP4
UP3
UP2
UP1
19.3
18
16
14
12
10
8
6
4
2
0.0
River Kilometers

Upper Calcasieu River – Subsegment 030101
Water Quality Calibration for Dissolved Oxygen based on July 2001 Survey
Orginated: January 10, 2002




LA-QUAL Version 5.00 Run at 13:55 on 01/10/2002 File D:\data files\upper calcasieu\Model\upcalc_calb_5c.txt
WATER QUALITY CALIBRATION
:MAINSTEM
min= 1.45 max= 3.10
River Miles
12.0
10
8
6
4
2
0.0
Width (m)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Width (ft)
16
14
12
10
8
6
4
2
0
UP1
UP2
UP3
UP4
19.3
18
16
14
12
10
8
6
4
2
0.0
River Kilometers


LA-QUAL Version 5.00 Run at 13:55 on 01/10/2002 File D:\data files\upper calcasieu\Model\upcalc_calb_5c.txt
WATER QUALITY CALIBRATION
min= 0.00 max= 9.16
:MAINSTEM
River Miles
Sediment Oxygen Demand (g/sq m/d)
Segment Boundary
River Kilometers

Appendix A3

Calibration Model Development

Calibration model input justification form

Upper Calcasieu River (030101) Water Quality Calibration Model Input Description

DATA TYPE 3, Program Constants			
Description of Constant	**Value**	**Result**	**Source/Justification**
Maximum iteration limit	200.0		Standard
Plot type	3.0	Creates line printer plots for WQ parameters.	For reporting purposes.
Final report type	1.0	Report for all reach and stream summaries.	For reporting purposes.
BOD oxygen uptake rate	1.0	Indicates CBOD1 component model inputs are in ultimate BOD.	Modeler's Preference, the BOD model parameter was set to the CBOD1 component.
KL Minimum	0.7	Minimum KL to be used.	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
K2 Maximum	20.0	Maximum K2 @20C model will allow.	Due to the shallow depths in this waterbody, it was felt that this value would allow a more appropriate representation of the actual conditions.
N Algal uptake	0.0025	Net nitrogen uptake per unit of chlorophyll a (mg N/ug chlorophyll a /day).	Recommended model default value.
N Preference	0.35	Determines the nitrogen preference of algae and/or macrophytes.	Determine during calibration.
N Macrophyte Uptake	0.0025	Net nitrogen uptake per unit of macrophyte (mg N/mg macrophyte/day).	Recommended model default value.
Macrophyte Oxygen Prod	0.0000	Net oxygen production per unit of macrophyte (mg O/mg macrophyte/day).	Assumed the uptake was caused by the vegetation in the riparian zone, thus there would not be oxygen production into the stream.
NCM Oxygen uptake rate	1.0	Indicates CBOD2 component model inputs are in ultimate BOD.	Modeler's Preference, the NCM model parameter was set to the CBOD2 component.
Inhibition control value	3.0	Inhibits all decay rates except SOD for low DO.	Standard LA modeling procedure.
N Inhibition equation	1.0	Chooses linear or modified equation for nitrogen inhibition.	BPJ. Linear equation simulated the calibration conditions more accurate manner than the modified equation.
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 (1/day).	Due to the depths in this waterbody, it was felt that this method would be a more appropriate representation of the actual conditions.
Algae oxygen prod	0.050	Sets the net oxygen production per chlorophyll a.	Recommended model default value.
Effective BOD due to Algae	0.1	Sets the effect that decaying algae will have on BOD.	Recommended model manual's value.
NH3 Oxygen Uptake Rate	4.33	The oxygen uptake rate per unit of ammonia oxidized (mg 0/mg N).	Recommended model default value.

DATA TYPE 4, Temperature Correction Constants		
Description of Coefficient	**Value**	**Source/Justification**
NCM DECA	1.047	LTP value for CBOD. Used to in the simulation of the CBOD2 component.

Upper Calcasieu River (030101) Water Quality Calibration Model Input Description

DATA TYPE 9, Advective Hydraulic Coefficients					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Width Coef "A"	Unitless	0.924	Note 1
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral stream
		Width Const "C"	Meter	1.370	Note 1
		Depth Coef "D"	Unitless	0.039	Note 1
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral stream
		Depth Const "F"	Meter	0.22	Note 1
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be sil
2	Upper Calcasieu River Reach 2	Width Coef "A"	Unitless	1.533	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral stream
		Width Const "C"	Meter	1.374	Note 2
		Depth Coef "D"	Unitless	0.104	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral stream
		Depth Const "F"	Meter	0.173	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be sil
3	Upper Calcasieu River Reach 3	Width Coef "A"	Unitless	2.141	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral stream
		Width Const "C"	Meter	1.378	Note 2
		Depth Coef "D"	Unitless	0.17	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral stream
		Depth Const "F"	Meter	0.127	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be sil
4	Upper Calcasieu River Reach 4	Width Coef "A"	Unitless	2.749	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral stream
		Width Const "C"	Meter	1.383	Note 2
		Depth Coef "D"	Unitless	0.235	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral stream
		Depth Const "F"	Meter	0.08	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be sil
5	Upper Calcasieu River Reach 5	Width Coef "A"	Unitless	3.358	Note 1
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral stream
		Width Const "C"	Meter	1.387	Note 1
		Depth Coef "D"	Unitless	0.3	Note 1
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral stream
		Depth Const "F"	Meter	0.034	Note 1
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be sil
6	Upper Calcasieu River Reach 6	Width Coef "A"	Unitless	3.807	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral stream
		Width Const "C"	Meter	1.383	Note 2
		Depth Coef "D"	Unitless	0.235	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral stream
		Depth Const "F"	Meter	0.08	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be sil
7	Upper Calcasieu River Reach 7	Width Coef "A"	Unitless	4.257	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral stream
		Width Const "C"	Meter	1.885	Note 2
		Depth Coef "D"	Unitless	0.354	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral stream
		Depth Const "F"	Meter	0.047	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be sil

Upper Calcasieu River (030101) Water Quality Calibration Model Input Description

DATA TYPE 9, Advective Hydraulic Coefficients					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
8	Upper Calcasieu River Reach 8	Width Coef "A"	Unitless	4.706	Note 1
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral stream
		Width Const "C"	Meter	1.806	Note 1
		Depth Coef "D"	Unitless	0.407	Note 1
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral stream
		Depth Const "F"	Meter	0.066	Note 1
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be sil
9	Upper Calcasieu River Reach 9	Width Coef "A"	Unitless	4.706	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral stream
		Width Const "C"	Meter	1.806	Note 2
		Depth Coef "D"	Unitless	0.407	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral stream
		Depth Const "F"	Meter	0.066	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be sil
10	Upper Calcasieu River Reach 10	Width Coef "A"	Unitless	4.706	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral stream
		Width Const "C"	Meter	1.806	Note 2
		Depth Coef "D"	Unitless	0.407	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral stream
		Depth Const "F"	Meter	0.066	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be sil
11	Upper Calcasieu River Reach 11	Width Coef "A"	Unitless	4.706	Note 1
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral stream
		Width Const "C"	Meter	1.806	Note 1
		Depth Coef "D"	Unitless	0.407	Note 1
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral stream
		Depth Const "F"	Meter	0.066	Note 1
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be sil

Note 1: Based on the stream hydrology data from the adjoining Survey site. The exponent was set to the Leopold Emhemeral value and the coefficient and constant were calculated.

Note 2: The exponent was set to the Leopold Emhemeral value and the coefficient and constant were varied in a linear fashion between the reaches from which these values could be calculated.

DATA TYPE 10, Dispersive Hydraulic Coefficients					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1-4	Reaches 1-11	Dispersion Coef.	m2/sec	0.3	Values set via BPJ based on a review of the calculated dispersion coefficients from the reference streams.

DATA TYPE 11, INITIAL CONDITIONS					
Reach #	**REACH DESCRIPTION**	**Initial Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Temperature	^{o}Celcius	25.21	Average Temp for the measured sites during the Upper Calcasieu River survey in July, 2001.
		Dissolved O_2	mg/l	5	Dissolved oxygen criteria value.
		Chlorophyll a	ug/l	9.8	Measured value from site UpCalc1 during the Upper Calcasieu River survey in July, 2001.
		Macrophytes	g/m3	0	Determined during calibration.
2	Upper Calcasieu River Reach 2	Temperature	^{o}Celcius	25.21	Average Temp for the measured sites during the Upper Calcasieu River survey in July, 2001.
		Dissolved O_2	mg/l	5	Dissolved oxygen criteria value.
		Chlorophyll a	ug/l	8.7	Adusted value from between sites UpCalc1 and UpCalc2, measured during the Upper Calcasieu River survey in July, 2001.
		Macrophytes	g/m3	0	Determined during calibration.
3	Upper Calcasieu River Reach 3	Temperature	^{o}Celcius	25.21	Average Temp for the measured sites during the Upper Calcasieu River survey in July, 2001.
		Dissolved O_2	mg/l	5	Dissolved oxygen criteria value.
		Chlorophyll a	ug/l	6.4	Adusted value from between sites UpCalc1 and UpCalc2, measured during the Upper Calcasieu River survey in July, 2001.
		Macrophytes	g/m3	25	Determined during calibration.
4	Upper Calcasieu River Reach 4	Temperature	^{o}Celcius	25.21	Average Temp for the measured sites during the Upper Calcasieu River survey in July, 2001.
		Dissolved O_2	mg/l	5	Dissolved oxygen criteria value.
		Chlorophyll a	ug/l	4	Adusted value from between sites UpCalc1 and UpCalc2, measured during the Upper Calcasieu River survey in July, 2001.
		Macrophytes	g/m3	45	Determined during calibration.
5	Upper Calcasieu River Reach 5	Temperature	^{o}Celcius	25.21	Average Temp for the measured sites during the Upper Calcasieu River survey in July, 2001.
		Dissolved O_2	mg/l	5	Dissolved oxygen criteria value.
		Chlorophyll a	ug/l	1.6	Measured value from site UpCalc2 during the Upper Calcasieu River survey in July, 2001.
		Macrophytes	g/m3	65	Determined during calibration.
6	Upper Calcasieu River Reach 6	Temperature	^{o}Celcius	25.21	Average Temp for the measured sites during the Upper Calcasieu River survey in July, 2001.
		Dissolved O_2	mg/l	5	Dissolved oxygen criteria value.
		Chlorophyll a	ug/l	1.6	Measured value from site UpCalc1 during the Upper Calcasieu River survey in July, 2001.
		Macrophytes	g/m3	65	Determined during calibration.
7	Upper Calcasieu River Reach 7	Temperature	^{o}Celcius	25.21	Average Temp for the measured sites during the Upper Calcasieu River survey in July, 2001.
		Dissolved O_2	mg/l	5	Dissolved oxygen criteria value.
		Chlorophyll a	ug/l	2.4	Adusted value from between sites UpCalc2 and UpCalc3, measured during the Upper Calcasieu River survey in July, 2001.
		Macrophytes	g/m3	55	Determined during calibration.

Upper Calcasieu River (030101) Water Quality Calibration Model Input Description

DATA TYPE 11, INITIAL CONDITIONS					
Reach #	REACH DESCRIPTION	Initial Parameter	Units	Value	Source/Justification
8	Upper Calcasieu River Reach 8	Temperature	^{o}Celcius	25.21	Average Temp for the measured sites during the Upper Calcasieu River survey in July, 2001.
		Dissolved O_2	mg/l	5	Dissolved oxygen criteria value.
		Chlorophyll a	ug/l	3.1	Measured value from site UpCalc3 during the Upper Calcasieu River survey in July, 2001.
		Macrophytes	g/m3	20	Determined during calibration.
9	Upper Calcasieu River Reach 9	Temperature	^{o}Celcius	25.21	Average Temp for the measured sites during the Upper Calcasieu River survey in July, 2001.
		Dissolved O_2	mg/l	5	Dissolved oxygen criteria value.
		Chlorophyll a	ug/l	3.1	Adusted value from between sites UpCalc3 and UpCalc4, measured during the Upper Calcasieu River survey in July, 2001.
		Macrophytes	g/m3	18	Determined during calibration.
10	Upper Calcasieu River Reach 10	Temperature	^{o}Celcius	25.21	Average Temp for the measured sites during the Upper Calcasieu River survey in July, 2001.
		Dissolved O_2	mg/l	5	Dissolved oxygen criteria value.
		Chlorophyll a	ug/l	4.3	Adusted value from between sites UpCalc3 and UpCalc4, measured during the Upper Calcasieu River survey in July, 2001.
		Macrophytes	g/m3	18	Determined during calibration.
11	Upper Calcasieu River Reach 11	Temperature	^{o}Celcius	25.21	Average Temp for the measured sites during the Upper Calcasieu River survey in July, 2001.
		Dissolved O_2	mg/l	5	Dissolved oxygen criteria value.
		Chlorophyll a	ug/l	5.3	Measured value from site UpCalc4 during the Upper Calcasieu River survey in July, 2001.
		Macrophytes	g/m3	18	Determined during calibration.

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	K_2 option	Unitless	15	The velocity and depths are within the range of the Louisiana Equations limits
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	2.60	BPJ. Determined from calibration.
		Aerobic BOD decay	1/day	0.17	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
2	Upper Calcasieu River Reach 2	K_2 option	Unitless	15	The velocity and depths are within the range of the Louisiana Equations limits
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	2.85	BPJ. Determined from calibration.
		Aerobic BOD decay	1/day	0.158	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
3	Upper Calcasieu River Reach 3	K_2 option	Unitless	15	The velocity and depths are within the range of the Louisiana Equations limits
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	3.15	BPJ. Determined from calibration.
		Aerobic BOD decay	1/day	0.145	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
4	Upper Calcasieu River Reach 4	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	3.50	BPJ. Determined from calibration.
		Aerobic BOD decay	1/day	0.133	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
5	Upper Calcasieu River Reach 5	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	4.10	BPJ. Determined from calibration.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
6	Upper Calcasieu River Reach 6	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	4.35	BPJ. Determined from calibration.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.					
Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
7	Upper Calcasieu River Reach 7	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	4.65	BPJ. Determined from calibration.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
8	Upper Calcasieu River Reach 8	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	4.90	BPJ. Determined from calibration.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
9	Upper Calcasieu River Reach 9	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	5.30	BPJ. Determined from calibration.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
10	Upper Calcasieu River Reach 10	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	5.80	BPJ. Determined from calibration.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
11	Upper Calcasieu River Reach 11	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	6.60	BPJ. Determined from calibration.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.

Note: Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times ranging. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD and Nonconservative Material (NCM) in the LAQUAL model.

DATA TYPE 13, Nitrogen and Phosphorus					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Organic Nitrogen decay rate	1/day	0.03	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
2	Upper Calcasieu River Reach 2	Organic Nitrogen decay rate	1/day	0.083	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
3	Upper Calcasieu River Reach 3	Organic Nitrogen decay rate	1/day	0.135	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
4	Upper Calcasieu River Reach 4	Organic Nitrogen decay rate	1/day	0.188	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
5	Upper Calcasieu River Reach 4	Organic Nitrogen decay rate	1/day	0.24	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
6	Upper Calcasieu River Reach 6	Organic Nitrogen decay rate	1/day	0.193	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
7	Upper Calcasieu River Reach 7	Organic Nitrogen decay rate	1/day	0.147	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
8	Upper Calcasieu River Reach 8	Organic Nitrogen decay rate	1/day	0.1	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985

DATA TYPE 13, Nitrogen and Phosphorus					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
9	Upper Calcasieu River Reach 9	Organic Nitrogen decay rate	1/day	0.12	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
10	Upper Calcasieu River Reach 10	Organic Nitrogen decay rate	1/day	0.14	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
11	Upper Calcasieu River Reach 11	Organic Nitrogen decay rate	1/day	0.16	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985

Upper Calcasieu River (030101) Water Quality Calibration Model Input Description

DATA TYPE 15, Coliform and Nonconservative Coefficents					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	NCM Decay	1/day	0.029	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
2	Upper Calcasieu River Reach 2	NCM Decay	1/day	0.025	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
3	Upper Calcasieu River Reach 3	NCM Decay	1/day	0.021	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
4	Upper Calcasieu River Reach 4	NCM Decay	1/day	0.16	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
5	Upper Calcasieu River Reach 5	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
6	Upper Calcasieu River Reach 6	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
7	Upper Calcasieu River Reach 7	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
8	Upper Calcasieu River Reach 8	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
9	Upper Calcasieu River Reach 9	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
10	Upper Calcasieu River Reach 10	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.

Upper Calcasieu River (030101) Water Quality Calibration Model Input Description

DATA TYPE 15, Coliform and Nonconservative Coefficents					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
11	Upper Calcasieu River Reach 11	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.

DATA TYPE 16, Incremental Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Incremental Inflow	m^3/s	0.0006	Based on the measured flow data during the July, 2001 field survey. No tributaries were flowing thus the increase in flow was attributed to groundwater encroachment.
		Incremental Temperature	degrees Celcius	25.1	Average of the water quality survey sites, during July,2001 survey.
2	Upper Calcasieu River Reach 2	Incremental Inflow	m^3/s	0.0006	Based on the measured flow data during the July, 2001 field survey. No tributaries were flowing thus the increase in flow was attributed to groundwater encroachment.
		Incremental Temperature	degrees Celcius	25.1	Average of the water quality survey sites, during July,2001 survey.
3	Upper Calcasieu River Reach 3	Incremental Inflow	m^3/s	0.0006	Based on the measured flow data during the July, 2001 field survey. No tributaries were flowing thus the increase in flow was attributed to groundwater encroachment.
		Incremental Temperature	degrees Celcius	25.1	Average of the water quality survey sites, during July,2001 survey.
4	Upper Calcasieu River Reach 4	Incremental Inflow	m^3/s	0.0006	Based on the measured flow data during the July, 2001 field survey. No tributaries were flowing thus the increase in flow was attributed to groundwater encroachment.
		Incremental Temperature	degrees Celcius	25.1	Average of the water quality survey sites, during July,2001 survey.
5	Upper Calcasieu River Reach 5	Incremental Inflow	m^3/s	0.0006	Based on the measured flow data during the July, 2001 field survey. No tributaries were flowing thus the increase in flow was attributed to groundwater encroachment.
		Incremental Temperature	degrees Celcius	25.1	Average of the water quality survey sites, during July,2001 survey.
6	Upper Calcasieu River Reach 6	Incremental Inflow	m^3/s	0.0006	Based on the measured flow data during the July, 2001 field survey. No tributaries were flowing thus the increase in flow was attributed to groundwater encroachment.
		Incremental Temperature	degrees Celcius	25.1	Average of the water quality survey sites, during July,2001 survey.
7	Upper Calcasieu River Reach 7	Incremental Inflow	m^3/s	0.0006	Based on the measured flow data during the July, 2001 field survey. No tributaries were flowing thus the increase in flow was attributed to groundwater encroachment.
		Incremental Temperature	degrees Celcius	25.1	Average of the water quality survey sites, during July,2001 survey.
8	Upper Calcasieu River Reach 8	Incremental Inflow	m^3/s	0.0006	Based on the measured flow data during the July, 2001 field survey. No tributaries were flowing thus the increase in flow was attributed to groundwater encroachment.
		Incremental Temperature	degrees Celcius	25.1	Average of the water quality survey sites, during July,2001 survey.
9	Upper Calcasieu River Reach 9	Incremental Inflow	m^3/s	0.0018	Based on the measured flow data during the July, 2001 field survey. No tributaries were flowing thus the increase in flow was attributed to groundwater encroachment.
		Incremental Temperature	degrees Celcius	25.1	Average of the water quality survey sites, during July,2001 survey.

DATA TYPE 16, Incremental Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
10	Upper Calcasieu River Reach 10	Incremental Inflow	m^3/s	0.0018	Based on the measured flow data during the July, 2001 field survey. No tributaries were flowing thus the increase in flow was attributed to groundwater encroachment.
		Incremental Temperature	degrees Celcius	25.1	Average of the water quality survey sites, during July,2001 survey.
11	Upper Calcasieu River Reach 11	Incremental Inflow	m^3/s	0.0018	Based on the measured flow data during the July, 2001 field survey. No tributaries were flowing thus the increase in flow was attributed to groundwater encroachment.
		Incremental Temperature	degrees Celcius	25.1	Average of the water quality survey sites, during July,2001 survey.

DATA TYPE 17, Incremetal Data for DO, BOD, Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1-11	Upper Calcasieu River Reaches 1 11	Incremental Dissolved Oxygen	mg/l	2	BPJ, expect a low DO from groundwater.

DATA TYPE 18, Incremetal Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1-11	Upper Calcasieu River Reaches 1-11	All			Not modeled.

DATA TYPE 19, Nonpoint Source Data					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	BOD	kg/day	0.57	Simulates the CBOD1 component. Determined during calibration.
		Organic Nitrogen	kg/day	0.065	Determined during calibration.
		Nonconservative matl.	kg/day	0.5	Simulates the CBOD2 component. Determined during calibration.
2	Upper Calcasieu River Reach 2	BOD	kg/day	0.81	Simulates the CBOD1 component. Determined during calibration.
		Organic Nitrogen	kg/day	0.12	Determined during calibration.
		Nonconservative matl.	kg/day	0.83	Simulates the CBOD2 component. Determined during calibration.
3	Upper Calcasieu River Reach 3	BOD	kg/day	0.61	Simulates the CBOD1 component. Determined during calibration.
		Organic Nitrogen	kg/day	0.14	Determined during calibration.
		Nonconservative matl.	kg/day	0.83	Simulates the CBOD2 component. Determined during calibration.
4	Upper Calcasieu River Reach 4	BOD	kg/day	0.46	Simulates the CBOD1 component. Determined during calibration.
		Organic Nitrogen	kg/day	0.14	Determined during calibration.
		Nonconservative matl.	kg/day	0.83	Simulates the CBOD2 component. Determined during calibration.
5	Upper Calcasieu River Reach 5	BOD	kg/day	0.36	Simulates the CBOD1 component. Determined during calibration.
		Organic Nitrogen	kg/day	0.12	Determined during calibration.
		Nonconservative matl.	kg/day	0.82	Simulates the CBOD2 component. Determined during calibration.
6	Upper Calcasieu River Reach 6	BOD	kg/day	0.36	Simulates the CBOD1 component. Determined during calibration.
		Organic Nitrogen	kg/day	0.12	Determined during calibration.
		Nonconservative matl.	kg/day	0.75	Simulates the CBOD2 component. Determined during calibration.
7	Upper Calcasieu River Reach 7	BOD	kg/day	0.51	Simulates the CBOD1 component. Determined during calibration.
		Organic Nitrogen	kg/day	0.12	Determined during calibration.
		Nonconservative matl.	kg/day	0.75	Simulates the CBOD2 component. Determined during calibration.
8	Upper Calcasieu River Reach 8	BOD	kg/day	0.56	Simulates the CBOD1 component. Determined during calibration.
		Organic Nitrogen	kg/day	0.12	Determined during calibration.
		Nonconservative matl.	kg/day	1.2	Simulates the CBOD2 component. Determined during calibration.
9	Upper Calcasieu River Reach 9	BOD	kg/day	0.81	Simulates the CBOD1 component. Determined during calibration.
		Organic Nitrogen	kg/day	0.2	Determined during calibration.
		Nonconservative matl.	kg/day	2.2	Simulates the CBOD2 component. Determined during calibration.
10	Upper Calcasieu River Reach 10	BOD	kg/day	0.86	Simulates the CBOD1 component. Determined during calibration.
		Organic Nitrogen	kg/day	0.2	Determined during calibration.
		Nonconservative matl.	kg/day	2.6	Simulates the CBOD2 component. Determined during calibration.

DATA TYPE 19, Nonpoint Source Data					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
11	Upper Calcasieu River Reach 11	BOD	kg/day	0.96	Simulates the CBOD1 component. Determined during calibration.
		Organic Nitrogen	kg/day	0.22	Determined during calibration.
		Nonconservative matl.	kg/day	2.7	Simulates the CBOD2 component. Determined during calibration.

Note: Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD (CBOD1) and Nonconservative Material (NCM) (CBOD2) in the LAQUAL model.

DATA TYPE 20, Headwater Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Element # of input		1	
		Headwater name		Upper Calcasieu Rvr	
		Headwater flow	cms	0.00028	Flow measurements could not be performed at this site due to low velocities. Assumed a flow rate that was 10 percent of the LTP recommended critical period flow rate, 0.1 cfs.
		Temperature	^{o}Celcius	28.00	Average of the water quality survey sites, during July,2001 survey.

DATA TYPE 21, Headwater Data for DO, BOD, and Nitrogen					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Element # of input		1	Measured at July, 2001 survey site UpCalc1.
		Dissolved O_2	mg/l	3.45	Measured insitu value at July, 2001 survey site UpCalc1.
		BOD	mg/l	5.06	Measured ultimate CBOD1 value from Site UpCalc1 during July,2001 survey.
		Organic Nitrogen	mg/l	0.65	Measured Organic Nitrogen value from Site UpCalc1 during July,2001 survey.
		Ammonia Nitrogen	mg/l	0.05	Measured Ammonia Nitrogen value from Site UpCalc1 during July,2001 survey. Below PQL(Practical Quantitation Limit), used one half of PQL a value.
		NO2+NO3	mg/l	0.025	Measured NO2+NO3 Nitrogen value from Site UpCalc1 during July,2001 survey. Below PQL(Practical Quantitation Limit), used one half of PQL a value.

Note: Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD (CBOD1) and Nonconservative Material (NCM) (CBOD2) in the LAQUAL model.

Upper Calcasieu River (030101) 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	Upper Calcasieu River Reach 1	Element # of input		1	Measured at June, 2001 survey site CL1.
		Chlorophyll a	ug/l	9.8	Measured chlorophyll a value from Site UpCalc1 during July,2001 survey.
		NCM	mg/l	5.31	Measured average ultimate CBOD2 value from Site UpCalc1 during July,2001 survey.

Note: Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD (CBOD1) and Nonconservative Material (NCM) (CBOD2) in the LAQUAL model.

DATA TYPE 24, Wastewater Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1-11	Upper Calcasieu River Reaches 1-11	Element # of input			No tributaries or dischargers were found to be flowing into Upper Calcasieu River during the July,2001 survey. Thus no inputs were entered for this section.

DATA TYPE 25, Wastewater Data for DO, BOD, and Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1-11	Upper Calcasieu River Reaches 1 11	Element # of input			No tributaries or dischargers were found to be flowing into Upper Calcasieu River during the July,2001 survey. Thus no inputs were entered for this section.

DATA TYPE 25, Wastewater Data for DO, BOD, and Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1-11	Upper Calcasieu River Reaches 1-11	Element # of input			No tributaries or dischargers were found to be flowing into Upper Calcasieu River during the July,2001 survey. Thus no inputs were entered for this section.

Mermentau River Water Qualtity Calibration Model Input Description

DATA TYPE 27, Lower Boundary Conditions					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
3	Mermentau River, river km 4.0 to 0.0	Temperature	^{o}Celcius	25.21	Average Temp for the measured sites during the Upper Calcasieu River survey in July, 2001.
		Salinity	ppt	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Conservative Matl. I	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Conservative Matl. II		0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Dissolved O_2	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		BOD	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Org.- N	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		NH_3-N	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		NO_{2+3}-N	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Chlorophyll a	ug/l	6.3	Sample taken from the Upper Calcasieu River at the July, 2001 Site UpCalc4.
		NCM	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.

Appendix A4

Calibration Model Development

Calibration model sensitivity output

```
CNTROL01     UPPER CALCASIEU RIVER (030101)- STREAM MODEL
CNTROL02     WATER QUALITY CALIBRATION
CNTROL11  NO SEQUENCING OUTPUT
CNTROL12 YES METRIC UNITS
CNTROL13 YES OXYGEN DEPENDENT RATES
ENDATA01
MODOPT01  NO TEMPERATURE
MODOPT02  NO SALINITY
MODOPT03  NO CONSERVATIVE MATERIAL  I = CHLORIDES                  IN MG/L
MODOPT04  NO CONSERVATIVE MATERIAL II = SULFATES                   IN MG/L
MODOPT05 YES DISSOLVED OXYGEN
MODOPT06 YES BIOCHEMICAL OXYGEN DEMAND
!
!Organic Nitrogen was used to simulate the NBOD loading component.
MODOPT07 YES NITROGEN
!
MODOPT08  NO PHOSPHORUS
MODOPT09  NO CHLOROPHYLL A
MODOPT10  NO MACROPHYTES
MODOPT11  NO COLIFORM
MODOPT12 YES NONCONSERVATIVE MATERIAL = CBOD2                      IN MG/L
ENDATA02
PROGRAM  MAXIMUM ITERATION LIMIT            =   200.0
PROGRAM  PLOT TYPE                          =     3.0
PROGRAM  FINAL REPORT TYPE                  =     1.0
PROGRAM  BOD OXYGEN UPTAKE RATE             =     1.0
PROGRAM  KL MINIMUM                         =     0.7
PROGRAM  K2 MAXIMUM                         =     20
PROGRAM  N ALGAL UPTAKE                     =     0.0025
PROGRAM  N PREFERENCE                       =     0.35
PROGRAM  N MACROPHYTE UPTAKE                =     0.0025
PROGRAM  N INHIBITION EQUATION              =     1.0
PROGRAM  MACROPHYTE OXYGEN PROD             =     0.00
PROGRAM  NCM OXYGEN UPTAKE RATE             =     1.0
PROGRAM  INHIBITION CONTROL VALUE           =     3.0
PROGRAM  OCEAN EXCHANGE RATIO               =     0.00
PROGRAM  HYDRAULIC CALCULATION METHOD       =     2.0
PROGRAM  SETTLED RATE UNITS                 =     2.0
PROGRAM  ALGAE OXYGEN PROD                  =     0.05
PROGRAM  EFFECTIVE BOD DUE TO ALGAE         =     0.10
PROGRAM  NH3 OXYGEN UPTAKE RATE             =     4.33
ENDATA03
!--------1---------2---------3---------4---------5---------6---------7---------8
!2345678901234567890123456789012345678901234567890123456789012345678901234567890
THETA    NCM DECA   1.047
ENDATA04
ENDATA05
ENDATA06
ENDATA07
!Reach Identification Data
!--------1---------2---------3---------4---------5---------6---------7---------8
!2345678901234567890123456789012345678901234567890123456789012345678901234567890
```

```
!         ***  -- ********************************----------**********----------
REACH ID    1  CL   UPPER CALCASIEU RIVER REACH 1     19.30      18.30     0.100
REACH ID    2  CL   UPPER CALCASIEU RIVER REACH 2     18.30      16.20     0.100
REACH ID    3  CL   UPPER CALCASIEU RIVER REACH 3     16.20      14.10     0.100
REACH ID    4  CL   UPPER CALCASIEU RIVER REACH 4     14.10      12.00     0.100
REACH ID    5  CL   UPPER CALCASIEU RIVER REACH 5     12.00       9.90     0.100
REACH ID    6  CL   UPPER CALCASIEU RIVER REACH 6      9.90       7.80     0.100
REACH ID    7  CL   UPPER CALCASIEU RIVER REACH 7      7.80       5.70     0.100
REACH ID    8  CL   UPPER CALCASIEU RIVER REACH 8      5.70       3.60     0.100
REACH ID    9  CL   UPPER CALCASIEU RIVER REACH 9      3.60       2.40     0.100
REACH ID   10  CL   UPPER CALCASIEU RIVER REACH 10     2.40       1.20     0.100
REACH ID   11  CL   UPPER CALCASIEU RIVER REACH 11     1.20       0.00     0.100
ENDATA08
!Advective Hydraulic Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------*******-------*******-------*******--------*******
HYDR-1      1  0.9240 0.3000  1.370 0.0390  0.360 0.2200        0.03
HYDR-1      2  1.5330 0.3000  1.374 0.1040  0.360 0.1730        0.03
HYDR-1      3  2.1410 0.3000  1.378 0.1700  0.360 0.1270        0.03
HYDR-1      4  2.7490 0.3000  1.383 0.2350  0.360 0.0800        0.03
HYDR-1      5  3.3580 0.3000  1.387 0.3000  0.360 0.0340        0.03
HYDR-1      6  3.8070 0.3000  1.636 0.3270  0.360 0.0400        0.03
HYDR-1      7  4.2570 0.3000  1.885 0.3540  0.360 0.0470        0.03
HYDR-1      8  4.7060 0.3000  2.133 0.3810  0.360 0.0530        0.03
HYDR-1      9  3.8250 0.3000  1.806 0.4070  0.360 0.0660        0.03
HYDR-1     10  2.9440 0.3000  1.479 0.4340  0.360 0.0790        0.03
HYDR-1     11  2.0630 0.3000  1.152 0.4600  0.360 0.0910        0.03
ENDATA09
!Dispersive Hydraulic Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -----**********----------**********----------
HYDR-2     1          0.30
HYDR-2     2          0.30
HYDR-2     3          0.30
HYDR-2     4          0.30
HYDR-2     5          0.30
HYDR-2     6          0.30
HYDR-2     7          0.30
HYDR-2     8          0.30
HYDR-2     9          0.30
HYDR-2     10         0.30
HYDR-2     11         0.30
ENDATA10
!Initial Conditions
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  --------********-------********-------********-------********
INITIAL     1     25.21     0.0   5.00    0.000    0.000   0.00   9.800   000.0
INITIAL     2     25.21     0.0   5.00    0.000    0.000   0.00   8.700   000.0
INITIAL     3     25.21     0.0   5.00    0.000    0.000   0.00   6.400   025.0
```

```
INITIAL     4     25.21     0.0   5.00    0.000   0.000   0.00   4.000   045.0
INITIAL     5     25.21     0.0   5.00    0.000   0.000   0.00   1.600   065.0
INITIAL     6     25.21     0.0   5.00    0.000   0.000   0.00   1.600   065.0
INITIAL     7     25.21     0.0   5.00    0.000   0.000   0.00   2.400   055.0
INITIAL     8     25.21     0.0   5.00    0.000   0.000   0.00   3.100   020.0
INITIAL     9     25.21     0.0   5.00    0.000   0.000   0.00   3.100   018.0
INITIAL    10     25.21     0.0   5.00    0.000   0.000   0.00   4.300   018.0
INITIAL    11     25.21     0.0   5.00    0.000   0.000   0.00   5.300   018.0
ENDATA11
!Reaeration, Sediment Oxygen Demand and BOD Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ----******----- ******-------*******------******-------
COEF-1      1   15.0  0.70 0.0   0.0     2.60  0.170 0.05  000.00
COEF-1      2   15.0  0.70 0.0   0.0     2.85  0.158 0.05  000.00
COEF-1      3   15.0  0.70 0.0   0.0     3.15  0.145 0.05  000.00
COEF-1      4   15.0  0.70 0.0   0.0     3.50  0.133 0.05  000.00
COEF-1      5   15.0  0.70 0.0   0.0     4.10  0.120 0.05  000.00
COEF-1      6   15.0  0.70 0.0   0.0     4.35  0.120 0.05  000.00
COEF-1      7   15.0  0.70 0.0   0.0     4.65  0.120 0.05  000.00
COEF-1      8   15.0  0.70 0.0   0.0     4.90  0.120 0.05  000.00
COEF-1      9   15.0  0.70 0.0   0.0     5.30  0.120 0.05  000.00
COEF-1     10   15.0  0.70 0.0   0.0     5.80  0.120 0.05  000.00
COEF-1     11   15.0  0.70 0.0   0.0     6.60  0.120 0.05  000.00
ENDATA12
!Nitrogen and Phosphorus Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------*******------*******------*******-------
COEF-2      1   0.030   0.05   0.0    0.500  0.0    0.0
COEF-2      2   0.083   0.05   0.0    0.500  0.0    0.0
COEF-2      3   0.135   0.05   0.0    0.500  0.0    0.0
COEF-2      4   0.188   0.05   0.0    0.500  0.0    0.0
COEF-2      5   0.240   0.05   0.0    0.500  0.0    0.0
COEF-2      6   0.193   0.05   0.0    0.500  0.0    0.0
COEF-2      7   0.147   0.05   0.0    0.500  0.0    0.0
COEF-2      8   0.100   0.05   0.0    0.500  0.0    0.0
COEF-2      9   0.120   0.05   0.0    0.500  0.0    0.0
COEF-2     10   0.140   0.05   0.0    0.500  0.0    0.0
COEF-2     11   0.160   0.05   0.0    0.500  0.0    0.0
ENDATA13
!Algae and Macrophyte Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------*******------*******------*******       -------*******
ENDATA14
!Coliform and Nonconservative Cofficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------*******------*******
COEF-4      1   0.000  0.029  0.05   0.00
COEF-4      2   0.000  0.025  0.05   0.00
```

```
COEF-4      3   0.000  0.021  0.05   0.00
COEF-4      4   0.000  0.016  0.05   0.00
COEF-4      5   0.000  0.012  0.05   0.00
COEF-4      6   0.000  0.012  0.05   0.00
COEF-4      7   0.000  0.012  0.05   0.00
COEF-4      8   0.000  0.012  0.05   0.00
COEF-4      9   0.000  0.012  0.05   0.00
COEF-4     10   0.000  0.012  0.05   0.00
COEF-4     11   0.000  0.012  0.05   0.00
ENDATA15
!Incremental Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!2345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------*********
INCR-1      1    0.0     0.00060  25.210   0.0        0.00     0.0
INCR-1      2    0.0     0.00060  25.210   0.0        0.00     0.0
INCR-1      3    0.0     0.00060  25.210   0.0        0.00     0.0
INCR-1      4    0.0     0.00060  25.210   0.0        0.00     0.0
INCR-1      5    0.0     0.00060  25.210   0.0        0.00     0.0
INCR-1      6    0.0     0.00060  25.210   0.0        0.00     0.0
INCR-1      7    0.0     0.00060  25.210   0.0        0.00     0.0
INCR-1      8    0.0     0.00060  25.210   0.0        0.00     0.0
INCR-1      9    0.0     0.00180  25.210   0.0        0.00     0.0
INCR-1     10    0.0     0.00180  25.210   0.0        0.00     0.0
INCR-1     11    0.0     0.00180  25.210   0.0        0.00     0.0
ENDATA16
!Incremental Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!2345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------
INCR-2      1      2.00    0.00     0.00     0.0      0.00
INCR-2      2      2.00    0.00     0.00     0.0      0.00
INCR-2      3      2.00    0.00     0.00     0.0      0.00
INCR-2      4      2.00    0.00     0.00     0.0      0.00
INCR-2      5      2.00    0.00     0.00     0.0      0.00
INCR-2      6      2.00    0.00     0.00     0.0      0.00
INCR-2      7      2.00    0.00     0.00     0.0      0.00
INCR-2      8      2.00    0.00     0.00     0.0      0.00
INCR-2      9      2.00    0.00     0.00     0.0      0.00
INCR-2     10      2.00    0.00     0.00     0.0      0.00
INCR-2     11      2.00    0.00     0.00     0.0      0.00
ENDATA17
!Incremental Data for Phosphorus, Chlorophyll, Coliform and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!2345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********
INCR-3      1      0.000    0.000    0.000  00.0000
INCR-3      2      0.000    0.000    0.000  00.0000
INCR-3      3      0.000    0.000    0.000  00.0000
INCR-3      4      0.000    0.000    0.000  00.0000
INCR-3      5      0.000    0.000    0.000  00.0000
INCR-3      6      0.000    0.000    0.000  00.0000
```

```
INCR-3      7      0.000    0.000    0.000  00.0000
INCR-3      8      0.000    0.000    0.000  00.0000
INCR-3      9      0.000    0.000    0.000  00.0000
INCR-3     10      0.000    0.000    0.000  00.0000
INCR-3     11      0.000    0.000    0.000  00.0000
ENDATA18
!Nonpoint Source Data
!--------1---------2---------3---------4---------5---------6---------7---------8
!2345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------
NONPOINT    1   0000.57    00.065   0.0    0000.50    0.0
NONPOINT    2   0000.81    00.12    0.0    0000.83    0.0
NONPOINT    3   0000.61    00.14    0.0    0000.83    0.0
NONPOINT    4   0000.46    00.14    0.0    0000.83    0.0
NONPOINT    5   0000.36    00.12    0.0    0000.82    0.0
NONPOINT    6   0000.36    00.12    0.0    0000.75    0.0
NONPOINT    7   0000.51    00.12    0.0    0000.75    0.0
NONPOINT    8   0000.56    00.12    0.0    0001.20    0.0
NONPOINT    9   0000.81    00.20    0.0    0002.20    0.0
NONPOINT   10   0000.86    00.20    0.0    0002.60    0.0
NONPOINT   11   0000.96    00.22    0.0    0002.70    0.0
ENDATA19
!Headwater Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!2345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  -------------------- *** --------********--------********--------
HDWTR-1     1  UPPER CALCASIEU RVR   0.  0.00028 25.210  0.0      00.00   00.00
ENDATA20
!Headwater Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!2345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ****  ---------*********---------*********---------
HDWTR-2     1      3.45     5.06     0.65   0.050    0.025
ENDATA21
!Headwater Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!2345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------*********---------*********
HDWTR-3     1      0.00     9.80   0.00    5.310
ENDATA22
!Junction Data
ENDATA23
!Wasteload Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!2345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  --------------------*********---------*********---------*********
ENDATA24
!Wasteload Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!2345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------*********----*********---------*****---------
ENDATA25
```

```
!Wasteload Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!2345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------*********--------*********
ENDATA26
LOWER BC TEMPERATURE                        =  25.21
LOWER BC SALINITY                           =   0.00
LOWER BC CONSERVATIVE MATERIAL I            =   0.00
LOWER BC CONSERVATIVE MATERIAL II           =   0.00
LOWER BC DISSOLVED OXYGEN                   =   0.00
LOWER BC BIOCHEMICAL OXYGEN DEMAND          =   0.00
LOWER BC ORGANIC NITROGEN                   =   0.00
LOWER BC AMMONIA NITROGEN                   =   0.00
LOWER BC NITRATE + NITRITE                  =   0.00
LOWER BC PHOSPHORUS                         =   0.00
LOWER BC CHLOROPHYLL A                      =   6.300
LOWER BC COLIFORM                           =   0.00
LOWER BC NONCONSERVATIVE MATERIAL           =   0.00
ENDATA27
ENDATA28
SENSITIV BASEFLOW   30    -30
SENSITIV CHLOR A    30    -30
SENSITIV VELOCITY   30    -30
SENSITIV TEMPERAT    2     -2
SENSITIV BOD DECA   30    -30
SENSITIV BOD SETT   30    -30
SENSITIV NCM DECA   30    -30
SENSITIV NCM SETT   30    -30
SENSITIV BENTHAL    30    -30
SENSITIV DISPERSI   30    -30
SENSITIV REAERATI   30    -30
SENSITIV HDW FLOW   30    -30
SENSITIV HDW NCM    30    -30
SENSITIV HDW DO     30    -30
SENSITIV HDW BOD    30    -30
SENSITIV DEPTH      30    -30
ENDATA29
NUMBER OF PLOTS = 2
NUMBER OF REACHES IN PLOT 1 =  11                        INCREMENT =  1.0
PLOT RCH  1  2  3  4  5  6  7  8  9 10 11
NUMBER OF REACHES IN PLOT 2 =  11                        INCREMENT =  1.0
PLOT RCH  1  2  3  4  5  6  7  8  9 10 11
ENDATA30
OVERLAY 1 UpCalcov1.txt                     :MAINSTEM
OVERLAY 2 UpCalcov2.txt                     :MAINSTEM
ENDATA31
```

Output file:

SENSITIVITY ANALYSIS SUMMARY

Plot 1 Base Model Minimum DO = 0.90

Parameter	%Param Chg	Min D.O.	%D.O. Chg	%Param Chg	Min D.O.	%D.O. Chg
Stream Baseflow	30.	1.28	41.7	-30.	0.21	-76.7
Initial Chorophyll a	30.	0.91	1.1	-30.	0.89	-1.5
Stream Velocity	30.	1.40	54.5	-30.	0.01	-99.0
Initial Temperature	2.	0.01	-98.8	-2.	1.75	93.8
BOD Decay Rate	30.	0.90	-0.8	-30.	0.91	0.9
BOD Settling Rate	30.	0.91	0.1	-30.	0.90	-0.2
Nonconservative Decay	30.	0.90	-0.3	-30.	0.91	0.3
Nonconservative Settling	30.	0.90	0.1	-30.	0.90	-0.1
Benthal Demand	30.	0.00	-100.0	-30.	2.94	225.2
Stream Dispersion	30.	0.90	0.0	-30.	0.90	0.0
Stream Reaeration	30.	2.47	173.5	-30.	0.00	-100.0
Headwater Flow	30.	0.92	2.0	-30.	0.89	-2.0
Headwater Nonconservative	30.	0.90	0.0	-30.	0.90	0.0
Headwater DO	30.	0.90	0.0	-30.	0.90	0.0
Headwater BOD	30.	0.90	0.0	-30.	0.90	0.0
Stream Depth	30.	0.28	-68.5	-30.	1.58	74.6

SENSITIVITY ANALYSIS SUMMARY

Plot 2 Base Model Minimum DO = 0.90

Parameter	%Param Chg	Min D.O.	%D.O. Chg	%Param Chg	Min D.O.	%D.O. Chg
Stream Baseflow	30.	1.28	41.7	-30.	0.21	-76.7
Initial Chorophyll a	30.	0.91	1.1	-30.	0.89	-1.5
Stream Velocity	30.	1.40	54.5	-30.	0.01	-99.0
Initial Temperature	2.	0.01	-98.8	-2.	1.75	93.8
BOD Decay Rate	30.	0.90	-0.8	-30.	0.91	0.9
BOD Settling Rate	30.	0.91	0.1	-30.	0.90	-0.2
Nonconservative Decay	30.	0.90	-0.3	-30.	0.91	0.3
Nonconservative Settling	30.	0.90	0.1	-30.	0.90	-0.1
Benthal Demand	30.	0.00	-100.0	-30.	2.94	225.2
Stream Dispersion	30.	0.90	0.0	-30.	0.90	0.0
Stream Reaeration	30.	2.47	173.5	-30.	0.00	-100.0
Headwater Flow	30.	0.92	2.0	-30.	0.89	-2.0
Headwater Nonconservative	30.	0.90	0.0	-30.	0.90	0.0
Headwater DO	30.	0.90	0.0	-30.	0.90	0.0
Headwater BOD	30.	0.90	0.0	-30.	0.90	0.0
Stream Depth	30.	0.28	-68.5	-30.	1.58	74.6

Appendix B

Projection Model Development

Appendix B1

Projection Model Development

Critical temperature determinations

Critical Temperature and DO Determinations:

Site Description:	Calcasieu River Northeast of Slagle, Louisiana

Input values into shaded area

Raw Data				
Date			DO	Temperature
Mo	D	Yr	(mg/l)	(C^{o})
11	30	1999	3.98	15.1
11	3	1999	6.68	20.55
10	6	1999	5.6	16.42
9	8	1999	2.1	24.91
8	4	1999	5.7	32.11
7	7	1999	1.81	26.6
6	2	1999	4.88	23.57
5	5	1999	2.4	21.86
4	7	1999	5.1	20.16
3	1	1999	6.03	14.31
2	3	1999	7.4	12.62
1	6	1999	10.35	6.21

Summer Season 90th Percentile, Temperature(^{o}C):	**29.4**
Winter Season 90th Percentile, Temperature(^{o}C):	**20.4**

Summer Season Median, DO(mg/l):	**3.64**
Winter Season Median, DO(mg/l):	**6.36**
Annual Median, DO(mg/l):	**5.35**
Annual 10th Percentile, DO(mg/l):	**2.13**

Summer Seasonal Months
5
6
7
8
9
10

Winter Seasonal Months
11
12
1
2
3
4

Summer season DO data count:	**6**
Winter season DO data count:	**6**
Summer season Temperature data count:	**6**
Winter season Temperature data count:	**6**

Appendix B2

Projection Model Development

Summer projection model input/output and graphs

```
LA-QUAL Version 5.00
Louisiana Department of Environmental Quality

Input file is D:\data files\upper calcasieu\Model\upcalc_SMRPROJ_3C.txt
Output produced at 12:52 on 01/09/2002

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

CARD TYPE       CONTROL TITLES

TITLE01         UPPER CALCASIEU RIVER (030101)- STREAM MODEL
TITLE02         DISSOLVED OXYGEN, PROJECTION MODEL
CNTROL11   NO   SEQUENCING OUTPUT
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   NO   CONSERVATIVE MATERIAL  I = CHLORIDES                  IN MG/L
MODOPT04   NO   CONSERVATIVE MATERIAL II = SULFATES                   IN MG/L
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BIOCHEMICAL OXYGEN DEMAND
MODOPT07  YES   NITROGEN
MODOPT08   NO   PHOSPHORUS
MODOPT09   NO   CHLOROPHYLL A
MODOPT10   NO   MACROPHYTES
MODOPT11   NO   COLIFORM
MODOPT12  YES   NONCONSERVATIVE MATERIAL = CBOD2                      IN MG/L
ENDATA02

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

CARD TYPE       DESCRIPTION OF CONSTANT                         VALUE

PROGRAM         MAXIMUM ITERATION LIMIT           =       200.00000
PROGRAM         PLOT TYPE                         =         3.00000
PROGRAM         FINAL REPORT TYPE                 =         1.00000
PROGRAM         BOD OXYGEN UPTAKE RATE            =         1.00000
PROGRAM         KL MINIMUM                        =         0.70000
PROGRAM         K2 MAXIMUM                        =        20.00000
PROGRAM         N ALGAL UPTAKE                    =         0.00250
PROGRAM         N PREFERENCE                      =         0.35000
PROGRAM         N MACROPHYTE UPTAKE               =         0.00250
PROGRAM         N INHIBITION EQUATION             =         1.00000
PROGRAM         MACROPHYTE OXYGEN PROD            =         0.00000
PROGRAM         NCM OXYGEN UPTAKE RATE            =         1.00000
PROGRAM         INHIBITION CONTROL VALUE          =         3.00000
PROGRAM         OCEAN EXCHANGE RATIO              =         0.00000
PROGRAM         HYDRAULIC CALCULATION METHOD      =         2.00000
```

```
PROGRAM         SETTLED RATE UNITS                  =         2.00000
PROGRAM         ALGAE OXYGEN PROD                   =         0.05000
PROGRAM         EFFECTIVE BOD DUE TO ALGAE          =         0.10000
PROGRAM         NH3 OXYGEN UPTAKE RATE              =         4.33000
ENDATA03

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

 CARD TYPE     RATE CODE     THETA VALUE

THETA        NCM DECA       1.04700
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

$$$ DATA TYPE 8 (REACH IDENTIFICATION DATA) $$$
                                                                  BEGIN        END     ELEM    REACH     ELEMS   BEGIN    END
CARD TYPE  REACH  ID  NAME                                        REACH        REACH   LENGTH  LENGTH    PER RCH  ELEM    ELEM
                                                                     km           km       km       km             NUM     NUM

REACH ID      1   CL    UPPER CALCASIEU RIVER REACH 1      19.30  TO   18.30   0.1000     1.00      10        1      10
REACH ID      2   CL    UPPER CALCASIEU RIVER REACH 2      18.30  TO   16.20   0.1000     2.10      21       11      31
REACH ID      3   CL    UPPER CALCASIEU RIVER REACH 3      16.20  TO   14.10   0.1000     2.10      21       32      52
REACH ID      4   CL    UPPER CALCASIEU RIVER REACH 4      14.10  TO   12.00   0.1000     2.10      21       53      73
REACH ID      5   CL    UPPER CALCASIEU RIVER REACH 5      12.00  TO    9.90   0.1000     2.10      21       74      94
REACH ID      6   CL    UPPER CALCASIEU RIVER REACH 6       9.90  TO    7.80   0.1000     2.10      21       95     115
REACH ID      7   CL    UPPER CALCASIEU RIVER REACH 7       7.80  TO    5.70   0.1000     2.10      21      116     136
REACH ID      8   CL    UPPER CALCASIEU RIVER REACH 8       5.70  TO    3.60   0.1000     2.10      21      137     157
REACH ID      9   CL    UPPER CALCASIEU RIVER REACH 9       3.60  TO    2.40   0.1000     1.20      12      158     169
REACH ID     10   CL    UPPER CALCASIEU RIVER REACH 10      2.40  TO    1.20   0.1000     1.20      12      170     181
REACH ID     11   CL    UPPER CALCASIEU RIVER REACH 11      1.20  TO    0.00   0.1000     1.20      12      182     193
ENDATA08

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

CARD TYPE  REACH  ID       WIDTH       WIDTH       WIDTH       DEPTH       DEPTH       DEPTH       SLOPE    MANNINGS
                            "A"         "B"         "C"         "D"         "E"         "F"                   "N"
```

HYDR-1	1	CL	0.924	0.300	1.370	0.039	0.360	0.220	0.00000	0.030
HYDR-1	2	CL	1.533	0.300	1.374	0.104	0.360	0.173	0.00000	0.030
HYDR-1	3	CL	2.141	0.300	1.378	0.170	0.360	0.127	0.00000	0.030
HYDR-1	4	CL	2.749	0.300	1.383	0.235	0.360	0.080	0.00000	0.030
HYDR-1	5	CL	3.358	0.300	1.387	0.300	0.360	0.034	0.00000	0.030
HYDR-1	6	CL	3.807	0.300	1.636	0.327	0.360	0.040	0.00000	0.030
HYDR-1	7	CL	4.257	0.300	1.885	0.354	0.360	0.047	0.00000	0.030
HYDR-1	8	CL	4.706	0.300	2.133	0.381	0.360	0.053	0.00000	0.030
HYDR-1	9	CL	3.825	0.300	1.806	0.407	0.360	0.066	0.00000	0.030
HYDR-1	10	CL	2.944	0.300	1.479	0.434	0.360	0.079	0.00000	0.030
HYDR-1	11	CL	2.063	0.300	1.152	0.460	0.360	0.091	0.00000	0.030

ENDATA09

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

CARD TYPE	REACH	ID	TIDAL RANGE	DISPERSION "A"	DISPERSION "B"	DISPERSION "C"	DISPERSION "D"
HYDR	1	CL	0.00	0.300	0.000	0.000	0.000
HYDR	2	CL	0.00	0.300	0.000	0.000	0.000
HYDR	3	CL	0.00	0.300	0.000	0.000	0.000
HYDR	4	CL	0.00	0.300	0.000	0.000	0.000
HYDR	5	CL	0.00	0.300	0.000	0.000	0.000
HYDR	6	CL	0.00	0.300	0.000	0.000	0.000
HYDR	7	CL	0.00	0.300	0.000	0.000	0.000
HYDR	8	CL	0.00	0.300	0.000	0.000	0.000
HYDR	9	CL	0.00	0.300	0.000	0.000	0.000
HYDR	10	CL	0.00	0.300	0.000	0.000	0.000
HYDR	11	CL	0.00	0.300	0.000	0.000	0.000

ENDATA10

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

CARD TYPE	REACH	ID	TEMP	SALIN	DO	NH3	NO3+2	PHOS	CHL A	MACRO
INITIAL	1	CL	29.40	0.00	6.87	0.00	0.00	0.00	2.00	0.00
INITIAL	2	CL	29.40	0.00	6.87	0.00	0.00	0.00	2.00	0.00
INITIAL	3	CL	29.40	0.00	6.87	0.00	0.00	0.00	2.00	25.00
INITIAL	4	CL	29.40	0.00	6.87	0.00	0.00	0.00	2.00	45.00
INITIAL	5	CL	29.40	0.00	6.87	0.00	0.00	0.00	2.00	65.00
INITIAL	6	CL	29.40	0.00	6.87	0.00	0.00	0.00	2.00	65.00
INITIAL	7	CL	29.40	0.00	6.87	0.00	0.00	0.00	2.00	55.00
INITIAL	8	CL	29.40	0.00	6.87	0.00	0.00	0.00	2.00	20.00
INITIAL	9	CL	29.40	0.00	6.87	0.00	0.00	0.00	2.00	18.00
INITIAL	10	CL	29.40	0.00	6.87	0.00	0.00	0.00	2.00	18.00
INITIAL	11	CL	29.40	0.00	6.87	0.00	0.00	0.00	2.00	18.00

ENDATA11

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

CARD TYPE	REACH	ID	K2 OPT	K2 "A"	K2 "B"	K2 "C"	BKGRND SOD	AEROB BOD DECAY	BOD SETT	BOD CONV TO SOD	ANAER BOD DECAY
COEF-1	1	CL	15 LOUISIANA	0.700	0.000	0.000	0.570	0.170	0.050	0.000	0.000

COEF-1	2	CL	15	LOUISIANA	0.700	0.000	0.000	0.620	0.158	0.050	0.000	0.000
COEF-1	3	CL	15	LOUISIANA	0.700	0.000	0.000	0.690	0.145	0.050	0.000	0.000
COEF-1	4	CL	15	LOUISIANA	0.700	0.000	0.000	0.770	0.133	0.050	0.000	0.000
COEF-1	5	CL	15	LOUISIANA	0.700	0.000	0.000	0.900	0.120	0.050	0.000	0.000
COEF-1	6	CL	15	LOUISIANA	0.700	0.000	0.000	0.950	0.120	0.050	0.000	0.000
COEF-1	7	CL	15	LOUISIANA	0.700	0.000	0.000	1.020	0.120	0.050	0.000	0.000
COEF-1	8	CL	15	LOUISIANA	0.700	0.000	0.000	1.070	0.120	0.050	0.000	0.000
COEF-1	9	CL	15	LOUISIANA	0.700	0.000	0.000	1.160	0.120	0.050	0.000	0.000
COEF-1	10	CL	15	LOUISIANA	0.700	0.000	0.000	1.270	0.120	0.050	0.000	0.000
COEF-1	11	CL	15	LOUISIANA	0.700	0.000	0.000	1.440	0.120	0.050	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
COEF-2	1	CL	0.03	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	2	CL	0.08	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	3	CL	0.14	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	4	CL	0.19	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	5	CL	0.24	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	6	CL	0.19	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	7	CL	0.15	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	8	CL	0.10	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	9	CL	0.12	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	10	CL	0.14	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	11	CL	0.16	0.05	0.00	0.20	0.00	0.00	0.00

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	CL	0.00	0.03	0.05	0.00
COEF-4	2	CL	0.00	0.03	0.05	0.00
COEF-4	3	CL	0.00	0.02	0.05	0.00
COEF-4	4	CL	0.00	0.02	0.05	0.00
COEF-4	5	CL	0.00	0.01	0.05	0.00
COEF-4	6	CL	0.00	0.01	0.05	0.00
COEF-4	7	CL	0.00	0.01	0.05	0.00
COEF-4	8	CL	0.00	0.01	0.05	0.00
COEF-4	9	CL	0.00	0.01	0.05	0.00
COEF-4	10	CL	0.00	0.01	0.05	0.00
COEF-4	11	CL	0.00	0.01	0.05	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
INCR-1	1	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	2	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	3	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	4	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	5	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	6	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	7	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	8	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	9	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	10	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	11	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000

ENDATA16

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

CARD TYPE	REACH	ID	DO	BOD	ORG-N	NH3	NO3+2
INCR-2	1	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	2	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	3	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	4	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	5	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	6	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	7	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	8	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	9	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	10	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	11	CL	2.00	0.00	0.00	0.00	0.00

ENDATA17

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

CARD TYPE	REACH	ID	PHOS	CHL A	COLI	NCM
INCR-3	1	CL	0.00	0.00	0.00	0.00
INCR-3	2	CL	0.00	0.00	0.00	0.00
INCR-3	3	CL	0.00	0.00	0.00	0.00
INCR-3	4	CL	0.00	0.00	0.00	0.00
INCR-3	5	CL	0.00	0.00	0.00	0.00
INCR-3	6	CL	0.00	0.00	0.00	0.00
INCR-3	7	CL	0.00	0.00	0.00	0.00
INCR-3	8	CL	0.00	0.00	0.00	0.00
INCR-3	9	CL	0.00	0.00	0.00	0.00
INCR-3	10	CL	0.00	0.00	0.00	0.00
INCR-3	11	CL	0.00	0.00	0.00	0.00

ENDATA18

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

CARD TYPE	REACH	ID	BOD	ORG-N	COLI	NCM	DO
NONPOINT	1	CL	0.13	0.01	0.00	0.11	0.00
NONPOINT	2	CL	0.18	0.03	0.00	0.19	0.00
NONPOINT	3	CL	0.14	0.03	0.00	0.19	0.00
NONPOINT	4	CL	0.10	0.03	0.00	0.18	0.00
NONPOINT	5	CL	0.08	0.03	0.00	0.18	0.00
NONPOINT	6	CL	0.08	0.03	0.00	0.16	0.00
NONPOINT	7	CL	0.11	0.03	0.00	0.16	0.00
NONPOINT	8	CL	0.12	0.03	0.00	0.25	0.00
NONPOINT	9	CL	0.17	0.04	0.00	0.45	0.00
NONPOINT	10	CL	0.17	0.04	0.00	0.52	0.00
NONPOINT	11	CL	0.19	0.04	0.00	0.54	0.00

ENDATA19

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

CARD TYPE	ELEMENT	NAME	UNIT	FLOW	TEMP	SALIN	CM-I	CM-II
HDWTR-1	1	UPPER CALCASIEU RVR	0	0.00280	29.400	0.000	0.000	0.000

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	UPPER CALCASIEU RVR	6.87	1.11	0.14	0.05	0.05

ENDATA21

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

CARD TYPE	ELEMENT	NAME	PHOS	CHL A	COLI	NCM
HDWTR-3	1	UPPER CALCASIEU RVR	0.00	9.80	0.00	1.16

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	TEMP	SAL	CM-I	CM-II
WSTLD-1	179	1.50	1 BIG BRANCH	0.00032	29.400	0.000	0.000	0.000

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         179     1  BIG BRANCH               6.87      5.06      0.00      0.65      0.05      0.00      0.05
ENDATA25

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

CARD TYPE     ELEMENT   NAME                       PHOS     CHL A      COLI       NCM

WSTLD-3         179     1  BIG BRANCH               0.00      2.00      0.00      5.31
ENDATA26

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

CARD TYPE    CONSTITUENT                        CONCENTRATION

LOWER BC     TEMPERATURE                          =     29.400 deg C
LOWER BC     SALINITY                             =      0.000 ppt
LOWER BC     CONSERVATIVE MATERIAL I              =      0.000 MG/L
LOWER BC     CONSERVATIVE MATERIAL II             =      0.000 MG/L
LOWER BC     DISSOLVED OXYGEN                     =      0.000 mg/L
LOWER BC     BIOCHEMICAL OXYGEN DEMAND            =      0.000 mg/L
LOWER BC     ORGANIC NITROGEN                     =      0.000 mg/L
LOWER BC     AMMONIA NITROGEN                     =      0.000 mg/L
LOWER BC     NITRATE + NITRITE                    =      0.000 mg/L
LOWER BC     PHOSPHORUS                           =      0.000 mg/L
LOWER BC     CHLOROPHYLL A                        =      2.000 µg/L
LOWER BC     COLIFORM                             =      0.000 #/100 mL
LOWER BC     NONCONSERVATIVE MATERIAL             =      0.000 MG/L
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 =  11
PLOT RCH  1  2  3  4  5  6  7  8  9 10 11
ENDATA30

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


OVERLAY 1 UpCalcov3.txt                     :MAINSTEM
ENDATA31
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     .....NO ERRORS DETECTED IN INPUT DATA
     .....HYDRAULIC CALCULATIONS COMPLETED
     .....TRIDIAGONAL MATRIX TERMS INITIALIZED
     .....OXYGEN DEPENDENT RATES CONVERGENT IN  24 ITERATIONS
     .....CONSTITUENT CALCULATIONS COMPLETED
***** WARNING:  NEGATIVE CONCENTRATIONS SET TO ZERO FOR Ammonia Nitrogen
***** WARNING:  NEGATIVE CONCENTRATIONS SET TO ZERO FOR Nitrate+Nitrite Nitrogen
     .....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 11
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SPECIAL REPORT: UPPER CALCASIEU RVR
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	19.200	29.40	0.0	0.0	0.0	6.70	0.93	1.13	0.15	0.04	0.06	0.25	0.00	2.0	0.0	0.	1.20
2	19.100	29.40	0.0	0.0	0.0	6.61	0.94	1.14	0.15	0.04	0.06	0.25	0.00	2.0	0.0	0.	1.23
3	19.000	29.40	0.0	0.0	0.0	6.56	0.95	1.15	0.15	0.03	0.07	0.25	0.00	2.0	0.0	0.	1.26
4	18.900	29.40	0.0	0.0	0.0	6.53	0.96	1.16	0.16	0.03	0.07	0.26	0.00	2.0	0.0	0.	1.28
5	18.800	29.40	0.0	0.0	0.0	6.50	0.96	1.16	0.16	0.03	0.07	0.26	0.00	2.0	0.0	0.	1.31
6	18.700	29.40	0.0	0.0	0.0	6.49	0.97	1.17	0.16	0.02	0.08	0.26	0.00	2.0	0.0	0.	1.34
7	18.600	29.40	0.0	0.0	0.0	6.48	0.98	1.18	0.17	0.02	0.08	0.27	0.00	2.0	0.0	0.	1.36
8	18.500	29.40	0.0	0.0	0.0	6.48	0.99	1.19	0.17	0.02	0.08	0.27	0.00	2.0	0.0	0.	1.39
9	18.400	29.40	0.0	0.0	0.0	6.47	1.00	1.20	0.17	0.02	0.08	0.27	0.00	2.0	0.0	0.	1.41
10	18.300	29.40	0.0	0.0	0.0	6.47	1.00	1.20	0.18	0.02	0.08	0.28	0.00	2.0	0.0	0.	1.44
11	18.200	29.40	0.0	0.0	0.0	6.45	1.00	1.20	0.18	0.02	0.09	0.28	0.00	2.0	1.2	0.	1.45
12	18.100	29.40	0.0	0.0	0.0	6.44	1.00	1.20	0.18	0.01	0.09	0.28	0.00	2.0	2.4	0.	1.47
13	18.000	29.40	0.0	0.0	0.0	6.43	1.00	1.20	0.18	0.01	0.09	0.28	0.00	2.0	3.6	0.	1.49
14	17.900	29.40	0.0	0.0	0.0	6.42	0.99	1.19	0.18	0.01	0.09	0.28	0.00	2.0	4.8	0.	1.51
15	17.800	29.40	0.0	0.0	0.0	6.42	0.99	1.19	0.18	0.01	0.09	0.28	0.00	2.0	6.0	0.	1.53
16	17.700	29.40	0.0	0.0	0.0	6.42	0.99	1.19	0.18	0.01	0.09	0.28	0.00	2.0	7.1	0.	1.54
17	17.600	29.40	0.0	0.0	0.0	6.42	0.99	1.19	0.18	0.01	0.09	0.28	0.00	2.0	8.3	0.	1.56
18	17.500	29.40	0.0	0.0	0.0	6.42	0.99	1.19	0.19	0.01	0.09	0.28	0.00	2.0	9.5	0.	1.58
19	17.400	29.40	0.0	0.0	0.0	6.42	0.99	1.19	0.19	0.01	0.08	0.28	0.00	2.0	10.7	0.	1.59
20	17.300	29.40	0.0	0.0	0.0	6.42	0.98	1.18	0.19	0.00	0.08	0.27	0.00	2.0	11.9	0.	1.61
21	17.200	29.40	0.0	0.0	0.0	6.42	0.98	1.18	0.19	0.00	0.08	0.27	0.00	2.0	13.1	0.	1.63
22	17.100	29.40	0.0	0.0	0.0	6.42	0.98	1.18	0.19	0.00	0.08	0.27	0.00	2.0	14.3	0.	1.64
23	17.000	29.40	0.0	0.0	0.0	6.42	0.98	1.18	0.19	0.00	0.07	0.26	0.00	2.0	15.5	0.	1.66
24	16.900	29.40	0.0	0.0	0.0	6.42	0.98	1.18	0.19	0.00	0.07	0.26	0.00	2.0	16.7	0.	1.68
25	16.800	29.40	0.0	0.0	0.0	6.42	0.98	1.18	0.19	0.00	0.07	0.26	0.00	2.0	17.9	0.	1.69
26	16.700	29.40	0.0	0.0	0.0	6.43	0.98	1.18	0.19	0.00	0.06	0.26	0.00	2.0	19.0	0.	1.71
27	16.600	29.40	0.0	0.0	0.0	6.43	0.97	1.17	0.19	0.00	0.06	0.25	0.00	2.0	20.2	0.	1.72
28	16.500	29.40	0.0	0.0	0.0	6.43	0.97	1.17	0.19	0.00	0.06	0.25	0.00	2.0	21.4	0.	1.74
29	16.400	29.40	0.0	0.0	0.0	6.42	0.97	1.17	0.19	0.00	0.05	0.25	0.00	2.0	22.6	0.	1.75
30	16.300	29.40	0.0	0.0	0.0	6.42	0.97	1.17	0.19	0.00	0.05	0.24	0.00	2.0	23.8	0.	1.77
31	16.200	29.40	0.0	0.0	0.0	6.42	0.97	1.17	0.19	0.00	0.04	0.24	0.00	2.0	25.0	0.	1.78
32	16.100	29.40	0.0	0.0	0.0	6.39	0.97	1.17	0.20	0.00	0.04	0.23	0.00	2.0	26.0	0.	1.80
33	16.000	29.40	0.0	0.0	0.0	6.37	0.96	1.16	0.20	0.00	0.04	0.23	0.00	2.0	26.9	0.	1.82
34	15.900	29.40	0.0	0.0	0.0	6.36	0.96	1.16	0.20	0.00	0.03	0.23	0.00	2.0	27.9	0.	1.84
35	15.800	29.40	0.0	0.0	0.0	6.35	0.96	1.16	0.20	0.00	0.03	0.22	0.00	2.0	28.8	0.	1.85

36	15.700	29.40	0.0	0.0	0.0	6.35	0.96	1.16	0.20	0.00	0.02	0.22	0.00	2.0	29.8	0.	1.87
37	15.600	29.40	0.0	0.0	0.0	6.34	0.96	1.16	0.20	0.00	0.02	0.22	0.00	2.0	30.7	0.	1.89
38	15.500	29.40	0.0	0.0	0.0	6.34	0.95	1.15	0.20	0.00	0.01	0.21	0.00	2.0	31.7	0.	1.91
39	15.400	29.40	0.0	0.0	0.0	6.34	0.95	1.15	0.20	0.00	0.01	0.21	0.00	2.0	32.6	0.	1.92
40	15.300	29.40	0.0	0.0	0.0	6.34	0.95	1.15	0.20	0.00	0.00	0.20	0.00	2.0	33.6	0.	1.94
41	15.200	29.40	0.0	0.0	0.0	6.34	0.95	1.15	0.20	0.00	0.00	0.20	0.00	2.0	34.5	0.	1.96
42	15.100	29.40	0.0	0.0	0.0	6.34	0.95	1.15	0.20	0.00	0.00	0.20	0.00	2.0	35.5	0.	1.98
43	15.000	29.40	0.0	0.0	0.0	6.34	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.0	36.4	0.	1.99
44	14.900	29.40	0.0	0.0	0.0	6.34	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.0	37.4	0.	2.01
45	14.800	29.40	0.0	0.0	0.0	6.34	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.0	38.3	0.	2.02
46	14.700	29.40	0.0	0.0	0.0	6.34	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.0	39.3	0.	2.04
47	14.600	29.40	0.0	0.0	0.0	6.34	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.0	40.2	0.	2.06
48	14.500	29.40	0.0	0.0	0.0	6.34	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.0	41.2	0.	2.07
49	14.400	29.40	0.0	0.0	0.0	6.34	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.0	42.1	0.	2.09
50	14.300	29.40	0.0	0.0	0.0	6.34	0.93	1.13	0.20	0.00	0.00	0.20	0.00	2.0	43.1	0.	2.10
51	14.200	29.40	0.0	0.0	0.0	6.34	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	44.0	0.	2.12
52	14.100	29.40	0.0	0.0	0.0	6.34	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	45.0	0.	2.14
53	14.000	29.40	0.0	0.0	0.0	6.31	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	46.0	0.	2.16
54	13.900	29.40	0.0	0.0	0.0	6.30	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	46.9	0.	2.18
55	13.800	29.40	0.0	0.0	0.0	6.29	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	47.9	0.	2.20
56	13.700	29.40	0.0	0.0	0.0	6.28	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	48.8	0.	2.22
57	13.600	29.40	0.0	0.0	0.0	6.28	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	49.8	0.	2.24
58	13.500	29.40	0.0	0.0	0.0	6.28	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	50.7	0.	2.26
59	13.400	29.40	0.0	0.0	0.0	6.27	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	51.7	0.	2.28
60	13.300	29.40	0.0	0.0	0.0	6.27	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	52.6	0.	2.30
61	13.200	29.40	0.0	0.0	0.0	6.27	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	53.6	0.	2.31
62	13.100	29.40	0.0	0.0	0.0	6.27	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	54.5	0.	2.33
63	13.000	29.40	0.0	0.0	0.0	6.27	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	55.5	0.	2.35
64	12.900	29.40	0.0	0.0	0.0	6.27	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	56.4	0.	2.37
65	12.800	29.40	0.0	0.0	0.0	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.0	57.4	0.	2.39
66	12.700	29.40	0.0	0.0	0.0	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.0	58.3	0.	2.41
67	12.600	29.40	0.0	0.0	0.0	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.0	59.3	0.	2.43
68	12.500	29.40	0.0	0.0	0.0	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.0	60.2	0.	2.45
69	12.400	29.40	0.0	0.0	0.0	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.0	61.2	0.	2.47
70	12.300	29.40	0.0	0.0	0.0	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.0	62.1	0.	2.48
71	12.200	29.40	0.0	0.0	0.0	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.0	63.1	0.	2.50
72	12.100	29.40	0.0	0.0	0.0	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.0	64.0	0.	2.52
73	12.000	29.40	0.0	0.0	0.0	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.54
74	11.900	29.40	0.0	0.0	0.0	6.24	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.56
75	11.800	29.40	0.0	0.0	0.0	6.22	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.58
76	11.700	29.40	0.0	0.0	0.0	6.21	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.61
77	11.600	29.40	0.0	0.0	0.0	6.21	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.63
78	11.500	29.40	0.0	0.0	0.0	6.20	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.65
79	11.400	29.40	0.0	0.0	0.0	6.20	0.94	1.14	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.67
80	11.300	29.40	0.0	0.0	0.0	6.20	0.94	1.14	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.70
81	11.200	29.40	0.0	0.0	0.0	6.20	0.94	1.14	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.72
82	11.100	29.40	0.0	0.0	0.0	6.20	0.94	1.14	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.74
83	11.000	29.40	0.0	0.0	0.0	6.20	0.94	1.14	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.76
84	10.900	29.40	0.0	0.0	0.0	6.20	0.95	1.15	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.79
85	10.800	29.40	0.0	0.0	0.0	6.20	0.95	1.15	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.81
86	10.700	29.40	0.0	0.0	0.0	6.20	0.95	1.15	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.83
87	10.600	29.40	0.0	0.0	0.0	6.20	0.95	1.15	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.85
88	10.500	29.40	0.0	0.0	0.0	6.20	0.95	1.15	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.87
89	10.400	29.40	0.0	0.0	0.0	6.20	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.90

90	10.300	29.40	0.0	0.0	0.0	6.20	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.92
91	10.200	29.40	0.0	0.0	0.0	6.20	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.94
92	10.100	29.40	0.0	0.0	0.0	6.20	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.96
93	10.000	29.40	0.0	0.0	0.0	6.20	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	2.98
94	9.900	29.40	0.0	0.0	0.0	6.19	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.0	65.0	0.	3.00
95	9.800	29.40	0.0	0.0	0.0	6.10	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.0	64.5	0.	3.02
96	9.700	29.40	0.0	0.0	0.0	6.05	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.0	64.0	0.	3.03
97	9.600	29.40	0.0	0.0	0.0	6.03	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.0	63.6	0.	3.04
98	9.500	29.40	0.0	0.0	0.0	6.01	0.95	1.15	0.21	0.00	0.00	0.21	0.00	2.0	63.1	0.	3.06
99	9.400	29.40	0.0	0.0	0.0	6.01	0.95	1.15	0.21	0.00	0.00	0.21	0.00	2.0	62.6	0.	3.07
100	9.300	29.40	0.0	0.0	0.0	6.00	0.95	1.15	0.20	0.00	0.00	0.20	0.00	2.0	62.1	0.	3.08
101	9.200	29.40	0.0	0.0	0.0	6.00	0.95	1.15	0.20	0.00	0.00	0.20	0.00	2.0	61.7	0.	3.09
102	9.100	29.40	0.0	0.0	0.0	6.00	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.0	61.2	0.	3.11
103	9.000	29.40	0.0	0.0	0.0	6.00	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.0	60.7	0.	3.12
104	8.900	29.40	0.0	0.0	0.0	6.00	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.0	60.2	0.	3.13
105	8.800	29.40	0.0	0.0	0.0	6.00	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.0	59.8	0.	3.14
106	8.700	29.40	0.0	0.0	0.0	6.00	0.93	1.13	0.20	0.00	0.00	0.20	0.00	2.0	59.3	0.	3.16
107	8.600	29.40	0.0	0.0	0.0	6.00	0.93	1.13	0.20	0.00	0.00	0.20	0.00	2.0	58.8	0.	3.17
108	8.500	29.40	0.0	0.0	0.0	6.00	0.93	1.13	0.20	0.00	0.00	0.20	0.00	2.0	58.3	0.	3.18
109	8.400	29.40	0.0	0.0	0.0	6.00	0.93	1.13	0.20	0.00	0.00	0.20	0.00	2.0	57.9	0.	3.19
110	8.300	29.40	0.0	0.0	0.0	6.00	0.93	1.13	0.20	0.00	0.00	0.20	0.00	2.0	57.4	0.	3.21
111	8.200	29.40	0.0	0.0	0.0	6.00	0.92	1.12	0.20	0.00	0.00	0.20	0.00	2.0	56.9	0.	3.22
112	8.100	29.40	0.0	0.0	0.0	6.00	0.92	1.12	0.20	0.00	0.00	0.20	0.00	2.0	56.4	0.	3.23
113	8.000	29.40	0.0	0.0	0.0	6.00	0.92	1.12	0.20	0.00	0.00	0.20	0.00	2.0	56.0	0.	3.24
114	7.900	29.40	0.0	0.0	0.0	6.00	0.92	1.12	0.20	0.00	0.00	0.20	0.00	2.0	55.5	0.	3.25
115	7.800	29.40	0.0	0.0	0.0	5.99	0.92	1.12	0.20	0.00	0.00	0.20	0.00	2.0	55.0	0.	3.27
116	7.700	29.40	0.0	0.0	0.0	5.88	0.92	1.12	0.20	0.00	0.00	0.20	0.00	2.0	53.3	0.	3.27
117	7.600	29.40	0.0	0.0	0.0	5.83	0.92	1.12	0.20	0.00	0.00	0.20	0.00	2.0	51.7	0.	3.28
118	7.500	29.40	0.0	0.0	0.0	5.80	0.91	1.11	0.20	0.00	0.00	0.20	0.00	2.0	50.0	0.	3.28
119	7.400	29.40	0.0	0.0	0.0	5.79	0.91	1.11	0.20	0.00	0.00	0.20	0.00	2.0	48.3	0.	3.29
120	7.300	29.40	0.0	0.0	0.0	5.78	0.91	1.11	0.20	0.00	0.00	0.20	0.00	2.0	46.7	0.	3.29
121	7.200	29.40	0.0	0.0	0.0	5.78	0.91	1.11	0.20	0.00	0.00	0.20	0.00	2.0	45.0	0.	3.30
122	7.100	29.40	0.0	0.0	0.0	5.78	0.91	1.11	0.20	0.00	0.00	0.20	0.00	2.0	43.3	0.	3.30
123	7.000	29.40	0.0	0.0	0.0	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.0	41.7	0.	3.31
124	6.900	29.40	0.0	0.0	0.0	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.0	40.0	0.	3.31
125	6.800	29.40	0.0	0.0	0.0	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.0	38.3	0.	3.32
126	6.700	29.40	0.0	0.0	0.0	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.0	36.7	0.	3.32
127	6.600	29.40	0.0	0.0	0.0	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.0	35.0	0.	3.33
128	6.500	29.40	0.0	0.0	0.0	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.0	33.3	0.	3.33
129	6.400	29.40	0.0	0.0	0.0	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.0	31.7	0.	3.34
130	6.300	29.40	0.0	0.0	0.0	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.0	30.0	0.	3.34
131	6.200	29.40	0.0	0.0	0.0	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.0	28.3	0.	3.35
132	6.100	29.40	0.0	0.0	0.0	5.78	0.90	1.10	0.19	0.00	0.00	0.19	0.00	2.0	26.7	0.	3.35
133	6.000	29.40	0.0	0.0	0.0	5.78	0.90	1.10	0.19	0.00	0.00	0.19	0.00	2.0	25.0	0.	3.36
134	5.900	29.40	0.0	0.0	0.0	5.78	0.90	1.10	0.19	0.00	0.00	0.19	0.00	2.0	23.3	0.	3.36
135	5.800	29.40	0.0	0.0	0.0	5.77	0.90	1.10	0.19	0.00	0.00	0.19	0.00	2.0	21.7	0.	3.37
136	5.700	29.40	0.0	0.0	0.0	5.76	0.90	1.10	0.19	0.00	0.00	0.19	0.00	2.0	20.0	0.	3.37
137	5.600	29.40	0.0	0.0	0.0	5.68	0.90	1.10	0.19	0.00	0.00	0.19	0.00	2.0	19.9	0.	3.39
138	5.500	29.40	0.0	0.0	0.0	5.64	0.89	1.09	0.19	0.00	0.00	0.19	0.00	2.0	19.8	0.	3.41
139	5.400	29.40	0.0	0.0	0.0	5.62	0.89	1.09	0.19	0.00	0.00	0.19	0.00	2.0	19.7	0.	3.42
140	5.300	29.40	0.0	0.0	0.0	5.61	0.89	1.09	0.19	0.00	0.00	0.19	0.00	2.0	19.6	0.	3.44
141	5.200	29.40	0.0	0.0	0.0	5.61	0.88	1.08	0.19	0.00	0.00	0.19	0.00	2.0	19.5	0.	3.46
142	5.100	29.40	0.0	0.0	0.0	5.61	0.88	1.08	0.19	0.00	0.00	0.19	0.00	2.0	19.4	0.	3.47
143	5.000	29.40	0.0	0.0	0.0	5.60	0.88	1.08	0.19	0.00	0.00	0.19	0.00	2.0	19.3	0.	3.49

144	4.900	29.40	0.0	0.0	0.0	5.60	0.87	1.07	0.19	0.00	0.00	0.19	0.00	2.0	19.2	0.	3.50
145	4.800	29.40	0.0	0.0	0.0	5.60	0.87	1.07	0.19	0.00	0.00	0.19	0.00	2.0	19.1	0.	3.52
146	4.700	29.40	0.0	0.0	0.0	5.60	0.87	1.07	0.19	0.00	0.00	0.19	0.00	2.0	19.0	0.	3.53
147	4.600	29.40	0.0	0.0	0.0	5.60	0.87	1.07	0.19	0.00	0.00	0.19	0.00	2.0	19.0	0.	3.55
148	4.500	29.40	0.0	0.0	0.0	5.60	0.86	1.06	0.19	0.00	0.00	0.19	0.00	2.0	18.9	0.	3.56
149	4.400	29.40	0.0	0.0	0.0	5.60	0.86	1.06	0.19	0.00	0.00	0.19	0.00	2.0	18.8	0.	3.58
150	4.300	29.40	0.0	0.0	0.0	5.60	0.86	1.06	0.19	0.00	0.00	0.19	0.00	2.0	18.7	0.	3.59
151	4.200	29.40	0.0	0.0	0.0	5.60	0.86	1.06	0.19	0.00	0.00	0.19	0.00	2.0	18.6	0.	3.60
152	4.100	29.40	0.0	0.0	0.0	5.60	0.85	1.05	0.19	0.00	0.00	0.19	0.00	2.0	18.5	0.	3.62
153	4.000	29.40	0.0	0.0	0.0	5.60	0.85	1.05	0.19	0.00	0.00	0.19	0.00	2.0	18.4	0.	3.63
154	3.900	29.40	0.0	0.0	0.0	5.60	0.85	1.05	0.19	0.00	0.00	0.19	0.00	2.0	18.3	0.	3.65
155	3.800	29.40	0.0	0.0	0.0	5.60	0.85	1.05	0.19	0.00	0.00	0.19	0.00	2.0	18.2	0.	3.66
156	3.700	29.40	0.0	0.0	0.0	5.60	0.85	1.05	0.19	0.00	0.00	0.19	0.00	2.0	18.1	0.	3.68
157	3.600	29.40	0.0	0.0	0.0	5.59	0.85	1.05	0.19	0.00	0.00	0.19	0.00	2.0	18.0	0.	3.72
158	3.500	29.40	0.0	0.0	0.0	5.52	0.88	1.08	0.20	0.00	0.00	0.20	0.00	2.0	18.0	0.	3.84
159	3.400	29.40	0.0	0.0	0.0	5.48	0.91	1.11	0.21	0.00	0.00	0.21	0.00	2.0	18.0	0.	3.95
160	3.300	29.40	0.0	0.0	0.0	5.46	0.94	1.14	0.22	0.00	0.00	0.22	0.00	2.0	18.0	0.	4.07
161	3.200	29.40	0.0	0.0	0.0	5.45	0.97	1.17	0.22	0.00	0.00	0.22	0.00	2.0	18.0	0.	4.19
162	3.100	29.40	0.0	0.0	0.0	5.44	1.00	1.20	0.23	0.00	0.00	0.23	0.00	2.0	18.0	0.	4.30
163	3.000	29.40	0.0	0.0	0.0	5.44	1.03	1.23	0.24	0.00	0.00	0.24	0.00	2.0	18.0	0.	4.41
164	2.900	29.40	0.0	0.0	0.0	5.44	1.05	1.25	0.24	0.00	0.00	0.24	0.00	2.0	18.0	0.	4.52
165	2.800	29.40	0.0	0.0	0.0	5.44	1.08	1.28	0.25	0.00	0.00	0.25	0.00	2.0	18.0	0.	4.63
166	2.700	29.40	0.0	0.0	0.0	5.44	1.11	1.31	0.26	0.00	0.00	0.26	0.00	2.0	18.0	0.	4.74
167	2.600	29.40	0.0	0.0	0.0	5.43	1.13	1.33	0.26	0.00	0.00	0.26	0.00	2.0	18.0	0.	4.85
168	2.500	29.40	0.0	0.0	0.0	5.43	1.15	1.35	0.27	0.00	0.00	0.27	0.00	2.0	18.0	0.	4.96
169	2.400	29.40	0.0	0.0	0.0	5.42	1.18	1.38	0.28	0.00	0.00	0.28	0.00	2.0	18.0	0.	5.07
170	2.300	29.40	0.0	0.0	0.0	5.35	1.20	1.40	0.28	0.00	0.00	0.28	0.00	2.0	18.0	0.	5.21
171	2.200	29.40	0.0	0.0	0.0	5.31	1.23	1.43	0.29	0.00	0.00	0.29	0.00	2.0	18.0	0.	5.34
172	2.100	29.40	0.0	0.0	0.0	5.29	1.26	1.46	0.29	0.00	0.00	0.29	0.00	2.0	18.0	0.	5.47
173	2.000	29.40	0.0	0.0	0.0	5.27	1.28	1.48	0.30	0.00	0.00	0.30	0.00	2.0	18.0	0.	5.60
174	1.900	29.40	0.0	0.0	0.0	5.27	1.31	1.51	0.30	0.00	0.00	0.30	0.00	2.0	18.0	0.	5.73
175	1.800	29.40	0.0	0.0	0.0	5.26	1.33	1.53	0.31	0.00	0.00	0.31	0.00	2.0	18.0	0.	5.85
176	1.700	29.40	0.0	0.0	0.0	5.26	1.36	1.56	0.31	0.00	0.00	0.31	0.00	2.0	18.0	0.	5.98
177	1.600	29.40	0.0	0.0	0.0	5.25	1.39	1.59	0.32	0.00	0.00	0.32	0.00	2.0	18.0	0.	6.10
178	1.500	29.40	0.0	0.0	0.0	5.26	1.47	1.67	0.33	0.01	0.00	0.33	0.00	2.0	18.0	0.	6.21
179	1.400	29.40	0.0	0.0	0.0	5.35	1.78	1.98	0.36	0.01	0.00	0.37	0.00	2.0	18.0	0.	6.24
180	1.300	29.40	0.0	0.0	0.0	5.31	1.79	1.99	0.36	0.01	0.00	0.37	0.00	2.0	18.0	0.	6.35
181	1.200	29.40	0.0	0.0	0.0	5.29	1.80	2.00	0.36	0.01	0.00	0.38	0.00	2.0	18.0	0.	6.46
182	1.100	29.40	0.0	0.0	0.0	5.21	1.82	2.02	0.36	0.02	0.00	0.38	0.00	2.0	18.0	0.	6.58
183	1.000	29.40	0.0	0.0	0.0	5.15	1.84	2.04	0.37	0.02	0.00	0.39	0.00	2.0	18.0	0.	6.70
184	0.900	29.40	0.0	0.0	0.0	5.12	1.86	2.06	0.37	0.02	0.00	0.40	0.00	2.0	18.0	0.	6.82
185	0.800	29.40	0.0	0.0	0.0	5.09	1.88	2.08	0.38	0.03	0.00	0.40	0.00	2.0	18.0	0.	6.94
186	0.700	29.40	0.0	0.0	0.0	5.08	1.90	2.10	0.38	0.03	0.00	0.41	0.00	2.0	18.0	0.	7.06
187	0.600	29.40	0.0	0.0	0.0	5.07	1.92	2.12	0.38	0.03	0.00	0.42	0.00	2.0	18.0	0.	7.17
188	0.500	29.40	0.0	0.0	0.0	5.06	1.94	2.14	0.39	0.03	0.00	0.42	0.00	2.0	18.0	0.	7.29
189	0.400	29.40	0.0	0.0	0.0	5.05	1.96	2.16	0.39	0.04	0.00	0.43	0.00	2.0	18.0	0.	7.40
190	0.300	29.40	0.0	0.0	0.0	5.05	1.98	2.18	0.39	0.04	0.00	0.43	0.00	2.0	18.0	0.	7.52
191	0.200	29.40	0.0	0.0	0.0	5.04	2.00	2.20	0.40	0.04	0.00	0.44	0.00	2.0	18.0	0.	7.63
192	0.100	29.40	0.0	0.0	0.0	5.04	2.01	2.21	0.40	0.04	0.00	0.45	0.00	2.0	18.0	0.	7.74
193	0.000	29.40	0.0	0.0	0.0	5.04	2.03	2.23	0.40	0.05	0.00	0.45	0.00	2.0	18.0	0.	7.83

SPECIAL REPORT: UPPER CALCASIEU RVR
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	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	19.200	7.64	4.13	0.26	0.06	0.00	1.03	1.03	0.05	0.06	1.03	0.00	0.00	0.00	0.00	0.04	0.06		
2	19.100	7.64	4.13	0.26	0.06	0.00	1.03	1.03	0.05	0.06	1.03	0.00	0.00	0.00	0.00	0.04	0.06		
3	19.000	7.64	4.13	0.26	0.06	0.00	1.03	1.03	0.05	0.06	1.03	0.00	0.00	0.00	0.00	0.04	0.06		
4	18.900	7.64	4.13	0.26	0.06	0.00	1.03	1.03	0.05	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
5	18.800	7.64	4.13	0.26	0.06	0.00	1.03	1.03	0.05	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
6	18.700	7.64	4.13	0.26	0.06	0.00	1.03	1.03	0.05	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
7	18.600	7.64	4.13	0.26	0.06	0.00	1.03	1.03	0.05	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
8	18.500	7.64	4.13	0.26	0.06	0.00	1.03	1.03	0.05	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
9	18.400	7.64	4.13	0.26	0.06	0.00	1.03	1.03	0.05	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
10	18.300	7.64	4.13	0.26	0.06	0.00	1.03	1.03	0.05	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
11	18.200	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
12	18.100	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
13	18.000	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
14	17.900	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
15	17.800	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
16	17.700	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
17	17.600	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
18	17.500	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
19	17.400	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
20	17.300	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
21	17.200	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
22	17.100	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
23	17.000	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
24	16.900	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
25	16.800	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
26	16.700	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
27	16.600	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
28	16.500	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
29	16.400	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
30	16.300	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
31	16.200	7.64	5.11	0.24	0.06	0.00	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.00	0.04	0.06		
32	16.100	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
33	16.000	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
34	15.900	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
35	15.800	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
36	15.700	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
37	15.600	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
38	15.500	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
39	15.400	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
40	15.300	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
41	15.200	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
42	15.100	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
43	15.000	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
44	14.900	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
45	14.800	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
46	14.700	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
47	14.600	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
48	14.500	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		
49	14.400	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06		

50	14.300	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06
51	14.200	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06
52	14.100	7.64	6.61	0.22	0.06	0.00	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.00	0.03	0.06
53	14.000	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
54	13.900	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
55	13.800	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
56	13.700	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
57	13.600	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
58	13.500	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
59	13.400	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
60	13.300	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
61	13.200	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
62	13.100	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
63	13.000	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
64	12.900	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
65	12.800	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
66	12.700	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
67	12.600	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
68	12.500	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
69	12.400	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
70	12.300	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
71	12.200	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
72	12.100	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
73	12.000	7.64	9.49	0.20	0.06	0.00	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
74	11.900	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
75	11.800	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.02	0.00	0.00	0.00	0.00	0.02	0.06
76	11.700	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
77	11.600	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
78	11.500	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
79	11.400	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
80	11.300	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
81	11.200	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
82	11.100	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
83	11.000	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
84	10.900	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
85	10.800	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
86	10.700	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
87	10.600	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
88	10.500	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
89	10.400	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
90	10.300	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
91	10.200	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
92	10.100	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
93	10.000	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
94	9.900	7.64	16.20	0.18	0.06	0.00	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
95	9.800	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
96	9.700	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
97	9.600	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
98	9.500	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
99	9.400	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
100	9.300	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
101	9.200	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
102	9.100	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
103	9.000	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06

104	8.900	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
105	8.800	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
106	8.700	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
107	8.600	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
108	8.500	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
109	8.400	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
110	8.300	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
111	8.200	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
112	8.100	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
113	8.000	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
114	7.900	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
115	7.800	7.64	13.26	0.18	0.06	0.00	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.00	0.02	0.06
116	7.700	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
117	7.600	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
118	7.500	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
119	7.400	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
120	7.300	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
121	7.200	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
122	7.100	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
123	7.000	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
124	6.900	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
125	6.800	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
126	6.700	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
127	6.600	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
128	6.500	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
129	6.400	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
130	6.300	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
131	6.200	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
132	6.100	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
133	6.000	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
134	5.900	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
135	5.800	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
136	5.700	7.64	11.08	0.18	0.06	0.00	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
137	5.600	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	1.00	0.00	0.00	0.00	0.00	0.02	0.06
138	5.500	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
139	5.400	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
140	5.300	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
141	5.200	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
142	5.100	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
143	5.000	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
144	4.900	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
145	4.800	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
146	4.700	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
147	4.600	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
148	4.500	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
149	4.400	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
150	4.300	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
151	4.200	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
152	4.100	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
153	4.000	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
154	3.900	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
155	3.800	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
156	3.700	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
157	3.600	7.64	9.65	0.18	0.06	0.00	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06

158	3.500	7.64	8.33	0.18	0.06	0.00	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
159	3.400	7.64	8.33	0.18	0.06	0.00	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
160	3.300	7.64	8.33	0.18	0.06	0.00	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
161	3.200	7.64	8.33	0.18	0.06	0.00	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
162	3.100	7.64	8.33	0.18	0.06	0.00	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
163	3.000	7.64	8.33	0.18	0.06	0.00	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
164	2.900	7.64	8.33	0.18	0.06	0.00	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
165	2.800	7.64	8.33	0.18	0.06	0.00	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
166	2.700	7.64	8.33	0.18	0.06	0.00	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
167	2.600	7.64	8.33	0.18	0.06	0.00	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
168	2.500	7.64	8.33	0.18	0.06	0.00	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
169	2.400	7.64	8.33	0.18	0.06	0.00	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.00	0.02	0.06
170	2.300	7.64	7.41	0.18	0.06	0.00	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.00	0.02	0.06
171	2.200	7.64	7.41	0.18	0.06	0.00	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.00	0.02	0.06
172	2.100	7.64	7.41	0.18	0.06	0.00	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.00	0.02	0.06
173	2.000	7.64	7.41	0.18	0.06	0.00	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.00	0.02	0.06
174	1.900	7.64	7.41	0.18	0.06	0.00	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.00	0.02	0.06
175	1.800	7.64	7.41	0.18	0.06	0.00	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.00	0.02	0.06
176	1.700	7.64	7.41	0.18	0.06	0.00	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.00	0.02	0.06
177	1.600	7.64	7.41	0.18	0.06	0.00	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.00	0.02	0.06
178	1.500	7.64	7.41	0.18	0.06	0.00	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.00	0.02	0.06
179	1.400	7.64	7.42	0.18	0.06	0.00	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.00	0.02	0.06
180	1.300	7.64	7.42	0.18	0.06	0.00	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.00	0.02	0.06
181	1.200	7.64	7.42	0.18	0.06	0.00	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.00	0.02	0.06
182	1.100	7.64	6.90	0.18	0.06	0.00	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.00	0.02	0.06
183	1.000	7.64	6.90	0.18	0.06	0.00	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.00	0.02	0.06
184	0.900	7.64	6.90	0.18	0.06	0.00	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.00	0.02	0.06
185	0.800	7.64	6.90	0.18	0.06	0.00	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.00	0.02	0.06
186	0.700	7.64	6.90	0.18	0.06	0.00	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.00	0.02	0.06
187	0.600	7.64	6.90	0.18	0.06	0.00	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.00	0.02	0.06
188	0.500	7.64	6.90	0.18	0.06	0.00	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.00	0.02	0.06
189	0.400	7.64	6.90	0.18	0.06	0.00	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.00	0.02	0.06
190	0.300	7.64	6.90	0.18	0.06	0.00	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.00	0.02	0.06
191	0.200	7.64	6.90	0.18	0.06	0.00	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.00	0.02	0.06
192	0.100	7.64	6.90	0.18	0.06	0.00	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.00	0.02	0.06
193	0.000	7.64	6.90	0.18	0.06	0.00	2.60	2.60	0.25	0.06	0.38	0.00	0.00	0.00	0.00	0.02	0.06

SPECIAL REPORT: UPPER CALCASIEU RVR
HYDRAULIC PARAMETER VALUES

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	ADVCTV VELO m/s	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
1	19.30	19.20	0.0028	0.008	0.22	1.5	34.	152.8	0.3	0.	0.000	0.300	0.008
2	19.20	19.10	0.0028	0.008	0.22	1.5	34.	152.8	0.3	0.	0.000	0.300	0.008
3	19.10	19.00	0.0028	0.008	0.22	1.5	34.	152.8	0.3	0.	0.000	0.300	0.008
4	19.00	18.90	0.0028	0.008	0.22	1.5	34.	152.8	0.3	0.	0.000	0.300	0.008
5	18.90	18.80	0.0028	0.008	0.22	1.5	34.	152.8	0.3	0.	0.000	0.300	0.008
6	18.80	18.70	0.0028	0.008	0.22	1.5	34.	152.8	0.3	0.	0.000	0.300	0.008
7	18.70	18.60	0.0028	0.008	0.22	1.5	34.	152.8	0.3	0.	0.000	0.300	0.008
8	18.60	18.50	0.0028	0.008	0.22	1.5	34.	152.8	0.3	0.	0.000	0.300	0.008
9	18.50	18.40	0.0028	0.008	0.22	1.5	34.	152.8	0.3	0.	0.000	0.300	0.008

10	18.40	18.30	0.0028	0.008	0.22	1.5	34.	152.8	0.3	0.	0.000	0.300	0.008
11	18.30	18.20	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
12	18.20	18.10	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
13	18.10	18.00	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
14	18.00	17.90	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
15	17.90	17.80	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
16	17.80	17.70	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
17	17.70	17.60	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
18	17.60	17.50	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
19	17.50	17.40	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
20	17.40	17.30	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
21	17.30	17.20	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
22	17.20	17.10	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
23	17.10	17.00	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
24	17.00	16.90	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
25	16.90	16.80	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
26	16.80	16.70	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
27	16.70	16.60	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
28	16.60	16.50	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
29	16.50	16.40	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
30	16.40	16.30	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
31	16.30	16.20	0.0028	0.009	0.19	1.6	30.	163.7	0.3	0.	0.000	0.300	0.009
32	16.20	16.10	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
33	16.10	16.00	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
34	16.00	15.90	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
35	15.90	15.80	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
36	15.80	15.70	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
37	15.70	15.60	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
38	15.60	15.50	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
39	15.50	15.40	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
40	15.40	15.30	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
41	15.30	15.20	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
42	15.20	15.10	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
43	15.10	15.00	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
44	15.00	14.90	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
45	14.90	14.80	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
46	14.80	14.70	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
47	14.70	14.60	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
48	14.60	14.50	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
49	14.50	14.40	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
50	14.40	14.30	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
51	14.30	14.20	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
52	14.20	14.10	0.0028	0.011	0.15	1.7	26.	174.5	0.3	0.	0.000	0.300	0.011
53	14.10	14.00	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
54	14.00	13.90	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
55	13.90	13.80	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
56	13.80	13.70	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
57	13.70	13.60	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
58	13.60	13.50	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
59	13.50	13.40	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
60	13.40	13.30	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
61	13.30	13.20	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
62	13.20	13.10	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
63	13.10	13.00	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014

64	13.00	12.90	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
65	12.90	12.80	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
66	12.80	12.70	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
67	12.70	12.60	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
68	12.60	12.50	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
69	12.50	12.40	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
70	12.40	12.30	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
71	12.30	12.20	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
72	12.20	12.10	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
73	12.10	12.00	0.0028	0.014	0.11	1.9	20.	185.4	0.2	0.	0.000	0.300	0.014
74	12.00	11.90	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
75	11.90	11.80	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
76	11.80	11.70	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
77	11.70	11.60	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
78	11.60	11.50	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
79	11.50	11.40	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
80	11.40	11.30	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
81	11.30	11.20	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
82	11.20	11.10	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
83	11.10	11.00	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
84	11.00	10.90	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
85	10.90	10.80	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
86	10.80	10.70	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
87	10.70	10.60	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
88	10.60	10.50	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
89	10.50	10.40	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
90	10.40	10.30	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
91	10.30	10.20	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
92	10.20	10.10	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
93	10.10	10.00	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
94	10.00	9.90	0.0028	0.020	0.07	2.0	14.	196.3	0.1	0.	0.000	0.300	0.020
95	9.90	9.80	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
96	9.80	9.70	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
97	9.70	9.60	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
98	9.60	9.50	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
99	9.50	9.40	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
100	9.40	9.30	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
101	9.30	9.20	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
102	9.20	9.10	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
103	9.10	9.00	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
104	9.00	8.90	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
105	8.90	8.80	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
106	8.80	8.70	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
107	8.70	8.60	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
108	8.60	8.50	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
109	8.50	8.40	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
110	8.40	8.30	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
111	8.30	8.20	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
112	8.20	8.10	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
113	8.10	8.00	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
114	8.00	7.90	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
115	7.90	7.80	0.0028	0.015	0.08	2.3	18.	228.9	0.2	0.	0.000	0.300	0.015
116	7.80	7.70	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
117	7.70	7.60	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012

118	7.60	7.50	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
119	7.50	7.40	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
120	7.40	7.30	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
121	7.30	7.20	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
122	7.20	7.10	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
123	7.10	7.00	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
124	7.00	6.90	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
125	6.90	6.80	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
126	6.80	6.70	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
127	6.70	6.60	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
128	6.60	6.50	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
129	6.50	6.40	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
130	6.40	6.30	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
131	6.30	6.20	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
132	6.20	6.10	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
133	6.10	6.00	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
134	6.00	5.90	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
135	5.90	5.80	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
136	5.80	5.70	0.0028	0.012	0.09	2.6	23.	261.5	0.2	0.	0.000	0.300	0.012
137	5.70	5.60	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
138	5.60	5.50	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
139	5.50	5.40	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
140	5.40	5.30	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
141	5.30	5.20	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
142	5.20	5.10	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
143	5.10	5.00	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
144	5.00	4.90	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
145	4.90	4.80	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
146	4.80	4.70	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
147	4.70	4.60	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
148	4.60	4.50	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
149	4.50	4.40	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
150	4.40	4.30	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
151	4.30	4.20	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
152	4.20	4.10	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
153	4.10	4.00	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
154	4.00	3.90	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
155	3.90	3.80	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
156	3.80	3.70	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
157	3.70	3.60	0.0028	0.010	0.10	2.9	29.	294.0	0.3	0.	0.000	0.300	0.010
158	3.60	3.50	0.0028	0.010	0.12	2.5	28.	246.2	0.3	0.	0.000	0.300	0.010
159	3.50	3.40	0.0028	0.010	0.12	2.5	28.	246.2	0.3	0.	0.000	0.300	0.010
160	3.40	3.30	0.0028	0.010	0.12	2.5	28.	246.2	0.3	0.	0.000	0.300	0.010
161	3.30	3.20	0.0028	0.010	0.12	2.5	28.	246.2	0.3	0.	0.000	0.300	0.010
162	3.20	3.10	0.0028	0.010	0.12	2.5	28.	246.2	0.3	0.	0.000	0.300	0.010
163	3.10	3.00	0.0028	0.010	0.12	2.5	28.	246.2	0.3	0.	0.000	0.300	0.010
164	3.00	2.90	0.0028	0.010	0.12	2.5	28.	246.2	0.3	0.	0.000	0.300	0.010
165	2.90	2.80	0.0028	0.010	0.12	2.5	28.	246.2	0.3	0.	0.000	0.300	0.010
166	2.80	2.70	0.0028	0.010	0.12	2.5	28.	246.2	0.3	0.	0.000	0.300	0.010
167	2.70	2.60	0.0028	0.010	0.12	2.5	28.	246.2	0.3	0.	0.000	0.300	0.010
168	2.60	2.50	0.0028	0.010	0.12	2.5	28.	246.2	0.3	0.	0.000	0.300	0.010
169	2.50	2.40	0.0028	0.010	0.12	2.5	28.	246.2	0.3	0.	0.000	0.300	0.010
170	2.40	2.30	0.0028	0.011	0.13	2.0	26.	198.4	0.3	0.	0.000	0.300	0.011
171	2.30	2.20	0.0028	0.011	0.13	2.0	26.	198.4	0.3	0.	0.000	0.300	0.011

172	2.20	2.10	0.0028	0.011	0.13	2.0	26.	198.4	0.3	0.	0.000	0.300	0.011
173	2.10	2.00	0.0028	0.011	0.13	2.0	26.	198.4	0.3	0.	0.000	0.300	0.011
174	2.00	1.90	0.0028	0.011	0.13	2.0	26.	198.4	0.3	0.	0.000	0.300	0.011
175	1.90	1.80	0.0028	0.011	0.13	2.0	26.	198.4	0.3	0.	0.000	0.300	0.011
176	1.80	1.70	0.0028	0.011	0.13	2.0	26.	198.4	0.3	0.	0.000	0.300	0.011
177	1.70	1.60	0.0028	0.011	0.13	2.0	26.	198.4	0.3	0.	0.000	0.300	0.011
178	1.60	1.50	0.0028	0.011	0.13	2.0	26.	198.4	0.3	0.	0.000	0.300	0.011
179	1.50	1.40	0.0031	0.012	0.13	2.0	27.	200.1	0.3	0.	0.000	0.300	0.012
180	1.40	1.30	0.0031	0.012	0.13	2.0	27.	200.1	0.3	0.	0.000	0.300	0.012
181	1.30	1.20	0.0031	0.012	0.13	2.0	27.	200.1	0.3	0.	0.000	0.300	0.012
182	1.20	1.10	0.0031	0.014	0.15	1.5	23.	151.8	0.2	0.	0.000	0.300	0.014
183	1.10	1.00	0.0031	0.014	0.15	1.5	23.	151.8	0.2	0.	0.000	0.300	0.014
184	1.00	0.90	0.0031	0.014	0.15	1.5	23.	151.8	0.2	0.	0.000	0.300	0.014
185	0.90	0.80	0.0031	0.014	0.15	1.5	23.	151.8	0.2	0.	0.000	0.300	0.014
186	0.80	0.70	0.0031	0.014	0.15	1.5	23.	151.8	0.2	0.	0.000	0.300	0.014
187	0.70	0.60	0.0031	0.014	0.15	1.5	23.	151.8	0.2	0.	0.000	0.300	0.014
188	0.60	0.50	0.0031	0.014	0.15	1.5	23.	151.8	0.2	0.	0.000	0.300	0.014
189	0.50	0.40	0.0031	0.014	0.15	1.5	23.	151.8	0.2	0.	0.000	0.300	0.014
190	0.40	0.30	0.0031	0.014	0.15	1.5	23.	151.8	0.2	0.	0.000	0.300	0.014
191	0.30	0.20	0.0031	0.014	0.15	1.5	23.	151.8	0.2	0.	0.000	0.300	0.014
192	0.20	0.10	0.0031	0.014	0.15	1.5	23.	151.8	0.2	0.	0.000	0.300	0.014
193	0.10	0.00	0.0031	0.014	0.15	1.5	23.	151.8	0.2	0.	0.000	0.300	0.014

FINAL REPORT UPPER CALCASIEU RVR UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 1 UPPER CALCASIEU RIVER REACH 1 DISSOLVED OXYGEN, PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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	0.00280	29.40	0.00	0.00	0.00	6.87	0.91	1.11	0.14	0.05	0.05	0.00	2.00	0.00	1.16

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
1	19.30	19.20	0.00280	0.00	0.00815	0.14	0.22	1.53	34.34	152.84	0.34	0.00	0.000	0.300	0.008
2	19.20	19.10	0.00280	0.00	0.00815	0.14	0.22	1.53	34.34	152.84	0.34	0.00	0.000	0.300	0.008
3	19.10	19.00	0.00280	0.00	0.00815	0.14	0.22	1.53	34.34	152.84	0.34	0.00	0.000	0.300	0.008
4	19.00	18.90	0.00280	0.00	0.00815	0.14	0.22	1.53	34.34	152.84	0.34	0.00	0.000	0.300	0.008
5	18.90	18.80	0.00280	0.00	0.00815	0.14	0.22	1.53	34.34	152.84	0.34	0.00	0.000	0.300	0.008
6	18.80	18.70	0.00280	0.00	0.00815	0.14	0.22	1.53	34.34	152.84	0.34	0.00	0.000	0.300	0.008
7	18.70	18.60	0.00280	0.00	0.00815	0.14	0.22	1.53	34.34	152.84	0.34	0.00	0.000	0.300	0.008
8	18.60	18.50	0.00280	0.00	0.00815	0.14	0.22	1.53	34.34	152.84	0.34	0.00	0.000	0.300	0.008
9	18.50	18.40	0.00280	0.00	0.00815	0.14	0.22	1.53	34.34	152.84	0.34	0.00	0.000	0.300	0.008
10	18.40	18.30	0.00280	0.00	0.00815	0.14	0.22	1.53	34.34	152.84	0.34	0.00	0.000	0.300	0.008
TOT						1.42			343.44	1528.42					

AVG 0.00815 0.22 1.53 0.34
CUM 1.42

** 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	19.200	7.64	4.13	0.26	0.06	0.00	1.03	1.03	1.03	0.05	0.06	1.03	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
2	19.100	7.64	4.13	0.26	0.06	0.00	1.03	1.03	1.03	0.05	0.06	1.03	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
3	19.000	7.64	4.13	0.26	0.06	0.00	1.03	1.03	1.03	0.05	0.06	1.03	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
4	18.900	7.64	4.13	0.26	0.06	0.00	1.03	1.03	1.03	0.05	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
5	18.800	7.64	4.13	0.26	0.06	0.00	1.03	1.03	1.03	0.05	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
6	18.700	7.64	4.13	0.26	0.06	0.00	1.03	1.03	1.03	0.05	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
7	18.600	7.64	4.13	0.26	0.06	0.00	1.03	1.03	1.03	0.05	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
8	18.500	7.64	4.13	0.26	0.06	0.00	1.03	1.03	1.03	0.05	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
9	18.400	7.64	4.13	0.26	0.06	0.00	1.03	1.03	1.03	0.05	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
10	18.300	7.64	4.13	0.26	0.06	0.00	1.03	1.03	1.03	0.05	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
20 DEG C RATE				0.17		0.00	0.57			0.03		0.50	0.00	0.00	0.00			0.00	0.03	
AVG 20 DEG C RATE			3.47		0.05						0.05									0.05

* g/sq m/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	19.200	29.40	0.00	0.00	0.00	6.70	0.93	1.13	0.15	0.04	0.06	0.25	0.00	2.00	0.00	0.00	1.20
2	19.100	29.40	0.00	0.00	0.00	6.61	0.94	1.14	0.15	0.04	0.06	0.25	0.00	2.00	0.00	0.00	1.23
3	19.000	29.40	0.00	0.00	0.00	6.56	0.95	1.15	0.15	0.03	0.07	0.25	0.00	2.00	0.00	0.00	1.26
4	18.900	29.40	0.00	0.00	0.00	6.53	0.96	1.16	0.16	0.03	0.07	0.26	0.00	2.00	0.00	0.00	1.28
5	18.800	29.40	0.00	0.00	0.00	6.50	0.96	1.16	0.16	0.03	0.07	0.26	0.00	2.00	0.00	0.00	1.31
6	18.700	29.40	0.00	0.00	0.00	6.49	0.97	1.17	0.16	0.02	0.08	0.26	0.00	2.00	0.00	0.00	1.34
7	18.600	29.40	0.00	0.00	0.00	6.48	0.98	1.18	0.17	0.02	0.08	0.27	0.00	2.00	0.00	0.00	1.36
8	18.500	29.40	0.00	0.00	0.00	6.48	0.99	1.19	0.17	0.02	0.08	0.27	0.00	2.00	0.00	0.00	1.39
9	18.400	29.40	0.00	0.00	0.00	6.47	1.00	1.20	0.17	0.02	0.08	0.27	0.00	2.00	0.00	0.00	1.41
10	18.300	29.40	0.00	0.00	0.00	6.47	1.00	1.20	0.18	0.02	0.08	0.28	0.00	2.00	0.00	0.00	1.44

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT UPPER CALCASIEU RVR UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 2 UPPER CALCASIEU RIVER REACH 2 DISSOLVED OXYGEN, PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
11	UPR RCH	0.00280	29.40	0.00	0.00	0.00	6.47	1.00	1.20	0.18	0.02	0.08	0.00	2.00	0.00	1.44

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
11	18.30	18.20	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
12	18.20	18.10	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
13	18.10	18.00	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
14	18.00	17.90	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
15	17.90	17.80	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
16	17.80	17.70	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
17	17.70	17.60	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
18	17.60	17.50	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
19	17.50	17.40	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
20	17.40	17.30	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
21	17.30	17.20	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
22	17.20	17.10	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
23	17.10	17.00	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
24	17.00	16.90	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
25	16.90	16.80	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
26	16.80	16.70	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
27	16.70	16.60	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
28	16.60	16.50	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
29	16.50	16.40	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
30	16.40	16.30	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
31	16.30	16.20	0.00280	0.00	0.00922	0.13	0.19	1.64	30.37	163.68	0.30	0.00	0.000	0.300	0.009
TOT						2.64			637.74	3437.36					
AVG					0.00922		0.19	1.64			0.30				
CUM						4.06									

** 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
11	18.200	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
12	18.100	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
13	18.000	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
14	17.900	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
15	17.800	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
16	17.700	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
17	17.600	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
18	17.500	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
19	17.400	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06

20	17.300	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
21	17.200	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
22	17.100	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
23	17.000	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
24	16.900	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
25	16.800	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
26	16.700	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
27	16.600	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
28	16.500	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
29	16.400	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
30	16.300	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
31	16.200	7.64	5.11	0.24	0.06	0.00	1.12	1.12	1.12	0.13	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.06
20 DEG C RATE				0.16		0.00	0.62			0.08		0.50	0.00	0.00	0.00			0.00	0.03	
AVG 20 DEG C RATE			4.29		0.05						0.05									0.05

* g/sq m/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 *
11	18.200	29.40	0.00	0.00	0.00	6.45	1.00	1.20	0.18	0.02	0.09	0.28	0.00	2.00	1.19	0.00	1.45
12	18.100	29.40	0.00	0.00	0.00	6.44	1.00	1.20	0.18	0.01	0.09	0.28	0.00	2.00	2.38	0.00	1.47
13	18.000	29.40	0.00	0.00	0.00	6.43	1.00	1.20	0.18	0.01	0.09	0.28	0.00	2.00	3.57	0.00	1.49
14	17.900	29.40	0.00	0.00	0.00	6.42	0.99	1.19	0.18	0.01	0.09	0.28	0.00	2.00	4.76	0.00	1.51
15	17.800	29.40	0.00	0.00	0.00	6.42	0.99	1.19	0.18	0.01	0.09	0.28	0.00	2.00	5.95	0.00	1.53
16	17.700	29.40	0.00	0.00	0.00	6.42	0.99	1.19	0.18	0.01	0.09	0.28	0.00	2.00	7.14	0.00	1.54
17	17.600	29.40	0.00	0.00	0.00	6.42	0.99	1.19	0.18	0.01	0.09	0.28	0.00	2.00	8.33	0.00	1.56
18	17.500	29.40	0.00	0.00	0.00	6.42	0.99	1.19	0.19	0.01	0.09	0.28	0.00	2.00	9.52	0.00	1.58
19	17.400	29.40	0.00	0.00	0.00	6.42	0.99	1.19	0.19	0.01	0.08	0.28	0.00	2.00	10.71	0.00	1.59
20	17.300	29.40	0.00	0.00	0.00	6.42	0.98	1.18	0.19	0.00	0.08	0.27	0.00	2.00	11.90	0.00	1.61
21	17.200	29.40	0.00	0.00	0.00	6.42	0.98	1.18	0.19	0.00	0.08	0.27	0.00	2.00	13.10	0.00	1.63
22	17.100	29.40	0.00	0.00	0.00	6.42	0.98	1.18	0.19	0.00	0.08	0.27	0.00	2.00	14.29	0.00	1.64
23	17.000	29.40	0.00	0.00	0.00	6.42	0.98	1.18	0.19	0.00	0.07	0.26	0.00	2.00	15.48	0.00	1.66
24	16.900	29.40	0.00	0.00	0.00	6.42	0.98	1.18	0.19	0.00	0.07	0.26	0.00	2.00	16.67	0.00	1.68
25	16.800	29.40	0.00	0.00	0.00	6.42	0.98	1.18	0.19	0.00	0.07	0.26	0.00	2.00	17.86	0.00	1.69
26	16.700	29.40	0.00	0.00	0.00	6.43	0.98	1.18	0.19	0.00	0.06	0.26	0.00	2.00	19.05	0.00	1.71
27	16.600	29.40	0.00	0.00	0.00	6.43	0.97	1.17	0.19	0.00	0.06	0.25	0.00	2.00	20.24	0.00	1.72
28	16.500	29.40	0.00	0.00	0.00	6.43	0.97	1.17	0.19	0.00	0.06	0.25	0.00	2.00	21.43	0.00	1.74
29	16.400	29.40	0.00	0.00	0.00	6.42	0.97	1.17	0.19	0.00	0.05	0.25	0.00	2.00	22.62	0.00	1.75
30	16.300	29.40	0.00	0.00	0.00	6.42	0.97	1.17	0.19	0.00	0.05	0.24	0.00	2.00	23.81	0.00	1.77
31	16.200	29.40	0.00	0.00	0.00	6.42	0.97	1.17	0.19	0.00	0.04	0.24	0.00	2.00	25.00	0.00	1.78

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT UPPER CALCASIEU RVR UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 3 UPPER CALCASIEU RIVER REACH 3 DISSOLVED OXYGEN, PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
32	UPR RCH	0.00280	29.40	0.00	0.00	0.00	6.42	0.97	1.17	0.19	0.00	0.04	0.00	2.00	0.00	1.78

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
32	16.20	16.10	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
33	16.10	16.00	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
34	16.00	15.90	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
35	15.90	15.80	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
36	15.80	15.70	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
37	15.70	15.60	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
38	15.60	15.50	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
39	15.50	15.40	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
40	15.40	15.30	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
41	15.30	15.20	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
42	15.20	15.10	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
43	15.10	15.00	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
44	15.00	14.90	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
45	14.90	14.80	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
46	14.80	14.70	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
47	14.70	14.60	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
48	14.60	14.50	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
49	14.50	14.40	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
50	14.40	14.30	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
51	14.30	14.20	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
52	14.20	14.10	0.00280	0.00	0.01088	0.11	0.15	1.75	25.74	174.51	0.26	0.00	0.000	0.300	0.011
TOT						2.23			540.48	3664.67					
AVG					0.01088		0.15	1.75			0.26				
CUM						6.29									

*** 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
32	16.100	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
33	16.000	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
34	15.900	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
35	15.800	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
36	15.700	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
37	15.600	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06

38	15.500	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
39	15.400	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
40	15.300	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
41	15.200	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
42	15.100	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
43	15.000	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
44	14.900	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
45	14.800	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
46	14.700	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
47	14.600	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
48	14.500	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
49	14.400	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
50	14.300	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
51	14.200	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
52	14.100	7.64	6.61	0.22	0.06	0.00	1.25	1.25	1.25	0.21	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.03	0.06
20 DEG C RATE				0.14		0.00	0.69			0.14		0.50	0.00	0.00	0.00			0.00	0.02	
AVG 20 DEG C RATE			5.56		0.05						0.05									0.05

* g/sq m/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 *
32	16.100	29.40	0.00	0.00	0.00	6.39	0.97	1.17	0.20	0.00	0.04	0.23	0.00	2.00	25.95	0.00	1.80
33	16.000	29.40	0.00	0.00	0.00	6.37	0.96	1.16	0.20	0.00	0.04	0.23	0.00	2.00	26.90	0.00	1.82
34	15.900	29.40	0.00	0.00	0.00	6.36	0.96	1.16	0.20	0.00	0.03	0.23	0.00	2.00	27.86	0.00	1.84
35	15.800	29.40	0.00	0.00	0.00	6.35	0.96	1.16	0.20	0.00	0.03	0.22	0.00	2.00	28.81	0.00	1.85
36	15.700	29.40	0.00	0.00	0.00	6.35	0.96	1.16	0.20	0.00	0.02	0.22	0.00	2.00	29.76	0.00	1.87
37	15.600	29.40	0.00	0.00	0.00	6.34	0.96	1.16	0.20	0.00	0.02	0.22	0.00	2.00	30.71	0.00	1.89
38	15.500	29.40	0.00	0.00	0.00	6.34	0.95	1.15	0.20	0.00	0.01	0.21	0.00	2.00	31.67	0.00	1.91
39	15.400	29.40	0.00	0.00	0.00	6.34	0.95	1.15	0.20	0.00	0.01	0.21	0.00	2.00	32.62	0.00	1.92
40	15.300	29.40	0.00	0.00	0.00	6.34	0.95	1.15	0.20	0.00	0.00	0.20	0.00	2.00	33.57	0.00	1.94
41	15.200	29.40	0.00	0.00	0.00	6.34	0.95	1.15	0.20	0.00	0.00	0.20	0.00	2.00	34.52	0.00	1.96
42	15.100	29.40	0.00	0.00	0.00	6.34	0.95	1.15	0.20	0.00	0.00	0.20	0.00	2.00	35.48	0.00	1.98
43	15.000	29.40	0.00	0.00	0.00	6.34	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.00	36.43	0.00	1.99
44	14.900	29.40	0.00	0.00	0.00	6.34	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.00	37.38	0.00	2.01
45	14.800	29.40	0.00	0.00	0.00	6.34	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.00	38.33	0.00	2.02
46	14.700	29.40	0.00	0.00	0.00	6.34	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.00	39.29	0.00	2.04
47	14.600	29.40	0.00	0.00	0.00	6.34	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.00	40.24	0.00	2.06
48	14.500	29.40	0.00	0.00	0.00	6.34	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.00	41.19	0.00	2.07
49	14.400	29.40	0.00	0.00	0.00	6.34	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.00	42.14	0.00	2.09
50	14.300	29.40	0.00	0.00	0.00	6.34	0.93	1.13	0.20	0.00	0.00	0.20	0.00	2.00	43.10	0.00	2.10
51	14.200	29.40	0.00	0.00	0.00	6.34	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	44.05	0.00	2.12
52	14.100	29.40	0.00	0.00	0.00	6.34	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	45.00	0.00	2.14

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 4   UPPER CALCASIEU RIVER REACH 4   DISSOLVED OXYGEN, PROJECTION MODEL

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW cms	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 *
53	UPR RCH	0.00280	29.40	0.00	0.00	0.00	6.34	0.93	1.13	0.21	0.00	0.00	0.00	2.00	0.00	2.14

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
53	14.10	14.00	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
54	14.00	13.90	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
55	13.90	13.80	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
56	13.80	13.70	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
57	13.70	13.60	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
58	13.60	13.50	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
59	13.50	13.40	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
60	13.40	13.30	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
61	13.30	13.20	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
62	13.20	13.10	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
63	13.10	13.00	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
64	13.00	12.90	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
65	12.90	12.80	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
66	12.80	12.70	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
67	12.70	12.60	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
68	12.60	12.50	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
69	12.50	12.40	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
70	12.40	12.30	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
71	12.30	12.20	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
72	12.20	12.10	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
73	12.10	12.00	0.00280	0.00	0.01394	0.08	0.11	1.85	20.09	185.43	0.20	0.00	0.000	0.300	0.014
TOT						1.74			421.80	3894.09					
AVG					0.01394		0.11	1.85			0.20				
CUM						8.03									

** 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
53	14.000	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
54	13.900	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
55	13.800	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06

56	13.700	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
57	13.600	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
58	13.500	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
59	13.400	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
60	13.300	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
61	13.200	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
62	13.100	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
63	13.000	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
64	12.900	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
65	12.800	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
66	12.700	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
67	12.600	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
68	12.500	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
69	12.400	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
70	12.300	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
71	12.200	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
72	12.100	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
73	12.000	7.64	9.49	0.20	0.06	0.00	1.39	1.39	1.39	0.29	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
20 DEG C RATE				0.13		0.00	0.77			0.19		0.50	0.00	0.00	0.00			0.00	0.02	
AVG 20 DEG C RATE			7.97		0.05						0.05									0.05

* g/sq m/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	*
53	14.000	29.40	0.00	0.00	0.00	6.31	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	45.95	0.00	2.16
54	13.900	29.40	0.00	0.00	0.00	6.30	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	46.90	0.00	2.18
55	13.800	29.40	0.00	0.00	0.00	6.29	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	47.86	0.00	2.20
56	13.700	29.40	0.00	0.00	0.00	6.28	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	48.81	0.00	2.22
57	13.600	29.40	0.00	0.00	0.00	6.28	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	49.76	0.00	2.24
58	13.500	29.40	0.00	0.00	0.00	6.28	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	50.71	0.00	2.26
59	13.400	29.40	0.00	0.00	0.00	6.27	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	51.67	0.00	2.28
60	13.300	29.40	0.00	0.00	0.00	6.27	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	52.62	0.00	2.30
61	13.200	29.40	0.00	0.00	0.00	6.27	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	53.57	0.00	2.31
62	13.100	29.40	0.00	0.00	0.00	6.27	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	54.52	0.00	2.33
63	13.000	29.40	0.00	0.00	0.00	6.27	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	55.48	0.00	2.35
64	12.900	29.40	0.00	0.00	0.00	6.27	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	56.43	0.00	2.37
65	12.800	29.40	0.00	0.00	0.00	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.00	57.38	0.00	2.39
66	12.700	29.40	0.00	0.00	0.00	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.00	58.33	0.00	2.41
67	12.600	29.40	0.00	0.00	0.00	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.00	59.29	0.00	2.43
68	12.500	29.40	0.00	0.00	0.00	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.00	60.24	0.00	2.45
69	12.400	29.40	0.00	0.00	0.00	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.00	61.19	0.00	2.47
70	12.300	29.40	0.00	0.00	0.00	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.00	62.14	0.00	2.48
71	12.200	29.40	0.00	0.00	0.00	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.00	63.10	0.00	2.50
72	12.100	29.40	0.00	0.00	0.00	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.00	64.05	0.00	2.52
73	12.000	29.40	0.00	0.00	0.00	6.27	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.54

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L

** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 5   UPPER CALCASIEU RIVER REACH 5   DISSOLVED OXYGEN, PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
74	UPR RCH	0.00280	29.40	0.00	0.00	0.00	6.27	0.92	1.12	0.21	0.00	0.00	0.00	2.00	0.00	2.54

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
74	12.00	11.90	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
75	11.90	11.80	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
76	11.80	11.70	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
77	11.70	11.60	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
78	11.60	11.50	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
79	11.50	11.40	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
80	11.40	11.30	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
81	11.30	11.20	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
82	11.20	11.10	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
83	11.10	11.00	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
84	11.00	10.90	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
85	10.90	10.80	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
86	10.80	10.70	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
87	10.70	10.60	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
88	10.60	10.50	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
89	10.50	10.40	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
90	10.40	10.30	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
91	10.30	10.20	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
92	10.20	10.10	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
93	10.10	10.00	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
94	10.00	9.90	0.00280	0.00	0.02034	0.06	0.07	1.96	13.77	196.27	0.14	0.00	0.000	0.300	0.020
TOT						1.20			289.14	4121.76					
AVG					0.02034		0.07	1.96			0.14				
CUM						9.23									

*** 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

74	11.900	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
75	11.800	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.02	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
76	11.700	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
77	11.600	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
78	11.500	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
79	11.400	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
80	11.300	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
81	11.200	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
82	11.100	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
83	11.000	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
84	10.900	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
85	10.800	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
86	10.700	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
87	10.600	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
88	10.500	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
89	10.400	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
90	10.300	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
91	10.200	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
92	10.100	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
93	10.000	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
94	9.900	7.64	16.20	0.18	0.06	0.00	1.63	1.63	1.63	0.37	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
20 DEG C RATE				0.12		0.00	0.90			0.24		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			13.61		0.05						0.05									0.05

* g/sq m/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 *
74	11.900	29.40	0.00	0.00	0.00	6.24	0.92	1.12	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.56
75	11.800	29.40	0.00	0.00	0.00	6.22	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.58
76	11.700	29.40	0.00	0.00	0.00	6.21	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.61
77	11.600	29.40	0.00	0.00	0.00	6.21	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.63
78	11.500	29.40	0.00	0.00	0.00	6.20	0.93	1.13	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.65
79	11.400	29.40	0.00	0.00	0.00	6.20	0.94	1.14	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.67
80	11.300	29.40	0.00	0.00	0.00	6.20	0.94	1.14	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.70
81	11.200	29.40	0.00	0.00	0.00	6.20	0.94	1.14	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.72
82	11.100	29.40	0.00	0.00	0.00	6.20	0.94	1.14	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.74
83	11.000	29.40	0.00	0.00	0.00	6.20	0.94	1.14	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.76
84	10.900	29.40	0.00	0.00	0.00	6.20	0.95	1.15	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.79
85	10.800	29.40	0.00	0.00	0.00	6.20	0.95	1.15	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.81
86	10.700	29.40	0.00	0.00	0.00	6.20	0.95	1.15	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.83
87	10.600	29.40	0.00	0.00	0.00	6.20	0.95	1.15	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.85
88	10.500	29.40	0.00	0.00	0.00	6.20	0.95	1.15	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.87
89	10.400	29.40	0.00	0.00	0.00	6.20	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.90
90	10.300	29.40	0.00	0.00	0.00	6.20	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.92
91	10.200	29.40	0.00	0.00	0.00	6.20	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.94
92	10.100	29.40	0.00	0.00	0.00	6.20	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.96
93	10.000	29.40	0.00	0.00	0.00	6.20	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	2.98
94	9.900	29.40	0.00	0.00	0.00	6.19	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.00	65.00	0.00	3.00

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 * CM-I = CHLORIDES                          CM-II = SULFATES                           NCM = CBOD2
        MG/L                                        MG/L                                      MG/L
 ** g/cu m

FINAL REPORT    UPPER CALCASIEU RVR                              UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO.  6      UPPER CALCASIEU RIVER REACH 6                  DISSOLVED OXYGEN, PROJECTION MODEL
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** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
95	UPR RCH	0.00280	29.40	0.00	0.00	0.00	6.19	0.96	1.16	0.21	0.00	0.00	0.00	2.00	0.00	3.00

*** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
95	9.90	9.80	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
96	9.80	9.70	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
97	9.70	9.60	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
98	9.60	9.50	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
99	9.50	9.40	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
100	9.40	9.30	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
101	9.30	9.20	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
102	9.20	9.10	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
103	9.10	9.00	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
104	9.00	8.90	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
105	8.90	8.80	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
106	8.80	8.70	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
107	8.70	8.60	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
108	8.60	8.50	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
109	8.50	8.40	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
110	8.40	8.30	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
111	8.30	8.20	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
112	8.20	8.10	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
113	8.10	8.00	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
114	8.00	7.90	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
115	7.90	7.80	0.00280	0.00	0.01541	0.08	0.08	2.29	18.17	228.87	0.18	0.00	0.000	0.300	0.015
TOT						1.58			381.63	4806.32					
AVG					0.01541		0.08	2.29			0.18				
CUM						10.81									

*** 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. mg/L	RATE 1/da	DECAY 1/da	SETT 1/da	DECAY 1/da	SOD *	SOD *	SOD *	DECAY 1/da	SETT 1/da	DECAY 1/da	SRCE *	RATE 1/da	SRCE *	PROD **	PROD **	DECAY 1/da	DECAY 1/da	SETT 1/da
95	9.800	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
96	9.700	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
97	9.600	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
98	9.500	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
99	9.400	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
100	9.300	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
101	9.200	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
102	9.100	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
103	9.000	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
104	8.900	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
105	8.800	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
106	8.700	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
107	8.600	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
108	8.500	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
109	8.400	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
110	8.300	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
111	8.200	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
112	8.100	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
113	8.000	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
114	7.900	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
115	7.800	7.64	13.26	0.18	0.06	0.00	1.72	1.72	1.72	0.30	0.06	1.01	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
20 DEG C RATE				0.12		0.00	0.95			0.19		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			11.14		0.05						0.05									0.05

* g/sq m/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 *
95	9.800	29.40	0.00	0.00	0.00	6.10	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.00	64.52	0.00	3.02
96	9.700	29.40	0.00	0.00	0.00	6.05	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.00	64.05	0.00	3.03
97	9.600	29.40	0.00	0.00	0.00	6.03	0.96	1.16	0.21	0.00	0.00	0.21	0.00	2.00	63.57	0.00	3.04
98	9.500	29.40	0.00	0.00	0.00	6.01	0.95	1.15	0.21	0.00	0.00	0.21	0.00	2.00	63.10	0.00	3.06
99	9.400	29.40	0.00	0.00	0.00	6.01	0.95	1.15	0.21	0.00	0.00	0.21	0.00	2.00	62.62	0.00	3.07
100	9.300	29.40	0.00	0.00	0.00	6.00	0.95	1.15	0.20	0.00	0.00	0.20	0.00	2.00	62.14	0.00	3.08
101	9.200	29.40	0.00	0.00	0.00	6.00	0.95	1.15	0.20	0.00	0.00	0.20	0.00	2.00	61.67	0.00	3.09
102	9.100	29.40	0.00	0.00	0.00	6.00	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.00	61.19	0.00	3.11
103	9.000	29.40	0.00	0.00	0.00	6.00	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.00	60.71	0.00	3.12
104	8.900	29.40	0.00	0.00	0.00	6.00	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.00	60.24	0.00	3.13
105	8.800	29.40	0.00	0.00	0.00	6.00	0.94	1.14	0.20	0.00	0.00	0.20	0.00	2.00	59.76	0.00	3.14
106	8.700	29.40	0.00	0.00	0.00	6.00	0.93	1.13	0.20	0.00	0.00	0.20	0.00	2.00	59.29	0.00	3.16
107	8.600	29.40	0.00	0.00	0.00	6.00	0.93	1.13	0.20	0.00	0.00	0.20	0.00	2.00	58.81	0.00	3.17
108	8.500	29.40	0.00	0.00	0.00	6.00	0.93	1.13	0.20	0.00	0.00	0.20	0.00	2.00	58.33	0.00	3.18
109	8.400	29.40	0.00	0.00	0.00	6.00	0.93	1.13	0.20	0.00	0.00	0.20	0.00	2.00	57.86	0.00	3.19
110	8.300	29.40	0.00	0.00	0.00	6.00	0.93	1.13	0.20	0.00	0.00	0.20	0.00	2.00	57.38	0.00	3.21
111	8.200	29.40	0.00	0.00	0.00	6.00	0.92	1.12	0.20	0.00	0.00	0.20	0.00	2.00	56.90	0.00	3.22
112	8.100	29.40	0.00	0.00	0.00	6.00	0.92	1.12	0.20	0.00	0.00	0.20	0.00	2.00	56.43	0.00	3.23

113	8.000	29.40	0.00	0.00	0.00	6.00	0.92	1.12	0.20	0.00	0.00	0.20	0.00	2.00	55.95	0.00	3.24
114	7.900	29.40	0.00	0.00	0.00	6.00	0.92	1.12	0.20	0.00	0.00	0.20	0.00	2.00	55.48	0.00	3.25
115	7.800	29.40	0.00	0.00	0.00	5.99	0.92	1.12	0.20	0.00	0.00	0.20	0.00	2.00	55.00	0.00	3.27

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT UPPER CALCASIEU RVR UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 7 UPPER CALCASIEU RIVER REACH 7 DISSOLVED OXYGEN, PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
116	UPR RCH	0.00280	29.40	0.00	0.00	0.00	5.99	0.92	1.12	0.20	0.00	0.00	0.00	2.00	0.00	3.27

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
116	7.80	7.70	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
117	7.70	7.60	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
118	7.60	7.50	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
119	7.50	7.40	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
120	7.40	7.30	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
121	7.30	7.20	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
122	7.20	7.10	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
123	7.10	7.00	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
124	7.00	6.90	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
125	6.90	6.80	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
126	6.80	6.70	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
127	6.70	6.60	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
128	6.60	6.50	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
129	6.50	6.40	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
130	6.40	6.30	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
131	6.30	6.20	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
132	6.20	6.10	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
133	6.10	6.00	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
134	6.00	5.90	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
135	5.90	5.80	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
136	5.80	5.70	0.00280	0.00	0.01194	0.10	0.09	2.61	23.44	261.49	0.23	0.00	0.000	0.300	0.012
TOT						2.04			492.32	5491.24					
AVG					0.01194		0.09	2.61			0.23				
CUM						12.84									

** 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
116	7.700	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
117	7.600	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
118	7.500	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
119	7.400	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
120	7.300	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
121	7.200	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
122	7.100	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
123	7.000	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
124	6.900	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
125	6.800	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
126	6.700	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
127	6.600	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
128	6.500	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
129	6.400	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
130	6.300	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
131	6.200	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
132	6.100	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
133	6.000	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
134	5.900	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
135	5.800	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
136	5.700	7.64	11.08	0.18	0.06	0.00	1.84	1.84	1.84	0.23	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
20 DEG C RATE				0.12		0.00	1.02			0.15		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			9.31		0.05						0.05									0.05

* g/sq m/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 *
116	7.700	29.40	0.00	0.00	0.00	5.88	0.92	1.12	0.20	0.00	0.00	0.20	0.00	2.00	53.33	0.00	3.27
117	7.600	29.40	0.00	0.00	0.00	5.83	0.92	1.12	0.20	0.00	0.00	0.20	0.00	2.00	51.67	0.00	3.28
118	7.500	29.40	0.00	0.00	0.00	5.80	0.91	1.11	0.20	0.00	0.00	0.20	0.00	2.00	50.00	0.00	3.28
119	7.400	29.40	0.00	0.00	0.00	5.79	0.91	1.11	0.20	0.00	0.00	0.20	0.00	2.00	48.33	0.00	3.29
120	7.300	29.40	0.00	0.00	0.00	5.78	0.91	1.11	0.20	0.00	0.00	0.20	0.00	2.00	46.67	0.00	3.29
121	7.200	29.40	0.00	0.00	0.00	5.78	0.91	1.11	0.20	0.00	0.00	0.20	0.00	2.00	45.00	0.00	3.30
122	7.100	29.40	0.00	0.00	0.00	5.78	0.91	1.11	0.20	0.00	0.00	0.20	0.00	2.00	43.33	0.00	3.30
123	7.000	29.40	0.00	0.00	0.00	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.00	41.67	0.00	3.31
124	6.900	29.40	0.00	0.00	0.00	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.00	40.00	0.00	3.31
125	6.800	29.40	0.00	0.00	0.00	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.00	38.33	0.00	3.32
126	6.700	29.40	0.00	0.00	0.00	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.00	36.67	0.00	3.32
127	6.600	29.40	0.00	0.00	0.00	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.00	35.00	0.00	3.33
128	6.500	29.40	0.00	0.00	0.00	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.00	33.33	0.00	3.33
129	6.400	29.40	0.00	0.00	0.00	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.00	31.67	0.00	3.34
130	6.300	29.40	0.00	0.00	0.00	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.00	30.00	0.00	3.34

131	6.200	29.40	0.00	0.00	0.00	5.78	0.91	1.11	0.19	0.00	0.00	0.19	0.00	2.00	28.33	0.00	3.35
132	6.100	29.40	0.00	0.00	0.00	5.78	0.90	1.10	0.19	0.00	0.00	0.19	0.00	2.00	26.67	0.00	3.35
133	6.000	29.40	0.00	0.00	0.00	5.78	0.90	1.10	0.19	0.00	0.00	0.19	0.00	2.00	25.00	0.00	3.36
134	5.900	29.40	0.00	0.00	0.00	5.78	0.90	1.10	0.19	0.00	0.00	0.19	0.00	2.00	23.33	0.00	3.36
135	5.800	29.40	0.00	0.00	0.00	5.77	0.90	1.10	0.19	0.00	0.00	0.19	0.00	2.00	21.67	0.00	3.37
136	5.700	29.40	0.00	0.00	0.00	5.76	0.90	1.10	0.19	0.00	0.00	0.19	0.00	2.00	20.00	0.00	3.37

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 8 UPPER CALCASIEU RIVER REACH 8   DISSOLVED OXYGEN, PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
137	UPR RCH	0.00280	29.40	0.00	0.00	0.00	5.76	0.90	1.10	0.19	0.00	0.00	0.00	2.00	0.00	3.37

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
137	5.70	5.60	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
138	5.60	5.50	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
139	5.50	5.40	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
140	5.40	5.30	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
141	5.30	5.20	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
142	5.20	5.10	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
143	5.10	5.00	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
144	5.00	4.90	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
145	4.90	4.80	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
146	4.80	4.70	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
147	4.70	4.60	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
148	4.60	4.50	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
149	4.50	4.40	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
150	4.40	4.30	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
151	4.30	4.20	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
152	4.20	4.10	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
153	4.10	4.00	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
154	4.00	3.90	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
155	3.90	3.80	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
156	3.80	3.70	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
157	3.70	3.60	0.00280	0.00	0.00963	0.12	0.10	2.94	29.08	293.99	0.29	0.00	0.000	0.300	0.010
TOT						2.52			610.64	6173.71					
AVG					0.00963		0.10	2.94			0.29				

CUM 15.37

** 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
137	5.600	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	1.00	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
138	5.500	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
139	5.400	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
140	5.300	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
141	5.200	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
142	5.100	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
143	5.000	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
144	4.900	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
145	4.800	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
146	4.700	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
147	4.600	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
148	4.500	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
149	4.400	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
150	4.300	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
151	4.200	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
152	4.100	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
153	4.000	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
154	3.900	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
155	3.800	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
156	3.700	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
157	3.600	7.64	9.65	0.18	0.06	0.00	1.93	1.93	1.93	0.15	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
20 DEG C RATE				0.12		0.00	1.07			0.10		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			8.10		0.05						0.05									0.05

* g/sq m/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 *
137	5.600	29.40	0.00	0.00	0.00	5.68	0.90	1.10	0.19	0.00	0.00	0.19	0.00	2.00	19.90	0.00	3.39
138	5.500	29.40	0.00	0.00	0.00	5.64	0.89	1.09	0.19	0.00	0.00	0.19	0.00	2.00	19.81	0.00	3.41
139	5.400	29.40	0.00	0.00	0.00	5.62	0.89	1.09	0.19	0.00	0.00	0.19	0.00	2.00	19.71	0.00	3.42
140	5.300	29.40	0.00	0.00	0.00	5.61	0.89	1.09	0.19	0.00	0.00	0.19	0.00	2.00	19.62	0.00	3.44
141	5.200	29.40	0.00	0.00	0.00	5.61	0.88	1.08	0.19	0.00	0.00	0.19	0.00	2.00	19.52	0.00	3.46
142	5.100	29.40	0.00	0.00	0.00	5.61	0.88	1.08	0.19	0.00	0.00	0.19	0.00	2.00	19.43	0.00	3.47
143	5.000	29.40	0.00	0.00	0.00	5.60	0.88	1.08	0.19	0.00	0.00	0.19	0.00	2.00	19.33	0.00	3.49
144	4.900	29.40	0.00	0.00	0.00	5.60	0.87	1.07	0.19	0.00	0.00	0.19	0.00	2.00	19.24	0.00	3.50
145	4.800	29.40	0.00	0.00	0.00	5.60	0.87	1.07	0.19	0.00	0.00	0.19	0.00	2.00	19.14	0.00	3.52
146	4.700	29.40	0.00	0.00	0.00	5.60	0.87	1.07	0.19	0.00	0.00	0.19	0.00	2.00	19.05	0.00	3.53
147	4.600	29.40	0.00	0.00	0.00	5.60	0.87	1.07	0.19	0.00	0.00	0.19	0.00	2.00	18.95	0.00	3.55
148	4.500	29.40	0.00	0.00	0.00	5.60	0.86	1.06	0.19	0.00	0.00	0.19	0.00	2.00	18.86	0.00	3.56

149	4.400	29.40	0.00	0.00	0.00	5.60	0.86	1.06	0.19	0.00	0.00	0.19	0.00	2.00	18.76	0.00	3.58
150	4.300	29.40	0.00	0.00	0.00	5.60	0.86	1.06	0.19	0.00	0.00	0.19	0.00	2.00	18.67	0.00	3.59
151	4.200	29.40	0.00	0.00	0.00	5.60	0.86	1.06	0.19	0.00	0.00	0.19	0.00	2.00	18.57	0.00	3.60
152	4.100	29.40	0.00	0.00	0.00	5.60	0.85	1.05	0.19	0.00	0.00	0.19	0.00	2.00	18.48	0.00	3.62
153	4.000	29.40	0.00	0.00	0.00	5.60	0.85	1.05	0.19	0.00	0.00	0.19	0.00	2.00	18.38	0.00	3.63
154	3.900	29.40	0.00	0.00	0.00	5.60	0.85	1.05	0.19	0.00	0.00	0.19	0.00	2.00	18.29	0.00	3.65
155	3.800	29.40	0.00	0.00	0.00	5.60	0.85	1.05	0.19	0.00	0.00	0.19	0.00	2.00	18.19	0.00	3.66
156	3.700	29.40	0.00	0.00	0.00	5.60	0.85	1.05	0.19	0.00	0.00	0.19	0.00	2.00	18.10	0.00	3.68
157	3.600	29.40	0.00	0.00	0.00	5.59	0.85	1.05	0.19	0.00	0.00	0.19	0.00	2.00	18.00	0.00	3.72

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 9   UPPER CALCASIEU RIVER REACH 9   DISSOLVED OXYGEN, PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
158	UPR RCH	0.00280	29.40	0.00	0.00	0.00	5.59	0.85	1.05	0.19	0.00	0.00	0.00	2.00	0.00	3.72

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
158	3.60	3.50	0.00280	0.00	0.00989	0.12	0.12	2.46	28.32	246.18	0.28	0.00	0.000	0.300	0.010
159	3.50	3.40	0.00280	0.00	0.00989	0.12	0.12	2.46	28.32	246.18	0.28	0.00	0.000	0.300	0.010
160	3.40	3.30	0.00280	0.00	0.00989	0.12	0.12	2.46	28.32	246.18	0.28	0.00	0.000	0.300	0.010
161	3.30	3.20	0.00280	0.00	0.00989	0.12	0.12	2.46	28.32	246.18	0.28	0.00	0.000	0.300	0.010
162	3.20	3.10	0.00280	0.00	0.00989	0.12	0.12	2.46	28.32	246.18	0.28	0.00	0.000	0.300	0.010
163	3.10	3.00	0.00280	0.00	0.00989	0.12	0.12	2.46	28.32	246.18	0.28	0.00	0.000	0.300	0.010
164	3.00	2.90	0.00280	0.00	0.00989	0.12	0.12	2.46	28.32	246.18	0.28	0.00	0.000	0.300	0.010
165	2.90	2.80	0.00280	0.00	0.00989	0.12	0.12	2.46	28.32	246.18	0.28	0.00	0.000	0.300	0.010
166	2.80	2.70	0.00280	0.00	0.00989	0.12	0.12	2.46	28.32	246.18	0.28	0.00	0.000	0.300	0.010
167	2.70	2.60	0.00280	0.00	0.00989	0.12	0.12	2.46	28.32	246.18	0.28	0.00	0.000	0.300	0.010
168	2.60	2.50	0.00280	0.00	0.00989	0.12	0.12	2.46	28.32	246.18	0.28	0.00	0.000	0.300	0.010
169	2.50	2.40	0.00280	0.00	0.00989	0.12	0.12	2.46	28.32	246.18	0.28	0.00	0.000	0.300	0.010
TOT						1.40			339.86	2954.17					
AVG					0.00989		0.12	2.46			0.28				
CUM						16.77									

** 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. mg/L	RATE 1/da	DECAY 1/da	SETT 1/da	DECAY 1/da	SOD *	SOD *	SOD *	DECAY 1/da	SETT 1/da	DECAY 1/da	SRCE *	RATE 1/da	SRCE *	PROD **	PROD **	DECAY 1/da	DECAY 1/da	SETT 1/da
158	3.500	7.64	8.33	0.18	0.06	0.00	2.10	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
159	3.400	7.64	8.33	0.18	0.06	0.00	2.10	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
160	3.300	7.64	8.33	0.18	0.06	0.00	2.10	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
161	3.200	7.64	8.33	0.18	0.06	0.00	2.10	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
162	3.100	7.64	8.33	0.18	0.06	0.00	2.10	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
163	3.000	7.64	8.33	0.18	0.06	0.00	2.10	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
164	2.900	7.64	8.33	0.18	0.06	0.00	2.10	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
165	2.800	7.64	8.33	0.18	0.06	0.00	2.10	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
166	2.700	7.64	8.33	0.18	0.06	0.00	2.10	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
167	2.600	7.64	8.33	0.18	0.06	0.00	2.10	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
168	2.500	7.64	8.33	0.18	0.06	0.00	2.10	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
169	2.400	7.64	8.33	0.18	0.06	0.00	2.10	2.10	2.10	0.18	0.06	0.99	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
20 DEG C RATE				0.12		0.00	1.16			0.12		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			7.00		0.05						0.05									0.05

* g/sq m/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 *
158	3.500	29.40	0.00	0.00	0.00	5.52	0.88	1.08	0.20	0.00	0.00	0.20	0.00	2.00	18.00	0.00	3.84
159	3.400	29.40	0.00	0.00	0.00	5.48	0.91	1.11	0.21	0.00	0.00	0.21	0.00	2.00	18.00	0.00	3.95
160	3.300	29.40	0.00	0.00	0.00	5.46	0.94	1.14	0.22	0.00	0.00	0.22	0.00	2.00	18.00	0.00	4.07
161	3.200	29.40	0.00	0.00	0.00	5.45	0.97	1.17	0.22	0.00	0.00	0.22	0.00	2.00	18.00	0.00	4.19
162	3.100	29.40	0.00	0.00	0.00	5.44	1.00	1.20	0.23	0.00	0.00	0.23	0.00	2.00	18.00	0.00	4.30
163	3.000	29.40	0.00	0.00	0.00	5.44	1.03	1.23	0.24	0.00	0.00	0.24	0.00	2.00	18.00	0.00	4.41
164	2.900	29.40	0.00	0.00	0.00	5.44	1.05	1.25	0.24	0.00	0.00	0.24	0.00	2.00	18.00	0.00	4.52
165	2.800	29.40	0.00	0.00	0.00	5.44	1.08	1.28	0.25	0.00	0.00	0.25	0.00	2.00	18.00	0.00	4.63
166	2.700	29.40	0.00	0.00	0.00	5.44	1.11	1.31	0.26	0.00	0.00	0.26	0.00	2.00	18.00	0.00	4.74
167	2.600	29.40	0.00	0.00	0.00	5.43	1.13	1.33	0.26	0.00	0.00	0.26	0.00	2.00	18.00	0.00	4.85
168	2.500	29.40	0.00	0.00	0.00	5.43	1.15	1.35	0.27	0.00	0.00	0.27	0.00	2.00	18.00	0.00	4.96
169	2.400	29.40	0.00	0.00	0.00	5.42	1.18	1.38	0.28	0.00	0.00	0.28	0.00	2.00	18.00	0.00	5.07

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 10 UPPER CALCASIEU RIVER REACH 10   DISSOLVED OXYGEN, PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *

170	UPR RCH	0.00280	29.40	0.00	0.00	0.00	5.42	1.18	1.38	0.28	0.00	0.00	0.00	2.00	0.00	5.07
179	WSTLD	0.00032	29.40	0.00	0.00	0.00	6.87	5.06	5.06	0.65	0.05	0.05	0.00	2.00	0.00	5.31

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
170	2.40	2.30	0.00280	0.00	0.01075	0.11	0.13	1.98	26.05	198.38	0.26	0.00	0.000	0.300	0.011
171	2.30	2.20	0.00280	0.00	0.01075	0.11	0.13	1.98	26.05	198.38	0.26	0.00	0.000	0.300	0.011
172	2.20	2.10	0.00280	0.00	0.01075	0.11	0.13	1.98	26.05	198.38	0.26	0.00	0.000	0.300	0.011
173	2.10	2.00	0.00280	0.00	0.01075	0.11	0.13	1.98	26.05	198.38	0.26	0.00	0.000	0.300	0.011
174	2.00	1.90	0.00280	0.00	0.01075	0.11	0.13	1.98	26.05	198.38	0.26	0.00	0.000	0.300	0.011
175	1.90	1.80	0.00280	0.00	0.01075	0.11	0.13	1.98	26.05	198.38	0.26	0.00	0.000	0.300	0.011
176	1.80	1.70	0.00280	0.00	0.01075	0.11	0.13	1.98	26.05	198.38	0.26	0.00	0.000	0.300	0.011
177	1.70	1.60	0.00280	0.00	0.01075	0.11	0.13	1.98	26.05	198.38	0.26	0.00	0.000	0.300	0.011
178	1.60	1.50	0.00280	0.00	0.01075	0.11	0.13	1.98	26.05	198.38	0.26	0.00	0.000	0.300	0.011
179	1.50	1.40	0.00312	10.37	0.01171	0.10	0.13	2.00	26.69	200.06	0.27	0.00	0.000	0.300	0.012
180	1.40	1.30	0.00312	10.37	0.01171	0.10	0.13	2.00	26.69	200.06	0.27	0.00	0.000	0.300	0.012
181	1.30	1.20	0.00312	10.37	0.01171	0.10	0.13	2.00	26.69	200.06	0.27	0.00	0.000	0.300	0.012
TOT						1.27			314.48	2385.57					
AVG					0.01097		0.13	1.99			0.26				
CUM						18.04									

** 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
170	2.300	7.64	7.41	0.18	0.06	0.00	2.30	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
171	2.200	7.64	7.41	0.18	0.06	0.00	2.30	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
172	2.100	7.64	7.41	0.18	0.06	0.00	2.30	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
173	2.000	7.64	7.41	0.18	0.06	0.00	2.30	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
174	1.900	7.64	7.41	0.18	0.06	0.00	2.30	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
175	1.800	7.64	7.41	0.18	0.06	0.00	2.30	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
176	1.700	7.64	7.41	0.18	0.06	0.00	2.30	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
177	1.600	7.64	7.41	0.18	0.06	0.00	2.30	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
178	1.500	7.64	7.41	0.18	0.06	0.00	2.30	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
179	1.400	7.64	7.42	0.18	0.06	0.00	2.30	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
180	1.300	7.64	7.42	0.18	0.06	0.00	2.30	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
181	1.200	7.64	7.42	0.18	0.06	0.00	2.30	2.30	2.30	0.22	0.06	0.98	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
20 DEG C RATE				0.12		0.00	1.27			0.14		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			6.23		0.05						0.05									0.05

* g/sq m/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 *
170	2.300	29.40	0.00	0.00	0.00	5.35	1.20	1.40	0.28	0.00	0.00	0.28	0.00	2.00	18.00	0.00	5.21
171	2.200	29.40	0.00	0.00	0.00	5.31	1.23	1.43	0.29	0.00	0.00	0.29	0.00	2.00	18.00	0.00	5.34
172	2.100	29.40	0.00	0.00	0.00	5.29	1.26	1.46	0.29	0.00	0.00	0.29	0.00	2.00	18.00	0.00	5.47
173	2.000	29.40	0.00	0.00	0.00	5.27	1.28	1.48	0.30	0.00	0.00	0.30	0.00	2.00	18.00	0.00	5.60
174	1.900	29.40	0.00	0.00	0.00	5.27	1.31	1.51	0.30	0.00	0.00	0.30	0.00	2.00	18.00	0.00	5.73
175	1.800	29.40	0.00	0.00	0.00	5.26	1.33	1.53	0.31	0.00	0.00	0.31	0.00	2.00	18.00	0.00	5.85
176	1.700	29.40	0.00	0.00	0.00	5.26	1.36	1.56	0.31	0.00	0.00	0.31	0.00	2.00	18.00	0.00	5.98
177	1.600	29.40	0.00	0.00	0.00	5.25	1.39	1.59	0.32	0.00	0.00	0.32	0.00	2.00	18.00	0.00	6.10
178	1.500	29.40	0.00	0.00	0.00	5.26	1.47	1.67	0.33	0.01	0.00	0.33	0.00	2.00	18.00	0.00	6.21
179	1.400	29.40	0.00	0.00	0.00	5.35	1.78	1.98	0.36	0.01	0.00	0.37	0.00	2.00	18.00	0.00	6.24
180	1.300	29.40	0.00	0.00	0.00	5.31	1.79	1.99	0.36	0.01	0.00	0.37	0.00	2.00	18.00	0.00	6.35
181	1.200	29.40	0.00	0.00	0.00	5.29	1.80	2.00	0.36	0.01	0.00	0.38	0.00	2.00	18.00	0.00	6.46

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 11   UPPER CALCASIEU RIVER REACH 11   DISSOLVED OXYGEN, PROJECTION MODEL

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW cms	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 *
182	UPR RCH	0.00312	29.40	0.00	0.00	0.00	5.29	1.80	2.00	0.36	0.01	0.00	0.00	2.00	0.00	6.46

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
182	1.20	1.10	0.00312	10.37	0.01385	0.08	0.15	1.52	22.56	151.75	0.23	0.00	0.000	0.300	0.014
183	1.10	1.00	0.00312	10.37	0.01385	0.08	0.15	1.52	22.56	151.75	0.23	0.00	0.000	0.300	0.014
184	1.00	0.90	0.00312	10.37	0.01385	0.08	0.15	1.52	22.56	151.75	0.23	0.00	0.000	0.300	0.014
185	0.90	0.80	0.00312	10.37	0.01385	0.08	0.15	1.52	22.56	151.75	0.23	0.00	0.000	0.300	0.014
186	0.80	0.70	0.00312	10.37	0.01385	0.08	0.15	1.52	22.56	151.75	0.23	0.00	0.000	0.300	0.014
187	0.70	0.60	0.00312	10.37	0.01385	0.08	0.15	1.52	22.56	151.75	0.23	0.00	0.000	0.300	0.014
188	0.60	0.50	0.00312	10.37	0.01385	0.08	0.15	1.52	22.56	151.75	0.23	0.00	0.000	0.300	0.014
189	0.50	0.40	0.00312	10.37	0.01385	0.08	0.15	1.52	22.56	151.75	0.23	0.00	0.000	0.300	0.014
190	0.40	0.30	0.00312	10.37	0.01385	0.08	0.15	1.52	22.56	151.75	0.23	0.00	0.000	0.300	0.014
191	0.30	0.20	0.00312	10.37	0.01385	0.08	0.15	1.52	22.56	151.75	0.23	0.00	0.000	0.300	0.014
192	0.20	0.10	0.00312	10.37	0.01385	0.08	0.15	1.52	22.56	151.75	0.23	0.00	0.000	0.300	0.014
193	0.10	0.00	0.00312	10.37	0.01385	0.08	0.15	1.52	22.56	151.75	0.23	0.00	0.000	0.300	0.014
TOT						1.00			270.71	1821.03					

AVG	0.01385		0.15	1.52	0.23
CUM		19.04			

** 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
182	1.100	7.64	6.90	0.18	0.06	0.00	2.60	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
183	1.000	7.64	6.90	0.18	0.06	0.00	2.60	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
184	0.900	7.64	6.90	0.18	0.06	0.00	2.60	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
185	0.800	7.64	6.90	0.18	0.06	0.00	2.60	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
186	0.700	7.64	6.90	0.18	0.06	0.00	2.60	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
187	0.600	7.64	6.90	0.18	0.06	0.00	2.60	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
188	0.500	7.64	6.90	0.18	0.06	0.00	2.60	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
189	0.400	7.64	6.90	0.18	0.06	0.00	2.60	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
190	0.300	7.64	6.90	0.18	0.06	0.00	2.60	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
191	0.200	7.64	6.90	0.18	0.06	0.00	2.60	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
192	0.100	7.64	6.90	0.18	0.06	0.00	2.60	2.60	2.60	0.25	0.06	0.39	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
193	0.000	7.64	6.90	0.18	0.06	0.00	2.60	2.60	2.60	0.25	0.06	0.38	0.00	0.00	0.00	0.15	0.00	0.00	0.02	0.06
20 DEG C RATE				0.12		0.00	1.44			0.16		0.20	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			5.80		0.05						0.05									0.05

* g/sq m/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 *
182	1.100	29.40	0.00	0.00	0.00	5.21	1.82	2.02	0.36	0.02	0.00	0.38	0.00	2.00	18.00	0.00	6.58
183	1.000	29.40	0.00	0.00	0.00	5.15	1.84	2.04	0.37	0.02	0.00	0.39	0.00	2.00	18.00	0.00	6.70
184	0.900	29.40	0.00	0.00	0.00	5.12	1.86	2.06	0.37	0.02	0.00	0.40	0.00	2.00	18.00	0.00	6.82
185	0.800	29.40	0.00	0.00	0.00	5.09	1.88	2.08	0.38	0.03	0.00	0.40	0.00	2.00	18.00	0.00	6.94
186	0.700	29.40	0.00	0.00	0.00	5.08	1.90	2.10	0.38	0.03	0.00	0.41	0.00	2.00	18.00	0.00	7.06
187	0.600	29.40	0.00	0.00	0.00	5.07	1.92	2.12	0.38	0.03	0.00	0.42	0.00	2.00	18.00	0.00	7.17
188	0.500	29.40	0.00	0.00	0.00	5.06	1.94	2.14	0.39	0.03	0.00	0.42	0.00	2.00	18.00	0.00	7.29
189	0.400	29.40	0.00	0.00	0.00	5.05	1.96	2.16	0.39	0.04	0.00	0.43	0.00	2.00	18.00	0.00	7.40
190	0.300	29.40	0.00	0.00	0.00	5.05	1.98	2.18	0.39	0.04	0.00	0.43	0.00	2.00	18.00	0.00	7.52
191	0.200	29.40	0.00	0.00	0.00	5.04	2.00	2.20	0.40	0.04	0.00	0.44	0.00	2.00	18.00	0.00	7.63
192	0.100	29.40	0.00	0.00	0.00	5.04	2.01	2.21	0.40	0.04	0.00	0.45	0.00	2.00	18.00	0.00	7.74
193	0.000	29.40	0.00	0.00	0.00	5.04	2.03	2.23	0.40	0.05	0.00	0.45	0.00	2.00	18.00	0.00	7.83

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM = CBOD2 MG/L

** g/cu m

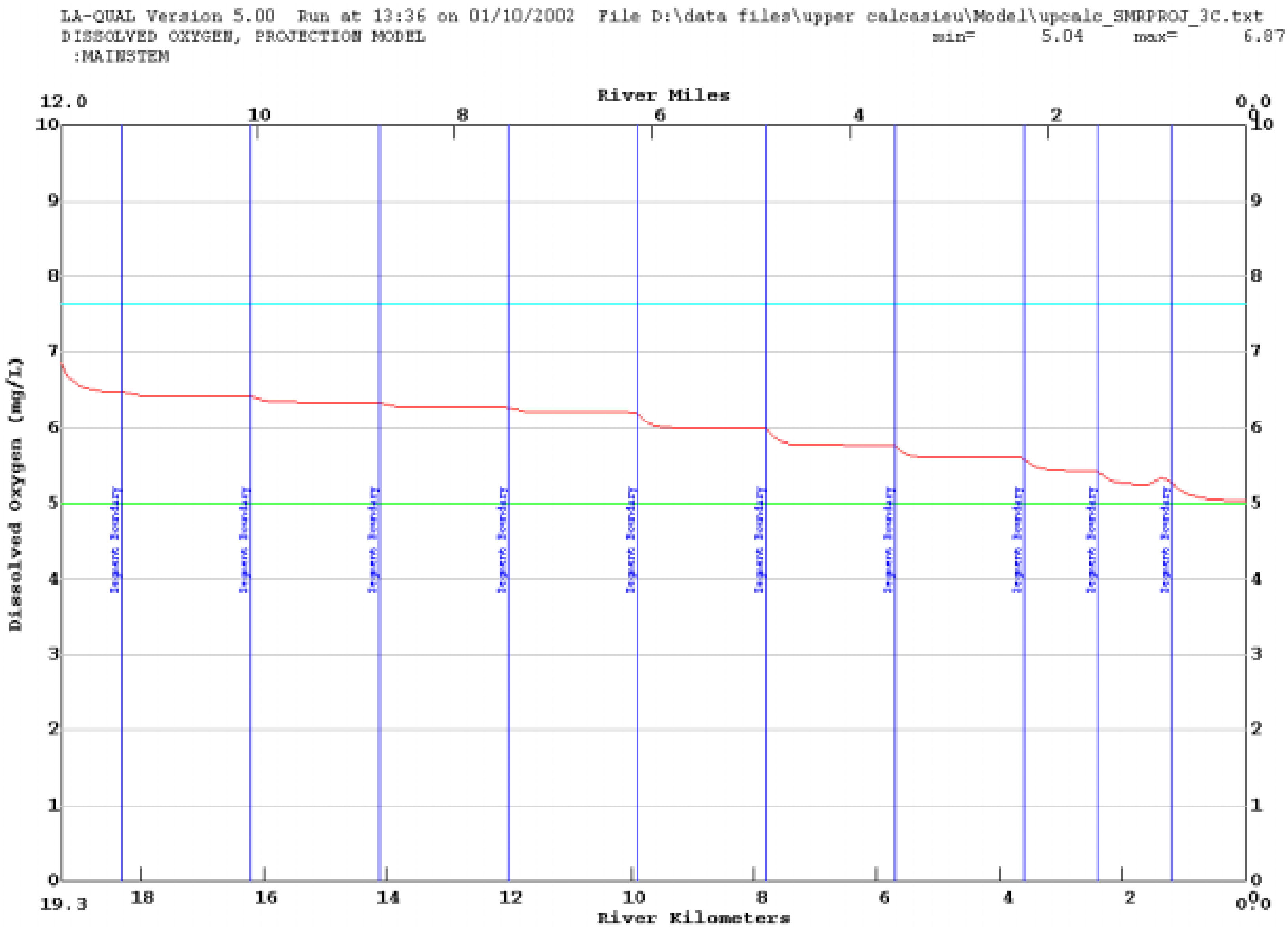
```
TRAVEL TIME      =          19.04 DAYS

MAXIMUM EFFLUENT =          10.37 PERCENT

FLOW             =   0.00280 TO    0.00312 cms
DISPERSION       =   0.3000  TO    0.3000  sq m/s
VELOCITY         =   0.00815 TO    0.02034 m/s
DEPTH            =   0.07    TO    0.22    m
WIDTH            =   1.52    TO    2.94    m

BOD DECAY        =    0.18   TO    0.26    per day
NH3 DECAY        =    0.38   TO    1.03    per day
SDMNT OXYGEN DMND=    1.03   TO    2.60    g/sq m/d
NH3 SOURCE       =    0.00   TO    0.00    g/sq m/d
REAERATION       =    4.13   TO   16.20    per day
BOD SETTLING     =    0.06   TO    0.06    per day
ORGN DECAY       =    0.05   TO    0.37    per day
ORGN SETTLING    =    0.06   TO    0.06    per day
TEMPERATURE      =   29.40   TO   29.40    deg C
DISSOLVED OXYGEN =    5.04   TO    6.70    mg/L


    .....EXECUTION COMPLETED
```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DISSOLVED OXYGEN, PROJECTION MODEL
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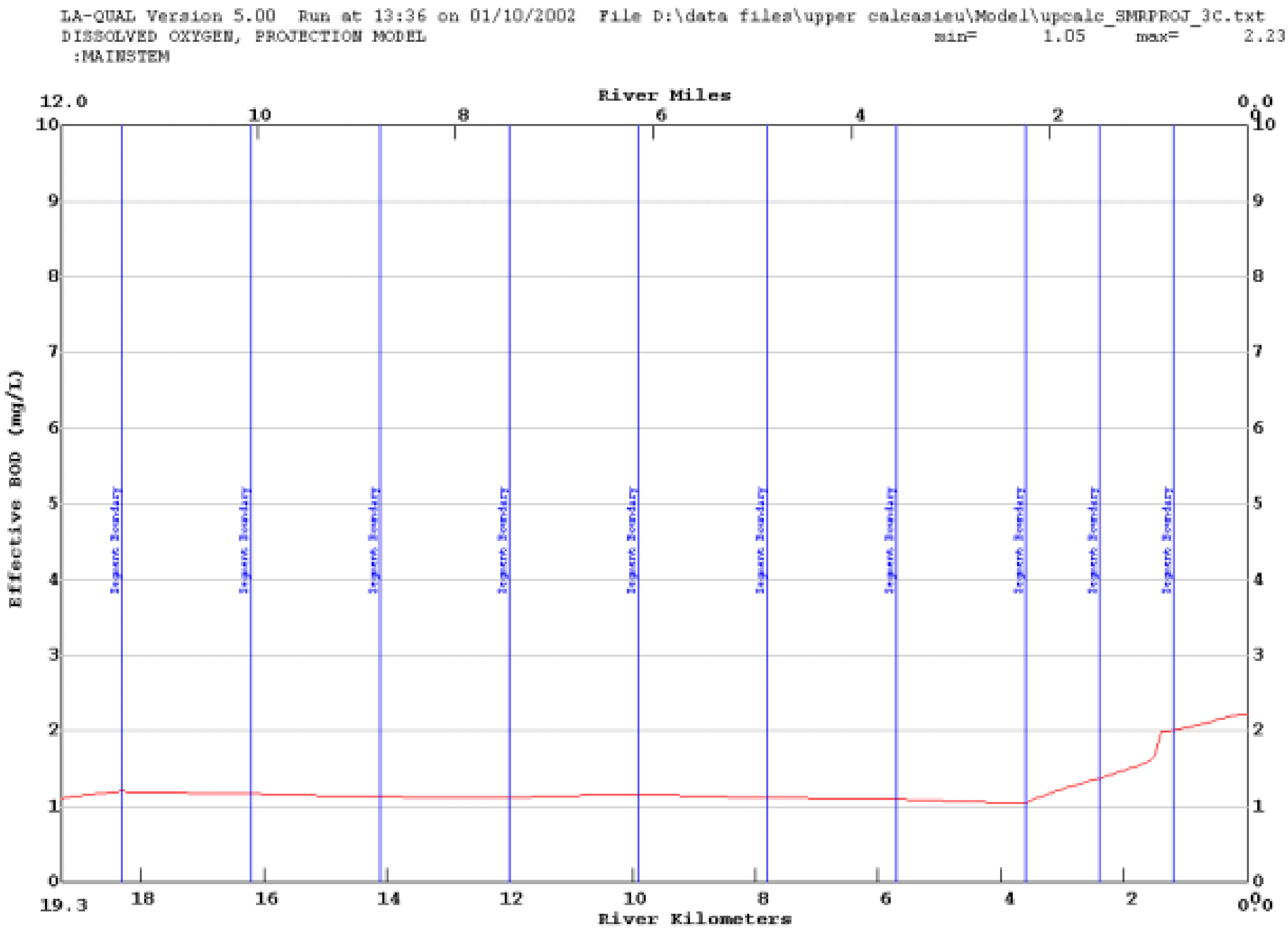
River Miles
Dissolved Oxygen (mg/L)
River Kilometers
Segment Boundary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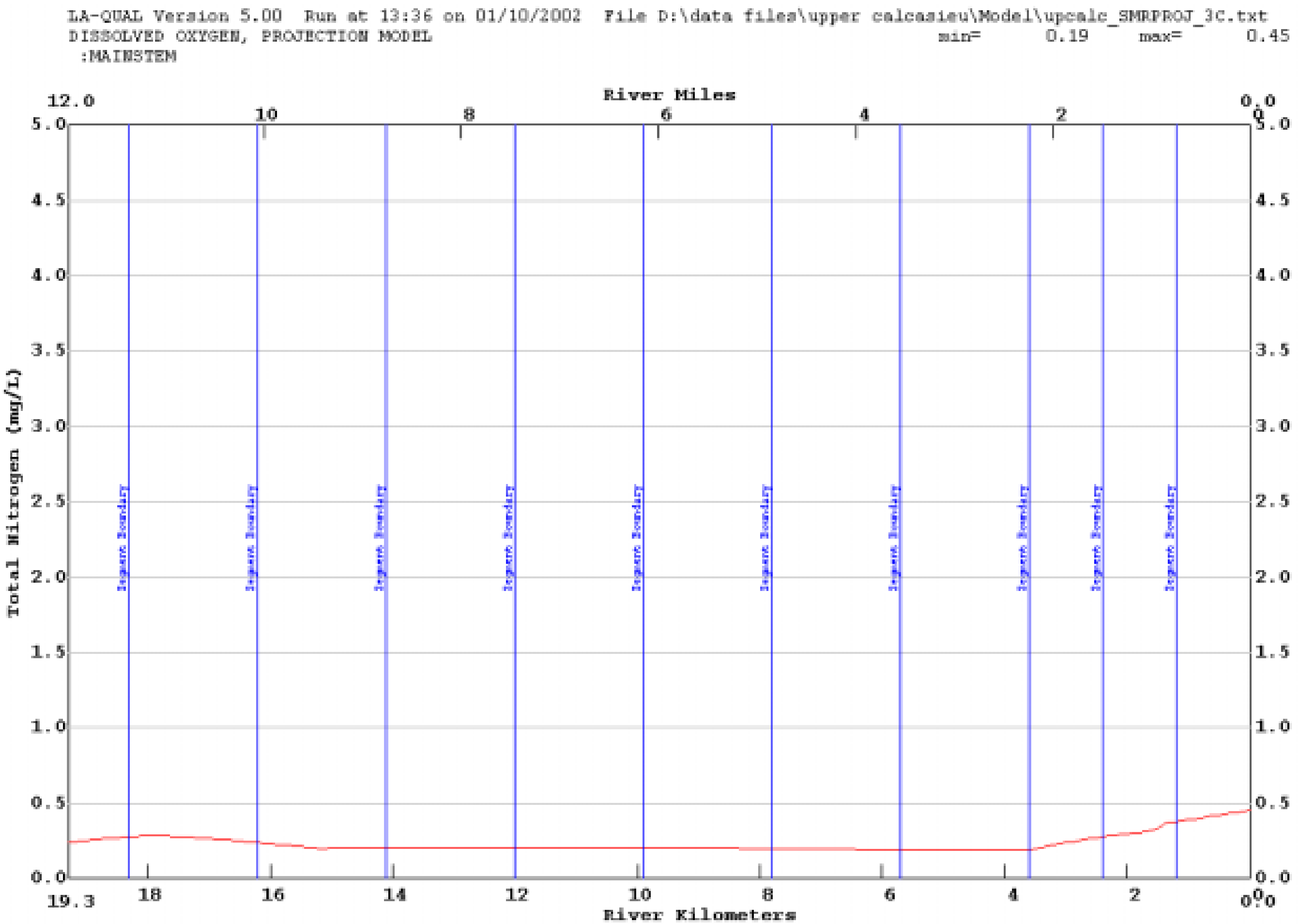
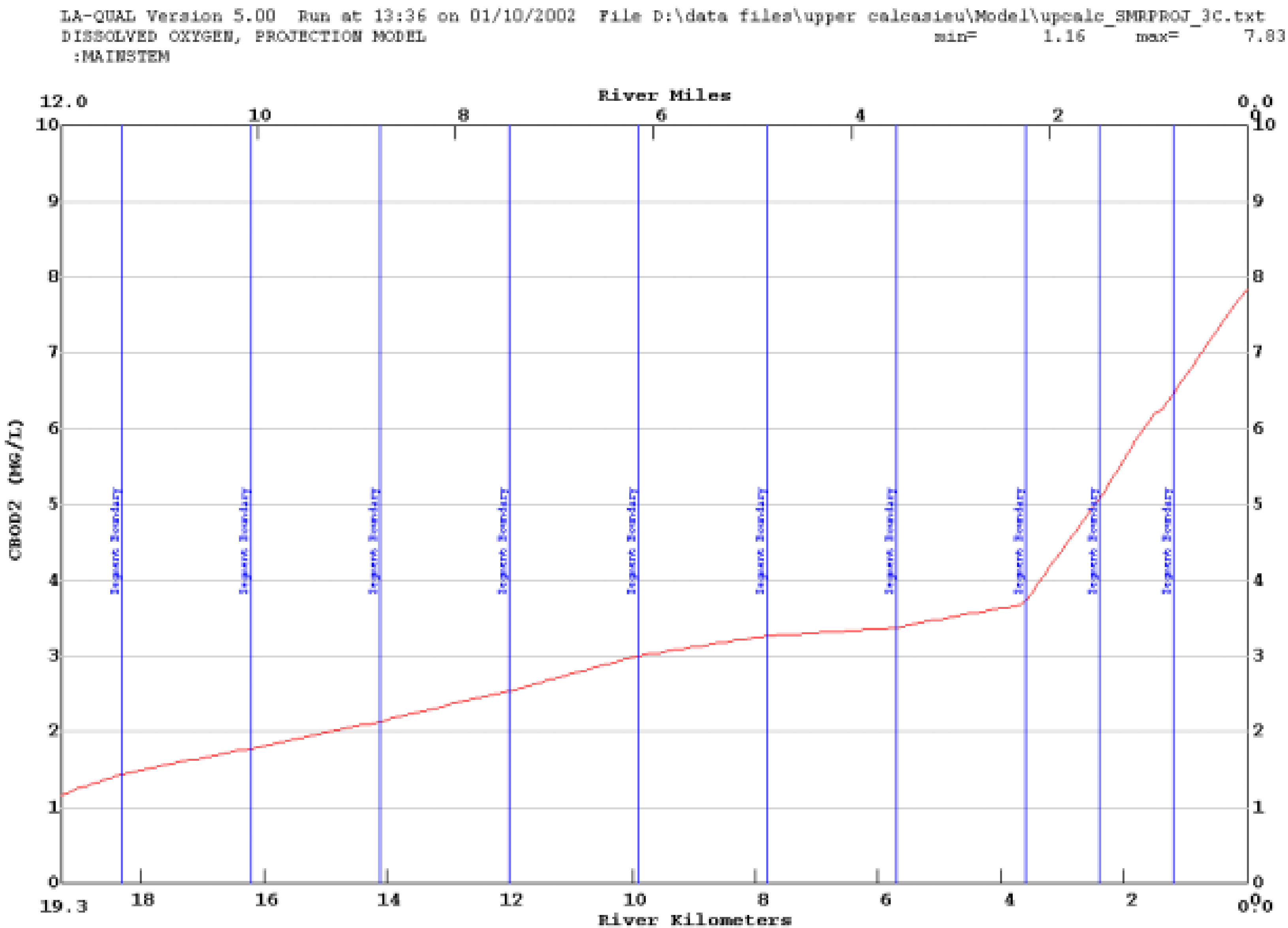
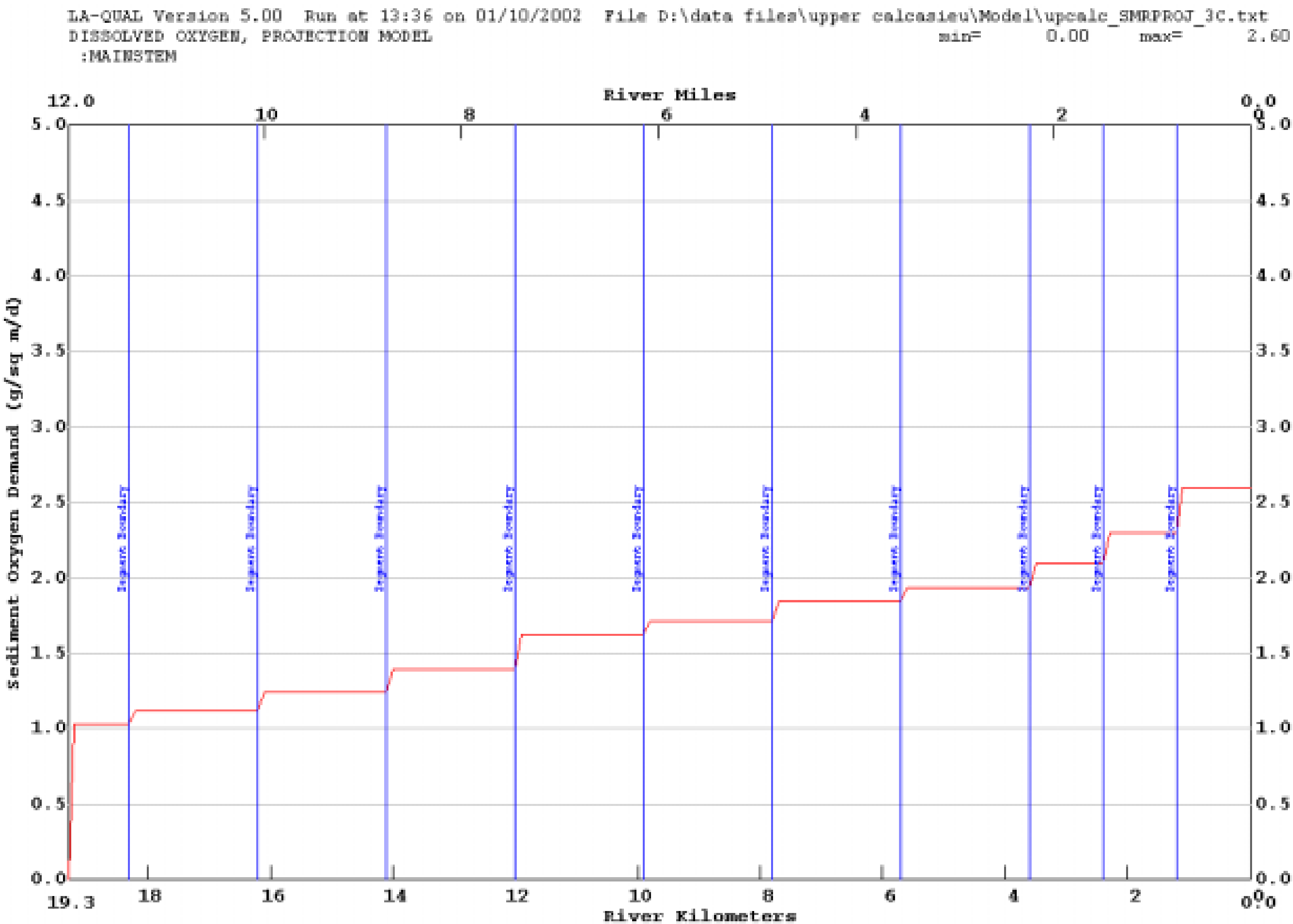
DISSOLVED OXYGEN, PROJECTION MODEL
min= 1.05 max= 2.23
:MAINSTEM
River Miles
12.0
10
8
6
4
2
0.0
Effective BOD (mg/L)
10
9
8
7
6
5
4
3
2
1
0
Segment Boundary
19.3
18
16
14
12
10
8
6
4
2
0.0
River Kilometers


LA-QUAL Version 5.00 Run at 13:36 on 01/10/2002 File D:\data files\upper calcasieu\Model\upcalc_SMRPROJ_3C.txt
DISSOLVED OXYGEN, PROJECTION MODEL
min= 0.19 max= 0.45
:MAINSTEM
River Miles
12.0
10
8
6
4
2
0.0
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Total Nitrogen (mg/L)
Segment Boundary
19.3
18
16
14
12
10
8
6
4
2
0.0
River Kilometers


LA-QUAL Version 5.00 Run at 13:36 on 01/10/2002 File D:\data files\upper calcasieu\Model\upcalc_SMRPROJ_3C.txt
DISSOLVED OXYGEN, PROJECTION MODEL
min= 1.16 max= 7.83
:MAINSTEM
River Miles
12.0
10
8
6
4
2
0.0
CBOD2 (MG/L)
0
1
2
3
4
5
6
7
8
9
10
Segment Boundary
19.3
18
16
14
12
10
8
6
4
2
0.0
River Kilometers


LA-QUAL Version 5.00 Run at 13:36 on 01/10/2002 File D:\data files\upper calcasieu\Model\upcalc_SMRPROJ_3C.txt
DISSOLVED OXYGEN, PROJECTION MODEL
min= 0.00 max= 2.60
:MAINSTEM
River Miles
12.0
10
8
6
4
2
0.0
Sediment Oxygen Demand (g/sq m/d)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Segment Boundary
19.3
18
16
14
12
10
8
6
4
2
0.0
River Kilometers

Appendix B3

Projection Model Development

Summer projection model justifications

DATA TYPE 3, Program Constants			
Description of Constant	**Value**	**Result**	**Source/Justification**
Maximum iteration limit	200.0		Standard
Plot type	3.0	Creates line printer plots for WQ parameters.	For reporting purposes.
Final report type	1.0	Report for all reach and stream summaries.	For reporting purposes.
BOD oxygen uptake rate	1.0	Indicates CBOD1 component model inputs are in ultimate BOD.	Modeler's Preference, the BOD model parameter was set to the CBOD1 component.
KL Minimum	0.7	Minimum KL to be used.	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
K2 Maximum	20.0	Maximum K2 @20C model will allow.	Due to the shallow depths in this waterbody, it was felt that this value would allow a more appropriate representation of the actual conditions.
N Algal uptake	0.0025	Net nitrogen uptake per unit of chlorophyll a (mg N/ug chlorophyll a /day).	Recommended model default value.
N Preference	0.35	Determines the nitrogen preference of algae and/or macrophytes.	Determine during calibration.
N Macrophyte Uptake	0.0025	Net nitrogen uptake per unit of macrophyte (mg N/mg macrophyte/day).	Recommended model default value.
Macrophyte Oxygen Prod	0.0000	Net oxygen production per unit of macrophyte (mg O/mg macrophyte/day).	Assumed the uptake was caused by the vegetation in the riparian zone, thus there would not be oxygen production into the stream.
NCM Oxygen uptake rate	1.0	Indicates CBOD2 component model inputs are in ultimate BOD.	Modeler's Preference, the NCM model parameter was set to the CBOD2 component.
Inhibition control value	3.0	Inhibits all decay rates except SOD for low DO.	Standard LA modeling procedure.
N Inhibition equation	1.0	Chooses linear or modified equation for nitrogen inhibition.	BPJ. Linear equation simulated the calibration conditions more accurate manner than the modified equation.
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 (1/day).	Due to the depths in this waterbody, it was felt that this method would be a more appropriate representation of the actual conditions.
Algae oxygen prod	0.050	Sets the net oxygen production per chlorophyll a.	Recommended model default value.
Effective BOD due to Algae	0.1	Sets the effect that decaying algae will have on BOD.	Recommended model manual's value.
NH3 Oxygen Uptake Rate	4.33	The oxygen uptake rate per unit of ammonia oxidized (mg 0/mg N).	Recommended model default value.

DATA TYPE 4, Temperature Correction Constants		
Description of Coefficient	**Value**	**Source/Justification**
NCM DECA	1.047	LTP value for CBOD. Used to in the simulation of the CBOD2 component.

Upper Calcasieu River (030101) W.Q. Summer Projection Input Description

DATA TYPE 9, Advective Hydraulic Coefficients					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Width Coef "A"	Unitless	0.924	Note 1
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.370	Note 1
		Depth Coef "D"	Unitless	0.039	Note 1
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.22	Note 1
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
2	Upper Calcasieu River Reach 2	Width Coef "A"	Unitless	1.533	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.374	Note 2
		Depth Coef "D"	Unitless	0.104	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.173	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
3	Upper Calcasieu River Reach 3	Width Coef "A"	Unitless	2.141	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.378	Note 2
		Depth Coef "D"	Unitless	0.17	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.127	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
4	Upper Calcasieu River Reach 4	Width Coef "A"	Unitless	2.749	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.383	Note 2
		Depth Coef "D"	Unitless	0.235	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.08	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
5	Upper Calcasieu River Reach 5	Width Coef "A"	Unitless	3.358	Note 1
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.387	Note 1
		Depth Coef "D"	Unitless	0.3	Note 1
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.034	Note 1
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
6	Upper Calcasieu River Reach 6	Width Coef "A"	Unitless	3.807	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.383	Note 2
		Depth Coef "D"	Unitless	0.235	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.08	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
7	Upper Calcasieu River Reach 7	Width Coef "A"	Unitless	4.257	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.885	Note 2
		Depth Coef "D"	Unitless	0.354	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.047	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.

Upper Calcasieu River (030101) W.Q. Summer Projection Input Description

DATA TYPE 9, Advective Hydraulic Coefficients					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
8	Upper Calcasieu River Reach 8	Width Coef "A"	Unitless	4.706	Note 1
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.806	Note 1
		Depth Coef "D"	Unitless	0.407	Note 1
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.066	Note 1
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
9	Upper Calcasieu River Reach 9	Width Coef "A"	Unitless	4.706	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.806	Note 2
		Depth Coef "D"	Unitless	0.407	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.066	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
10	Upper Calcasieu River Reach 10	Width Coef "A"	Unitless	4.706	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.806	Note 2
		Depth Coef "D"	Unitless	0.407	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.066	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
11	Upper Calcasieu River Reach 11	Width Coef "A"	Unitless	4.706	Note 1
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.806	Note 1
		Depth Coef "D"	Unitless	0.407	Note 1
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.066	Note 1
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.

Note 1: Based on the stream hydrology data from the adjoining Survey site. The exponent was set to the Leopold Emhemeral value and the coefficient and constant were calculated.

Note 2: The exponent was set to the Leopold Emhemeral value and the coefficient and constant were varied in a linear fashion between the reaches from which these values could be calculated.

DATA TYPE 10, Dispersive Hydraulic Coefficients					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1-4	Reaches 1-11	Dispersion Coef.	m2/sec	0.3	Values set via BPJ based on a review of the calculated dispersion coefficients from the reference streams.

DATA TYPE 11, INITIAL CONDITIONS					
Reach #	REACH DESCRIPTION	Initial Parameter	Units	Value	Source/Justification
1	Upper Calcasieu River Reach 1	Temperature	°Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	6.87	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
2	Upper Calcasieu River Reach 2	Temperature	°Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	6.87	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
3	Upper Calcasieu River Reach 3	Temperature	°Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	6.87	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
4	Upper Calcasieu River Reach 4	Temperature	°Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	6.87	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
5	Upper Calcasieu River Reach 5	Temperature	°Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	6.87	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
6	Upper Calcasieu River Reach 6	Temperature	°Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	6.87	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
7	Upper Calcasieu River Reach 7	Temperature	°Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	6.87	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
8	Upper Calcasieu River Reach 8	Temperature	°Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	6.87	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
9	Upper Calcasieu River Reach 9	Temperature	°Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	6.87	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.

DATA TYPE 11, INITIAL CONDITIONS					
Reach #	**REACH DESCRIPTION**	**Initial Parameter**	**Units**	**Value**	**Source/Justification**
10	Upper Calcasieu River Reach 10	Temperature	^{o}Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	6.87	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
11	Upper Calcasieu River Reach 11	Temperature	^{o}Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	6.87	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	K_2 option	Unitless	15	The velocity and depths are within the range of the Louisiana Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	0.57	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.17	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
2	Upper Calcasieu River Reach 2	K_2 option	Unitless	15	The velocity and depths are within the range of the Louisiana Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	0.62	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.158	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
3	Upper Calcasieu River Reach 3	K_2 option	Unitless	15	The velocity and depths are within the range of the Louisiana Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	0.69	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.145	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
4	Upper Calcasieu River Reach 4	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	0.77	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.133	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
5	Upper Calcasieu River Reach 5	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	0.90	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
6	Upper Calcasieu River Reach 6	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	0.95	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
7	Upper Calcasieu River Reach 7	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	1.02	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
8	Upper Calcasieu River Reach 8	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	1.07	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
9	Upper Calcasieu River Reach 9	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	1.16	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
10	Upper Calcasieu River Reach 10	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	1.27	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
11	Upper Calcasieu River Reach 11	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	1.44	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.

Note: Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times ranging. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD and Nonconservative Material (NCM) in the LAQUAL model.

DATA TYPE 13, Nitrogen and Phosphorus					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Organic Nitrogen decay rate	1/day	0.03	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
2	Upper Calcasieu River Reach 2	Organic Nitrogen decay rate	1/day	0.083	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
3	Upper Calcasieu River Reach 3	Organic Nitrogen decay rate	1/day	0.135	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
4	Upper Calcasieu River Reach 4	Organic Nitrogen decay rate	1/day	0.188	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
5	Upper Calcasieu River Reach 4	Organic Nitrogen decay rate	1/day	0.24	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
6	Upper Calcasieu River Reach 6	Organic Nitrogen decay rate	1/day	0.193	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
7	Upper Calcasieu River Reach 7	Organic Nitrogen decay rate	1/day	0.147	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
8	Upper Calcasieu River Reach 8	Organic Nitrogen decay rate	1/day	0.1	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985

DATA TYPE 13, Nitrogen and Phosphorus					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
9	Upper Calcasieu River Reach 9	Organic Nitrogen decay rate	1/day	0.12	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
10	Upper Calcasieu River Reach 10	Organic Nitrogen decay rate	1/day	0.14	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
11	Upper Calcasieu River Reach 11	Organic Nitrogen decay rate	1/day	0.16	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985

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DATA TYPE 15, Coliform and Nonconservative Coefficents					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	NCM Decay	1/day	0.029	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
2	Upper Calcasieu River Reach 2	NCM Decay	1/day	0.025	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
3	Upper Calcasieu River Reach 3	NCM Decay	1/day	0.021	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
4	Upper Calcasieu River Reach 4	NCM Decay	1/day	0.16	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
5	Upper Calcasieu River Reach 5	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
6	Upper Calcasieu River Reach 6	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
7	Upper Calcasieu River Reach 7	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
8	Upper Calcasieu River Reach 8	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
9	Upper Calcasieu River Reach 9	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
10	Upper Calcasieu River Reach 10	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
11	Upper Calcasieu River Reach 11	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.

Note: Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times ranging from 16.65 to 22.23 days. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD and Nonconservative Material (NCM) in the LAQUAL model.

DATA TYPE 16, Incremental Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
2	Upper Calcasieu River Reach 2	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
3	Upper Calcasieu River Reach 3	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
4	Upper Calcasieu River Reach 4	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
5	Upper Calcasieu River Reach 5	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
6	Upper Calcasieu River Reach 6	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
7	Upper Calcasieu River Reach 7	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
8	Upper Calcasieu River Reach 8	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
9	Upper Calcasieu River Reach 9	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
10	Upper Calcasieu River Reach 10	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
11	Upper Calcasieu River Reach 11	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	29.4	90th percentile summer season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.

DATA TYPE 17, Incremetal Data for DO, BOD, Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1-11	Upper Calcasieu River Reaches 1-11	Incremental Dissolved Oxygen	mg/l	0	Negated the incremental flow to simulate critical conditions.

DATA TYPE 18, Incremetal Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1-11	Upper Calcasieu River Reaches 1-11	All			Negated the incremental flow to simulate critical conditions.

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DATA TYPE 19, Nonpoint Source Data					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	BOD	kg/day	0.13	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.015	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.114	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
2	Upper Calcasieu River Reach 2	BOD	kg/day	0.184	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.027	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.188	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
3	Upper Calcasieu River Reach 3	BOD	kg/day	0.137	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.032	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.187	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
4	Upper Calcasieu River Reach 4	BOD	kg/day	0.102	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.031	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.184	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
5	Upper Calcasieu River Reach 5	BOD	kg/day	0.078	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.026	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.178	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
6	Upper Calcasieu River Reach 6	BOD	kg/day	0.077	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.026	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.161	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
7	Upper Calcasieu River Reach 7	BOD	kg/day	0.107	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.025	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.158	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
8	Upper Calcasieu River Reach 8	BOD	kg/day	0.117	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.025	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.251	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
9	Upper Calcasieu River Reach 9	BOD	kg/day	0.166	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.041	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.45	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
10	Upper Calcasieu River Reach 10	BOD	kg/day	0.172	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.04	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.519	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.

DATA TYPE 19, Nonpoint Source Data					
Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
11	Upper Calcasieu River Reach 11	BOD	kg/day	0.191	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.044	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.537	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.

Note: Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD (CBOD1) and Nonconservative Material (NCM) (CBOD2) in the LAQUAL model.

DATA TYPE 20, Headwater Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Element # of input		1	
		Headwater name		Upper Calcasieu Rvr	
		Headwater flow	cms	0.00280	LTP recommended critical period flow rate, 0.1 cfs.
		Temperature	^{o}Celcius	29.40	90th percentile Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.

DATA TYPE 21, Headwater Data for DO, BOD, and Nitrogen					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Element # of input		1	Measured at July, 2001 survey site UpCalc1.
		Dissolved O_2	mg/l	6.87	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		BOD	mg/l	5.06	Measured ultimate CBOD1 value from Site UpCalc1 during July,2001 survey.
		Organic Nitrogen	mg/l	0.65	Measured Organic Nitrogen value from Site UpCalc1 during July,2001 survey.
		Ammonia Nitrogen	mg/l	0.05	Measured Ammonia Nitrogen value from Site UpCalc1 during July,2001 survey. Below PQL(Practical Quantitation Limit), used one of PQL as value.
		NO2+NO3	mg/l	0.025	Measured NO2+NO3 Nitrogen value from Site UpCalc1 during July,2001 survey. Below PQL(Practical Quantitation Limit), used one of PQL as value.

Note: Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD (CBOD1) and Nonconservative Material (NCM) (CBOD2) in the LAQUAL model.

Upper Calcasieu River (030101) W.Q. Summer Projection Input Description

DATA TYPE 22, Headwater Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Element # of input		1	Measured at June, 2001 survey site CL1.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		NCM	mg/l	5.31	Measured ultimate CBOD2 value from Site UpCalc1 during July,2001 survey.

Note: Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD (CBOD1) and Nonconservative Material (NCM) (CBOD2) in the LAQUAL model.

Upper Calcasieu River (030101) W.Q. Summer Projection Input Description

DATA TYPE 24, Wastewater Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
10	Upper Calcasieu River Reaches 10	Element # of input		179	Compilation of the four unmodeled dischargers flow.
		Flow	cms	0.000324	Compilation of the four unmodeled dischargers flow. (7400 gpd)
		Temperature	^{o}Celcius	29.4	90th percentile Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.

DATA TYPE 25, Wastewater Data for DO, BOD, and Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
10	Upper Calcasieu River Reaches 10	Element # of input		179	Compilation of the four unmodeled dischargers flow.
		Dissolved Oxygen	mg/l	6.87	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		BOD	mg/l	5.06	Measured ultimate CBOD1 value from Site UpCalc1 during July,2001 survey.
		Organic Nitrogen	mg/l	0.65	Measured Organic Nitrogen value from Site UpCalc1 during July,2001 survey.
		Ammonia Nitrogen	mg/l	0.05	Measured Ammonia Nitrogen value from Site UpCalc1 during July,2001 survey. Below PQL(Practical Quantitation Limit), used one of PQL as value.
		NO2+NO3	mg/l	0.025	Measured NO2+NO3 Nitrogen value from Site UpCalc1 during July,2001 survey. Below PQL(Practical Quantitation Limit), used one of PQL as value.

DATA TYPE 25, Wastewater Data for DO, BOD, and Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
10	Upper Calcasieu River Reaches 10	Element # of input		179	Compilation of the four unmodeled dischargers flow.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		NCM	mg/l	5.31	Measured ultimate CBOD2 value from Site UpCalc1 during July,2001 survey.

DATA TYPE 27, Lower Boundary Conditions					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
11	Upper Calcasieu River	Temperature	^{o}Celcius	29.4	90th percentile Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Salinity	ppt	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Conservative Matl. I	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Conservative Matl. II		0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Dissolved O_2	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		BOD	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Org.- N	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		NH_3-N	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		NO_{2+3}-N	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		NCM	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.

Appendix B4

Projection Model Development

Winter projection model input/output and graphs

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LA-QUAL Version 5.00
Louisiana Department of Environmental Quality

Input file is D:\data files\upper calcasieu\Model\upcalc_WTRPROJ_1A.txt
Output produced at 15:37 on 01/09/2002

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

CARD TYPE        CONTROL TITLES

TITLE01          UPPER CALCASIEU RIVER (030101)- STREAM MODEL
TITLE02          DISSOLVED OXYGEN, WINTER PROJECTION MODEL
CNTROL11   NO    SEQUENCING OUTPUT
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   NO    CONSERVATIVE MATERIAL  I = CHLORIDES                  IN MG/L
MODOPT04   NO    CONSERVATIVE MATERIAL II = SULFATES                   IN MG/L
MODOPT05  YES    DISSOLVED OXYGEN
MODOPT06  YES    BIOCHEMICAL OXYGEN DEMAND
MODOPT07  YES    NITROGEN
MODOPT08   NO    PHOSPHORUS
MODOPT09   NO    CHLOROPHYLL A
MODOPT10   NO    MACROPHYTES
MODOPT11   NO    COLIFORM
MODOPT12  YES    NONCONSERVATIVE MATERIAL = CBOD2                      IN MG/L
ENDATA02

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

CARD TYPE        DESCRIPTION OF CONSTANT                    VALUE

PROGRAM          MAXIMUM ITERATION LIMIT           =      200.00000
PROGRAM          PLOT TYPE                         =        3.00000
PROGRAM          FINAL REPORT TYPE                 =        1.00000
PROGRAM          BOD OXYGEN UPTAKE RATE            =        1.00000
PROGRAM          KL MINIMUM                        =        0.70000
PROGRAM          K2 MAXIMUM                        =       20.00000
PROGRAM          N ALGAL UPTAKE                    =        0.00250
PROGRAM          N PREFERENCE                      =        0.35000
PROGRAM          N MACROPHYTE UPTAKE               =        0.00250
PROGRAM          N INHIBITION EQUATION             =        1.00000
PROGRAM          MACROPHYTE OXYGEN PROD            =        0.00000
PROGRAM          NCM OXYGEN UPTAKE RATE            =        1.00000
PROGRAM          INHIBITION CONTROL VALUE          =        3.00000
PROGRAM          OCEAN EXCHANGE RATIO              =        0.00000
```

PROGRAM	HYDRAULIC CALCULATION METHOD	=	2.00000
PROGRAM	SETTLED RATE UNITS	=	2.00000
PROGRAM	ALGAE OXYGEN PROD	=	0.05000
PROGRAM	EFFECTIVE BOD DUE TO ALGAE	=	0.10000
PROGRAM	NH3 OXYGEN UPTAKE RATE	=	4.33000

ENDATA03

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

CARD TYPE	RATE CODE	THETA VALUE
THETA	NCM DECA	1.04700

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	CL	UPPER CALCASIEU RIVER REACH 1	19.30	TO	18.30	0.1000	1.00	10	1	10
REACH ID	2	CL	UPPER CALCASIEU RIVER REACH 2	18.30	TO	16.20	0.1000	2.10	21	11	31
REACH ID	3	CL	UPPER CALCASIEU RIVER REACH 3	16.20	TO	14.10	0.1000	2.10	21	32	52
REACH ID	4	CL	UPPER CALCASIEU RIVER REACH 4	14.10	TO	12.00	0.1000	2.10	21	53	73
REACH ID	5	CL	UPPER CALCASIEU RIVER REACH 5	12.00	TO	9.90	0.1000	2.10	21	74	94
REACH ID	6	CL	UPPER CALCASIEU RIVER REACH 6	9.90	TO	7.80	0.1000	2.10	21	95	115
REACH ID	7	CL	UPPER CALCASIEU RIVER REACH 7	7.80	TO	5.70	0.1000	2.10	21	116	136
REACH ID	8	CL	UPPER CALCASIEU RIVER REACH 8	5.70	TO	3.60	0.1000	2.10	21	137	157
REACH ID	9	CL	UPPER CALCASIEU RIVER REACH 9	3.60	TO	2.40	0.1000	1.20	12	158	169
REACH ID	10	CL	UPPER CALCASIEU RIVER REACH 10	2.40	TO	1.20	0.1000	1.20	12	170	181
REACH ID	11	CL	UPPER CALCASIEU RIVER REACH 11	1.20	TO	0.00	0.1000	1.20	12	182	193

ENDATA08

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

CARD TYPE	REACH	ID	WIDTH	WIDTH	WIDTH	DEPTH	DEPTH	DEPTH	SLOPE	MANNINGS

			"A"	"B"	"C"	"D"	"E"	"F"		"N"
HYDR-1	1	CL	0.924	0.300	1.370	0.039	0.360	0.220	0.00000	0.030
HYDR-1	2	CL	1.533	0.300	1.374	0.104	0.360	0.173	0.00000	0.030
HYDR-1	3	CL	2.141	0.300	1.378	0.170	0.360	0.127	0.00000	0.030
HYDR-1	4	CL	2.749	0.300	1.383	0.235	0.360	0.080	0.00000	0.030
HYDR-1	5	CL	3.358	0.300	1.387	0.300	0.360	0.034	0.00000	0.030
HYDR-1	6	CL	3.807	0.300	1.636	0.327	0.360	0.040	0.00000	0.030
HYDR-1	7	CL	4.257	0.300	1.885	0.354	0.360	0.047	0.00000	0.030
HYDR-1	8	CL	4.706	0.300	2.133	0.381	0.360	0.053	0.00000	0.030
HYDR-1	9	CL	3.825	0.300	1.806	0.407	0.360	0.066	0.00000	0.030
HYDR-1	10	CL	2.944	0.300	1.479	0.434	0.360	0.079	0.00000	0.030
HYDR-1	11	CL	2.063	0.300	1.152	0.460	0.360	0.091	0.00000	0.030

ENDATA09

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

CARD TYPE	REACH	ID	TIDAL RANGE	DISPERSION "A"	DISPERSION "B"	DISPERSION "C"	DISPERSION "D"
HYDR	1	CL	0.00	0.300	0.000	0.000	0.000
HYDR	2	CL	0.00	0.300	0.000	0.000	0.000
HYDR	3	CL	0.00	0.300	0.000	0.000	0.000
HYDR	4	CL	0.00	0.300	0.000	0.000	0.000
HYDR	5	CL	0.00	0.300	0.000	0.000	0.000
HYDR	6	CL	0.00	0.300	0.000	0.000	0.000
HYDR	7	CL	0.00	0.300	0.000	0.000	0.000
HYDR	8	CL	0.00	0.300	0.000	0.000	0.000
HYDR	9	CL	0.00	0.300	0.000	0.000	0.000
HYDR	10	CL	0.00	0.300	0.000	0.000	0.000
HYDR	11	CL	0.00	0.300	0.000	0.000	0.000

ENDATA10

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

CARD TYPE	REACH	ID	TEMP	SALIN	DO	NH3	NO3+2	PHOS	CHL A	MACRO
INITIAL	1	CL	20.40	0.00	8.12	0.00	0.00	0.00	2.00	0.00
INITIAL	2	CL	20.40	0.00	8.12	0.00	0.00	0.00	2.00	0.00
INITIAL	3	CL	20.40	0.00	8.12	0.00	0.00	0.00	2.00	25.00
INITIAL	4	CL	20.40	0.00	8.12	0.00	0.00	0.00	2.00	45.00
INITIAL	5	CL	20.40	0.00	8.12	0.00	0.00	0.00	2.00	65.00
INITIAL	6	CL	20.40	0.00	8.12	0.00	0.00	0.00	2.00	65.00
INITIAL	7	CL	20.40	0.00	8.12	0.00	0.00	0.00	2.00	55.00
INITIAL	8	CL	20.40	0.00	8.12	0.00	0.00	0.00	2.00	20.00
INITIAL	9	CL	20.40	0.00	8.12	0.00	0.00	0.00	2.00	18.00
INITIAL	10	CL	20.40	0.00	8.12	0.00	0.00	0.00	2.00	18.00
INITIAL	11	CL	20.40	0.00	8.12	0.00	0.00	0.00	2.00	18.00

ENDATA11

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

CARD TYPE	REACH	ID	K2	K2	K2	K2	BKGRND	AEROB BOD	BOD	BOD CONV	ANAER BOD

					OPT	"A"	"B"	"C"	SOD	DECAY	SETT	TO SOD	DECAY
COEF-1	1	CL	15	LOUISIANA		0.700	0.000	0.000	0.570	0.170	0.050	0.000	0.000
COEF-1	2	CL	15	LOUISIANA		0.700	0.000	0.000	0.620	0.158	0.050	0.000	0.000
COEF-1	3	CL	15	LOUISIANA		0.700	0.000	0.000	0.690	0.145	0.050	0.000	0.000
COEF-1	4	CL	15	LOUISIANA		0.700	0.000	0.000	0.770	0.133	0.050	0.000	0.000
COEF-1	5	CL	15	LOUISIANA		0.700	0.000	0.000	0.900	0.120	0.050	0.000	0.000
COEF-1	6	CL	15	LOUISIANA		0.700	0.000	0.000	0.950	0.120	0.050	0.000	0.000
COEF-1	7	CL	15	LOUISIANA		0.700	0.000	0.000	1.020	0.120	0.050	0.000	0.000
COEF-1	8	CL	15	LOUISIANA		0.700	0.000	0.000	1.070	0.120	0.050	0.000	0.000
COEF-1	9	CL	15	LOUISIANA		0.700	0.000	0.000	1.160	0.120	0.050	0.000	0.000
COEF-1	10	CL	15	LOUISIANA		0.700	0.000	0.000	1.270	0.120	0.050	0.000	0.000
COEF-1	11	CL	15	LOUISIANA		0.700	0.000	0.000	1.440	0.120	0.050	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
COEF-2	1	CL	0.03	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	2	CL	0.08	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	3	CL	0.14	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	4	CL	0.19	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	5	CL	0.24	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	6	CL	0.19	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	7	CL	0.15	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	8	CL	0.10	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	9	CL	0.12	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	10	CL	0.14	0.05	0.00	0.50	0.00	0.00	0.00
COEF-2	11	CL	0.16	0.05	0.00	0.50	0.00	0.00	0.00

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	CL	0.00	0.03	0.05	0.00
COEF-4	2	CL	0.00	0.03	0.05	0.00
COEF-4	3	CL	0.00	0.02	0.05	0.00
COEF-4	4	CL	0.00	0.02	0.05	0.00
COEF-4	5	CL	0.00	0.01	0.05	0.00
COEF-4	6	CL	0.00	0.01	0.05	0.00
COEF-4	7	CL	0.00	0.01	0.05	0.00
COEF-4	8	CL	0.00	0.01	0.05	0.00

COEF-4	9	CL	0.00	0.01	0.05	0.00
COEF-4	10	CL	0.00	0.01	0.05	0.00
COEF-4	11	CL	0.00	0.01	0.05	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
INCR-1	1	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	2	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	3	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	4	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	5	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	6	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	7	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	8	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	9	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	10	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000
INCR-1	11	CL	0.00000	0.00000	29.40	0.00	0.00	0.00	0.00000	0.00000

ENDATA16

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

CARD TYPE	REACH	ID	DO	BOD	ORG-N	NH3	NO3+2
INCR-2	1	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	2	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	3	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	4	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	5	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	6	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	7	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	8	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	9	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	10	CL	2.00	0.00	0.00	0.00	0.00
INCR-2	11	CL	2.00	0.00	0.00	0.00	0.00

ENDATA17

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

CARD TYPE	REACH	ID	PHOS	CHL A	COLI	NCM
INCR-3	1	CL	0.00	0.00	0.00	0.00
INCR-3	2	CL	0.00	0.00	0.00	0.00
INCR-3	3	CL	0.00	0.00	0.00	0.00
INCR-3	4	CL	0.00	0.00	0.00	0.00
INCR-3	5	CL	0.00	0.00	0.00	0.00
INCR-3	6	CL	0.00	0.00	0.00	0.00
INCR-3	7	CL	0.00	0.00	0.00	0.00
INCR-3	8	CL	0.00	0.00	0.00	0.00
INCR-3	9	CL	0.00	0.00	0.00	0.00
INCR-3	10	CL	0.00	0.00	0.00	0.00

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INCR-3           11   CL        0.00      0.00      0.00      0.00
ENDATA18

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

CARD TYPE      REACH  ID         BOD     ORG-N      COLI       NCM        DO

NONPOINT          1   CL        0.14      0.02      0.00      0.13      0.00
NONPOINT          2   CL        0.21      0.03      0.00      0.22      0.00
NONPOINT          3   CL        0.17      0.04      0.00      0.22      0.00
NONPOINT          4   CL        0.13      0.04      0.00      0.23      0.00
NONPOINT          5   CL        0.10      0.03      0.00      0.23      0.00
NONPOINT          6   CL        0.10      0.03      0.00      0.21      0.00
NONPOINT          7   CL        0.14      0.03      0.00      0.20      0.00
NONPOINT          8   CL        0.15      0.03      0.00      0.32      0.00
NONPOINT          9   CL        0.21      0.05      0.00      0.57      0.00
NONPOINT         10   CL        0.22      0.05      0.00      0.65      0.00
NONPOINT         11   CL        0.23      0.05      0.00      0.66      0.00
ENDATA19

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

CARD TYPE     ELEMENT   NAME                  UNIT          FLOW      TEMP     SALIN      CM-I     CM-II

HDWTR-1          1     UPPER CALCASIEU RVR     0        0.02800    20.400     0.000     0.000     0.000
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     UPPER CALCASIEU RVR         8.12      0.98      0.13      0.05      0.03
ENDATA21

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

CARD TYPE     ELEMENT   NAME                          PHOS     CHL A      COLI       NCM

HDWTR-3          1     UPPER CALCASIEU RVR          0.00      9.80      0.00      1.03
ENDATA22

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

CARD TYPE   JUNCTION   UPSTRM     RIVER     NAME
             ELEMENT  ELEMENT     KILOM

ENDATA23

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

CARD TYPE  ELEMENT    RKILO  NAME                          FLOW      TEMP       SAL      CM-I     CM-II

WSTLD-1      179       1.50  1  BIG BRANCH               0.00032    20.400     0.000     0.000     0.000
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ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$
                                                                   % BOD                                %
CARD TYPE     ELEMENT   NAME                         DO       BOD     RMVL     ORG-N       NH3    NITRIF     NO3+2

WSTLD-2         179     1  BIG BRANCH              8.12      5.06     0.00      0.65      0.05      0.00      0.03
ENDATA25

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

CARD TYPE     ELEMENT   NAME                       PHOS     CHL A     COLI       NCM

WSTLD-3         179     1  BIG BRANCH              0.00      2.00     0.00      5.31
ENDATA26

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

CARD TYPE    CONSTITUENT                    CONCENTRATION

LOWER BC     TEMPERATURE                        =     20.400 deg C
LOWER BC     SALINITY                           =      0.000 ppt
LOWER BC     CONSERVATIVE MATERIAL I            =      0.000 MG/L
LOWER BC     CONSERVATIVE MATERIAL II           =      0.000 MG/L
LOWER BC     DISSOLVED OXYGEN                   =      0.000 mg/L
LOWER BC     BIOCHEMICAL OXYGEN DEMAND          =      0.000 mg/L
LOWER BC     ORGANIC NITROGEN                   =      0.000 mg/L
LOWER BC     AMMONIA NITROGEN                   =      0.000 mg/L
LOWER BC     NITRATE + NITRITE                  =      0.000 mg/L
LOWER BC     PHOSPHORUS                         =      0.000 mg/L
LOWER BC     CHLOROPHYLL A                      =      2.000 µg/L
LOWER BC     COLIFORM                           =      0.000 #/100 mL
LOWER BC     NONCONSERVATIVE MATERIAL           =      0.000 MG/L
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 =  11
PLOT RCH  1  2  3  4  5  6  7  8  9 10 11
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ENDATA30

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

OVERLAY 1 UpCalcov3.txt :MAINSTEM
ENDATA31

.....NO ERRORS DETECTED IN INPUT DATA
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN 135 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED
***** WARNING: NEGATIVE CONCENTRATIONS SET TO ZERO FOR Ammonia Nitrogen
***** WARNING: NEGATIVE CONCENTRATIONS SET TO ZERO FOR Nitrate+Nitrite Nitrogen
.....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 11

SPECIAL REPORT: UPPER CALCASIEU RVR
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	19.200	20.40	0.0	0.0	0.0	8.18	0.78	0.98	0.13	0.05	0.03	0.21	0.00	2.0	0.0	0.	1.03
2	19.100	20.40	0.0	0.0	0.0	8.23	0.79	0.99	0.13	0.05	0.03	0.21	0.00	2.0	0.0	0.	1.04
3	19.000	20.40	0.0	0.0	0.0	8.27	0.79	0.99	0.13	0.05	0.03	0.21	0.00	2.0	0.0	0.	1.04
4	18.900	20.40	0.0	0.0	0.0	8.31	0.79	0.99	0.13	0.05	0.03	0.21	0.00	2.0	0.0	0.	1.05
5	18.800	20.40	0.0	0.0	0.0	8.35	0.80	1.00	0.13	0.05	0.03	0.21	0.00	2.0	0.0	0.	1.05
6	18.700	20.40	0.0	0.0	0.0	8.38	0.80	1.00	0.13	0.05	0.03	0.21	0.00	2.0	0.0	0.	1.05
7	18.600	20.40	0.0	0.0	0.0	8.41	0.80	1.00	0.13	0.05	0.03	0.21	0.00	2.0	0.0	0.	1.06
8	18.500	20.40	0.0	0.0	0.0	8.44	0.80	1.00	0.13	0.05	0.03	0.21	0.00	2.0	0.0	0.	1.06
9	18.400	20.40	0.0	0.0	0.0	8.46	0.81	1.01	0.13	0.05	0.03	0.21	0.00	2.0	0.0	0.	1.06
10	18.300	20.40	0.0	0.0	0.0	8.48	0.81	1.01	0.13	0.05	0.03	0.21	0.00	2.0	0.0	0.	1.07
11	18.200	20.40	0.0	0.0	0.0	8.50	0.81	1.01	0.14	0.05	0.03	0.21	0.00	2.0	1.2	0.	1.07
12	18.100	20.40	0.0	0.0	0.0	8.51	0.81	1.01	0.14	0.05	0.03	0.21	0.00	2.0	2.4	0.	1.07
13	18.000	20.40	0.0	0.0	0.0	8.53	0.81	1.01	0.14	0.05	0.03	0.21	0.00	2.0	3.6	0.	1.08
14	17.900	20.40	0.0	0.0	0.0	8.54	0.82	1.02	0.14	0.04	0.03	0.21	0.00	2.0	4.8	0.	1.08
15	17.800	20.40	0.0	0.0	0.0	8.55	0.82	1.02	0.14	0.04	0.03	0.21	0.00	2.0	6.0	0.	1.08
16	17.700	20.40	0.0	0.0	0.0	8.56	0.82	1.02	0.14	0.04	0.03	0.21	0.00	2.0	7.1	0.	1.09
17	17.600	20.40	0.0	0.0	0.0	8.57	0.82	1.02	0.14	0.04	0.03	0.21	0.00	2.0	8.3	0.	1.09
18	17.500	20.40	0.0	0.0	0.0	8.58	0.82	1.02	0.14	0.04	0.03	0.21	0.00	2.0	9.5	0.	1.09
19	17.400	20.40	0.0	0.0	0.0	8.58	0.82	1.02	0.14	0.04	0.03	0.21	0.00	2.0	10.7	0.	1.10
20	17.300	20.40	0.0	0.0	0.0	8.59	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.0	11.9	0.	1.10
21	17.200	20.40	0.0	0.0	0.0	8.59	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.0	13.1	0.	1.10
22	17.100	20.40	0.0	0.0	0.0	8.60	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.0	14.3	0.	1.10
23	17.000	20.40	0.0	0.0	0.0	8.60	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.0	15.5	0.	1.11
24	16.900	20.40	0.0	0.0	0.0	8.61	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.0	16.7	0.	1.11
25	16.800	20.40	0.0	0.0	0.0	8.61	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.0	17.9	0.	1.11
26	16.700	20.40	0.0	0.0	0.0	8.61	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.0	19.0	0.	1.12
27	16.600	20.40	0.0	0.0	0.0	8.62	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.0	20.2	0.	1.12

28	16.500	20.40	0.0	0.0	0.0	8.62	0.84	1.04	0.14	0.04	0.03	0.21	0.00	2.0	21.4	0.	1.12
29	16.400	20.40	0.0	0.0	0.0	8.62	0.84	1.04	0.14	0.04	0.03	0.21	0.00	2.0	22.6	0.	1.13
30	16.300	20.40	0.0	0.0	0.0	8.62	0.84	1.04	0.14	0.04	0.03	0.21	0.00	2.0	23.8	0.	1.13
31	16.200	20.40	0.0	0.0	0.0	8.62	0.84	1.04	0.14	0.03	0.03	0.21	0.00	2.0	25.0	0.	1.13
32	16.100	20.40	0.0	0.0	0.0	8.62	0.84	1.04	0.14	0.03	0.03	0.21	0.00	2.0	26.0	0.	1.13
33	16.000	20.40	0.0	0.0	0.0	8.62	0.84	1.04	0.14	0.03	0.03	0.21	0.00	2.0	26.9	0.	1.14
34	15.900	20.40	0.0	0.0	0.0	8.62	0.84	1.04	0.14	0.03	0.03	0.21	0.00	2.0	27.9	0.	1.14
35	15.800	20.40	0.0	0.0	0.0	8.62	0.84	1.04	0.14	0.03	0.03	0.21	0.00	2.0	28.8	0.	1.14
36	15.700	20.40	0.0	0.0	0.0	8.62	0.84	1.04	0.14	0.03	0.03	0.21	0.00	2.0	29.8	0.	1.15
37	15.600	20.40	0.0	0.0	0.0	8.61	0.84	1.04	0.14	0.03	0.03	0.20	0.00	2.0	30.7	0.	1.15
38	15.500	20.40	0.0	0.0	0.0	8.61	0.85	1.05	0.14	0.03	0.03	0.20	0.00	2.0	31.7	0.	1.15
39	15.400	20.40	0.0	0.0	0.0	8.61	0.85	1.05	0.14	0.03	0.03	0.20	0.00	2.0	32.6	0.	1.16
40	15.300	20.40	0.0	0.0	0.0	8.61	0.85	1.05	0.14	0.03	0.03	0.20	0.00	2.0	33.6	0.	1.16
41	15.200	20.40	0.0	0.0	0.0	8.61	0.85	1.05	0.15	0.03	0.03	0.20	0.00	2.0	34.5	0.	1.16
42	15.100	20.40	0.0	0.0	0.0	8.61	0.85	1.05	0.15	0.03	0.03	0.20	0.00	2.0	35.5	0.	1.17
43	15.000	20.40	0.0	0.0	0.0	8.61	0.85	1.05	0.15	0.03	0.03	0.20	0.00	2.0	36.4	0.	1.17
44	14.900	20.40	0.0	0.0	0.0	8.61	0.85	1.05	0.15	0.02	0.03	0.20	0.00	2.0	37.4	0.	1.17
45	14.800	20.40	0.0	0.0	0.0	8.61	0.85	1.05	0.15	0.02	0.03	0.20	0.00	2.0	38.3	0.	1.18
46	14.700	20.40	0.0	0.0	0.0	8.61	0.85	1.05	0.15	0.02	0.03	0.20	0.00	2.0	39.3	0.	1.18
47	14.600	20.40	0.0	0.0	0.0	8.61	0.85	1.05	0.15	0.02	0.03	0.20	0.00	2.0	40.2	0.	1.18
48	14.500	20.40	0.0	0.0	0.0	8.61	0.85	1.05	0.15	0.02	0.03	0.20	0.00	2.0	41.2	0.	1.18
49	14.400	20.40	0.0	0.0	0.0	8.61	0.85	1.05	0.15	0.02	0.03	0.19	0.00	2.0	42.1	0.	1.19
50	14.300	20.40	0.0	0.0	0.0	8.61	0.85	1.05	0.15	0.02	0.03	0.19	0.00	2.0	43.1	0.	1.19
51	14.200	20.40	0.0	0.0	0.0	8.61	0.85	1.05	0.15	0.02	0.03	0.19	0.00	2.0	44.0	0.	1.19
52	14.100	20.40	0.0	0.0	0.0	8.61	0.86	1.06	0.15	0.02	0.02	0.19	0.00	2.0	45.0	0.	1.20
53	14.000	20.40	0.0	0.0	0.0	8.61	0.86	1.06	0.15	0.02	0.02	0.19	0.00	2.0	46.0	0.	1.20
54	13.900	20.40	0.0	0.0	0.0	8.61	0.86	1.06	0.15	0.02	0.02	0.19	0.00	2.0	46.9	0.	1.20
55	13.800	20.40	0.0	0.0	0.0	8.60	0.86	1.06	0.15	0.01	0.02	0.19	0.00	2.0	47.9	0.	1.21
56	13.700	20.40	0.0	0.0	0.0	8.60	0.86	1.06	0.15	0.01	0.02	0.19	0.00	2.0	48.8	0.	1.21
57	13.600	20.40	0.0	0.0	0.0	8.60	0.86	1.06	0.15	0.01	0.02	0.19	0.00	2.0	49.8	0.	1.21
58	13.500	20.40	0.0	0.0	0.0	8.60	0.86	1.06	0.15	0.01	0.02	0.18	0.00	2.0	50.7	0.	1.22
59	13.400	20.40	0.0	0.0	0.0	8.60	0.86	1.06	0.15	0.01	0.02	0.18	0.00	2.0	51.7	0.	1.22
60	13.300	20.40	0.0	0.0	0.0	8.60	0.86	1.06	0.15	0.01	0.02	0.18	0.00	2.0	52.6	0.	1.22
61	13.200	20.40	0.0	0.0	0.0	8.60	0.86	1.06	0.15	0.01	0.02	0.18	0.00	2.0	53.6	0.	1.23
62	13.100	20.40	0.0	0.0	0.0	8.60	0.86	1.06	0.15	0.01	0.02	0.18	0.00	2.0	54.5	0.	1.23
63	13.000	20.40	0.0	0.0	0.0	8.60	0.86	1.06	0.15	0.01	0.02	0.18	0.00	2.0	55.5	0.	1.23
64	12.900	20.40	0.0	0.0	0.0	8.60	0.86	1.06	0.15	0.01	0.02	0.18	0.00	2.0	56.4	0.	1.24
65	12.800	20.40	0.0	0.0	0.0	8.60	0.86	1.06	0.15	0.01	0.02	0.17	0.00	2.0	57.4	0.	1.24
66	12.700	20.40	0.0	0.0	0.0	8.60	0.86	1.06	0.15	0.00	0.02	0.17	0.00	2.0	58.3	0.	1.24
67	12.600	20.40	0.0	0.0	0.0	8.60	0.86	1.06	0.15	0.00	0.02	0.17	0.00	2.0	59.3	0.	1.25
68	12.500	20.40	0.0	0.0	0.0	8.59	0.86	1.06	0.15	0.00	0.02	0.17	0.00	2.0	60.2	0.	1.25
69	12.400	20.40	0.0	0.0	0.0	8.59	0.86	1.06	0.15	0.00	0.01	0.17	0.00	2.0	61.2	0.	1.25
70	12.300	20.40	0.0	0.0	0.0	8.59	0.86	1.06	0.15	0.00	0.01	0.17	0.00	2.0	62.1	0.	1.26
71	12.200	20.40	0.0	0.0	0.0	8.59	0.86	1.06	0.15	0.00	0.01	0.17	0.00	2.0	63.1	0.	1.26
72	12.100	20.40	0.0	0.0	0.0	8.59	0.86	1.06	0.15	0.00	0.01	0.17	0.00	2.0	64.0	0.	1.26
73	12.000	20.40	0.0	0.0	0.0	8.59	0.86	1.06	0.15	0.00	0.01	0.17	0.00	2.0	65.0	0.	1.27
74	11.900	20.40	0.0	0.0	0.0	8.59	0.86	1.06	0.15	0.00	0.01	0.16	0.00	2.0	65.0	0.	1.27
75	11.800	20.40	0.0	0.0	0.0	8.59	0.86	1.06	0.15	0.00	0.01	0.16	0.00	2.0	65.0	0.	1.28
76	11.700	20.40	0.0	0.0	0.0	8.58	0.86	1.06	0.15	0.00	0.01	0.16	0.00	2.0	65.0	0.	1.28
77	11.600	20.40	0.0	0.0	0.0	8.58	0.86	1.06	0.15	0.00	0.01	0.16	0.00	2.0	65.0	0.	1.28
78	11.500	20.40	0.0	0.0	0.0	8.58	0.86	1.06	0.15	0.00	0.01	0.16	0.00	2.0	65.0	0.	1.29
79	11.400	20.40	0.0	0.0	0.0	8.57	0.86	1.06	0.15	0.00	0.01	0.16	0.00	2.0	65.0	0.	1.29
80	11.300	20.40	0.0	0.0	0.0	8.57	0.86	1.06	0.16	0.00	0.01	0.16	0.00	2.0	65.0	0.	1.29

81	11.200	20.40	0.0	0.0	0.0	8.57	0.86	1.06	0.16	0.00	0.01	0.16	0.00	2.0	65.0	0.	1.30
82	11.100	20.40	0.0	0.0	0.0	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	65.0	0.	1.30
83	11.000	20.40	0.0	0.0	0.0	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	65.0	0.	1.30
84	10.900	20.40	0.0	0.0	0.0	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	65.0	0.	1.31
85	10.800	20.40	0.0	0.0	0.0	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	65.0	0.	1.31
86	10.700	20.40	0.0	0.0	0.0	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	65.0	0.	1.31
87	10.600	20.40	0.0	0.0	0.0	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	65.0	0.	1.32
88	10.500	20.40	0.0	0.0	0.0	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	65.0	0.	1.32
89	10.400	20.40	0.0	0.0	0.0	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	65.0	0.	1.33
90	10.300	20.40	0.0	0.0	0.0	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	65.0	0.	1.33
91	10.200	20.40	0.0	0.0	0.0	8.57	0.87	1.07	0.16	0.00	0.00	0.16	0.00	2.0	65.0	0.	1.33
92	10.100	20.40	0.0	0.0	0.0	8.57	0.87	1.07	0.16	0.00	0.00	0.16	0.00	2.0	65.0	0.	1.34
93	10.000	20.40	0.0	0.0	0.0	8.57	0.87	1.07	0.16	0.00	0.00	0.16	0.00	2.0	65.0	0.	1.34
94	9.900	20.40	0.0	0.0	0.0	8.56	0.87	1.07	0.16	0.00	0.00	0.16	0.00	2.0	65.0	0.	1.34
95	9.800	20.40	0.0	0.0	0.0	8.55	0.87	1.07	0.16	0.00	0.00	0.16	0.00	2.0	64.5	0.	1.35
96	9.700	20.40	0.0	0.0	0.0	8.53	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	64.0	0.	1.35
97	9.600	20.40	0.0	0.0	0.0	8.52	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	63.6	0.	1.35
98	9.500	20.40	0.0	0.0	0.0	8.51	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	63.1	0.	1.35
99	9.400	20.40	0.0	0.0	0.0	8.50	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	62.6	0.	1.36
100	9.300	20.40	0.0	0.0	0.0	8.49	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	62.1	0.	1.36
101	9.200	20.40	0.0	0.0	0.0	8.48	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	61.7	0.	1.36
102	9.100	20.40	0.0	0.0	0.0	8.48	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	61.2	0.	1.36
103	9.000	20.40	0.0	0.0	0.0	8.47	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	60.7	0.	1.37
104	8.900	20.40	0.0	0.0	0.0	8.47	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	60.2	0.	1.37
105	8.800	20.40	0.0	0.0	0.0	8.47	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	59.8	0.	1.37
106	8.700	20.40	0.0	0.0	0.0	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	59.3	0.	1.38
107	8.600	20.40	0.0	0.0	0.0	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	58.8	0.	1.38
108	8.500	20.40	0.0	0.0	0.0	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	58.3	0.	1.38
109	8.400	20.40	0.0	0.0	0.0	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	57.9	0.	1.38
110	8.300	20.40	0.0	0.0	0.0	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	57.4	0.	1.39
111	8.200	20.40	0.0	0.0	0.0	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	56.9	0.	1.39
112	8.100	20.40	0.0	0.0	0.0	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	56.4	0.	1.39
113	8.000	20.40	0.0	0.0	0.0	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	56.0	0.	1.39
114	7.900	20.40	0.0	0.0	0.0	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	55.5	0.	1.40
115	7.800	20.40	0.0	0.0	0.0	8.45	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	55.0	0.	1.40
116	7.700	20.40	0.0	0.0	0.0	8.43	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	53.3	0.	1.40
117	7.600	20.40	0.0	0.0	0.0	8.41	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	51.7	0.	1.40
118	7.500	20.40	0.0	0.0	0.0	8.40	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	50.0	0.	1.41
119	7.400	20.40	0.0	0.0	0.0	8.38	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	48.3	0.	1.41
120	7.300	20.40	0.0	0.0	0.0	8.37	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	46.7	0.	1.41
121	7.200	20.40	0.0	0.0	0.0	8.37	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	45.0	0.	1.41
122	7.100	20.40	0.0	0.0	0.0	8.36	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	43.3	0.	1.41
123	7.000	20.40	0.0	0.0	0.0	8.35	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	41.7	0.	1.42
124	6.900	20.40	0.0	0.0	0.0	8.35	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	40.0	0.	1.42
125	6.800	20.40	0.0	0.0	0.0	8.34	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	38.3	0.	1.42
126	6.700	20.40	0.0	0.0	0.0	8.34	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	36.7	0.	1.42
127	6.600	20.40	0.0	0.0	0.0	8.34	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	35.0	0.	1.43
128	6.500	20.40	0.0	0.0	0.0	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	33.3	0.	1.43
129	6.400	20.40	0.0	0.0	0.0	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	31.7	0.	1.43
130	6.300	20.40	0.0	0.0	0.0	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	30.0	0.	1.43
131	6.200	20.40	0.0	0.0	0.0	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	28.3	0.	1.43
132	6.100	20.40	0.0	0.0	0.0	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	26.7	0.	1.44
133	6.000	20.40	0.0	0.0	0.0	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	25.0	0.	1.44

134	5.900	20.40	0.0	0.0	0.0	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	23.3	0.	1.44
135	5.800	20.40	0.0	0.0	0.0	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	21.7	0.	1.44
136	5.700	20.40	0.0	0.0	0.0	8.32	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	20.0	0.	1.45
137	5.600	20.40	0.0	0.0	0.0	8.30	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	19.9	0.	1.45
138	5.500	20.40	0.0	0.0	0.0	8.29	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	19.8	0.	1.45
139	5.400	20.40	0.0	0.0	0.0	8.27	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	19.7	0.	1.46
140	5.300	20.40	0.0	0.0	0.0	8.26	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	19.6	0.	1.46
141	5.200	20.40	0.0	0.0	0.0	8.25	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	19.5	0.	1.47
142	5.100	20.40	0.0	0.0	0.0	8.24	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	19.4	0.	1.47
143	5.000	20.40	0.0	0.0	0.0	8.24	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	19.3	0.	1.47
144	4.900	20.40	0.0	0.0	0.0	8.23	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	19.2	0.	1.48
145	4.800	20.40	0.0	0.0	0.0	8.23	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	19.1	0.	1.48
146	4.700	20.40	0.0	0.0	0.0	8.22	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	19.0	0.	1.49
147	4.600	20.40	0.0	0.0	0.0	8.22	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.0	19.0	0.	1.49
148	4.500	20.40	0.0	0.0	0.0	8.22	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.0	18.9	0.	1.49
149	4.400	20.40	0.0	0.0	0.0	8.22	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.0	18.8	0.	1.50
150	4.300	20.40	0.0	0.0	0.0	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.0	18.7	0.	1.50
151	4.200	20.40	0.0	0.0	0.0	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.0	18.6	0.	1.51
152	4.100	20.40	0.0	0.0	0.0	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.0	18.5	0.	1.51
153	4.000	20.40	0.0	0.0	0.0	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.0	18.4	0.	1.51
154	3.900	20.40	0.0	0.0	0.0	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.0	18.3	0.	1.52
155	3.800	20.40	0.0	0.0	0.0	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.0	18.2	0.	1.52
156	3.700	20.40	0.0	0.0	0.0	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.0	18.1	0.	1.53
157	3.600	20.40	0.0	0.0	0.0	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.0	18.0	0.	1.53
158	3.500	20.40	0.0	0.0	0.0	8.20	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.0	18.0	0.	1.55
159	3.400	20.40	0.0	0.0	0.0	8.20	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	18.0	0.	1.56
160	3.300	20.40	0.0	0.0	0.0	8.19	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	18.0	0.	1.58
161	3.200	20.40	0.0	0.0	0.0	8.19	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.0	18.0	0.	1.60
162	3.100	20.40	0.0	0.0	0.0	8.18	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.0	18.0	0.	1.62
163	3.000	20.40	0.0	0.0	0.0	8.18	0.86	1.06	0.17	0.00	0.00	0.17	0.00	2.0	18.0	0.	1.63
164	2.900	20.40	0.0	0.0	0.0	8.18	0.87	1.07	0.17	0.00	0.00	0.17	0.00	2.0	18.0	0.	1.65
165	2.800	20.40	0.0	0.0	0.0	8.18	0.87	1.07	0.17	0.00	0.00	0.17	0.00	2.0	18.0	0.	1.67
166	2.700	20.40	0.0	0.0	0.0	8.17	0.87	1.07	0.17	0.00	0.00	0.17	0.00	2.0	18.0	0.	1.69
167	2.600	20.40	0.0	0.0	0.0	8.17	0.88	1.08	0.17	0.00	0.00	0.17	0.00	2.0	18.0	0.	1.70
168	2.500	20.40	0.0	0.0	0.0	8.17	0.88	1.08	0.17	0.00	0.00	0.17	0.00	2.0	18.0	0.	1.72
169	2.400	20.40	0.0	0.0	0.0	8.17	0.88	1.08	0.17	0.00	0.00	0.17	0.00	2.0	18.0	0.	1.74
170	2.300	20.40	0.0	0.0	0.0	8.17	0.89	1.09	0.17	0.00	0.00	0.17	0.00	2.0	18.0	0.	1.76
171	2.200	20.40	0.0	0.0	0.0	8.16	0.89	1.09	0.17	0.00	0.00	0.17	0.00	2.0	18.0	0.	1.78
172	2.100	20.40	0.0	0.0	0.0	8.16	0.90	1.10	0.17	0.00	0.00	0.17	0.00	2.0	18.0	0.	1.80
173	2.000	20.40	0.0	0.0	0.0	8.16	0.90	1.10	0.18	0.00	0.00	0.18	0.00	2.0	18.0	0.	1.82
174	1.900	20.40	0.0	0.0	0.0	8.15	0.91	1.11	0.18	0.00	0.00	0.18	0.00	2.0	18.0	0.	1.84
175	1.800	20.40	0.0	0.0	0.0	8.15	0.91	1.11	0.18	0.00	0.00	0.18	0.00	2.0	18.0	0.	1.86
176	1.700	20.40	0.0	0.0	0.0	8.15	0.91	1.11	0.18	0.00	0.00	0.18	0.00	2.0	18.0	0.	1.88
177	1.600	20.40	0.0	0.0	0.0	8.15	0.92	1.12	0.18	0.00	0.00	0.18	0.00	2.0	18.0	0.	1.90
178	1.500	20.40	0.0	0.0	0.0	8.15	0.92	1.12	0.18	0.00	0.00	0.18	0.00	2.0	18.0	0.	1.92
179	1.400	20.40	0.0	0.0	0.0	8.15	0.97	1.17	0.19	0.00	0.00	0.19	0.00	2.0	18.0	0.	1.98
180	1.300	20.40	0.0	0.0	0.0	8.15	0.98	1.18	0.19	0.00	0.00	0.19	0.00	2.0	18.0	0.	2.00
181	1.200	20.40	0.0	0.0	0.0	8.15	0.98	1.18	0.19	0.00	0.00	0.19	0.00	2.0	18.0	0.	2.02
182	1.100	20.40	0.0	0.0	0.0	8.14	0.99	1.19	0.19	0.00	0.00	0.19	0.00	2.0	18.0	0.	2.04
183	1.000	20.40	0.0	0.0	0.0	8.14	0.99	1.19	0.19	0.00	0.00	0.19	0.00	2.0	18.0	0.	2.06
184	0.900	20.40	0.0	0.0	0.0	8.14	1.00	1.20	0.19	0.00	0.00	0.19	0.00	2.0	18.0	0.	2.08
185	0.800	20.40	0.0	0.0	0.0	8.14	1.00	1.20	0.19	0.00	0.00	0.19	0.00	2.0	18.0	0.	2.10
186	0.700	20.40	0.0	0.0	0.0	8.14	1.01	1.21	0.20	0.00	0.00	0.20	0.00	2.0	18.0	0.	2.12

187	0.600	20.40	0.0	0.0	0.0	8.14	1.01	1.21	0.20	0.00	0.00	0.20	0.00	2.0	18.0	0.	2.14
188	0.500	20.40	0.0	0.0	0.0	8.14	1.02	1.22	0.20	0.00	0.00	0.20	0.00	2.0	18.0	0.	2.16
189	0.400	20.40	0.0	0.0	0.0	8.14	1.02	1.22	0.20	0.00	0.00	0.20	0.00	2.0	18.0	0.	2.18
190	0.300	20.40	0.0	0.0	0.0	8.14	1.03	1.23	0.20	0.00	0.00	0.20	0.00	2.0	18.0	0.	2.20
191	0.200	20.40	0.0	0.0	0.0	8.14	1.03	1.23	0.20	0.00	0.00	0.20	0.00	2.0	18.0	0.	2.22
192	0.100	20.40	0.0	0.0	0.0	8.14	1.04	1.24	0.20	0.00	0.00	0.20	0.00	2.0	18.0	0.	2.24
193	0.000	20.40	0.0	0.0	0.0	8.13	1.04	1.24	0.20	0.00	0.00	0.20	0.00	2.0	18.0	0.	2.26

SPECIAL REPORT: UPPER CALCASIEU RVR
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	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	19.200	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
2	19.100	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
3	19.000	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
4	18.900	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
5	18.800	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
6	18.700	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
7	18.600	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
8	18.500	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
9	18.400	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
10	18.300	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
11	18.200	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
12	18.100	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
13	18.000	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
14	17.900	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
15	17.800	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
16	17.700	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
17	17.600	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
18	17.500	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
19	17.400	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
20	17.300	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
21	17.200	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
22	17.100	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
23	17.000	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
24	16.900	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
25	16.800	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
26	16.700	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
27	16.600	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
28	16.500	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
29	16.400	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
30	16.300	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
31	16.200	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.00	0.03	0.05		
32	16.100	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05		
33	16.000	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05		
34	15.900	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05		
35	15.800	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05		
36	15.700	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05		
37	15.600	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05		

38	15.500	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
39	15.400	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
40	15.300	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
41	15.200	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
42	15.100	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
43	15.000	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
44	14.900	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
45	14.800	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
46	14.700	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
47	14.600	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
48	14.500	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
49	14.400	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
50	14.300	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
51	14.200	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
52	14.100	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
53	14.000	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
54	13.900	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
55	13.800	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
56	13.700	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
57	13.600	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
58	13.500	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
59	13.400	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
60	13.300	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
61	13.200	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
62	13.100	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
63	13.000	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
64	12.900	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
65	12.800	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
66	12.700	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
67	12.600	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
68	12.500	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
69	12.400	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
70	12.300	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
71	12.200	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
72	12.100	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
73	12.000	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.00	0.02	0.05
74	11.900	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
75	11.800	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
76	11.700	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
77	11.600	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
78	11.500	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
79	11.400	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
80	11.300	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
81	11.200	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
82	11.100	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
83	11.000	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
84	10.900	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
85	10.800	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
86	10.700	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
87	10.600	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
88	10.500	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
89	10.400	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
90	10.300	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05

91	10.200	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
92	10.100	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
93	10.000	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
94	9.900	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
95	9.800	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
96	9.700	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
97	9.600	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
98	9.500	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
99	9.400	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
100	9.300	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
101	9.200	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
102	9.100	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
103	9.000	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
104	8.900	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
105	8.800	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
106	8.700	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
107	8.600	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
108	8.500	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
109	8.400	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
110	8.300	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
111	8.200	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
112	8.100	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
113	8.000	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
114	7.900	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
115	7.800	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
116	7.700	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
117	7.600	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
118	7.500	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
119	7.400	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
120	7.300	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
121	7.200	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
122	7.100	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
123	7.000	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
124	6.900	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
125	6.800	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
126	6.700	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
127	6.600	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
128	6.500	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
129	6.400	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
130	6.300	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
131	6.200	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
132	6.100	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
133	6.000	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
134	5.900	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
135	5.800	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
136	5.700	9.02	10.39	0.12	0.05	0.00	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
137	5.600	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
138	5.500	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
139	5.400	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
140	5.300	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
141	5.200	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
142	5.100	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
143	5.000	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05

144	4.900	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
145	4.800	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
146	4.700	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
147	4.600	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
148	4.500	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
149	4.400	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
150	4.300	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
151	4.200	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
152	4.100	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
153	4.000	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
154	3.900	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
155	3.800	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
156	3.700	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
157	3.600	9.02	8.54	0.12	0.05	0.00	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
158	3.500	9.02	7.82	0.12	0.05	0.00	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
159	3.400	9.02	7.82	0.12	0.05	0.00	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
160	3.300	9.02	7.82	0.12	0.05	0.00	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
161	3.200	9.02	7.82	0.12	0.05	0.00	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
162	3.100	9.02	7.82	0.12	0.05	0.00	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
163	3.000	9.02	7.82	0.12	0.05	0.00	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
164	2.900	9.02	7.82	0.12	0.05	0.00	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
165	2.800	9.02	7.82	0.12	0.05	0.00	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
166	2.700	9.02	7.82	0.12	0.05	0.00	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
167	2.600	9.02	7.82	0.12	0.05	0.00	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
168	2.500	9.02	7.82	0.12	0.05	0.00	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
169	2.400	9.02	7.82	0.12	0.05	0.00	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
170	2.300	9.02	7.47	0.12	0.05	0.00	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
171	2.200	9.02	7.47	0.12	0.05	0.00	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
172	2.100	9.02	7.47	0.12	0.05	0.00	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
173	2.000	9.02	7.47	0.12	0.05	0.00	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
174	1.900	9.02	7.47	0.12	0.05	0.00	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
175	1.800	9.02	7.47	0.12	0.05	0.00	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
176	1.700	9.02	7.47	0.12	0.05	0.00	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
177	1.600	9.02	7.47	0.12	0.05	0.00	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
178	1.500	9.02	7.47	0.12	0.05	0.00	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
179	1.400	9.02	7.48	0.12	0.05	0.00	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
180	1.300	9.02	7.48	0.12	0.05	0.00	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
181	1.200	9.02	7.48	0.12	0.05	0.00	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
182	1.100	9.02	7.66	0.12	0.05	0.00	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
183	1.000	9.02	7.66	0.12	0.05	0.00	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
184	0.900	9.02	7.66	0.12	0.05	0.00	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
185	0.800	9.02	7.66	0.12	0.05	0.00	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
186	0.700	9.02	7.66	0.12	0.05	0.00	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
187	0.600	9.02	7.66	0.12	0.05	0.00	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
188	0.500	9.02	7.66	0.12	0.05	0.00	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
189	0.400	9.02	7.66	0.12	0.05	0.00	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
190	0.300	9.02	7.66	0.12	0.05	0.00	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
191	0.200	9.02	7.66	0.12	0.05	0.00	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
192	0.100	9.02	7.66	0.12	0.05	0.00	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.00	0.01	0.05
193	0.000	9.02	7.66	0.12	0.05	0.00	1.48	1.48	0.16	0.05	0.51	0.00	0.00	0.00	0.00	0.01	0.05

SPECIAL REPORT: UPPER CALCASIEU RVR

HYDRAULIC PARAMETER VALUES

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	ADVCTV VELO m/s	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
1	19.30	19.20	0.0280	0.072	0.23	1.7	39.	168.6	0.4	0.	0.000	0.300	0.072
2	19.20	19.10	0.0280	0.072	0.23	1.7	39.	168.6	0.4	0.	0.000	0.300	0.072
3	19.10	19.00	0.0280	0.072	0.23	1.7	39.	168.6	0.4	0.	0.000	0.300	0.072
4	19.00	18.90	0.0280	0.072	0.23	1.7	39.	168.6	0.4	0.	0.000	0.300	0.072
5	18.90	18.80	0.0280	0.072	0.23	1.7	39.	168.6	0.4	0.	0.000	0.300	0.072
6	18.80	18.70	0.0280	0.072	0.23	1.7	39.	168.6	0.4	0.	0.000	0.300	0.072
7	18.70	18.60	0.0280	0.072	0.23	1.7	39.	168.6	0.4	0.	0.000	0.300	0.072
8	18.60	18.50	0.0280	0.072	0.23	1.7	39.	168.6	0.4	0.	0.000	0.300	0.072
9	18.50	18.40	0.0280	0.072	0.23	1.7	39.	168.6	0.4	0.	0.000	0.300	0.072
10	18.40	18.30	0.0280	0.072	0.23	1.7	39.	168.6	0.4	0.	0.000	0.300	0.072
11	18.30	18.20	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
12	18.20	18.10	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
13	18.10	18.00	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
14	18.00	17.90	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
15	17.90	17.80	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
16	17.80	17.70	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
17	17.70	17.60	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
18	17.60	17.50	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
19	17.50	17.40	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
20	17.40	17.30	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
21	17.30	17.20	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
22	17.20	17.10	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
23	17.10	17.00	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
24	17.00	16.90	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
25	16.90	16.80	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
26	16.80	16.70	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
27	16.70	16.60	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
28	16.60	16.50	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
29	16.50	16.40	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
30	16.40	16.30	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
31	16.30	16.20	0.0280	0.073	0.20	1.9	38.	189.8	0.4	0.	0.000	0.300	0.073
32	16.20	16.10	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
33	16.10	16.00	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
34	16.00	15.90	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
35	15.90	15.80	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
36	15.80	15.70	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
37	15.70	15.60	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
38	15.60	15.50	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
39	15.50	15.40	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
40	15.40	15.30	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
41	15.30	15.20	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
42	15.20	15.10	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
43	15.10	15.00	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
44	15.00	14.90	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
45	14.90	14.80	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
46	14.80	14.70	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
47	14.70	14.60	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076

48	14.60	14.50	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
49	14.50	14.40	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
50	14.40	14.30	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
51	14.30	14.20	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
52	14.20	14.10	0.0280	0.076	0.17	2.1	37.	211.0	0.4	0.	0.000	0.300	0.076
53	14.10	14.00	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
54	14.00	13.90	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
55	13.90	13.80	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
56	13.80	13.70	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
57	13.70	13.60	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
58	13.60	13.50	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
59	13.50	13.40	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
60	13.40	13.30	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
61	13.30	13.20	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
62	13.20	13.10	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
63	13.10	13.00	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
64	13.00	12.90	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
65	12.90	12.80	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
66	12.80	12.70	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
67	12.70	12.60	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
68	12.60	12.50	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
69	12.50	12.40	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
70	12.40	12.30	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
71	12.30	12.20	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
72	12.20	12.10	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
73	12.10	12.00	0.0280	0.083	0.14	2.3	34.	232.3	0.3	0.	0.000	0.300	0.083
74	12.00	11.90	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
75	11.90	11.80	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
76	11.80	11.70	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
77	11.70	11.60	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
78	11.60	11.50	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
79	11.50	11.40	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
80	11.40	11.30	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
81	11.30	11.20	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
82	11.20	11.10	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
83	11.10	11.00	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
84	11.00	10.90	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
85	10.90	10.80	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
86	10.80	10.70	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
87	10.70	10.60	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
88	10.60	10.50	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
89	10.50	10.40	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
90	10.40	10.30	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
91	10.30	10.20	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
92	10.20	10.10	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
93	10.10	10.00	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
94	10.00	9.90	0.0280	0.095	0.12	2.5	30.	253.6	0.3	0.	0.000	0.300	0.095
95	9.90	9.80	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
96	9.80	9.70	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
97	9.70	9.60	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
98	9.60	9.50	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
99	9.50	9.40	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
100	9.40	9.30	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073

101	9.30	9.20	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
102	9.20	9.10	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
103	9.10	9.00	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
104	9.00	8.90	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
105	8.90	8.80	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
106	8.80	8.70	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
107	8.70	8.60	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
108	8.60	8.50	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
109	8.50	8.40	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
110	8.40	8.30	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
111	8.30	8.20	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
112	8.20	8.10	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
113	8.10	8.00	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
114	8.00	7.90	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
115	7.90	7.80	0.0280	0.073	0.13	2.9	38.	293.8	0.4	0.	0.000	0.300	0.073
116	7.80	7.70	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
117	7.70	7.60	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
118	7.60	7.50	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
119	7.50	7.40	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
120	7.40	7.30	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
121	7.30	7.20	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
122	7.20	7.10	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
123	7.10	7.00	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
124	7.00	6.90	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
125	6.90	6.80	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
126	6.80	6.70	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
127	6.70	6.60	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
128	6.60	6.50	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
129	6.50	6.40	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
130	6.40	6.30	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
131	6.30	6.20	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
132	6.20	6.10	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
133	6.10	6.00	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
134	6.00	5.90	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
135	5.90	5.80	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
136	5.80	5.70	0.0280	0.058	0.14	3.3	48.	334.1	0.5	0.	0.000	0.300	0.058
137	5.70	5.60	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
138	5.60	5.50	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
139	5.50	5.40	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
140	5.40	5.30	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
141	5.30	5.20	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
142	5.20	5.10	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
143	5.10	5.00	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
144	5.00	4.90	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
145	4.90	4.80	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
146	4.80	4.70	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
147	4.70	4.60	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
148	4.60	4.50	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
149	4.50	4.40	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
150	4.40	4.30	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
151	4.30	4.20	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
152	4.20	4.10	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
153	4.10	4.00	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047

154	4.00	3.90	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
155	3.90	3.80	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
156	3.80	3.70	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
157	3.70	3.60	0.0280	0.047	0.16	3.7	59.	374.3	0.6	0.	0.000	0.300	0.047
158	3.60	3.50	0.0280	0.050	0.18	3.1	56.	311.5	0.6	0.	0.000	0.300	0.050
159	3.50	3.40	0.0280	0.050	0.18	3.1	56.	311.5	0.6	0.	0.000	0.300	0.050
160	3.40	3.30	0.0280	0.050	0.18	3.1	56.	311.5	0.6	0.	0.000	0.300	0.050
161	3.30	3.20	0.0280	0.050	0.18	3.1	56.	311.5	0.6	0.	0.000	0.300	0.050
162	3.20	3.10	0.0280	0.050	0.18	3.1	56.	311.5	0.6	0.	0.000	0.300	0.050
163	3.10	3.00	0.0280	0.050	0.18	3.1	56.	311.5	0.6	0.	0.000	0.300	0.050
164	3.00	2.90	0.0280	0.050	0.18	3.1	56.	311.5	0.6	0.	0.000	0.300	0.050
165	2.90	2.80	0.0280	0.050	0.18	3.1	56.	311.5	0.6	0.	0.000	0.300	0.050
166	2.80	2.70	0.0280	0.050	0.18	3.1	56.	311.5	0.6	0.	0.000	0.300	0.050
167	2.70	2.60	0.0280	0.050	0.18	3.1	56.	311.5	0.6	0.	0.000	0.300	0.050
168	2.60	2.50	0.0280	0.050	0.18	3.1	56.	311.5	0.6	0.	0.000	0.300	0.050
169	2.50	2.40	0.0280	0.050	0.18	3.1	56.	311.5	0.6	0.	0.000	0.300	0.050
170	2.40	2.30	0.0280	0.057	0.20	2.5	49.	248.6	0.5	0.	0.000	0.300	0.057
171	2.30	2.20	0.0280	0.057	0.20	2.5	49.	248.6	0.5	0.	0.000	0.300	0.057
172	2.20	2.10	0.0280	0.057	0.20	2.5	49.	248.6	0.5	0.	0.000	0.300	0.057
173	2.10	2.00	0.0280	0.057	0.20	2.5	49.	248.6	0.5	0.	0.000	0.300	0.057
174	2.00	1.90	0.0280	0.057	0.20	2.5	49.	248.6	0.5	0.	0.000	0.300	0.057
175	1.90	1.80	0.0280	0.057	0.20	2.5	49.	248.6	0.5	0.	0.000	0.300	0.057
176	1.80	1.70	0.0280	0.057	0.20	2.5	49.	248.6	0.5	0.	0.000	0.300	0.057
177	1.70	1.60	0.0280	0.057	0.20	2.5	49.	248.6	0.5	0.	0.000	0.300	0.057
178	1.60	1.50	0.0280	0.057	0.20	2.5	49.	248.6	0.5	0.	0.000	0.300	0.057
179	1.50	1.40	0.0283	0.057	0.20	2.5	50.	249.0	0.5	0.	0.000	0.300	0.057
180	1.40	1.30	0.0283	0.057	0.20	2.5	50.	249.0	0.5	0.	0.000	0.300	0.057
181	1.30	1.20	0.0283	0.057	0.20	2.5	50.	249.0	0.5	0.	0.000	0.300	0.057
182	1.20	1.10	0.0283	0.070	0.22	1.9	41.	186.0	0.4	0.	0.000	0.300	0.070
183	1.10	1.00	0.0283	0.070	0.22	1.9	41.	186.0	0.4	0.	0.000	0.300	0.070
184	1.00	0.90	0.0283	0.070	0.22	1.9	41.	186.0	0.4	0.	0.000	0.300	0.070
185	0.90	0.80	0.0283	0.070	0.22	1.9	41.	186.0	0.4	0.	0.000	0.300	0.070
186	0.80	0.70	0.0283	0.070	0.22	1.9	41.	186.0	0.4	0.	0.000	0.300	0.070
187	0.70	0.60	0.0283	0.070	0.22	1.9	41.	186.0	0.4	0.	0.000	0.300	0.070
188	0.60	0.50	0.0283	0.070	0.22	1.9	41.	186.0	0.4	0.	0.000	0.300	0.070
189	0.50	0.40	0.0283	0.070	0.22	1.9	41.	186.0	0.4	0.	0.000	0.300	0.070
190	0.40	0.30	0.0283	0.070	0.22	1.9	41.	186.0	0.4	0.	0.000	0.300	0.070
191	0.30	0.20	0.0283	0.070	0.22	1.9	41.	186.0	0.4	0.	0.000	0.300	0.070
192	0.20	0.10	0.0283	0.070	0.22	1.9	41.	186.0	0.4	0.	0.000	0.300	0.070
193	0.10	0.00	0.0283	0.070	0.22	1.9	41.	186.0	0.4	0.	0.000	0.300	0.070

FINAL REPORT UPPER CALCASIEU RVR — UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 1 UPPER CALCASIEU RIVER REACH 1 — DISSOLVED OXYGEN, WINTER PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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	0.02800	20.40	0.00	0.00	0.00	8.12	0.78	0.98	0.13	0.05	0.03	0.00	2.00	0.00	1.03

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
1	19.30	19.20	0.02800	0.00	0.07196	0.02	0.23	1.69	38.91	168.61	0.39	0.00	0.000	0.300	0.072
2	19.20	19.10	0.02800	0.00	0.07196	0.02	0.23	1.69	38.91	168.61	0.39	0.00	0.000	0.300	0.072
3	19.10	19.00	0.02800	0.00	0.07196	0.02	0.23	1.69	38.91	168.61	0.39	0.00	0.000	0.300	0.072
4	19.00	18.90	0.02800	0.00	0.07196	0.02	0.23	1.69	38.91	168.61	0.39	0.00	0.000	0.300	0.072
5	18.90	18.80	0.02800	0.00	0.07196	0.02	0.23	1.69	38.91	168.61	0.39	0.00	0.000	0.300	0.072
6	18.80	18.70	0.02800	0.00	0.07196	0.02	0.23	1.69	38.91	168.61	0.39	0.00	0.000	0.300	0.072
7	18.70	18.60	0.02800	0.00	0.07196	0.02	0.23	1.69	38.91	168.61	0.39	0.00	0.000	0.300	0.072
8	18.60	18.50	0.02800	0.00	0.07196	0.02	0.23	1.69	38.91	168.61	0.39	0.00	0.000	0.300	0.072
9	18.50	18.40	0.02800	0.00	0.07196	0.02	0.23	1.69	38.91	168.61	0.39	0.00	0.000	0.300	0.072
10	18.40	18.30	0.02800	0.00	0.07196	0.02	0.23	1.69	38.91	168.61	0.39	0.00	0.000	0.300	0.072
TOT						0.16			389.09	1686.10					
AVG					0.07196		0.23	1.69			0.39				
CUM						0.16									

*** 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	19.200	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
2	19.100	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
3	19.000	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
4	18.900	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
5	18.800	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
6	18.700	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
7	18.600	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
8	18.500	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
9	18.400	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
10	18.300	9.02	7.39	0.17	0.05	0.00	0.58	0.58	0.58	0.03	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
20 DEG C RATE				0.17		0.00	0.57			0.03		0.50	0.00	0.00	0.00			0.00	0.03	
AVG 20 DEG C RATE			7.33		0.05						0.05									0.05

* g/sq m/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	19.200	20.40	0.00	0.00	0.00	8.18	0.78	0.98	0.13	0.05	0.03	0.21	0.00	2.00	0.00	0.00	1.03
2	19.100	20.40	0.00	0.00	0.00	8.23	0.79	0.99	0.13	0.05	0.03	0.21	0.00	2.00	0.00	0.00	1.04

3	19.000	20.40	0.00	0.00	0.00	8.27	0.79	0.99	0.13	0.05	0.03	0.21	0.00	2.00	0.00	0.00	1.04
4	18.900	20.40	0.00	0.00	0.00	8.31	0.79	0.99	0.13	0.05	0.03	0.21	0.00	2.00	0.00	0.00	1.05
5	18.800	20.40	0.00	0.00	0.00	8.35	0.80	1.00	0.13	0.05	0.03	0.21	0.00	2.00	0.00	0.00	1.05
6	18.700	20.40	0.00	0.00	0.00	8.38	0.80	1.00	0.13	0.05	0.03	0.21	0.00	2.00	0.00	0.00	1.05
7	18.600	20.40	0.00	0.00	0.00	8.41	0.80	1.00	0.13	0.05	0.03	0.21	0.00	2.00	0.00	0.00	1.06
8	18.500	20.40	0.00	0.00	0.00	8.44	0.80	1.00	0.13	0.05	0.03	0.21	0.00	2.00	0.00	0.00	1.06
9	18.400	20.40	0.00	0.00	0.00	8.46	0.81	1.01	0.13	0.05	0.03	0.21	0.00	2.00	0.00	0.00	1.06
10	18.300	20.40	0.00	0.00	0.00	8.48	0.81	1.01	0.13	0.05	0.03	0.21	0.00	2.00	0.00	0.00	1.07

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 2   UPPER CALCASIEU RIVER REACH 2   DISSOLVED OXYGEN, WINTER PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
11	UPR RCH	0.02800	20.40	0.00	0.00	0.00	8.48	0.81	1.01	0.13	0.05	0.03	0.00	2.00	0.00	1.07

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
11	18.30	18.20	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
12	18.20	18.10	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
13	18.10	18.00	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
14	18.00	17.90	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
15	17.90	17.80	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
16	17.80	17.70	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
17	17.70	17.60	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
18	17.60	17.50	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
19	17.50	17.40	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
20	17.40	17.30	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
21	17.30	17.20	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
22	17.20	17.10	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
23	17.10	17.00	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
24	17.00	16.90	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
25	16.90	16.80	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
26	16.80	16.70	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
27	16.70	16.60	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
28	16.60	16.50	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
29	16.50	16.40	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
30	16.40	16.30	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073
31	16.30	16.20	0.02800	0.00	0.07312	0.02	0.20	1.90	38.29	189.84	0.38	0.00	0.000	0.300	0.073

TOT		0.33			804.15	3986.71	
AVG	0.07312		0.20	1.90			0.38
CUM		0.49					

** 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
11	18.200	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
12	18.100	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
13	18.000	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
14	17.900	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
15	17.800	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
16	17.700	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
17	17.600	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
18	17.500	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
19	17.400	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
20	17.300	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
21	17.200	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
22	17.100	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
23	17.000	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
24	16.900	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
25	16.800	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
26	16.700	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
27	16.600	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
28	16.500	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
29	16.400	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
30	16.300	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
31	16.200	9.02	8.54	0.16	0.05	0.00	0.64	0.64	0.64	0.08	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.03	0.05
20 DEG C RATE				0.16		0.00	0.62			0.08		0.50	0.00	0.00	0.00			0.00	0.03	
AVG 20 DEG C RATE			8.47		0.05						0.05									0.05

* g/sq m/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 *
11	18.200	20.40	0.00	0.00	0.00	8.50	0.81	1.01	0.14	0.05	0.03	0.21	0.00	2.00	1.19	0.00	1.07
12	18.100	20.40	0.00	0.00	0.00	8.51	0.81	1.01	0.14	0.05	0.03	0.21	0.00	2.00	2.38	0.00	1.07
13	18.000	20.40	0.00	0.00	0.00	8.53	0.81	1.01	0.14	0.05	0.03	0.21	0.00	2.00	3.57	0.00	1.08
14	17.900	20.40	0.00	0.00	0.00	8.54	0.82	1.02	0.14	0.04	0.03	0.21	0.00	2.00	4.76	0.00	1.08
15	17.800	20.40	0.00	0.00	0.00	8.55	0.82	1.02	0.14	0.04	0.03	0.21	0.00	2.00	5.95	0.00	1.08
16	17.700	20.40	0.00	0.00	0.00	8.56	0.82	1.02	0.14	0.04	0.03	0.21	0.00	2.00	7.14	0.00	1.09
17	17.600	20.40	0.00	0.00	0.00	8.57	0.82	1.02	0.14	0.04	0.03	0.21	0.00	2.00	8.33	0.00	1.09
18	17.500	20.40	0.00	0.00	0.00	8.58	0.82	1.02	0.14	0.04	0.03	0.21	0.00	2.00	9.52	0.00	1.09

19	17.400	20.40	0.00	0.00	0.00	8.58	0.82	1.02	0.14	0.04	0.03	0.21	0.00	2.00	10.71	0.00	1.10
20	17.300	20.40	0.00	0.00	0.00	8.59	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.00	11.90	0.00	1.10
21	17.200	20.40	0.00	0.00	0.00	8.59	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.00	13.10	0.00	1.10
22	17.100	20.40	0.00	0.00	0.00	8.60	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.00	14.29	0.00	1.10
23	17.000	20.40	0.00	0.00	0.00	8.60	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.00	15.48	0.00	1.11
24	16.900	20.40	0.00	0.00	0.00	8.61	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.00	16.67	0.00	1.11
25	16.800	20.40	0.00	0.00	0.00	8.61	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.00	17.86	0.00	1.11
26	16.700	20.40	0.00	0.00	0.00	8.61	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.00	19.05	0.00	1.12
27	16.600	20.40	0.00	0.00	0.00	8.62	0.83	1.03	0.14	0.04	0.03	0.21	0.00	2.00	20.24	0.00	1.12
28	16.500	20.40	0.00	0.00	0.00	8.62	0.84	1.04	0.14	0.04	0.03	0.21	0.00	2.00	21.43	0.00	1.12
29	16.400	20.40	0.00	0.00	0.00	8.62	0.84	1.04	0.14	0.04	0.03	0.21	0.00	2.00	22.62	0.00	1.13
30	16.300	20.40	0.00	0.00	0.00	8.62	0.84	1.04	0.14	0.04	0.03	0.21	0.00	2.00	23.81	0.00	1.13
31	16.200	20.40	0.00	0.00	0.00	8.62	0.84	1.04	0.14	0.03	0.03	0.21	0.00	2.00	25.00	0.00	1.13

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 3   UPPER CALCASIEU RIVER REACH 3   DISSOLVED OXYGEN, WINTER PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
32	UPR RCH	0.02800	20.40	0.00	0.00	0.00	8.62	0.84	1.04	0.14	0.03	0.03	0.00	2.00	0.00	1.13

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
32	16.20	16.10	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
33	16.10	16.00	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
34	16.00	15.90	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
35	15.90	15.80	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
36	15.80	15.70	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
37	15.70	15.60	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
38	15.60	15.50	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
39	15.50	15.40	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
40	15.40	15.30	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
41	15.30	15.20	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
42	15.20	15.10	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
43	15.10	15.00	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
44	15.00	14.90	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
45	14.90	14.80	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
46	14.80	14.70	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
47	14.70	14.60	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076

48	14.60	14.50	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
49	14.50	14.40	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
50	14.40	14.30	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
51	14.30	14.20	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
52	14.20	14.10	0.02800	0.00	0.07628	0.02	0.17	2.11	36.71	211.04	0.37	0.00	0.000	0.300	0.076
TOT						0.32			770.83	4431.90					
AVG					0.07628		0.17	2.11			0.37				
CUM						0.81									

** 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
32	16.100	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
33	16.000	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
34	15.900	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
35	15.800	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
36	15.700	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
37	15.600	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
38	15.500	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
39	15.400	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
40	15.300	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
41	15.200	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
42	15.100	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
43	15.000	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
44	14.900	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
45	14.800	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
46	14.700	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
47	14.600	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
48	14.500	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
49	14.400	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
50	14.300	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
51	14.200	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
52	14.100	9.02	10.16	0.15	0.05	0.00	0.71	0.71	0.71	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
20 DEG C RATE				0.14		0.00	0.69			0.14		0.50	0.00	0.00	0.00			0.00	0.02	
AVG 20 DEG C RATE			10.08		0.05						0.05									0.05

* g/sq m/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 *
32	16.100	20.40	0.00	0.00	0.00	8.62	0.84	1.04	0.14	0.03	0.03	0.21	0.00	2.00	25.95	0.00	1.13
33	16.000	20.40	0.00	0.00	0.00	8.62	0.84	1.04	0.14	0.03	0.03	0.21	0.00	2.00	26.90	0.00	1.14
34	15.900	20.40	0.00	0.00	0.00	8.62	0.84	1.04	0.14	0.03	0.03	0.21	0.00	2.00	27.86	0.00	1.14

35	15.800	20.40	0.00	0.00	0.00	8.62	0.84	1.04	0.14	0.03	0.03	0.21	0.00	2.00	28.81	0.00	1.14
36	15.700	20.40	0.00	0.00	0.00	8.62	0.84	1.04	0.14	0.03	0.03	0.21	0.00	2.00	29.76	0.00	1.15
37	15.600	20.40	0.00	0.00	0.00	8.61	0.84	1.04	0.14	0.03	0.03	0.20	0.00	2.00	30.71	0.00	1.15
38	15.500	20.40	0.00	0.00	0.00	8.61	0.85	1.05	0.14	0.03	0.03	0.20	0.00	2.00	31.67	0.00	1.15
39	15.400	20.40	0.00	0.00	0.00	8.61	0.85	1.05	0.14	0.03	0.03	0.20	0.00	2.00	32.62	0.00	1.16
40	15.300	20.40	0.00	0.00	0.00	8.61	0.85	1.05	0.14	0.03	0.03	0.20	0.00	2.00	33.57	0.00	1.16
41	15.200	20.40	0.00	0.00	0.00	8.61	0.85	1.05	0.15	0.03	0.03	0.20	0.00	2.00	34.52	0.00	1.16
42	15.100	20.40	0.00	0.00	0.00	8.61	0.85	1.05	0.15	0.03	0.03	0.20	0.00	2.00	35.48	0.00	1.17
43	15.000	20.40	0.00	0.00	0.00	8.61	0.85	1.05	0.15	0.03	0.03	0.20	0.00	2.00	36.43	0.00	1.17
44	14.900	20.40	0.00	0.00	0.00	8.61	0.85	1.05	0.15	0.02	0.03	0.20	0.00	2.00	37.38	0.00	1.17
45	14.800	20.40	0.00	0.00	0.00	8.61	0.85	1.05	0.15	0.02	0.03	0.20	0.00	2.00	38.33	0.00	1.18
46	14.700	20.40	0.00	0.00	0.00	8.61	0.85	1.05	0.15	0.02	0.03	0.20	0.00	2.00	39.29	0.00	1.18
47	14.600	20.40	0.00	0.00	0.00	8.61	0.85	1.05	0.15	0.02	0.03	0.20	0.00	2.00	40.24	0.00	1.18
48	14.500	20.40	0.00	0.00	0.00	8.61	0.85	1.05	0.15	0.02	0.03	0.20	0.00	2.00	41.19	0.00	1.18
49	14.400	20.40	0.00	0.00	0.00	8.61	0.85	1.05	0.15	0.02	0.03	0.19	0.00	2.00	42.14	0.00	1.19
50	14.300	20.40	0.00	0.00	0.00	8.61	0.85	1.05	0.15	0.02	0.03	0.19	0.00	2.00	43.10	0.00	1.19
51	14.200	20.40	0.00	0.00	0.00	8.61	0.85	1.05	0.15	0.02	0.03	0.19	0.00	2.00	44.05	0.00	1.19
52	14.100	20.40	0.00	0.00	0.00	8.61	0.86	1.06	0.15	0.02	0.02	0.19	0.00	2.00	45.00	0.00	1.20

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 4   UPPER CALCASIEU RIVER REACH 4   DISSOLVED OXYGEN, WINTER PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
53	UPR RCH	0.02800	20.40	0.00	0.00	0.00	8.61	0.86	1.06	0.15	0.02	0.02	0.00	2.00	0.00	1.20

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
53	14.10	14.00	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
54	14.00	13.90	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
55	13.90	13.80	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
56	13.80	13.70	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
57	13.70	13.60	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
58	13.60	13.50	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
59	13.50	13.40	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
60	13.40	13.30	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
61	13.30	13.20	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
62	13.20	13.10	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
63	13.10	13.00	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083

64	13.00	12.90	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
65	12.90	12.80	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
66	12.80	12.70	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
67	12.70	12.60	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
68	12.60	12.50	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
69	12.50	12.40	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
70	12.40	12.30	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
71	12.30	12.20	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
72	12.20	12.10	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
73	12.10	12.00	0.02800	0.00	0.08319	0.01	0.14	2.32	33.66	232.34	0.34	0.00	0.000	0.300	0.083
TOT						0.29			706.85	4879.18					
AVG					0.08319		0.14	2.32			0.34				
CUM						1.10									

** 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
53	14.000	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
54	13.900	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
55	13.800	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
56	13.700	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
57	13.600	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
58	13.500	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
59	13.400	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
60	13.300	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
61	13.200	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
62	13.100	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
63	13.000	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
64	12.900	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
65	12.800	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
66	12.700	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
67	12.600	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
68	12.500	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
69	12.400	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
70	12.300	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
71	12.200	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
72	12.100	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
73	12.000	9.02	12.89	0.14	0.05	0.00	0.79	0.79	0.79	0.19	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.02	0.05
20 DEG C RATE				0.13		0.00	0.77			0.19		0.50	0.00	0.00	0.00			0.00	0.02	
AVG 20 DEG C RATE			12.79		0.05						0.05									0.05

* g/sq m/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	*
53	14.000	20.40	0.00	0.00	0.00	8.61	0.86	1.06	0.15	0.02	0.02	0.19	0.00	2.00	45.95	0.00	1.20
54	13.900	20.40	0.00	0.00	0.00	8.61	0.86	1.06	0.15	0.02	0.02	0.19	0.00	2.00	46.90	0.00	1.20
55	13.800	20.40	0.00	0.00	0.00	8.60	0.86	1.06	0.15	0.01	0.02	0.19	0.00	2.00	47.86	0.00	1.21
56	13.700	20.40	0.00	0.00	0.00	8.60	0.86	1.06	0.15	0.01	0.02	0.19	0.00	2.00	48.81	0.00	1.21
57	13.600	20.40	0.00	0.00	0.00	8.60	0.86	1.06	0.15	0.01	0.02	0.19	0.00	2.00	49.76	0.00	1.21
58	13.500	20.40	0.00	0.00	0.00	8.60	0.86	1.06	0.15	0.01	0.02	0.18	0.00	2.00	50.71	0.00	1.22
59	13.400	20.40	0.00	0.00	0.00	8.60	0.86	1.06	0.15	0.01	0.02	0.18	0.00	2.00	51.67	0.00	1.22
60	13.300	20.40	0.00	0.00	0.00	8.60	0.86	1.06	0.15	0.01	0.02	0.18	0.00	2.00	52.62	0.00	1.22
61	13.200	20.40	0.00	0.00	0.00	8.60	0.86	1.06	0.15	0.01	0.02	0.18	0.00	2.00	53.57	0.00	1.23
62	13.100	20.40	0.00	0.00	0.00	8.60	0.86	1.06	0.15	0.01	0.02	0.18	0.00	2.00	54.52	0.00	1.23
63	13.000	20.40	0.00	0.00	0.00	8.60	0.86	1.06	0.15	0.01	0.02	0.18	0.00	2.00	55.48	0.00	1.23
64	12.900	20.40	0.00	0.00	0.00	8.60	0.86	1.06	0.15	0.01	0.02	0.18	0.00	2.00	56.43	0.00	1.24
65	12.800	20.40	0.00	0.00	0.00	8.60	0.86	1.06	0.15	0.01	0.02	0.17	0.00	2.00	57.38	0.00	1.24
66	12.700	20.40	0.00	0.00	0.00	8.60	0.86	1.06	0.15	0.00	0.02	0.17	0.00	2.00	58.33	0.00	1.24
67	12.600	20.40	0.00	0.00	0.00	8.60	0.86	1.06	0.15	0.00	0.02	0.17	0.00	2.00	59.29	0.00	1.25
68	12.500	20.40	0.00	0.00	0.00	8.59	0.86	1.06	0.15	0.00	0.02	0.17	0.00	2.00	60.24	0.00	1.25
69	12.400	20.40	0.00	0.00	0.00	8.59	0.86	1.06	0.15	0.00	0.01	0.17	0.00	2.00	61.19	0.00	1.25
70	12.300	20.40	0.00	0.00	0.00	8.59	0.86	1.06	0.15	0.00	0.01	0.17	0.00	2.00	62.14	0.00	1.26
71	12.200	20.40	0.00	0.00	0.00	8.59	0.86	1.06	0.15	0.00	0.01	0.17	0.00	2.00	63.10	0.00	1.26
72	12.100	20.40	0.00	0.00	0.00	8.59	0.86	1.06	0.15	0.00	0.01	0.17	0.00	2.00	64.05	0.00	1.26
73	12.000	20.40	0.00	0.00	0.00	8.59	0.86	1.06	0.15	0.00	0.01	0.17	0.00	2.00	65.00	0.00	1.27

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT UPPER CALCASIEU RVR UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 5 UPPER CALCASIEU RIVER REACH 5 DISSOLVED OXYGEN, WINTER PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
74	UPR RCH	0.02800	20.40	0.00	0.00	0.00	8.59	0.86	1.06	0.15	0.00	0.01	0.00	2.00	0.00	1.27

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
74	12.00	11.90	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
75	11.90	11.80	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
76	11.80	11.70	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
77	11.70	11.60	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
78	11.60	11.50	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
79	11.50	11.40	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095

80	11.40	11.30	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
81	11.30	11.20	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
82	11.20	11.10	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
83	11.10	11.00	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
84	11.00	10.90	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
85	10.90	10.80	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
86	10.80	10.70	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
87	10.70	10.60	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
88	10.60	10.50	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
89	10.50	10.40	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
90	10.40	10.30	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
91	10.30	10.20	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
92	10.20	10.10	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
93	10.10	10.00	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
94	10.00	9.90	0.02800	0.00	0.09453	0.01	0.12	2.54	29.62	253.58	0.30	0.00	0.000	0.300	0.095
TOT						0.26			622.04	5325.09					
AVG					0.09453		0.12	2.54			0.30				
CUM						1.36									

** 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
74	11.900	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
75	11.800	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
76	11.700	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
77	11.600	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
78	11.500	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
79	11.400	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
80	11.300	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
81	11.200	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
82	11.100	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
83	11.000	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
84	10.900	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
85	10.800	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
86	10.700	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
87	10.600	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
88	10.500	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
89	10.400	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
90	10.300	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
91	10.200	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
92	10.100	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
93	10.000	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
94	9.900	9.02	17.38	0.12	0.05	0.00	0.92	0.92	0.92	0.24	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
20 DEG C RATE				0.12		0.00	0.90			0.24		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			17.25		0.05						0.05									0.05

* g/sq m/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 *
74	11.900	20.40	0.00	0.00	0.00	8.59	0.86	1.06	0.15	0.00	0.01	0.16	0.00	2.00	65.00	0.00	1.27
75	11.800	20.40	0.00	0.00	0.00	8.59	0.86	1.06	0.15	0.00	0.01	0.16	0.00	2.00	65.00	0.00	1.28
76	11.700	20.40	0.00	0.00	0.00	8.58	0.86	1.06	0.15	0.00	0.01	0.16	0.00	2.00	65.00	0.00	1.28
77	11.600	20.40	0.00	0.00	0.00	8.58	0.86	1.06	0.15	0.00	0.01	0.16	0.00	2.00	65.00	0.00	1.28
78	11.500	20.40	0.00	0.00	0.00	8.58	0.86	1.06	0.15	0.00	0.01	0.16	0.00	2.00	65.00	0.00	1.29
79	11.400	20.40	0.00	0.00	0.00	8.57	0.86	1.06	0.15	0.00	0.01	0.16	0.00	2.00	65.00	0.00	1.29
80	11.300	20.40	0.00	0.00	0.00	8.57	0.86	1.06	0.16	0.00	0.01	0.16	0.00	2.00	65.00	0.00	1.29
81	11.200	20.40	0.00	0.00	0.00	8.57	0.86	1.06	0.16	0.00	0.01	0.16	0.00	2.00	65.00	0.00	1.30
82	11.100	20.40	0.00	0.00	0.00	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	65.00	0.00	1.30
83	11.000	20.40	0.00	0.00	0.00	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	65.00	0.00	1.30
84	10.900	20.40	0.00	0.00	0.00	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	65.00	0.00	1.31
85	10.800	20.40	0.00	0.00	0.00	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	65.00	0.00	1.31
86	10.700	20.40	0.00	0.00	0.00	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	65.00	0.00	1.31
87	10.600	20.40	0.00	0.00	0.00	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	65.00	0.00	1.32
88	10.500	20.40	0.00	0.00	0.00	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	65.00	0.00	1.32
89	10.400	20.40	0.00	0.00	0.00	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	65.00	0.00	1.33
90	10.300	20.40	0.00	0.00	0.00	8.57	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	65.00	0.00	1.33
91	10.200	20.40	0.00	0.00	0.00	8.57	0.87	1.07	0.16	0.00	0.00	0.16	0.00	2.00	65.00	0.00	1.33
92	10.100	20.40	0.00	0.00	0.00	8.57	0.87	1.07	0.16	0.00	0.00	0.16	0.00	2.00	65.00	0.00	1.34
93	10.000	20.40	0.00	0.00	0.00	8.57	0.87	1.07	0.16	0.00	0.00	0.16	0.00	2.00	65.00	0.00	1.34
94	9.900	20.40	0.00	0.00	0.00	8.56	0.87	1.07	0.16	0.00	0.00	0.16	0.00	2.00	65.00	0.00	1.34

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 6   UPPER CALCASIEU RIVER REACH 6   DISSOLVED OXYGEN, WINTER PROJECTION MODEL

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW cms	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 *
95	UPR RCH	0.02800	20.40	0.00	0.00	0.00	8.56	0.87	1.07	0.16	0.00	0.00	0.00	2.00	0.00	1.34

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
95	9.90	9.80	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073

96	9.80	9.70	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
97	9.70	9.60	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
98	9.60	9.50	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
99	9.50	9.40	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
100	9.40	9.30	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
101	9.30	9.20	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
102	9.20	9.10	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
103	9.10	9.00	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
104	9.00	8.90	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
105	8.90	8.80	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
106	8.80	8.70	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
107	8.70	8.60	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
108	8.60	8.50	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
109	8.50	8.40	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
110	8.40	8.30	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
111	8.30	8.20	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
112	8.20	8.10	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
113	8.10	8.00	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
114	8.00	7.90	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
115	7.90	7.80	0.02800	0.00	0.07315	0.02	0.13	2.94	38.28	293.84	0.38	0.00	0.000	0.300	0.073
TOT						0.33			803.81	6170.55					
AVG					0.07315		0.13	2.94			0.38				
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
95	9.800	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
96	9.700	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
97	9.600	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
98	9.500	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
99	9.400	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
100	9.300	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
101	9.200	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
102	9.100	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
103	9.000	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
104	8.900	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
105	8.800	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
106	8.700	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
107	8.600	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
108	8.500	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
109	8.400	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
110	8.300	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
111	8.200	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
112	8.100	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
113	8.000	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
114	7.900	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
115	7.800	9.02	13.23	0.12	0.05	0.00	0.97	0.97	0.97	0.20	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05

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20 DEG C RATE                0.12          0.00  0.95                0.19          0.50  0.00   0.00  0.00               0.00   0.01
AVG 20 DEG C RATE    13.12         0.05                                    0.05                                                        0.05
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* g/sq m/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 *
95	9.800	20.40	0.00	0.00	0.00	8.55	0.87	1.07	0.16	0.00	0.00	0.16	0.00	2.00	64.52	0.00	1.35
96	9.700	20.40	0.00	0.00	0.00	8.53	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	64.05	0.00	1.35
97	9.600	20.40	0.00	0.00	0.00	8.52	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	63.57	0.00	1.35
98	9.500	20.40	0.00	0.00	0.00	8.51	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	63.10	0.00	1.35
99	9.400	20.40	0.00	0.00	0.00	8.50	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	62.62	0.00	1.36
100	9.300	20.40	0.00	0.00	0.00	8.49	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	62.14	0.00	1.36
101	9.200	20.40	0.00	0.00	0.00	8.48	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	61.67	0.00	1.36
102	9.100	20.40	0.00	0.00	0.00	8.48	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	61.19	0.00	1.36
103	9.000	20.40	0.00	0.00	0.00	8.47	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	60.71	0.00	1.37
104	8.900	20.40	0.00	0.00	0.00	8.47	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	60.24	0.00	1.37
105	8.800	20.40	0.00	0.00	0.00	8.47	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	59.76	0.00	1.37
106	8.700	20.40	0.00	0.00	0.00	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	59.29	0.00	1.38
107	8.600	20.40	0.00	0.00	0.00	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	58.81	0.00	1.38
108	8.500	20.40	0.00	0.00	0.00	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	58.33	0.00	1.38
109	8.400	20.40	0.00	0.00	0.00	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	57.86	0.00	1.38
110	8.300	20.40	0.00	0.00	0.00	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	57.38	0.00	1.39
111	8.200	20.40	0.00	0.00	0.00	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	56.90	0.00	1.39
112	8.100	20.40	0.00	0.00	0.00	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	56.43	0.00	1.39
113	8.000	20.40	0.00	0.00	0.00	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	55.95	0.00	1.39
114	7.900	20.40	0.00	0.00	0.00	8.46	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	55.48	0.00	1.40
115	7.800	20.40	0.00	0.00	0.00	8.45	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	55.00	0.00	1.40

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 7   UPPER CALCASIEU RIVER REACH 7   DISSOLVED OXYGEN, WINTER PROJECTION MODEL

** REACH INPUTS ***

ELEM NO.	TYPE	FLOW cms	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 *
116	UPR RCH	0.02800	20.40	0.00	0.00	0.00	8.45	0.86	1.06	0.16	0.00	0.00	0.00	2.00	0.00	1.40

*** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
116	7.80	7.70	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
117	7.70	7.60	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
118	7.60	7.50	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
119	7.50	7.40	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
120	7.40	7.30	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
121	7.30	7.20	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
122	7.20	7.10	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
123	7.10	7.00	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
124	7.00	6.90	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
125	6.90	6.80	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
126	6.80	6.70	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
127	6.70	6.60	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
128	6.60	6.50	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
129	6.50	6.40	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
130	6.40	6.30	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
131	6.30	6.20	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
132	6.20	6.10	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
133	6.10	6.00	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
134	6.00	5.90	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
135	5.90	5.80	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
136	5.80	5.70	0.02800	0.00	0.05791	0.02	0.14	3.34	48.36	334.13	0.48	0.00	0.000	0.300	0.058
TOT						0.42			1015.46	7016.73					
AVG					0.05791		0.14	3.34			0.48				
CUM						2.11									

** 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
116	7.700	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
117	7.600	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
118	7.500	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
119	7.400	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
120	7.300	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
121	7.200	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
122	7.100	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
123	7.000	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
124	6.900	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
125	6.800	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
126	6.700	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
127	6.600	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
128	6.500	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
129	6.400	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
130	6.300	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
131	6.200	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05

132	6.100	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
133	6.000	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
134	5.900	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
135	5.800	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
136	5.700	9.02	10.39	0.12	0.05	0.00	1.05	1.05	1.05	0.15	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
20 DEG C RATE				0.12		0.00	1.02			0.15		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			10.31		0.05						0.05									0.05

* g/sq m/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 *
116	7.700	20.40	0.00	0.00	0.00	8.43	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	53.33	0.00	1.40
117	7.600	20.40	0.00	0.00	0.00	8.41	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	51.67	0.00	1.40
118	7.500	20.40	0.00	0.00	0.00	8.40	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	50.00	0.00	1.41
119	7.400	20.40	0.00	0.00	0.00	8.38	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	48.33	0.00	1.41
120	7.300	20.40	0.00	0.00	0.00	8.37	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	46.67	0.00	1.41
121	7.200	20.40	0.00	0.00	0.00	8.37	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	45.00	0.00	1.41
122	7.100	20.40	0.00	0.00	0.00	8.36	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	43.33	0.00	1.41
123	7.000	20.40	0.00	0.00	0.00	8.35	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	41.67	0.00	1.42
124	6.900	20.40	0.00	0.00	0.00	8.35	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	40.00	0.00	1.42
125	6.800	20.40	0.00	0.00	0.00	8.34	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	38.33	0.00	1.42
126	6.700	20.40	0.00	0.00	0.00	8.34	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	36.67	0.00	1.42
127	6.600	20.40	0.00	0.00	0.00	8.34	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	35.00	0.00	1.43
128	6.500	20.40	0.00	0.00	0.00	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	33.33	0.00	1.43
129	6.400	20.40	0.00	0.00	0.00	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	31.67	0.00	1.43
130	6.300	20.40	0.00	0.00	0.00	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	30.00	0.00	1.43
131	6.200	20.40	0.00	0.00	0.00	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	28.33	0.00	1.43
132	6.100	20.40	0.00	0.00	0.00	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	26.67	0.00	1.44
133	6.000	20.40	0.00	0.00	0.00	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	25.00	0.00	1.44
134	5.900	20.40	0.00	0.00	0.00	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	23.33	0.00	1.44
135	5.800	20.40	0.00	0.00	0.00	8.33	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	21.67	0.00	1.44
136	5.700	20.40	0.00	0.00	0.00	8.32	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	20.00	0.00	1.45

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L

** g/cu m

FINAL REPORT   UPPER CALCASIEU RVR   UPPER CALCASIEU RIVER (030101)- STREAM MODEL

REACH NO. 8   UPPER CALCASIEU RIVER REACH 8   DISSOLVED OXYGEN, WINTER PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *

137	UPR RCH	0.02800	20.40	0.00	0.00	0.00	8.32	0.85	1.05	0.16	0.00	0.00	0.00	2.00	0.00	1.45

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
137	5.70	5.60	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
138	5.60	5.50	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
139	5.50	5.40	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
140	5.40	5.30	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
141	5.30	5.20	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
142	5.20	5.10	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
143	5.10	5.00	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
144	5.00	4.90	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
145	4.90	4.80	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
146	4.80	4.70	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
147	4.70	4.60	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
148	4.60	4.50	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
149	4.50	4.40	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
150	4.40	4.30	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
151	4.30	4.20	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
152	4.20	4.10	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
153	4.10	4.00	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
154	4.00	3.90	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
155	3.90	3.80	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
156	3.80	3.70	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
157	3.70	3.60	0.02800	0.00	0.04730	0.02	0.16	3.74	59.20	374.29	0.59	0.00	0.000	0.300	0.047
TOT						0.51			1243.25	7860.09					
AVG					0.04730		0.16	3.74			0.59				
CUM						2.63									

*** 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
137	5.600	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
138	5.500	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
139	5.400	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
140	5.300	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
141	5.200	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
142	5.100	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
143	5.000	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
144	4.900	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
145	4.800	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
146	4.700	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
147	4.600	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05

148	4.500	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
149	4.400	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
150	4.300	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
151	4.200	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
152	4.100	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
153	4.000	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
154	3.900	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
155	3.800	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
156	3.700	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
157	3.600	9.02	8.54	0.12	0.05	0.00	1.10	1.10	1.10	0.10	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
20 DEG C RATE				0.12		0.00	1.07			0.10		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			8.47		0.05						0.05									0.05

* g/sq m/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 *
137	5.600	20.40	0.00	0.00	0.00	8.30	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	19.90	0.00	1.45
138	5.500	20.40	0.00	0.00	0.00	8.29	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	19.81	0.00	1.45
139	5.400	20.40	0.00	0.00	0.00	8.27	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	19.71	0.00	1.46
140	5.300	20.40	0.00	0.00	0.00	8.26	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	19.62	0.00	1.46
141	5.200	20.40	0.00	0.00	0.00	8.25	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	19.52	0.00	1.47
142	5.100	20.40	0.00	0.00	0.00	8.24	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	19.43	0.00	1.47
143	5.000	20.40	0.00	0.00	0.00	8.24	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	19.33	0.00	1.47
144	4.900	20.40	0.00	0.00	0.00	8.23	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	19.24	0.00	1.48
145	4.800	20.40	0.00	0.00	0.00	8.23	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	19.14	0.00	1.48
146	4.700	20.40	0.00	0.00	0.00	8.22	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	19.05	0.00	1.49
147	4.600	20.40	0.00	0.00	0.00	8.22	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.00	18.95	0.00	1.49
148	4.500	20.40	0.00	0.00	0.00	8.22	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.00	18.86	0.00	1.49
149	4.400	20.40	0.00	0.00	0.00	8.22	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.00	18.76	0.00	1.50
150	4.300	20.40	0.00	0.00	0.00	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.00	18.67	0.00	1.50
151	4.200	20.40	0.00	0.00	0.00	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.00	18.57	0.00	1.51
152	4.100	20.40	0.00	0.00	0.00	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.00	18.48	0.00	1.51
153	4.000	20.40	0.00	0.00	0.00	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.00	18.38	0.00	1.51
154	3.900	20.40	0.00	0.00	0.00	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.00	18.29	0.00	1.52
155	3.800	20.40	0.00	0.00	0.00	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.00	18.19	0.00	1.52
156	3.700	20.40	0.00	0.00	0.00	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.00	18.10	0.00	1.53
157	3.600	20.40	0.00	0.00	0.00	8.21	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.00	18.00	0.00	1.53

* CM-I = CHLORIDES MG/L   CM-II = SULFATES MG/L   NCM = CBOD2 MG/L
** g/cu m

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
158	UPR RCH	0.02800	20.40	0.00	0.00	0.00	8.21	0.84	1.04	0.16	0.00	0.00	0.00	2.00	0.00	1.53

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
158	3.60	3.50	0.02800	0.00	0.05041	0.02	0.18	3.11	55.55	311.45	0.56	0.00	0.000	0.300	0.050
159	3.50	3.40	0.02800	0.00	0.05041	0.02	0.18	3.11	55.55	311.45	0.56	0.00	0.000	0.300	0.050
160	3.40	3.30	0.02800	0.00	0.05041	0.02	0.18	3.11	55.55	311.45	0.56	0.00	0.000	0.300	0.050
161	3.30	3.20	0.02800	0.00	0.05041	0.02	0.18	3.11	55.55	311.45	0.56	0.00	0.000	0.300	0.050
162	3.20	3.10	0.02800	0.00	0.05041	0.02	0.18	3.11	55.55	311.45	0.56	0.00	0.000	0.300	0.050
163	3.10	3.00	0.02800	0.00	0.05041	0.02	0.18	3.11	55.55	311.45	0.56	0.00	0.000	0.300	0.050
164	3.00	2.90	0.02800	0.00	0.05041	0.02	0.18	3.11	55.55	311.45	0.56	0.00	0.000	0.300	0.050
165	2.90	2.80	0.02800	0.00	0.05041	0.02	0.18	3.11	55.55	311.45	0.56	0.00	0.000	0.300	0.050
166	2.80	2.70	0.02800	0.00	0.05041	0.02	0.18	3.11	55.55	311.45	0.56	0.00	0.000	0.300	0.050
167	2.70	2.60	0.02800	0.00	0.05041	0.02	0.18	3.11	55.55	311.45	0.56	0.00	0.000	0.300	0.050
168	2.60	2.50	0.02800	0.00	0.05041	0.02	0.18	3.11	55.55	311.45	0.56	0.00	0.000	0.300	0.050
169	2.50	2.40	0.02800	0.00	0.05041	0.02	0.18	3.11	55.55	311.45	0.56	0.00	0.000	0.300	0.050
TOT						0.28			666.57	3737.42					
AVG					0.05041		0.18	3.11			0.56				
CUM						2.90									

** 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
158	3.500	9.02	7.82	0.12	0.05	0.00	1.19	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
159	3.400	9.02	7.82	0.12	0.05	0.00	1.19	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
160	3.300	9.02	7.82	0.12	0.05	0.00	1.19	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
161	3.200	9.02	7.82	0.12	0.05	0.00	1.19	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
162	3.100	9.02	7.82	0.12	0.05	0.00	1.19	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
163	3.000	9.02	7.82	0.12	0.05	0.00	1.19	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
164	2.900	9.02	7.82	0.12	0.05	0.00	1.19	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
165	2.800	9.02	7.82	0.12	0.05	0.00	1.19	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
166	2.700	9.02	7.82	0.12	0.05	0.00	1.19	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
167	2.600	9.02	7.82	0.12	0.05	0.00	1.19	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
168	2.500	9.02	7.82	0.12	0.05	0.00	1.19	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
169	2.400	9.02	7.82	0.12	0.05	0.00	1.19	1.19	1.19	0.12	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
20 DEG C RATE				0.12		0.00	1.16			0.12		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			7.76		0.05						0.05									0.05

* g/sq m/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 *
158	3.500	20.40	0.00	0.00	0.00	8.20	0.84	1.04	0.16	0.00	0.00	0.16	0.00	2.00	18.00	0.00	1.55
159	3.400	20.40	0.00	0.00	0.00	8.20	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	18.00	0.00	1.56
160	3.300	20.40	0.00	0.00	0.00	8.19	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	18.00	0.00	1.58
161	3.200	20.40	0.00	0.00	0.00	8.19	0.85	1.05	0.16	0.00	0.00	0.16	0.00	2.00	18.00	0.00	1.60
162	3.100	20.40	0.00	0.00	0.00	8.18	0.86	1.06	0.16	0.00	0.00	0.16	0.00	2.00	18.00	0.00	1.62
163	3.000	20.40	0.00	0.00	0.00	8.18	0.86	1.06	0.17	0.00	0.00	0.17	0.00	2.00	18.00	0.00	1.63
164	2.900	20.40	0.00	0.00	0.00	8.18	0.87	1.07	0.17	0.00	0.00	0.17	0.00	2.00	18.00	0.00	1.65
165	2.800	20.40	0.00	0.00	0.00	8.18	0.87	1.07	0.17	0.00	0.00	0.17	0.00	2.00	18.00	0.00	1.67
166	2.700	20.40	0.00	0.00	0.00	8.17	0.87	1.07	0.17	0.00	0.00	0.17	0.00	2.00	18.00	0.00	1.69
167	2.600	20.40	0.00	0.00	0.00	8.17	0.88	1.08	0.17	0.00	0.00	0.17	0.00	2.00	18.00	0.00	1.70
168	2.500	20.40	0.00	0.00	0.00	8.17	0.88	1.08	0.17	0.00	0.00	0.17	0.00	2.00	18.00	0.00	1.72
169	2.400	20.40	0.00	0.00	0.00	8.17	0.88	1.08	0.17	0.00	0.00	0.17	0.00	2.00	18.00	0.00	1.74

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT UPPER CALCASIEU RVR UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 10 UPPER CALCASIEU RIVER REACH 10 DISSOLVED OXYGEN, WINTER PROJECTION MODEL

*** REACH INPUTS ***

ELEM NO.	TYPE	FLOW cms	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 *
170	UPR RCH	0.02800	20.40	0.00	0.00	0.00	8.17	0.88	1.08	0.17	0.00	0.00	0.00	2.00	0.00	1.74
179	WSTLD	0.00032	20.40	0.00	0.00	0.00	8.12	5.06	5.06	0.65	0.05	0.03	0.00	2.00	0.00	5.31

*** HYDRAULIC PARAMETER VALUES ***

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
170	2.40	2.30	0.02800	0.00	0.05665	0.02	0.20	2.49	49.42	248.61	0.49	0.00	0.000	0.300	0.057
171	2.30	2.20	0.02800	0.00	0.05665	0.02	0.20	2.49	49.42	248.61	0.49	0.00	0.000	0.300	0.057
172	2.20	2.10	0.02800	0.00	0.05665	0.02	0.20	2.49	49.42	248.61	0.49	0.00	0.000	0.300	0.057
173	2.10	2.00	0.02800	0.00	0.05665	0.02	0.20	2.49	49.42	248.61	0.49	0.00	0.000	0.300	0.057
174	2.00	1.90	0.02800	0.00	0.05665	0.02	0.20	2.49	49.42	248.61	0.49	0.00	0.000	0.300	0.057
175	1.90	1.80	0.02800	0.00	0.05665	0.02	0.20	2.49	49.42	248.61	0.49	0.00	0.000	0.300	0.057
176	1.80	1.70	0.02800	0.00	0.05665	0.02	0.20	2.49	49.42	248.61	0.49	0.00	0.000	0.300	0.057

177	1.70	1.60	0.02800	0.00	0.05665	0.02	0.20	2.49	49.42	248.61	0.49	0.00	0.000	0.300	0.057
178	1.60	1.50	0.02800	0.00	0.05665	0.02	0.20	2.49	49.42	248.61	0.49	0.00	0.000	0.300	0.057
179	1.50	1.40	0.02832	1.14	0.05708	0.02	0.20	2.49	49.62	248.96	0.50	0.00	0.000	0.300	0.057
180	1.40	1.30	0.02832	1.14	0.05708	0.02	0.20	2.49	49.62	248.96	0.50	0.00	0.000	0.300	0.057
181	1.30	1.20	0.02832	1.14	0.05708	0.02	0.20	2.49	49.62	248.96	0.50	0.00	0.000	0.300	0.057
TOT						0.24			593.68	2984.40					
AVG					0.05676		0.20	2.49			0.49				
CUM						3.15									

** 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
170	2.300	9.02	7.47	0.12	0.05	0.00	1.30	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
171	2.200	9.02	7.47	0.12	0.05	0.00	1.30	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
172	2.100	9.02	7.47	0.12	0.05	0.00	1.30	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
173	2.000	9.02	7.47	0.12	0.05	0.00	1.30	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
174	1.900	9.02	7.47	0.12	0.05	0.00	1.30	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
175	1.800	9.02	7.47	0.12	0.05	0.00	1.30	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
176	1.700	9.02	7.47	0.12	0.05	0.00	1.30	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
177	1.600	9.02	7.47	0.12	0.05	0.00	1.30	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
178	1.500	9.02	7.47	0.12	0.05	0.00	1.30	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
179	1.400	9.02	7.48	0.12	0.05	0.00	1.30	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
180	1.300	9.02	7.48	0.12	0.05	0.00	1.30	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
181	1.200	9.02	7.48	0.12	0.05	0.00	1.30	1.30	1.30	0.14	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
20 DEG C RATE				0.12		0.00	1.27			0.14		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			7.42		0.05						0.05									0.05

* g/sq m/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 *
170	2.300	20.40	0.00	0.00	0.00	8.17	0.89	1.09	0.17	0.00	0.00	0.17	0.00	2.00	18.00	0.00	1.76
171	2.200	20.40	0.00	0.00	0.00	8.16	0.89	1.09	0.17	0.00	0.00	0.17	0.00	2.00	18.00	0.00	1.78
172	2.100	20.40	0.00	0.00	0.00	8.16	0.90	1.10	0.17	0.00	0.00	0.17	0.00	2.00	18.00	0.00	1.80
173	2.000	20.40	0.00	0.00	0.00	8.16	0.90	1.10	0.18	0.00	0.00	0.18	0.00	2.00	18.00	0.00	1.82
174	1.900	20.40	0.00	0.00	0.00	8.15	0.91	1.11	0.18	0.00	0.00	0.18	0.00	2.00	18.00	0.00	1.84
175	1.800	20.40	0.00	0.00	0.00	8.15	0.91	1.11	0.18	0.00	0.00	0.18	0.00	2.00	18.00	0.00	1.86
176	1.700	20.40	0.00	0.00	0.00	8.15	0.91	1.11	0.18	0.00	0.00	0.18	0.00	2.00	18.00	0.00	1.88
177	1.600	20.40	0.00	0.00	0.00	8.15	0.92	1.12	0.18	0.00	0.00	0.18	0.00	2.00	18.00	0.00	1.90
178	1.500	20.40	0.00	0.00	0.00	8.15	0.92	1.12	0.18	0.00	0.00	0.18	0.00	2.00	18.00	0.00	1.92
179	1.400	20.40	0.00	0.00	0.00	8.15	0.97	1.17	0.19	0.00	0.00	0.19	0.00	2.00	18.00	0.00	1.98
180	1.300	20.40	0.00	0.00	0.00	8.15	0.98	1.18	0.19	0.00	0.00	0.19	0.00	2.00	18.00	0.00	2.00
181	1.200	20.40	0.00	0.00	0.00	8.15	0.98	1.18	0.19	0.00	0.00	0.19	0.00	2.00	18.00	0.00	2.02

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM = CBOD2 MG/L
** g/cu m

FINAL REPORT UPPER CALCASIEU RVR UPPER CALCASIEU RIVER (030101)- STREAM MODEL
REACH NO. 11 UPPER CALCASIEU RIVER REACH 11 DISSOLVED OXYGEN, WINTER PROJECTION MODEL

** REACH INPUTS **

ELEM NO.	TYPE	FLOW cms	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 *
182	UPR RCH	0.02832	20.40	0.00	0.00	0.00	8.15	0.98	1.18	0.19	0.00	0.00	0.00	2.00	0.00	2.02

** HYDRAULIC PARAMETER VALUES **

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW cms	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME cu m	SURFACE AREA sq m	X-SECT AREA sq m	TIDAL PRISM cu m	TIDAL VELO m/s	DISPRSN sq m/s	MEAN VELO m/s
182	1.20	1.10	0.02832	1.14	0.06968	0.02	0.22	1.86	40.65	186.02	0.41	0.00	0.000	0.300	0.070
183	1.10	1.00	0.02832	1.14	0.06968	0.02	0.22	1.86	40.65	186.02	0.41	0.00	0.000	0.300	0.070
184	1.00	0.90	0.02832	1.14	0.06968	0.02	0.22	1.86	40.65	186.02	0.41	0.00	0.000	0.300	0.070
185	0.90	0.80	0.02832	1.14	0.06968	0.02	0.22	1.86	40.65	186.02	0.41	0.00	0.000	0.300	0.070
186	0.80	0.70	0.02832	1.14	0.06968	0.02	0.22	1.86	40.65	186.02	0.41	0.00	0.000	0.300	0.070
187	0.70	0.60	0.02832	1.14	0.06968	0.02	0.22	1.86	40.65	186.02	0.41	0.00	0.000	0.300	0.070
188	0.60	0.50	0.02832	1.14	0.06968	0.02	0.22	1.86	40.65	186.02	0.41	0.00	0.000	0.300	0.070
189	0.50	0.40	0.02832	1.14	0.06968	0.02	0.22	1.86	40.65	186.02	0.41	0.00	0.000	0.300	0.070
190	0.40	0.30	0.02832	1.14	0.06968	0.02	0.22	1.86	40.65	186.02	0.41	0.00	0.000	0.300	0.070
191	0.30	0.20	0.02832	1.14	0.06968	0.02	0.22	1.86	40.65	186.02	0.41	0.00	0.000	0.300	0.070
192	0.20	0.10	0.02832	1.14	0.06968	0.02	0.22	1.86	40.65	186.02	0.41	0.00	0.000	0.300	0.070
193	0.10	0.00	0.02832	1.14	0.06968	0.02	0.22	1.86	40.65	186.02	0.41	0.00	0.000	0.300	0.070
TOT						0.20			487.76	2232.22					
AVG					0.06968		0.22	1.86			0.41				
CUM						3.35									

*** 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
182	1.100	9.02	7.66	0.12	0.05	0.00	1.48	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
183	1.000	9.02	7.66	0.12	0.05	0.00	1.48	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
184	0.900	9.02	7.66	0.12	0.05	0.00	1.48	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
185	0.800	9.02	7.66	0.12	0.05	0.00	1.48	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
186	0.700	9.02	7.66	0.12	0.05	0.00	1.48	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05

187	0.600	9.02	7.66	0.12	0.05	0.00	1.48	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
188	0.500	9.02	7.66	0.12	0.05	0.00	1.48	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
189	0.400	9.02	7.66	0.12	0.05	0.00	1.48	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
190	0.300	9.02	7.66	0.12	0.05	0.00	1.48	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
191	0.200	9.02	7.66	0.12	0.05	0.00	1.48	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
192	0.100	9.02	7.66	0.12	0.05	0.00	1.48	1.48	1.48	0.16	0.05	0.52	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
193	0.000	9.02	7.66	0.12	0.05	0.00	1.48	1.48	1.48	0.16	0.05	0.51	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.05
20 DEG C RATE				0.12		0.00	1.44			0.16		0.50	0.00	0.00	0.00			0.00	0.01	
AVG 20 DEG C RATE			7.60		0.05						0.05									0.05

* g/sq m/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 *
182	1.100	20.40	0.00	0.00	0.00	8.14	0.99	1.19	0.19	0.00	0.00	0.19	0.00	2.00	18.00	0.00	2.04
183	1.000	20.40	0.00	0.00	0.00	8.14	0.99	1.19	0.19	0.00	0.00	0.19	0.00	2.00	18.00	0.00	2.06
184	0.900	20.40	0.00	0.00	0.00	8.14	1.00	1.20	0.19	0.00	0.00	0.19	0.00	2.00	18.00	0.00	2.08
185	0.800	20.40	0.00	0.00	0.00	8.14	1.00	1.20	0.19	0.00	0.00	0.19	0.00	2.00	18.00	0.00	2.10
186	0.700	20.40	0.00	0.00	0.00	8.14	1.01	1.21	0.20	0.00	0.00	0.20	0.00	2.00	18.00	0.00	2.12
187	0.600	20.40	0.00	0.00	0.00	8.14	1.01	1.21	0.20	0.00	0.00	0.20	0.00	2.00	18.00	0.00	2.14
188	0.500	20.40	0.00	0.00	0.00	8.14	1.02	1.22	0.20	0.00	0.00	0.20	0.00	2.00	18.00	0.00	2.16
189	0.400	20.40	0.00	0.00	0.00	8.14	1.02	1.22	0.20	0.00	0.00	0.20	0.00	2.00	18.00	0.00	2.18
190	0.300	20.40	0.00	0.00	0.00	8.14	1.03	1.23	0.20	0.00	0.00	0.20	0.00	2.00	18.00	0.00	2.20
191	0.200	20.40	0.00	0.00	0.00	8.14	1.03	1.23	0.20	0.00	0.00	0.20	0.00	2.00	18.00	0.00	2.22
192	0.100	20.40	0.00	0.00	0.00	8.14	1.04	1.24	0.20	0.00	0.00	0.20	0.00	2.00	18.00	0.00	2.24
193	0.000	20.40	0.00	0.00	0.00	8.13	1.04	1.24	0.20	0.00	0.00	0.20	0.00	2.00	18.00	0.00	2.26

* CM-I = CHLORIDES MG/L CM-II = SULFATES MG/L NCM = CBOD2 MG/L
** g/cu m

STREAM SUMMARY
UPPER CALCASIEU RVR

UPPER CALCASIEU RIVER (030101)- STREAM MODEL
DISSOLVED OXYGEN, WINTER PROJECTION MODEL

TRAVEL TIME = 3.35 DAYS

MAXIMUM EFFLUENT = 1.14 PERCENT

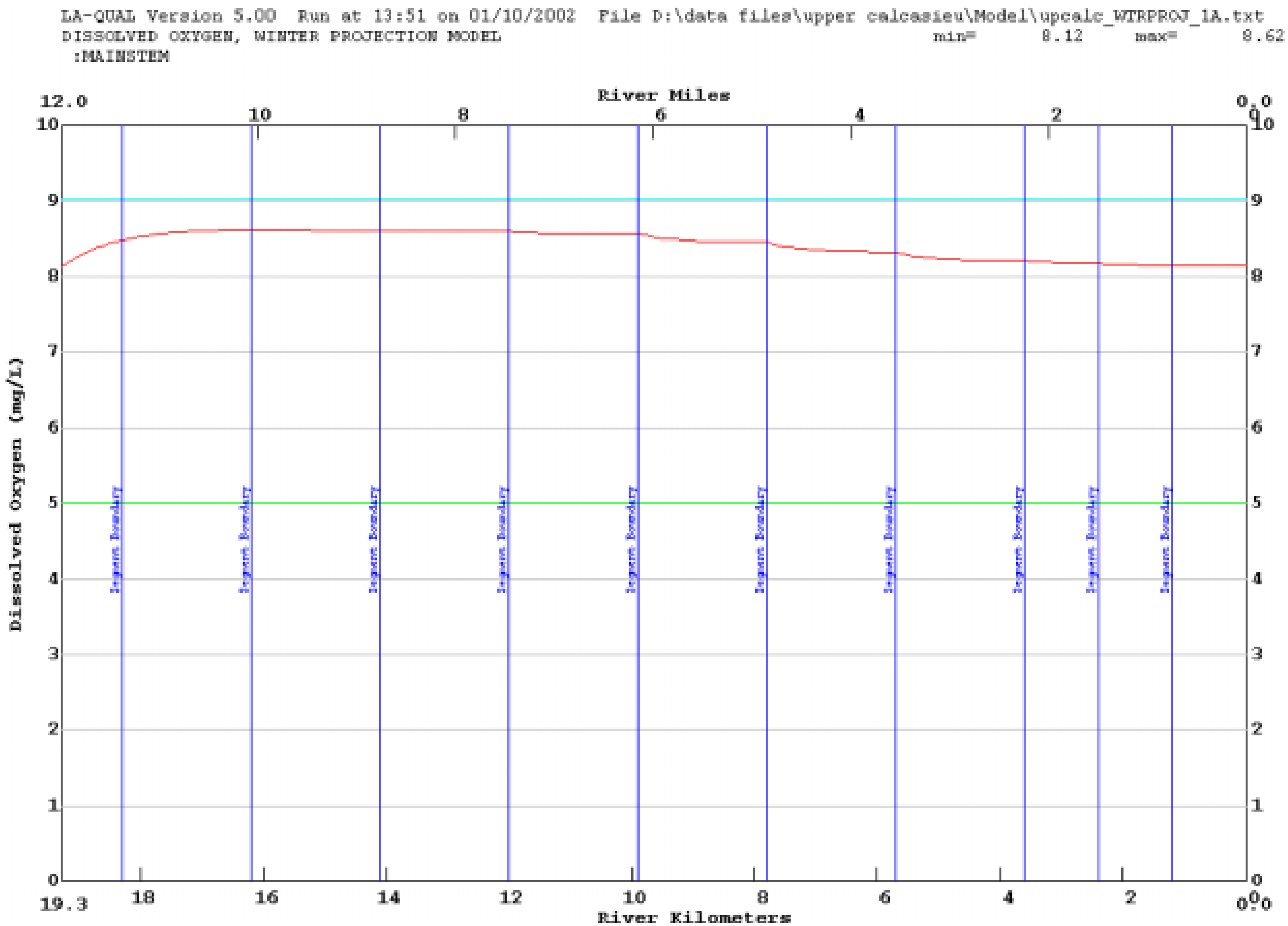
FLOW	=	0.02800	TO	0.02832	cms
DISPERSION	=	0.3000	TO	0.3000	sq m/s
VELOCITY	=	0.04730	TO	0.09453	m/s
DEPTH	=	0.12	TO	0.23	m
WIDTH	=	1.69	TO	3.74	m
BOD DECAY	=	0.12	TO	0.17	per day
NH3 DECAY	=	0.51	TO	0.52	per day
SDMNT OXYGEN DMND	=	0.58	TO	1.48	g/sq m/d

```
NH3 SOURCE       =    0.00   TO    0.00    g/sq m/d
REAERATION       =    7.39   TO   17.38    per day
BOD SETTLING     =    0.05   TO    0.05    per day
ORGN DECAY       =    0.03   TO    0.24    per day
ORGN SETTLING    =    0.05   TO    0.05    per day

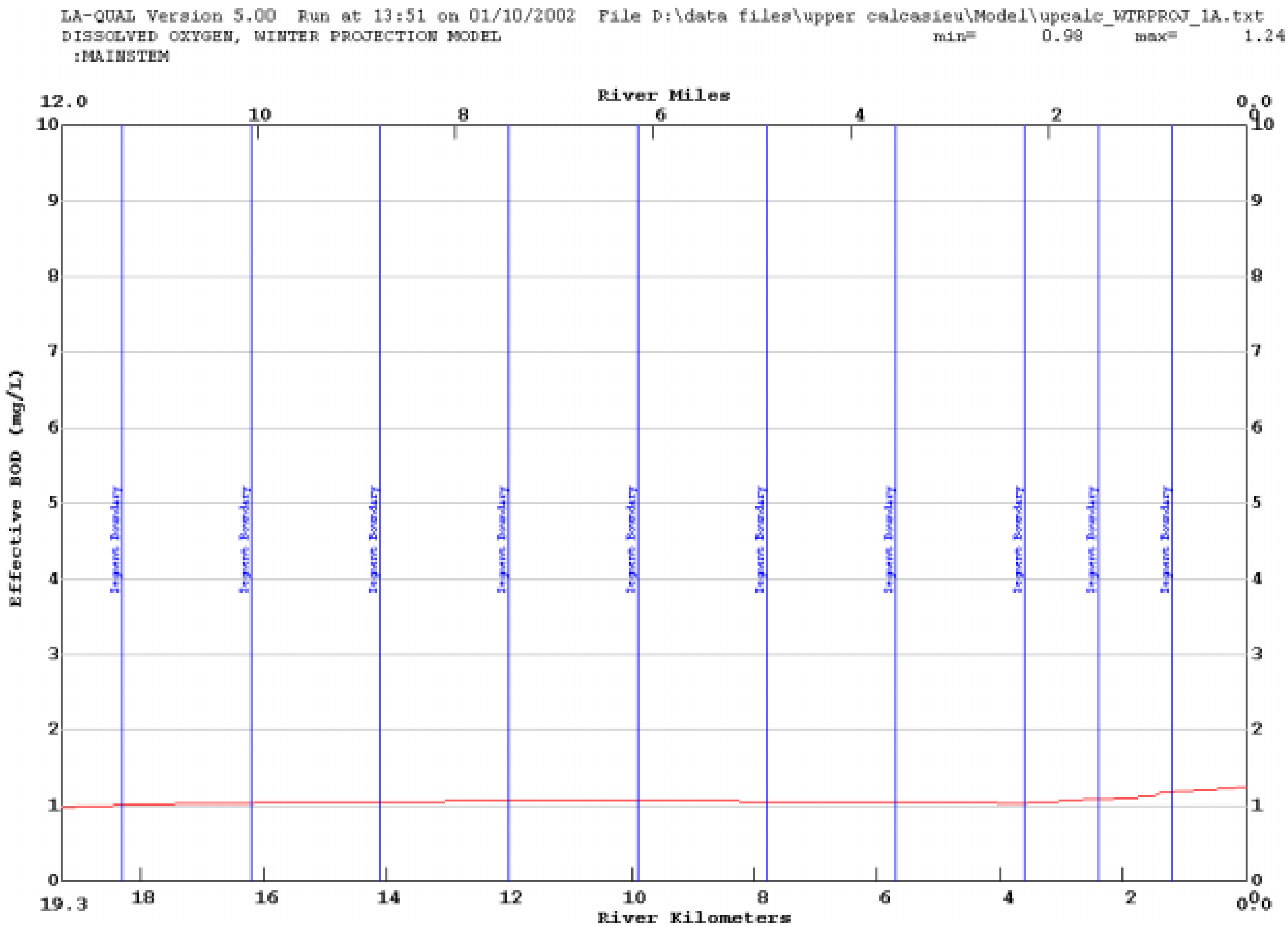
TEMPERATURE      =   20.40   TO   20.40    deg C
DISSOLVED OXYGEN =    8.13   TO    8.62    mg/L


     .....EXECUTION COMPLETED
```

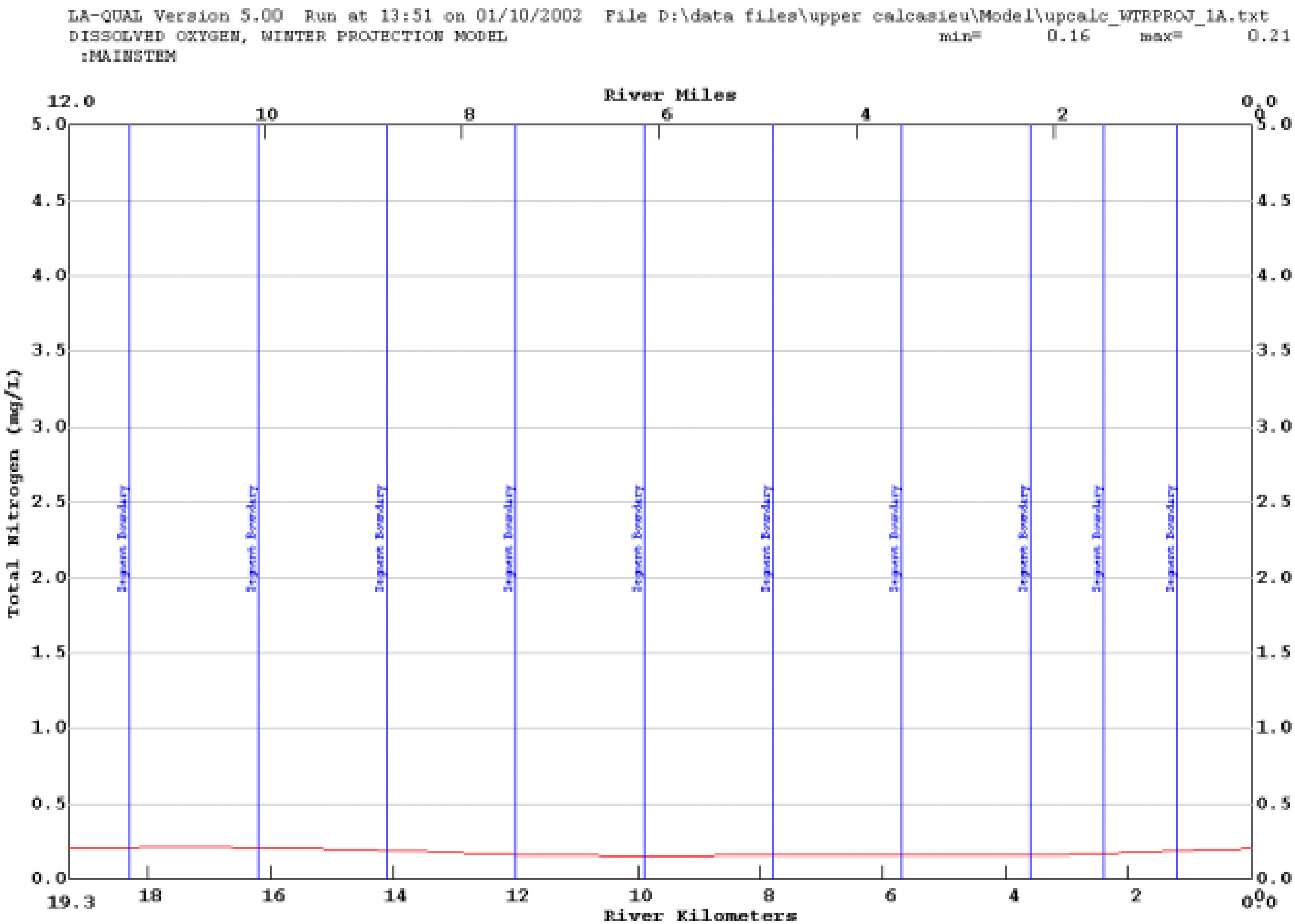
Upper Calcasieu River – Subsegment 030101
Winter season projection model input/output
Orginated: January 10, 2002



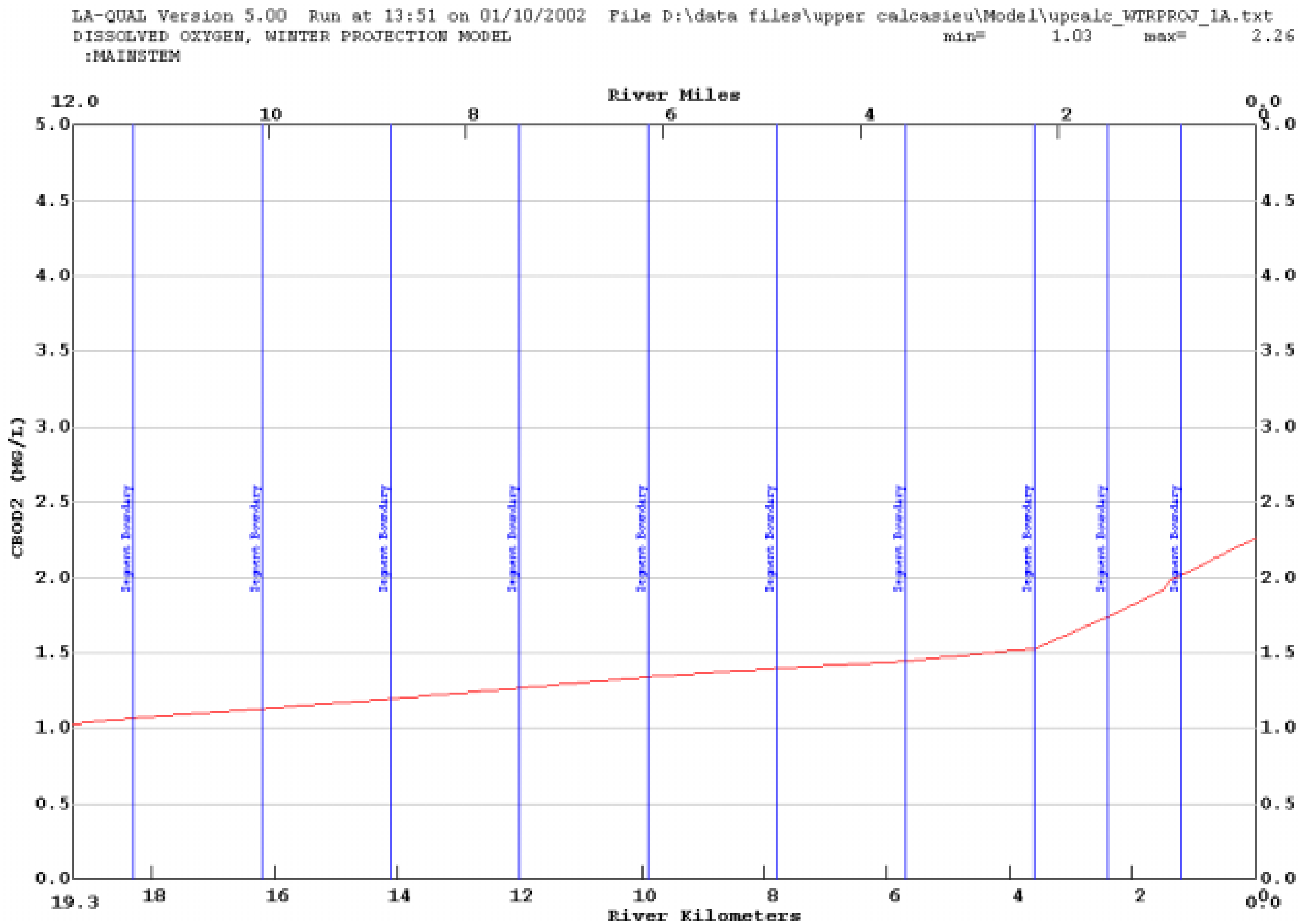
Upper Calcasieu River – Subsegment 030101
Winter season projection model input/output
Orginated: January 10, 2002



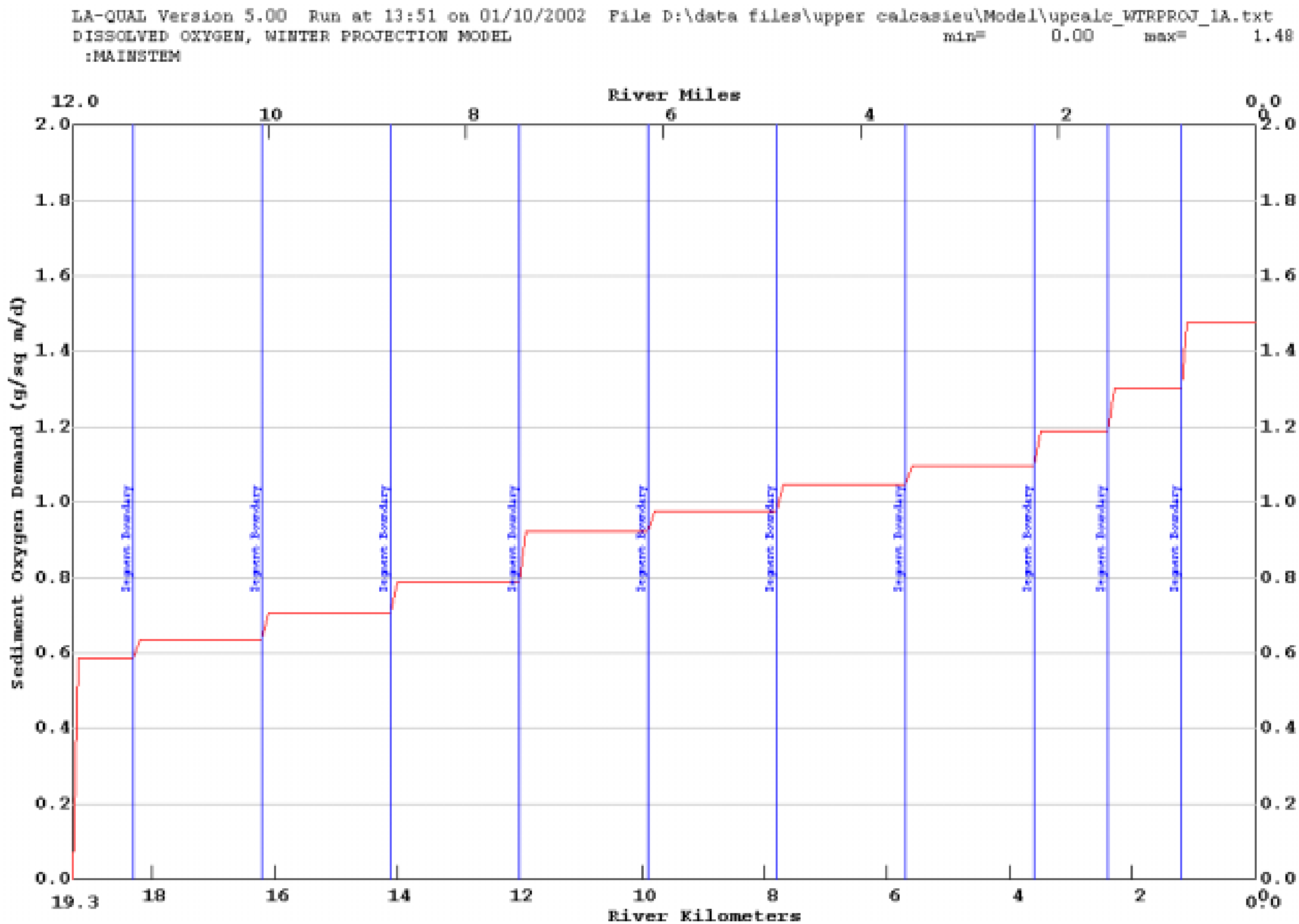
Upper Calcasieu River – Subsegment 030101
Winter season projection model input/output
Orginated: January 10, 2002



Upper Calcasieu River – Subsegment 030101
Winter season projection model input/output
Orginated: January 10, 2002



Upper Calcasieu River – Subsegment 030101
Winter season projection model input/output
Orginated: January 10, 2002



Appendix B5

Projection Model Development

Winter projection model justifications

Upper Calcasieu River (030101) W.Q. Winter Projection Input Description

DATA TYPE 3, Program Constants			
Description of Constant	**Value**	**Result**	**Source/Justification**
Maximum iteration limit	200.0		Standard
Plot type	3.0	Creates line printer plots for WQ parameters.	For reporting purposes.
Final report type	1.0	Report for all reach and stream summaries.	For reporting purposes.
BOD oxygen uptake rate	1.0	Indicates CBOD1 component model inputs are in ultimate BOD.	Modeler's Preference, the BOD model parameter was set to the CBOD1 component.
KL Minimum	0.7	Minimum KL to be used.	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
K2 Maximum	20.0	Maximum K2 @20C model will allow.	Due to the shallow depths in this waterbody, it was felt that this value would allow a more appropriate representation of the actual conditions.
N Algal uptake	0.0025	Net nitrogen uptake per unit of chlorophyll a (mg N/ug chlorophyll a /day).	Recommended model default value.
N Preference	0.35	Determines the nitrogen preference of algae and/or macrophytes.	Determine during calibration.
N Macrophyte Uptake	0.0025	Net nitrogen uptake per unit of macrophyte (mg N/mg macrophyte/day).	Recommended model default value.
Macrophyte Oxygen Prod	0.0000	Net oxygen production per unit of macrophyte (mg O/mg macrophyte/day).	Assumed the uptake was caused by the vegetation in the riparian zone, thus there would not be oxygen production into the stream.
NCM Oxygen uptake rate	1.0	Indicates CBOD2 component model inputs are in ultimate BOD.	Modeler's Preference, the NCM model parameter was set to the CBOD2 component.
Inhibition control value	3.0	Inhibits all decay rates except SOD for low DO.	Standard LA modeling procedure.
N Inhibition equation	1.0	Chooses linear or modified equation for nitrogen inhibition.	BPJ. Linear equation simulated the calibration conditions more accurate manner than the modified equation.
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 (1/day).	Due to the depths in this waterbody, it was felt that this method would be a more appropriate representation of the actual conditions.
Algae oxygen prod	0.050	Sets the net oxygen production per chlorophyll a.	Recommended model default value.
Effective BOD due to Algae	0.1	Sets the effect that decaying algae will have on BOD.	Recommended model manual's value.
NH3 Oxygen Uptake Rate	4.33	The oxygen uptake rate per unit of ammonia oxidized (mg 0/mg N).	Recommended model default value.

DATA TYPE 4, Temperature Correction Constants		
Description of Coefficient	**Value**	**Source/Justification**
NCM DECA	1.047	LTP value for CBOD. Used to in the simulation of the CBOD2 component.

DATA TYPE 9, Advective Hydraulic Coefficients					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Width Coef "A"	Unitless	0.924	Note 1
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.370	Note 1
		Depth Coef "D"	Unitless	0.039	Note 1
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.22	Note 1
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
2	Upper Calcasieu River Reach 2	Width Coef "A"	Unitless	1.533	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.374	Note 2
		Depth Coef "D"	Unitless	0.104	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.173	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
3	Upper Calcasieu River Reach 3	Width Coef "A"	Unitless	2.141	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.378	Note 2
		Depth Coef "D"	Unitless	0.17	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.127	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
4	Upper Calcasieu River Reach 4	Width Coef "A"	Unitless	2.749	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.383	Note 2
		Depth Coef "D"	Unitless	0.235	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.08	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
5	Upper Calcasieu River Reach 5	Width Coef "A"	Unitless	3.358	Note 1
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.387	Note 1
		Depth Coef "D"	Unitless	0.3	Note 1
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.034	Note 1
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
6	Upper Calcasieu River Reach 6	Width Coef "A"	Unitless	3.807	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.383	Note 2
		Depth Coef "D"	Unitless	0.235	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.08	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
7	Upper Calcasieu River Reach 7	Width Coef "A"	Unitless	4.257	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.885	Note 2
		Depth Coef "D"	Unitless	0.354	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.047	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
8	Upper Calcasieu River Reach 8	Width Coef "A"	Unitless	4.706	Note 1
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.806	Note 1
		Depth Coef "D"	Unitless	0.407	Note 1
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.066	Note 1
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.

DATA TYPE 9, Advective Hydraulic Coefficients					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
9	Upper Calcasieu River Reach 9	Width Coef "A"	Unitless	4.706	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.806	Note 2
		Depth Coef "D"	Unitless	0.407	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.066	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
10	Upper Calcasieu River Reach 10	Width Coef "A"	Unitless	4.706	Note 2
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.806	Note 2
		Depth Coef "D"	Unitless	0.407	Note 2
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.066	Note 2
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.
11	Upper Calcasieu River Reach 11	Width Coef "A"	Unitless	4.706	Note 1
		Width Exp "B"	Unitless	0.300	Based on the Leopold hydrology study for ephemeral streams.
		Width Const "C"	Meter	1.806	Note 1
		Depth Coef "D"	Unitless	0.407	Note 1
		Depth Exp "E"	Unitless	0.36	Based on the Leopold hydrology study for ephemeral streams.
		Depth Const "F"	Meter	0.066	Note 1
		Mannings - N	Unitless	0.03	Value determined by considering the typical bottom material to be silt.

Note 1: Based on the stream hydrology data from the adjoining Survey site. The exponent was set to the Leopold Emhemeral value and the coefficient and constant were calculated.

Note 2: The exponent was set to the Leopold Emhemeral value and the coefficient and constant were varied in a linear fashion between the reaches from which these values could be calculated.

DATA TYPE 10, Dispersive Hydraulic Coefficients					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1-4	Reaches 1-11	Dispersion Coef.	m2/sec	0.3	Values set via BPJ based on a review of the calculated dispersion coefficients from the reference streams.

Upper Calcasieu River (030101) W.Q. Winter Projection Input Description

DATA TYPE 11, INITIAL CONDITIONS					
Reach #	**REACH DESCRIPTION**	**Initial Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Temperature	^{o}Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	8.12	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
2	Upper Calcasieu River Reach 2	Temperature	^{o}Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	8.12	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
3	Upper Calcasieu River Reach 3	Temperature	^{o}Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	8.12	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
4	Upper Calcasieu River Reach 4	Temperature	^{o}Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	8.12	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
5	Upper Calcasieu River Reach 5	Temperature	^{o}Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	8.12	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
6	Upper Calcasieu River Reach 6	Temperature	^{o}Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	8.12	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
7	Upper Calcasieu River Reach 7	Temperature	^{o}Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	8.12	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
8	Upper Calcasieu River Reach 8	Temperature	^{o}Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	8.12	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
9	Upper Calcasieu River Reach 9	Temperature	^{o}Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	8.12	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.

Upper Calcasieu River (030101) W.Q. Winter Projection Input Description

DATA TYPE 11, INITIAL CONDITIONS					
Reach #	REACH DESCRIPTION	Initial Parameter	Units	Value	Source/Justification
10	Upper Calcasieu River Reach 10	Temperature	^{o}Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	8.12	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.
11	Upper Calcasieu River Reach 11	Temperature	^{o}Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Dissolved O_2	mg/l	8.12	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		Macrophytes	g/m3	0	Determined during calibration.

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	K_2 option	Unitless	15	The velocity and depths are within the range of the Louisiana Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	0.57	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.17	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
2	Upper Calcasieu River Reach 2	K_2 option	Unitless	15	The velocity and depths are within the range of the Louisiana Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	0.62	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.158	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
3	Upper Calcasieu River Reach 3	K_2 option	Unitless	15	The velocity and depths are within the range of the Louisiana Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	0.69	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.145	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
4	Upper Calcasieu River Reach 4	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	0.77	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.133	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
5	Upper Calcasieu River Reach 5	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	0.90	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
6	Upper Calcasieu River Reach 6	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	0.95	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.

DATA TYPE 12, Reaeration, Sediment Oxygen Demand and BOD Coeff.					
Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
7	Upper Calcasieu River Reach 7	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	1.02	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
8	Upper Calcasieu River Reach 8	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	1.07	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
9	Upper Calcasieu River Reach 9	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	1.16	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
10	Upper Calcasieu River Reach 10	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	1.27	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
11	Upper Calcasieu River Reach 11	K_2 option	Unitless	12	The velocity and depths are within the range of the Texas Equations limits.
		Oxygen Transfer coef.	m/day	0.7	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
		Background SOD	g/m^2-day	1.44	Based on a 82.5% decrease in total nonpoint loading.
		Aerobic BOD decay	1/day	0.12	CBOD1 component. BPJ based on the measured values from the July,2001 survey site data.
		BOD Settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.

Note: Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times ranging. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD and Nonconservative Material (NCM) in the LAQUAL model.

Upper Calcasieu River (030101) W.Q. Summer Projection Input Description

DATA TYPE 13, Nitrogen and Phosphorus					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Organic Nitrogen decay rate	1/day	0.03	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
2	Upper Calcasieu River Reach 2	Organic Nitrogen decay rate	1/day	0.083	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
3	Upper Calcasieu River Reach 3	Organic Nitrogen decay rate	1/day	0.135	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
4	Upper Calcasieu River Reach 4	Organic Nitrogen decay rate	1/day	0.188	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
5	Upper Calcasieu River Reach 4	Organic Nitrogen decay rate	1/day	0.24	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
6	Upper Calcasieu River Reach 6	Organic Nitrogen decay rate	1/day	0.193	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
7	Upper Calcasieu River Reach 7	Organic Nitrogen decay rate	1/day	0.147	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
8	Upper Calcasieu River Reach 8	Organic Nitrogen decay rate	1/day	0.1	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985

DATA TYPE 13, Nitrogen and Phosphorus					
Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
9	Upper Calcasieu River Reach 9	Organic Nitrogen decay rate	1/day	0.12	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
10	Upper Calcasieu River Reach 10	Organic Nitrogen decay rate	1/day	0.14	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985
11	Upper Calcasieu River Reach 11	Organic Nitrogen decay rate	1/day	0.16	Value based on the NBOD rates, that were measured in the July, 2001 survey site data.
		Organic Nitrogen settling rate	1/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
		Ammonia Nitrogen oxidation rate	1/day	0.5	BPJ. Maximum value given in EPA's Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling (2nd edition). 1985

Upper Calcasieu River (030101) W.Q. Summer Projection Input Description

DATA TYPE 15, Coliform and Nonconservative Coefficents					
Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
1	Upper Calcasieu River Reach 1	NCM Decay	1/day	0.029	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
2	Upper Calcasieu River Reach 2	NCM Decay	1/day	0.025	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
3	Upper Calcasieu River Reach 3	NCM Decay	1/day	0.021	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
4	Upper Calcasieu River Reach 4	NCM Decay	1/day	0.16	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
5	Upper Calcasieu River Reach 5	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
6	Upper Calcasieu River Reach 6	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
7	Upper Calcasieu River Reach 7	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
8	Upper Calcasieu River Reach 8	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
9	Upper Calcasieu River Reach 9	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
10	Upper Calcasieu River Reach 10	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.
11	Upper Calcasieu River Reach 11	NCM Decay	1/day	0.012	Value based on the CBOD2 rates, that were measured in the July, 2001 survey site data.
		NCM Settling Rate	m/day	0.05	Based on the LTP suggested CBOD settling rate for advance treatment discharges.

Note: Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times ranging from 16.65 to 22.23 days. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD and Nonconservative Material (NCM) in the LAQUAL model.

DATA TYPE 16, Incremental Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
1	Upper Calcasieu River Reach 1	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
2	Upper Calcasieu River Reach 2	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
3	Upper Calcasieu River Reach 3	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
4	Upper Calcasieu River Reach 4	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
5	Upper Calcasieu River Reach 5	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
6	Upper Calcasieu River Reach 6	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
7	Upper Calcasieu River Reach 7	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
8	Upper Calcasieu River Reach 8	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
9	Upper Calcasieu River Reach 9	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
10	Upper Calcasieu River Reach 10	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
11	Upper Calcasieu River Reach 11	Incremental Inflow	m^3/s	0.0000	Negated the incremental flow to simulate critical conditions.
		Incremental Temperature	degrees Celcius	20.4	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.

DATA TYPE 17, Incremetal Data for DO, BOD, Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1-11	Upper Calcasieu River Reaches 1-11	Incremental Dissolved Oxygen	mg/l	0	Negated the incremental flow to simulate critical conditions.

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DATA TYPE 18, Incremetal Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1-11	Upper Calcasieu River Reaches 1-11	All			Negated the incremental flow to simulate critical conditions.

DATA TYPE 19, Nonpoint Source Data					
Reach #	REACH DESCRIPTION	Parameter	Units	Value	Source/Justification
1	Upper Calcasieu River Reach 1	BOD	kg/day	0.143	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.016	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.126	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
2	Upper Calcasieu River Reach 2	BOD	kg/day	0.213	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.032	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.218	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
3	Upper Calcasieu River Reach 3	BOD	kg/day	0.166	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.038	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.225	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
4	Upper Calcasieu River Reach 4	BOD	kg/day	0.128	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.039	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.230	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
5	Upper Calcasieu River Reach 5	BOD	kg/day	0.102	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.034	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.231	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
6	Upper Calcasieu River Reach 6	BOD	kg/day	0.099	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.033	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.206	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
7	Upper Calcasieu River Reach 7	BOD	kg/day	0.137	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.032	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.202	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
8	Upper Calcasieu River Reach 8	BOD	kg/day	0.149	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.032	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.319	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
9	Upper Calcasieu River Reach 9	BOD	kg/day	0.210	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.052	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.569	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.
10	Upper Calcasieu River Reach 10	BOD	kg/day	0.216	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.050	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.653	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.

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DATA TYPE 19, Nonpoint Source Data					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
11	Upper Calcasieu River Reach 11	BOD	kg/day	0.235	Simulates the CBOD1 component. Based on a 82.5% decrease in total nonpoint loading.
		Organic Nitrogen	kg/day	0.054	Based on a 82.5% decrease in total nonpoint loading.
		Nonconservative matl.	kg/day	0.662	Simulates the CBOD2 component. Based on a 82.5% decrease in total nonpoint loading.

Note: Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD (CBOD1) and Nonconservative Material (NCM) (CBOD2) in the LAQUAL model.

DATA TYPE 20, Headwater Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Element # of input		1	
		Headwater name		Upper Calcasieu Rvr	
		Headwater flow	cms	0.02800	LTP recommended critical period flow rate, 1.0 cfs.
		Temperature	^{o}Celcius	20.40	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.

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DATA TYPE 21, Headwater Data for DO, BOD, and Nitrogen					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Element # of input		1	Measured at July, 2001 survey site UpCalc1.
		Dissolved O_2	mg/l	8.12	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		BOD	mg/l	5.06	Measured ultimate CBOD1 value from Site UpCalc1 during July,2001 survey.
		Organic Nitrogen	mg/l	0.65	Measured Organic Nitrogen value from Site UpCalc1 during July,2001 survey.
		Ammonia Nitrogen	mg/l	0.05	Measured Ammonia Nitrogen value from Site UpCalc1 during July,2001 survey. Below PQL(Practical Quantitation Limit), used one half of PQL as value.
		NO2+NO3	mg/l	0.025	Measured NO2+NO3 Nitrogen value from Site UpCalc1 during July,2001 survey. Below PQL(Practical Quantitation Limit), used one half of PQL as value.

Note: Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD (CBOD1) and Nonconservative Material (NCM) (CBOD2) in the LAQUAL model.

Upper Calcasieu River (030101) W.Q. Summer Projection Input Description

DATA TYPE 22, Headwater Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
1	Upper Calcasieu River Reach 1	Element # of input		1	Measured at June, 2001 survey site CL1.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		NCM	mg/l	5.31	Measured ultimate CBOD2 value from Site UpCalc1 during July,2001 survey.

Note: Upon review of the measured CBOD daily values it became apparent that there were two distinct CBOD components, which had varying ultimate values as well as decay rates and lag times. The first component started its decay almost immediately while the second component had substantial lag times. The total CBOD curves presented in Appendix C5 is the sum of the two first order equations, which were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. These two CBOD components were modeled separately as BOD (CBOD1) and Nonconservative Material (NCM) (CBOD2) in the LAQUAL model.

Upper Calcasieu River (030101) W.Q. Summer Projection Input Description

DATA TYPE 24, Wastewater Data for Flow, Temperature, Salinity, and Conservatives					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
10	Upper Calcasieu River Reaches 10	Element # of input		179	Compilation of the four unmodeled dischargers flow.
		Flow	cms	0.000324	Compilation of the four unmodeled dischargers flow. (7400 gpd)
		Temperature	^{o}Celcius	20.40	90th percentile winter season Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.

DATA TYPE 25, Wastewater Data for DO, BOD, and Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
10	Upper Calcasieu River Reaches 10	Element # of input		179	Compilation of the four unmodeled dischargers flow.
		Dissolved Oxygen	mg/l	8.12	90% of saturated dissolved oxygen at 90th percentile critical temperature.criteria value.
		BOD	mg/l	5.06	Measured ultimate CBOD1 value from Site UpCalc1 during July,2001 survey.
		Organic Nitrogen	mg/l	0.65	Measured Organic Nitrogen value from Site UpCalc1 during July,2001 survey.
		Ammonia Nitrogen	mg/l	0.05	Measured Ammonia Nitrogen value from Site UpCalc1 during July,2001 survey. Below PQL(Practical Quantitation Limit), used one half of PQL as value.
		NO2+NO3	mg/l	0.025	Measured NO2+NO3 Nitrogen value from Site UpCalc1 during July,2001 survey. Below PQL(Practical Quantitation Limit), used one half of PQL as value.

DATA TYPE 25, Wastewater Data for DO, BOD, and Nitrogen					
Reach #	**REACH DESCRIPTION**	**Parameter**	**Units**	**Value**	**Source/Justification**
10	Upper Calcasieu River Reaches 10	Element # of input		179	Compilation of the four unmodeled dischargers flow.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		NCM	mg/l	5.31	Measured ultimate CBOD2 value from Site UpCalc1 during July,2001 survey.

DATA TYPE 27, Lower Boundary Conditions					
Reach #	**NAME**	**Parameter**	**Units**	**Value**	**Source/Justification**
11	Upper Calcasieu River	Temperature	^{o}Celcius	29.4	90th percentile Temp for the Upper Calcasieu River LDEQ ambient water quality site 0819.
		Salinity	ppt	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Conservative Matl. I	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Conservative Matl. II		0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Dissolved O_2	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		BOD	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Org.- N	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		NH_3-N	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		NO_{2+3}-N	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.
		Chlorophyll a	ug/l	2	Based on TNRCC guidance documents.
		NCM	mg/l	0	Not required by the model if the Ocean Exchange Ratio is set to zero.

Appendix B6

Projection Model Development

Critical temperature DO Saturation calculations

Solubility of Oxygen in Water Exposed to Water-Saturated Air at Atmospheric Pressure (101.3 kPa).

Input your stream/site name and temperatures into the shaded area.

Stream Name: **Upper Calcasieu River**

Calculated Oxy. Solubility (mg/l) (note1)	Input Temperature (C^o) (note2)	Site Name / Description	Chlorinity (ppt) (note3)	90% of Calculated Oxy. Solubility (mg/l)
7.638	29.40	B. Lafourche (LDEQ 0124) - Summer Critical	0.00	6.87
9.021	20.40	B. Lafourche (LDEQ 0124) - Winter Projection	0.00	8.12

Note1 - Equation used to calculate Oxygen Solubility was taken from the Standard Methods 18th ed., 1992, Page 4-101. Equation is acceptable for an atmospheric pres. of 101.3 kPa.

Note 2 - Calculations for Oxy. Solubility are accurate for Temperatures between 0 & 40 C^o.

Note 3 - Calculations for Oxy. Solubility are accurate for chlorinities between 0 & 25 parts per thousand.
Chlorinity concentrations can be calculated from salinity by the following equation:
Chlorinity = Salinity/1.80655

Appendix C

Survey Data Measurements and Analysis Results

Appendix C1

Survey Data Measurements and Analysis Results

OVERVIEW OF SURVEY WATER QUALITY DATA

	Field Parameters								
Site Description	Date	Time	Battery	Temperature	Dissolved Oxygen	DO%	Salinity	Conductivity	pH
UpCalc1 / Upper Calcasieu River Calcasieu River @ Hwy 117	07/25/01	9:40	4	25.21	3.45	40.9	0.09	186	6.92
UpCalc1_Dupl / Upper Calcasieu River Calcasieu River @ Hwy 117									
UpCalc2 / Upper Calcasieu River Calcasieu River 100 ft above confluence	07/25/01	10:00	4.3	24.61	2.78	31.6	0.04	67	6.44
UpCalc3 / Upper Calcasieu River Calcasieu River off of Slagle Road	07/25/01	11:20	4.2	25.17	1.12	12.5	0.04	81	6.35
UpCalc4 / Upper Calcasieu River Calcasieu River @ Hwy 8 Bridge	07/25/01	10:40	3.7	25.84	1.04	11.9	0.04	67	6.69
Average				25.21	2.10		0.05	100.25	

	Laboratory Water Quality Data									
Site Description	Alkalinity	Ammonia-Nitrogen	Hardness	Sodium	Specific Conductance	TDS	TKN	TOC	TSS	Turbidity
UpCalc1 / Upper Calcasieu River Calcasieu River @ Hwy 117	56.20	ND	61.5	16.4	195	150	0.58	12.7	15	16
UpCalc1_Dupl / Upper Calcasieu River Calcasieu River @ Hwy 117	56.30	ND	61.6	16	195	161	0.68	13.2	18	16
UpCalc2 / Upper Calcasieu River Calcasieu River 100 ft above confluence	22.20	ND	33.4	5.3	69.8	94.7	0.84	10.7	4.6	13
UpCalc3 / Upper Calcasieu River Calcasieu River off of Slagle Road	20.80	ND	21.4	4.8	66.7	86.7	0.65	14.8	6.7	12
UpCalc4 / Upper Calcasieu River Calcasieu River @ Hwy 8 Bridge	23.20	ND	26.2	5.2	67.5	85.3	0.84	15.6	5.6	12
Average	35.74		40.82	9.54	118.80	115.54	0.72	13.40	9.98	13.80

	Laboratory Water Quality Data						
Site Description	"Chloride, Ion Chromatograph"	Sulfate	"pH, Ultimate BOD survey"	Chlorophyll A (calculated)	Nitrate+Nitrite Nitrogen	TP	True Color
UpCalc1 / Upper Calcasieu River Calcasieu River @ Hwy 117	23.2	6	7.21	9.8	ND	ND	80
UpCalc1_Dupl / Upper Calcasieu River Calcasieu River @ Hwy 117	23.2	6.4	7.19		ND	ND	80
UpCalc2 / Upper Calcasieu River Calcasieu River 100 ft above confluence	5.3	2.4	6.67	1.6	ND	ND	100
UpCalc3 / Upper Calcasieu River Calcasieu River off of Slagle Road	5.4	1.7	6.63	3.1	ND	ND	110
UpCalc4 / Upper Calcasieu River Calcasieu River @ Hwy 8 Bridge	4.6	2		6.3	ND	ND	110
Average	12.34	3.70					

Appendix C2

Survey Data Measurements and Analysis Results

Survey cross-sections and discharge sheets

STREAM CROSS-SECTION SPREADSHEET

Site Number: UpCalc1 **Subsegment:** 030101 **Waterbody:** Upper Calcasieu River

Site Description: Hwy 117

Type of Equipment: ☐ Fathometer ☐ Hydrotrac ☑ Manual

Initial Bank: ☑ RDB ☐ LDB

Tapedown: n/a

Guage Height: n/a

Date: 7/25/01

WIDTH[1] (ft):	4.50
AREA[2] (ft^2):	3.30
AVG. DEPTH[3](ft):	0.73

Subsection	Distance from initial point (ft)	Width[4] (ft)	Depth (ft)	Area[5] (sq.ft.)	Area of element as % of Total Area[6 & 7]
1	1.5	0.00	0.00	0.00	0.00%
2	2.0	0.50	0.70	0.35	10.61%
3	2.5	0.50	0.80	0.40	12.12%
4	3.0	0.50	0.80	0.40	12.12%
5	3.5	0.50	0.70	0.35	10.61%
6	4.0	0.50	0.85	0.43	12.88%
7	4.5	0.50	0.80	0.40	12.12%
8	5.0	0.50	0.75	0.38	11.36%
9	5.5	0.50	0.70	0.35	10.61%
10	6.0	0.50	0.50	0.25	7.58%
11	6.5	0.00	0.00	0.00	0.00%
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
	Total	4.50		3.30	100.00%

Data Collection Crew		Office Data Work	
Measurement made by:	Cooley	Data Inputed by / Date:	07/21/01 Champagne
Notetaker/Recorder:	Champagne	Data Input Checked by / Date:	Schwartzenburg
Other:	Schwartzenburg		

Note 1: WIDTH (ft) = sum of the width column
Note 2: AREA (sq.ft.) = sum of the area column
Note 3: AVG. DEPTH (ft) = area/width (using the values from this table)
Note 4: Width of element
Note 5: Area=Width*Depth for element
Note 6: Percent area = element area/total area x 100%
Note 7: Percent area should be less than 10% as per USGS standard.
Note 8: Blank fields are cleared from all calculations.
Note 9: The cross sections are taken at areas representative of the stream.

STREAM DISCHARGE SPREADSHEET

Site Number: Upcalc 2 **Subsegment:** 030101 **Waterbod** Calcasieu River

Site Description: 50 ft above Indian Bayou Confluence

Type of Meter: ☐ Price A:A 1:1 ☑ Pygmy ☐ Price A:A 5:1

Standard: ☐ Standard 1 ☑ Standard 2

Type of Equipment: ☑ Wading ☐ Bridge Board ☐ Boat Board

Initial Bank: ☐ RDB ☑ LDB

Tapedown: NA

Guage Height: NA

Date: 7/25/01

Start Time: 10:05 **End Time:** 10:30

WIDTH[1] (ft):	2.50
AREA[2] (ft^2):	0.34
AVG. DEPTH[3] (ft):	0.14
DISCHARGE[4] (cfs):	0.11
AVG. VELOCITY[5] (fps):	0.34

Subsection	Distance from initial point (ft)	Width of element[6] (ft)	Depth of element (ft)	Area of element[7] (ft^2)	Velocity of element (fps) .2D	.6D	.8D	Average[8]	Adjusted Angle[9]	Discharge through element[10] (cfs)	Element discharge at % of total discharge[11]
1	3.00	0.13	0.00	0.00		0.00		0.00		0.00	0.00%
2	3.25	0.25	0.15	0.04		0.13		0.13		0.00	4.25%
3	3.50	0.25	0.10	0.03		0.21		0.21		0.01	4.55%
4	3.75	0.25	0.15	0.04		0.31		0.31		0.01	10.26%
5	4.00	0.25	0.20	0.05		0.28		0.28		0.01	12.37%
6	4.25	0.25	0.20	0.05		0.16		0.16		0.01	6.93%
7	4.50	0.25	0.20	0.05		0.64		0.64		0.03	27.71%
8	4.75	0.25	0.20	0.05		0.54		0.54		0.03	23.65%
9	5.00	0.25	0.10	0.03		0.47		0.47		0.01	10.28%
10	5.25	0.25	0.05	0.01		0.00		0.00		0.00	0.00%
11	5.50	0.13	0.00	0.00		0.00		0.00		0.00	0.00%
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37	* Stream too narrow and shallow to obtain the appropriate number of readings.*										0.00%
38											
39											
40											
41											
42											
43											
44											
45											
	Total	2.50		0.34						0.11	100.00%

Data Collection Crew		Office Data Work	
Measurement made by:	B. Blalock	Data Inputed by / Date:	J. Nolan 7/26/01
Notetaker/Recorder:	A. Grezzafi	Data Input Checked by / Date:	A. Champagne 7/26/01
Other:	J. Nolan		

Note 1: WIDTH (ft) = sum of the width column
Note 2: AREA (ft^2) = sum of the area column
Note 3: AVG. DEPTH (ft) = area/width (using the values from this table)
Note 4: DISCHARGE (cfs) = sum of the discharge column
Note 5: AVG. VELOCITY (fps) = discharge/area (using the values from this table)
Note 6: Width of element
Note 7: Area = width*depth for element. These areas are generally not representative of the stream.
Note 8: Average velocity = Use 0.6D velocity if depth is less than 2.5 ft or the average of 0.2D and 0.8D velocities if depth is greater than 2.5 ft.
Note 9: If blank assume 1
Note 10: Discharge through element = area of element*average velocity of element
Note 11: Element discharge percent = discharge through element/total discharge X 100%. Element discharge should not exceed 10%.

STREAM CROSS-SECTION SPREADSHEET

Site Number: Upcalc 2 **Subsegment:** 030101 **Waterbody:** Calcasieu River

Site Description: 150 feet above confluence with Indian Bayou

Type of Equipment: ☐ Fathometer ☐ Hydrotrac ☑ Manual

Initial Bank: ☑ RDB ☐ LDB

Tapedown: NA

Guage Height: NA

Date: 7/25/01

WIDTH[1] (ft):	6.50
AREA[2] (ft^2):	1.43
AVG. DEPTH[3] (ft):	0.22

Subsection	Distance from initial point (ft)	Width[4] (ft)	Depth (ft)	Area[5] (sq.ft.)	Area of element as % of Total Area[6 & 7]
1	3.00	0.13	0.00	0.00	0.00%
2	3.25	0.25	0.05	0.01	0.88%
3	3.50	0.25	0.10	0.03	1.75%
4	3.75	0.25	0.15	0.04	2.63%
5	4.00	0.25	0.10	0.03	1.75%
6	4.25	0.25	0.15	0.04	2.63%
7	4.50	0.25	0.15	0.04	2.63%
8	4.75	0.25	0.10	0.03	1.75%
9	5.00	0.25	0.10	0.03	1.75%
10	5.25	0.25	0.20	0.05	3.51%
11	5.50	0.25	0.25	0.06	4.39%
12	5.75	0.25	0.30	0.08	5.26%
13	6.00	0.25	0.40	0.10	7.02%
14	6.25	0.25	0.45	0.11	7.89%
15	6.50	0.25	0.45	0.11	7.89%
16	6.75	0.25	0.45	0.11	7.89%
17	7.00	0.25	0.40	0.10	7.02%
18	7.25	0.25	0.35	0.09	6.14%
19	7.50	0.25	0.30	0.08	5.26%
20	7.75	0.25	0.30	0.08	5.26%
21	8.00	0.25	0.20	0.05	3.51%
22	8.25	0.25	0.20	0.05	3.51%
23	8.50	0.25	0.20	0.05	3.51%
24	8.75	0.25	0.20	0.05	3.51%
25	9.00	0.25	0.10	0.03	1.75%
26	9.25	0.25	0.05	0.01	0.88%
27	9.50	0.13	0.00	0.00	0.00%
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
	Total	**6.50**		**1.43**	**100.00%**

Data Collection Crew		Office Data Work	
Measurement made by:	B. Blalock	**Data Inputed by / Date:**	J. Nolan 7/26/01
Notetaker/Recorder:	A. Grezzafi	**Data Input Checked by / Date:**	A. Champagne 7/26/01
Other:	J. Nolan		

Note 1: WIDTH (ft) = sum of the width column

Note 2: AREA (sq.ft.) = sum of the area column

Note 3: AVG. DEPTH (ft) = area/width (using the values from this table)

Note 4: Width of element

Note 5: Area=Width*Depth for element

Note 6: Percent area = element area/total area x 100%

Note 7: Percent area should be less than 10% as per USGS standard.

Note 8: Blank fields are cleared from all calculations.

Note 9: The cross sections are taken at areas representative of the stream.

STREAM DISCHARGE SPREADSHEET

Site Number: Upcalc 3 **Subsegment:** 030101 **Waterbod** Calcasieu River
Site Description: Downstream side of bridge off of Slagle Road
Type of Meter: ☐ Price A:A 1:1 ☑ Pygmy ☐ Price A:A 5:1 **Standard:** ☐ Standard 1 ☑ Standard 2
Type of Equipment: ☑ Wading ☐ Bridge Board ☐ Boat Board
Initial Bank: ☐ RDB ☑ LDB
Tapedown: NA
Guage Height: NA
Date: 7/25/01
Start Time: 11:25 **End Time:** 12:00

WIDTH[1] (ft):	3.00
AREA[2] (ft^2):	0.64
AVG. DEPTH[3] (ft):	0.21
DISCHARGE[4] (cfs):	0.15
AVG. VELOCITY[5] (fps):	0.24

Subsection	Distance from initial point (ft)	Width of element[6] (ft)	Depth of element (ft)	Area of element[7] (ft^2)	Velocity of element (fps) .2D	.6D	.8D	Average[8]	Adjusted Angle[9]	Discharge through element[10] (cfs)	Element discharge at % of total discharge[11]
1	2.0	0.10	0.00	0.00		0.00		0.00		0.00	0.00%
2	2.2	0.20	0.05	0.01		0.00		0.00		0.00	0.00%
3	2.4	0.20	0.10	0.02		0.09		0.09		0.00	1.11%
4	2.6	0.20	0.20	0.04		0.22		0.22		0.01	5.72%
5	2.8	0.20	0.25	0.05		0.12		0.12		0.01	4.03%
6	3.0	0.20	0.30	0.06		0.30		0.30		0.02	11.71%
7	3.2	0.20	0.30	0.06		0.29		0.29		0.02	11.28%
8	3.4	0.20	0.35	0.07		0.33		0.33		0.02	14.89%
9	3.6	0.20	0.30	0.06		0.21		0.21		0.01	8.31%
10	3.8	0.20	0.30	0.06		0.36		0.36		0.02	13.97%
11	4.0	0.20	0.25	0.05		0.23		0.23		0.01	7.35%
12	4.2	0.20	0.20	0.04		0.28		0.28		0.01	7.18%
13	4.4	0.20	0.20	0.04		0.22		0.22		0.01	5.80%
14	4.6	0.20	0.25	0.05		0.16		0.16		0.01	5.17%
15	4.8	0.20	0.15	0.03		0.18		0.18		0.01	3.49%
16	5.0	0.10	0.00	0.00		0.00		0.00		0.00	0.00%
17											
18											
19											
20	* Stream too narrow and shallow to obtain the appropriate number of readings.*										
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											
	Total	3.00		0.64						0.15	100.00%

Data Collection Crew		Office Data Work	
Measurement made by:	J. Nolan	Data Inputed by / Date:	J. Nolan 7/26/01
Notetaker/Recorder:	B. Blalock	Data Input Checked by / Date:	A. Champagne 7/26/01
Other:			

Note 1: WIDTH (ft) = sum of the width column
Note 2: AREA (ft^2) = sum of the area column
Note 3: AVG. DEPTH (ft) = area/width (using the values from this table)
Note 4: DISCHARGE (cfs) = sum of the discharge column
Note 5: AVG. VELOCITY (fps) = discharge/area (using the values from this table)
Note 6: Width of element
Note 7: Area = width*depth for element. These areas are generally not representative of the stream.
Note 8: Average velocity = Use 0.6D velocity if depth is less than 2.5 ft or the average of 0.2D and 0.8D velocities if depth is greater than 2.5 ft.
Note 9: If blank assume 1
Note 10: Discharge through element = area of element*average velocity of element
Note 11: Element discharge percent = discharge through element/total discharge X 100%. Element discharge should not exceed 10%.

STREAM CROSS-SECTION SPREADSHEET

Site Number: Upcalc 3 **Subsegment:** 030101 **Waterbody:** Calcasieu River

Site Description: 40 ft downsteam of bridge off of Slagle Road

Type of Equipment: ☐ Fathometer ☐ Hydrotrac ☑ Manual

Initial Bank: ☐ RDB ☑ LDB

Tapedown: NA

Guage Height: NA

Date: 7/25/01

WIDTH[1] (ft):	10.00
AREA[2] (ft^2):	3.48
AVG. DEPTH[3] (ft):	0.35

Subsection	Distance from initial point (ft)	Width[4] (ft)	Depth (ft)	Area[5] (sq.ft.)	Area of element as % of Total Area[6 & 7]
1	2.0	0.25	0.00	0.00	0.00%
2	2.5	0.50	0.30	0.15	4.32%
3	3.0	0.50	0.50	0.25	7.19%
4	3.5	0.50	0.40	0.20	5.76%
5	4.0	0.50	0.60	0.30	8.63%
6	4.5	0.50	0.50	0.25	7.19%
7	5.0	0.50	0.60	0.30	8.63%
8	5.5	0.50	0.50	0.25	7.19%
9	6.0	0.50	0.40	0.20	5.76%
10	6.5	0.50	0.30	0.15	4.32%
11	7.0	0.50	0.30	0.15	4.32%
12	7.5	0.50	0.40	0.20	5.76%
13	8.0	0.50	0.45	0.23	6.47%
14	8.5	0.50	0.25	0.13	3.60%
15	9.0	0.50	0.30	0.15	4.32%
16	9.5	0.50	0.25	0.13	3.60%
17	10.0	0.50	0.35	0.18	5.04%
18	10.5	0.50	0.25	0.13	3.60%
19	11.0	0.50	0.20	0.10	2.88%
20	11.5	0.50	0.10	0.05	1.44%
21	12.0	0.25	0.00	0.00	0.00%
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
	Total	10.00		3.48	100.00%

Data Collection Crew		Office Data Work	
Measurement made by:	J. Nolan	Data Inputed by / Date:	J. Nolan 7/26/01
Notetaker/Recorder:	B. Blalock	Data Input Checked by / Date:	A. Champagne 7/26/01
Other:			

Note 1: WIDTH (ft) = sum of the width column
Note 2: AREA (sq.ft.) = sum of the area column
Note 3: AVG. DEPTH (ft) = area/width (using the values from this table)
Note 4: Width of element
Note 5: Area=Width*Depth for element
Note 6: Percent area = element area/total area x 100%
Note 7: Percent area should be less than 10% as per USGS standard.
Note 8: Blank fields are cleared from all calculations.
Note 9: The cross sections are taken at areas representative of the stream.

STREAM DISCHARGE SPREADSHEET

Site Number: UpCalc 4 **Subsegment:** 030101 **Waterbod** Upper Calcasieu River
Site Description: downstream of Hwy 8 bridge
Type of Meter: ☐ Price A:A 1:1 ☑ Pygmy ☐ Price A:A 5:1 **Standard:** ☐ Standard 1 ☑ Standard 2
Type of Equipment: ☑ Wading ☐ Bridge Board ☐ Boat Board
Initial Bank: ☑ RDB ☐ LDB
Tapedown: 16.48
Guage Height: n/a
Date: 7/25/01
Start Time: 11:30 **End Time:** 12:00

WIDTH[1] (ft):	5.40
AREA[2] (ft^2):	3.23
AVG. DEPTH[3] (ft):	0.60
DISCHARGE[4] (cfs):	0.37
AVG. VELOCITY[5] (fps):	0.11

Subsection	Distance from initial point (ft)	Width of element[6] (ft)	Depth of element (ft)	Area of element[7] (ft^2)	Velocity of element (fps)				Adjusted Angle[9]	Discharge through element[10] (cfs)	Element discharge at % of total discharge[11]
					.2D	.6D	.8D	Average[8]			
1	1.0	0.15	0.00	0.00		0.00		0.00		0.00	0.00%
2	1.3	0.30	0.40	0.12		0.00		0.00		0.00	0.00%
3	1.6	0.30	0.60	0.18		0.00		0.00		0.00	0.00%
4	1.9	0.30	0.70	0.21		0.00		0.00		0.00	0.00%
5	2.2	0.30	0.70	0.21		0.00		0.00		0.00	0.00%
6	2.5	0.30	0.65	0.20		0.16		0.16		0.03	8.16%
7	2.8	0.30	0.60	0.18		0.15		0.15		0.03	7.48%
8	3.1	0.30	0.85	0.26		0.14		0.14		0.04	9.84%
9	3.4	0.30	0.85	0.26		0.14		0.14		0.04	9.63%
10	3.7	0.30	0.85	0.26		0.14		0.14		0.04	9.63%
11	4.0	0.30	0.80	0.24		0.15		0.15		0.04	9.84%
12	4.3	0.30	0.80	0.24		0.15		0.15		0.04	9.91%
13	4.6	0.30	0.70	0.21		0.16		0.16		0.03	9.18%
14	4.9	0.30	0.70	0.21		0.17		0.17		0.04	9.80%
15	5.2	0.30	0.50	0.15		0.15		0.15		0.02	5.95%
16	5.5	0.30	0.50	0.15		0.19		0.19		0.03	7.53%
17	5.8	0.30	0.30	0.09		0.13		0.13		0.01	3.04%
18	6.1	0.30	0.25	0.08		0.00		0.00		0.00	0.00%
19	6.4	0.15	0.00	0.00		0.00		0.00		0.00	0.00%
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											
	Total	5.40		3.23						0.37	100.00%

Data Collection Crew		Office Data Work	
Measurement made by:	Cooley	Data Inputed by / Date:	07/26/01 Champagne
Notetaker/Recorder:	Champagne	Data Input Checked by / Date:	Schwartzenburg
Other:	Schwartzenburg		

Note 1: WIDTH (ft) = sum of the width column
Note 2: AREA (ft^2) = sum of the area column
Note 3: AVG. DEPTH (ft) = area/width (using the values from this table)
Note 4: DISCHARGE (cfs) = sum of the discharge column
Note 5: AVG. VELOCITY (fps) = discharge/area (using the values from this table)
Note 6: Width of element
Note 7: Area = width*depth for element. These areas are generally not representative of the stream.
Note 8: Average velocity = Use 0.6D velocity if depth is less than 2.5 ft or the average of 0.2D and 0.8D velocities if depth is greater than 2.5 ft.
Note 9: If blank assume 1
Note 10: Discharge through element = area of element*average velocity of element
Note 11: Element discharge percent = discharge through element/total discharge X 100%. Element discharge should not exceed 10%.

ESTIMATION OF STREAM GEOMETRIC COEFFICIENTS, EXPONENTS, AND CONSTANTS FOR LAQUAL, QUALTX, AND LACOULEE

Proceed as follows:
1. Cut and paste date, discharge, width, and depth data into the green area. Area and velocity will be calculated. If you have width and area data and need to
2. Type the site name, 7Q10, and max/min information in the orange areas. The max/min flow rate is needed to set the range of the best fit curve. The 7Q10 may be
3. Select solver from the tools drop-down menu. "Set target cell" to one of the purple boxes to select optimization routine. You can do a least squares or an
4. Make sure "equal to" is set to "min".
5. Set "by changing cells" to the blue cells for the parameter in question (depth, width, or velocity).
6. Click on solve to generate best fit curve and the appropriate values of A-H. You can optimize any or all of the values of A-H, as needed. For constant depth or
7. The depth, width, and velocity charts will display the input data, the best fit curve, and the 7Q10 bar.

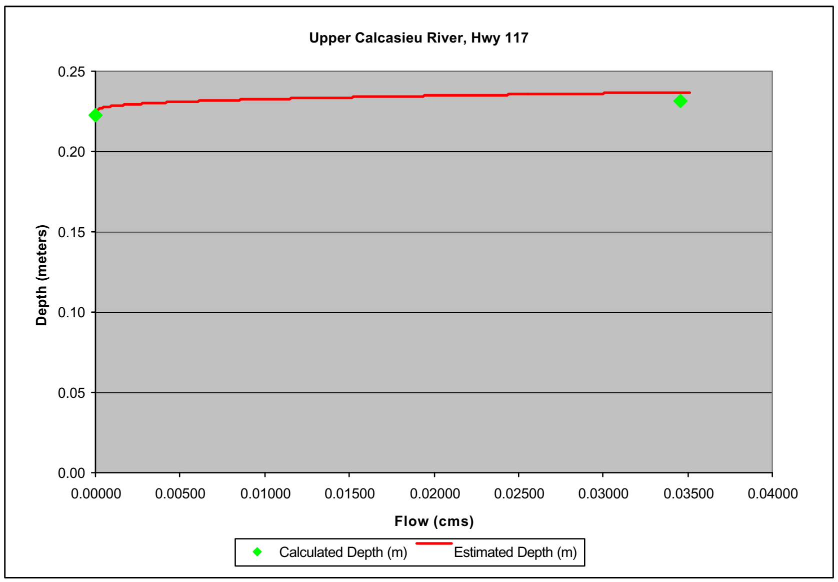
Input the stream name / location: Upper Calcasieu River, Hwy 117

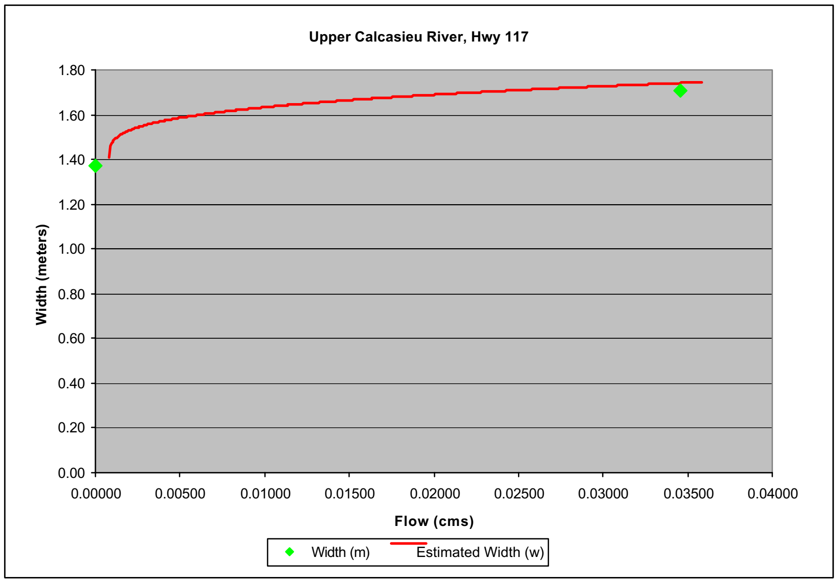
Input the minimum flow rate to be plotted: 0 cms
Input the maximum flow rate to be plotted: 0.035 cms
Input the 7Q10 flow rate to be plotted: 0 cms

Input the maximum depth to be plotted: 0.25 m
Input the maximum width to be plotted: 2 m
Input the maximum velocity to be plotted: 0.2 mps

Input values:

Measure-ment No.	Date	Discharge (cms)	Width (m)	Calculated Depth (m)	Area (m^2)	Calculated Velocity (mps)	No. of Sections	Measure-ment Rated	Depth coeff. "D"	Depth exp. "E"	Depth const. "F"	Width coeff. "A"	Width exp. "B"	Width const. "C"	Velocity coeff. "G"	Velocity exp. "H"
1	07/25/01	0.00	1.37	0.22	0.305157	0.000			0.039087	0.36	0.22	0.924412	0.3	1.37	0.605621	0.57527
2	10/25/01	0.03	1.71	0.23	0.395357	0.087			0.039087	0.36	0.22	0.924412	0.3	1.37	0.605621	0.57527
3																
4																





ESTIMATION OF STREAM GEOMETRIC COEFFICIENTS, EXPONENTS, AND CONSTANTS FOR LAQUAL, QUALTX, AND LACOULEE

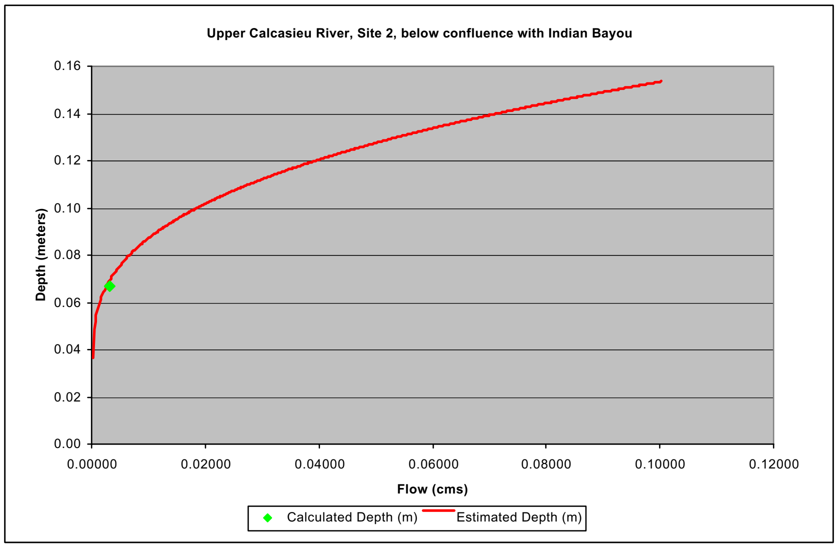
Proceed as follows:
1. Cut and paste date, discharge, width, and depth data into the green area. Area and velocity will be calculated. If you have width and area data and need to calculate depth,
2. Type the site name, 7Q10, and max/min information in the orange areas. The max/min flow rate is needed to set the range of the best fit curve. The 7Q10 may be entered if
3. Select solver from the tools drop-down menu. "Set target cell" to one of the purple boxes to select optimization routine. You can do a least squares or an absolute value
4. Make sure "equal to" is set to "min".
5. Set "by changing cells" to the blue cells for the parameter in question (depth, width, or velocity).
6. Click on solve to generate best fit curve and the appropriate values of A-H. You can optimize any or all of the values of A-H, as needed. For constant depth or width with flow,
7. The depth, width, and velocity charts will display the input data, the best fit curve, and the 7Q10 bar.

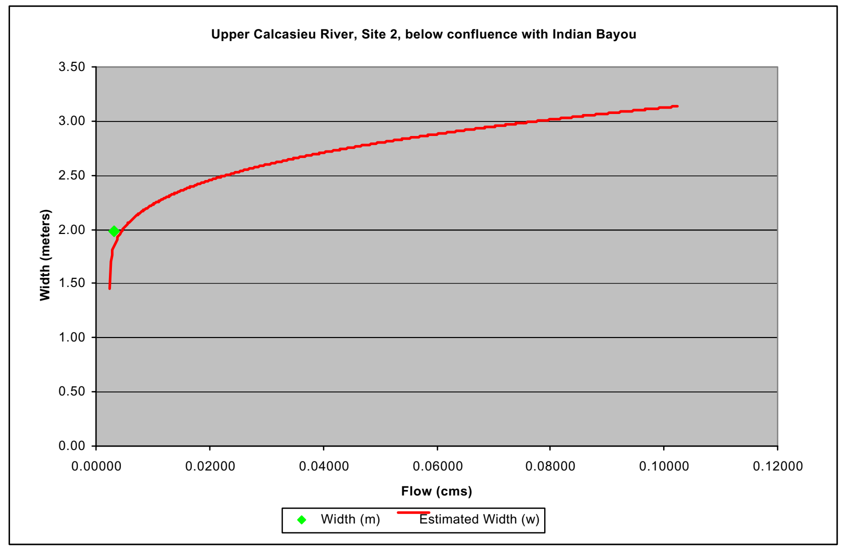
Input the stream name / location: Upper Calcasieu River, Site 2, below confluence with Indian Bayou

Input the minimum flow rate to be plotted:	0	cms	Input the maximum depth to be plotted:	0.4	m
Input the maximum flow rate to be plotted:	0.1	cms	Input the maximum width to be plotted:	5	m
Input the 7Q10 flow rate to be plotted:	0	cms	Input the maximum velocity to be plotted:	0.2	mps

Input values:

Measure-ment No.	Date	Discharge (cms)	Width (m)	Calculated Depth (m)	Area (m^2)	Calculated Velocity (mps)	No. of Sections	Measure-ment Rated	Depth coeff. "D"	Depth exp. "E"	Depth const. "F" (note 1)	Width coeff. "A"	Width exp. "B"	Width const. "C" (note 2)	Velocity coeff. "G"	Velocity exp. "H"
1	07/25/01	0.00311	1.98	0.07	0.132838	0.023			0.267776	0.36	0.033526	3.357501	0.3	1.386772	0.600437	0.561878
2																





Note 1: BPJ. This value was calculated as 50% of the depth as measured during the July,2001 survey. The ratio of the estimated zero flow depth to the survey depth for Site 4 was 37%. Fifty percent was used as a conservative estimate.

Note 2: BPJ. This value was calculated as 70% of the width as measured during the July,2001 survey. The ratio of the estimated zero flow depth to the survey depth for Site 4 was 86%. Seventy percent was used as a conservative estimate.

ESTIMATION OF STREAM GEOMETRIC COEFFICIENTS, EXPONENTS, AND CONSTANTS FOR LAQUAL, QUALTX, AND LACOULEE

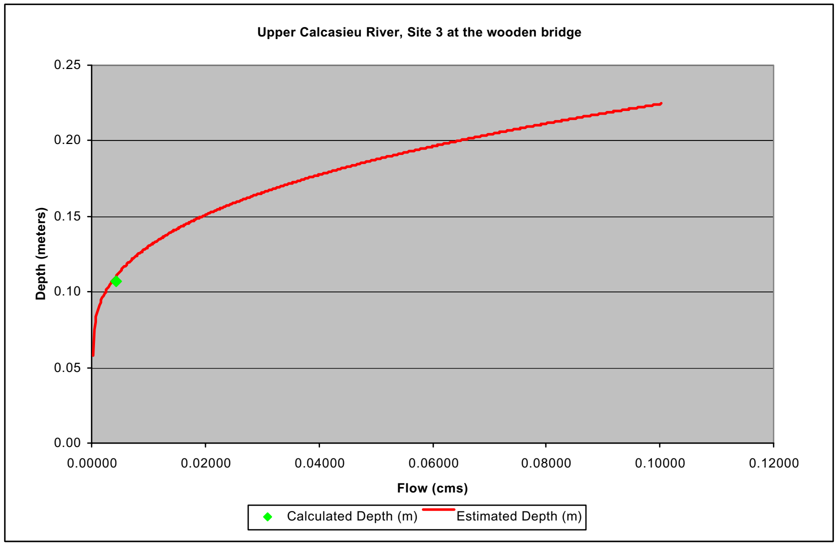
Proceed as follows:
1. Cut and paste date, discharge, width, and depth data into the green area. Area and velocity will be calculated. If you have width and area data and need to calculate depth,
2. Type the site name, 7Q10, and max/min information in the orange areas. The max/min flow rate is needed to set the range of the best fit curve. The 7Q10 may be entered if
3. Select solver from the tools drop-down menu. "Set target cell" to one of the purple boxes to select optimization routine. You can do a least squares or an absolute value
4. Make sure "equal to" is set to "min".
5. Set "by changing cells" to the blue cells for the parameter in question (depth, width, or velocity).
6. Click on solve to generate best fit curve and the appropriate values of A-H. You can optimize any or all of the values of A-H, as needed. For constant depth or width with flow,
7. The depth, width, and velocity charts will display the input data, the best fit curve, and the 7Q10 bar.

Input the stream name / location: Upper Calcasieu River, Site 3 at the wooden bridge

Input the minimum flow rate to be plotted:	0	cms	Input the maximum depth to be plotted:	0.4	m
Input the maximum flow rate to be plotted:	0.1	cms	Input the maximum width to be plotted:	5	m
Input the 7Q10 flow rate to be plotted:	0	cms	Input the maximum velocity to be plotted:	0.2	mps

Input values:

Measurement No.	Date	Discharge (cms)	Width (m)	Calculated Depth (m)	Area (m^2)	Calculated Velocity (mps)	No. of Sections	Measurement Rated	Depth coeff. "D"	Depth exp. "E"	Depth const. "F" (note 1)	Width coeff. "A"	Width exp. "B"	Width const. "C" (note 2)	Velocity coeff. "G"	Velocity exp. "H"
1	07/25/01	0.00425	3.05	0.11	0.325129	0.013			0.381001	0.36	0.053337	4.706448	0.3	2.133496	0.561622	0.68865
2																



Note 1: BPJ. This value was calculated as 50% of the depth as measured during the July,2001 survey. The ratio of the estimated zero flow depth to the survey depth for Site 4 was 37%. Fifty percent was used as a conservative estimate.

Note 2: BPJ. This value was calculated as 70% of the width as measured during the July,2001 survey. The ratio of the estimated zero flow depth to the survey depth for Site 4 was 86%. Seventy percent was used as a conservative estimate.

ESTIMATION OF STREAM GEOMETRIC COEFFICIENTS, EXPONENTS, AND CONSTANTS FOR LAQUAL, QUALTX, AND LACOULEE

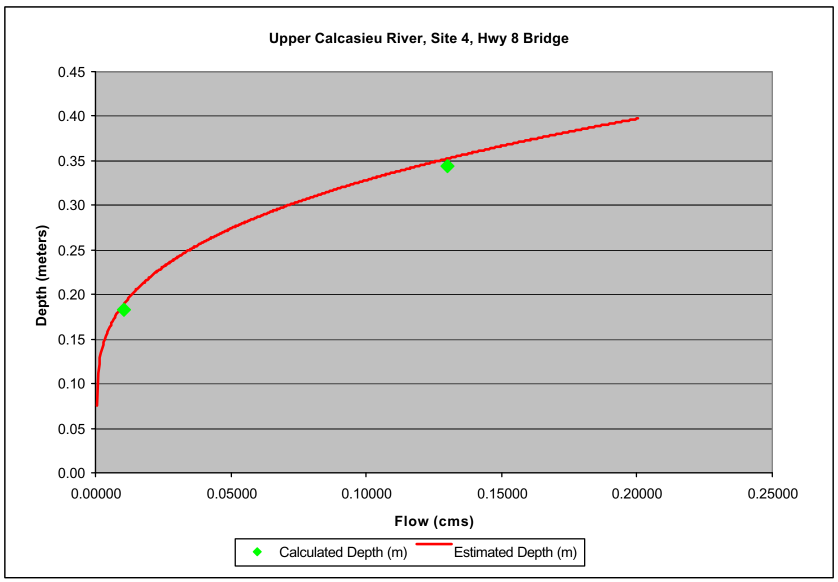
Proceed as follows:
1. Cut and paste date, discharge, width, and depth data into the green area. Area and velocity will be calculated. If you have width and area data and need to
2. Type the site name, 7Q10, and max/min information in the orange areas. The max/min flow rate is needed to set the range of the best fit curve. The 7Q10 may be
3. Select solver from the tools drop-down menu. "Set target cell" to one of the purple boxes to select optimization routine. You can do a least squares or an
4. Make sure "equal to" is set to "min".
5. Set "by changing cells" to the blue cells for the parameter in question (depth, width, or velocity).
6. Click on solve to generate best fit curve and the appropriate values of A-H. You can optimize any or all of the values of A-H, as needed. For constant depth or
7. The depth, width, and velocity charts will display the input data, the best fit curve, and the 7Q10 bar.

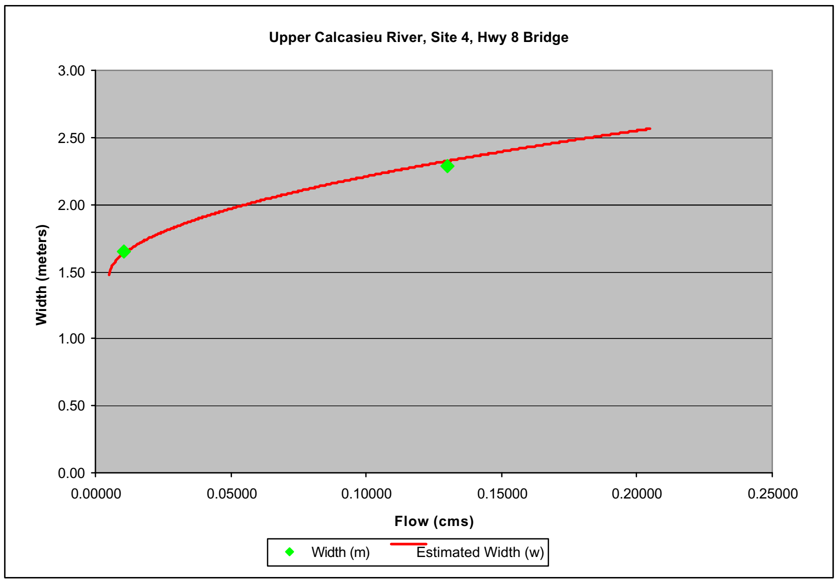
Input the stream name / location: Upper Calcasieu River, Site 4, Hwy 8 Bridge

Input the minimum flow rate to be plotted:	0	cms	Input the maximum depth to be plotted:	0.4	m
Input the maximum flow rate to be plotted:	0.2	cms	Input the maximum width to be plotted:	5	m
Input the 7Q10 flow rate to be plotted:	0	cms	Input the maximum velocity to be plotted:	0.2	mps

Input values:

Measure-ment No.	Date	Discharge (cms)	Width (m)	Calculated Depth (m)	Area (m^2)	Calculated Velocity (mps)	No. of Sections	Measure-ment Rated	Depth coeff. "D"	Depth exp. "E"	Depth const. "F"	Width coeff. "A"	Width exp. "B"	Width const. "C"	Velocity coeff. "G"	Velocity exp. "H"
1	07/25/01	0.01	1.65	0.18	0.300976	0.035			0.562101	0.346837	0.067221	2.563517	0.53187	1.418941	0.583632	0.618489
2	10/25/01	0.13	2.29	0.34	0.787276	0.165			0.562101	0.346837	0.067221	2.563517	0.53187	1.418941	0.583632	0.618489





Appendix C3

Survey Data Measurements and Analysis Results

SURVEY FIELD NOTES

Upper Calcasieu River Survey
Field Notes

07/24/01
Nolan, Schwartzenburg

Site UpCalc 4
Set out continuous monitor (Hydrolab s/n 37754) at 0925hrs.

Site UpCalc 2
Set out continuous monitor (Hydrolab s/n 37758) at 1000hrs.

07/25/01

Blalock, Nolan, Grezaffi

UpCalc 2
100% canopy
No measurable flow at cross section; mostly pooled – very little flow through bottleneck areas.
Cross section, GPS, and water quality samples taken
Flow estimate collected 100ft downstream where stream necks down. Stream too shallow and narrow to conduct "official" flow measurements.

InSitu – taken with Quanta s/n QD00148 at 1000hrs
Secchi disc – bottom

Batt	4.3v	Sal	.04
Temp	24.61	Cond.	67
DO	2.78	pH	6.44
DO%	31.6		

UpCalc 7

No flow – Indian Bayou dry in some places

UpCalc 3

80% canopy
No flow measurable at representative cross section. Flow taken 40ft. above representative cross section. Too narrow and shallow to get "official" flow. Estimated using pygmy and 4ft. wading rod.

Cross section, GPS, and water quality taken.

InSitu – taken with Quanta s/n QD00148 at 1120hs.
Secchi disc – bottom

Batt	4.2	Sal	.04
Temp	25.17	Cond	81
DO	1.12	pH	6.35
DO%	12.5		

No flow at unnamed trib above upcalc 3. Trib was dry in places.

Champagne, Schwartzenburg, Cooley

UpCalc 1

No measurable flow – did drogue and it never moved.
Cross section taken ~100ft. upstream of Hwy 117
GPS and water quality taken
InSitu – taken with Quanta s/n QD00132 at 0940hrs
Secchi disc – bottom

Temp	25.21	pH	6.92
DO	3.45	Sal	.09
DO%	40.9	Cond	186
Batt.	4.0		

UpCalc 4

Discharge taken ~6ft. downstream of bridge
Water quality and GPS taken
InSitu – taken with Quanta s/n QD00132 at 1040hrs
Secchi disc – bottom

Temp	25.84	pH	6.69
DO	1.04	Sal	.04
DO%	11.9	Cond	67
Batt	3.7		

UpCalc 5

No measurable flow – dry in most spots – pooled in a few places

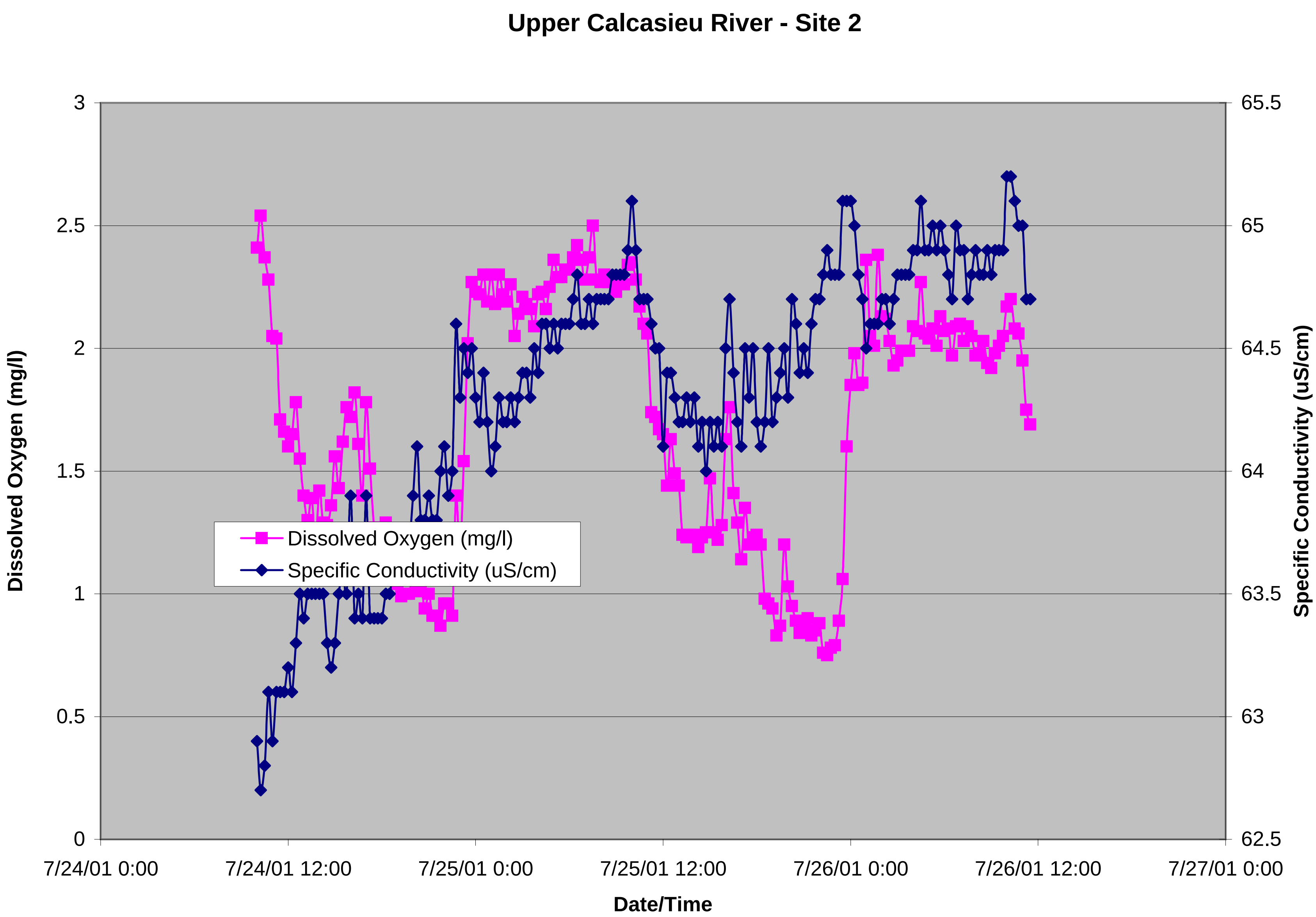
UpCalc 6

Trickling – almost completely dry – no measurable flow

Appendix C4

Survey Data Measurements and Analysis Results

Continuous monitor graphs

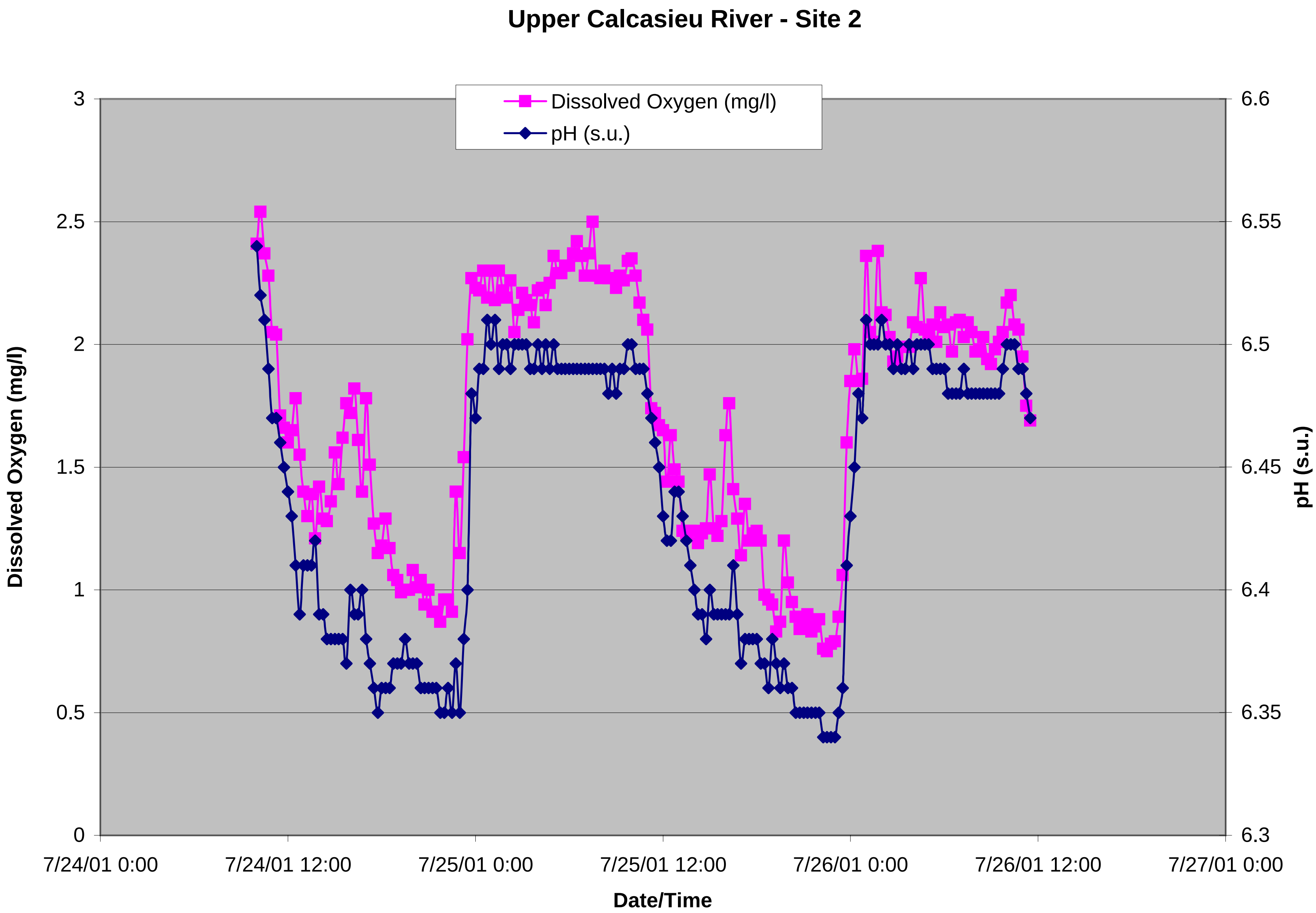


Upper Calcasieu River - Site 2
Dissolved Oxygen (mg/l)
Specific Conductivity (uS/cm)
Date/Time
Dissolved Oxygen (mg/l)
Specific Conductivity (uS/cm)
3
2.5
2
1.5
1
0.5
0
65.5
65
64.5
64
63.5
63
62.5
7/24/01 0:00
7/24/01 12:00
7/25/01 0:00
7/25/01 12:00
7/26/01 0:00
7/26/01 12:00
7/27/01 0:00

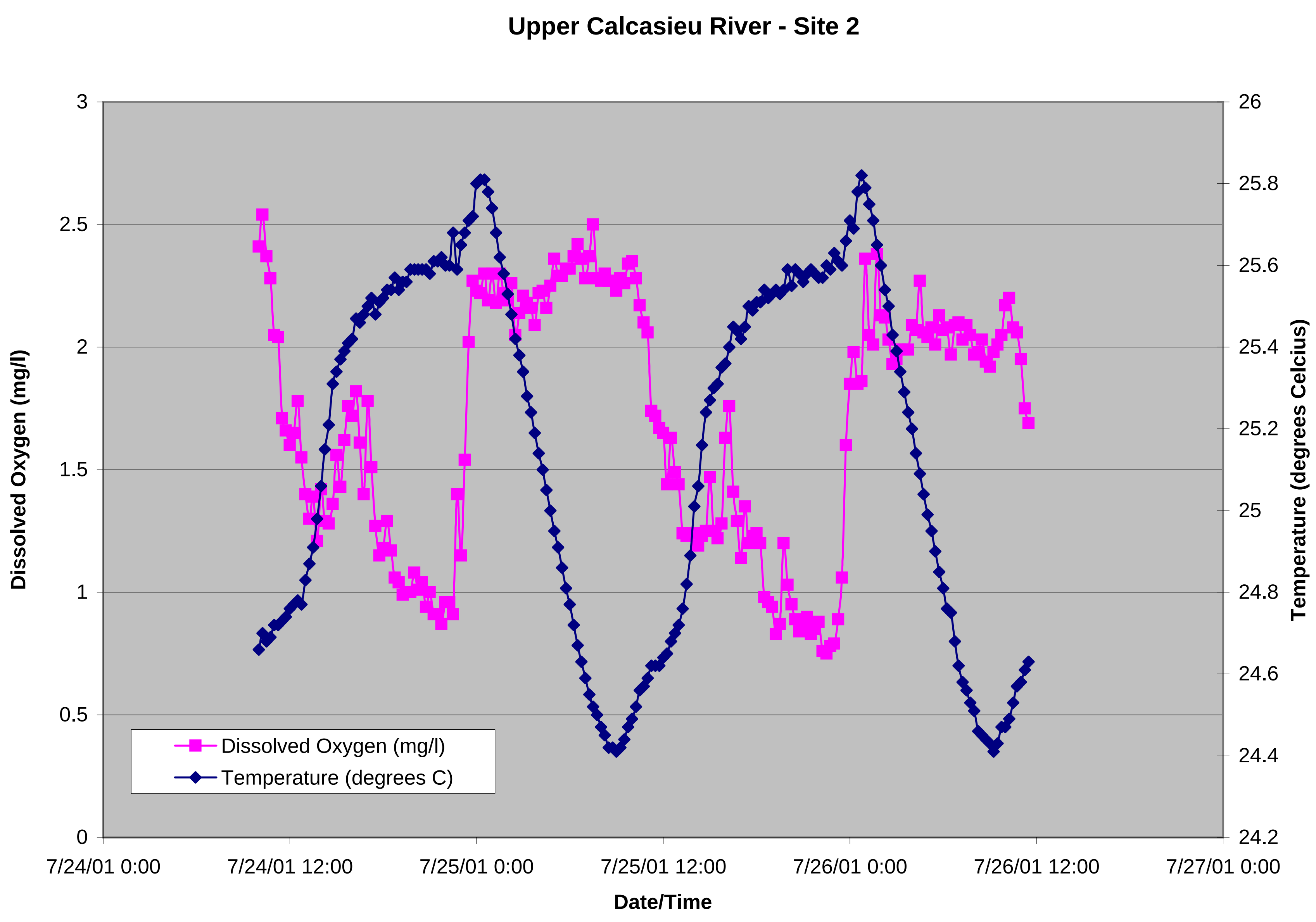
Cross Reference to check the continuous monitor data against the insitu instr

Site Number	Date MMDDYY	Time HH:MM:SS	Temperature (degrees C)	Dissolved Oxygen (mg/l)	pH (s.u.)	Specific Conductivity (uS/cm)	Battery (volts)
Site 2 insitu	07/25/01	10:00:00	24.61	2.78	6.44	67	4.3
Site 2, Cont.mont.	07/25/01	10:00:00	24.49	2.35	6.5	65.1	11
Site 4 insitu	07/25/01	10:40:00	25.84	1.04	6.69	67	3.7
Site 4, Cont.mont.	07/25/01	10:45:00	25.96	0.97	6.38	64	11.2

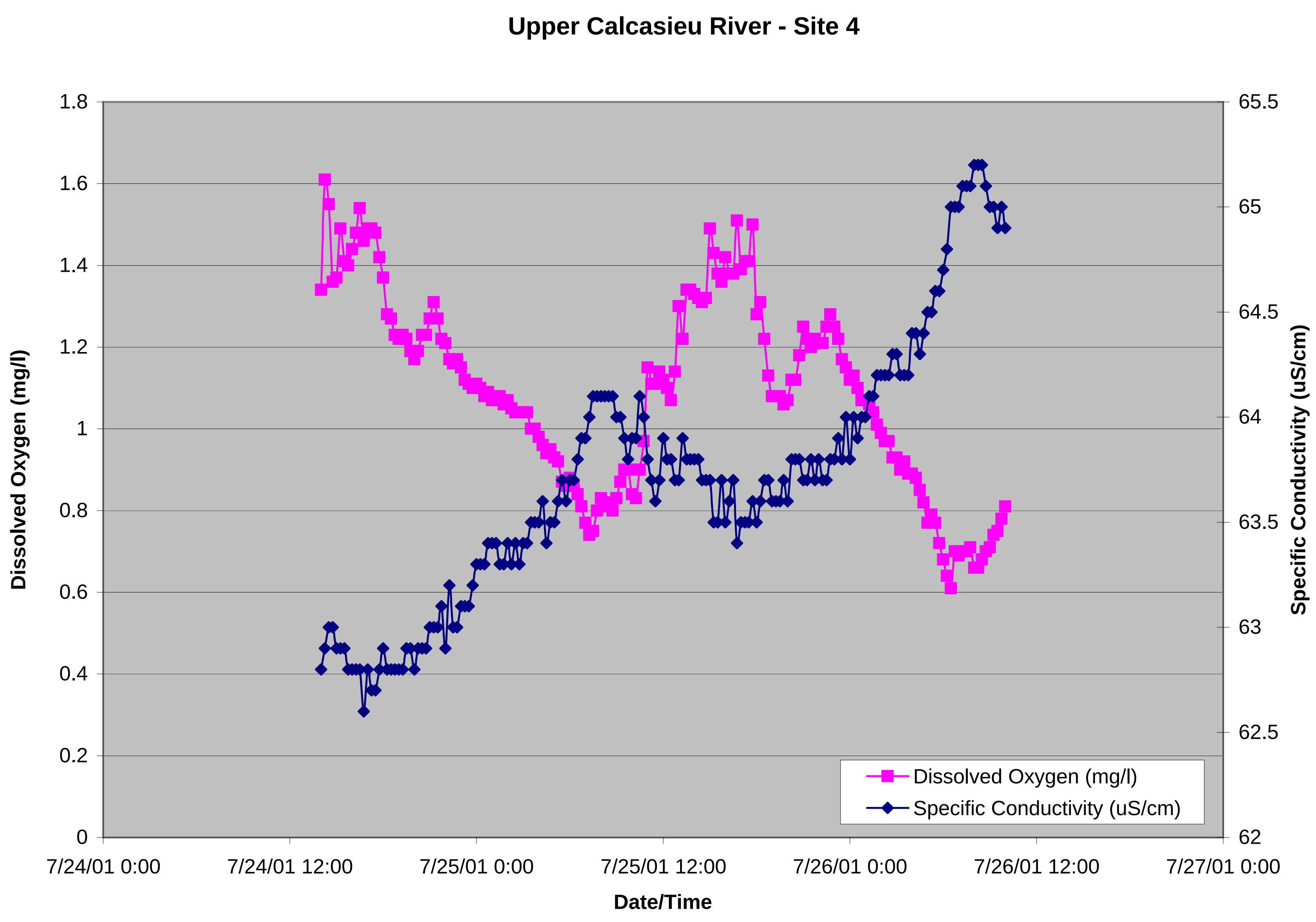
rument.



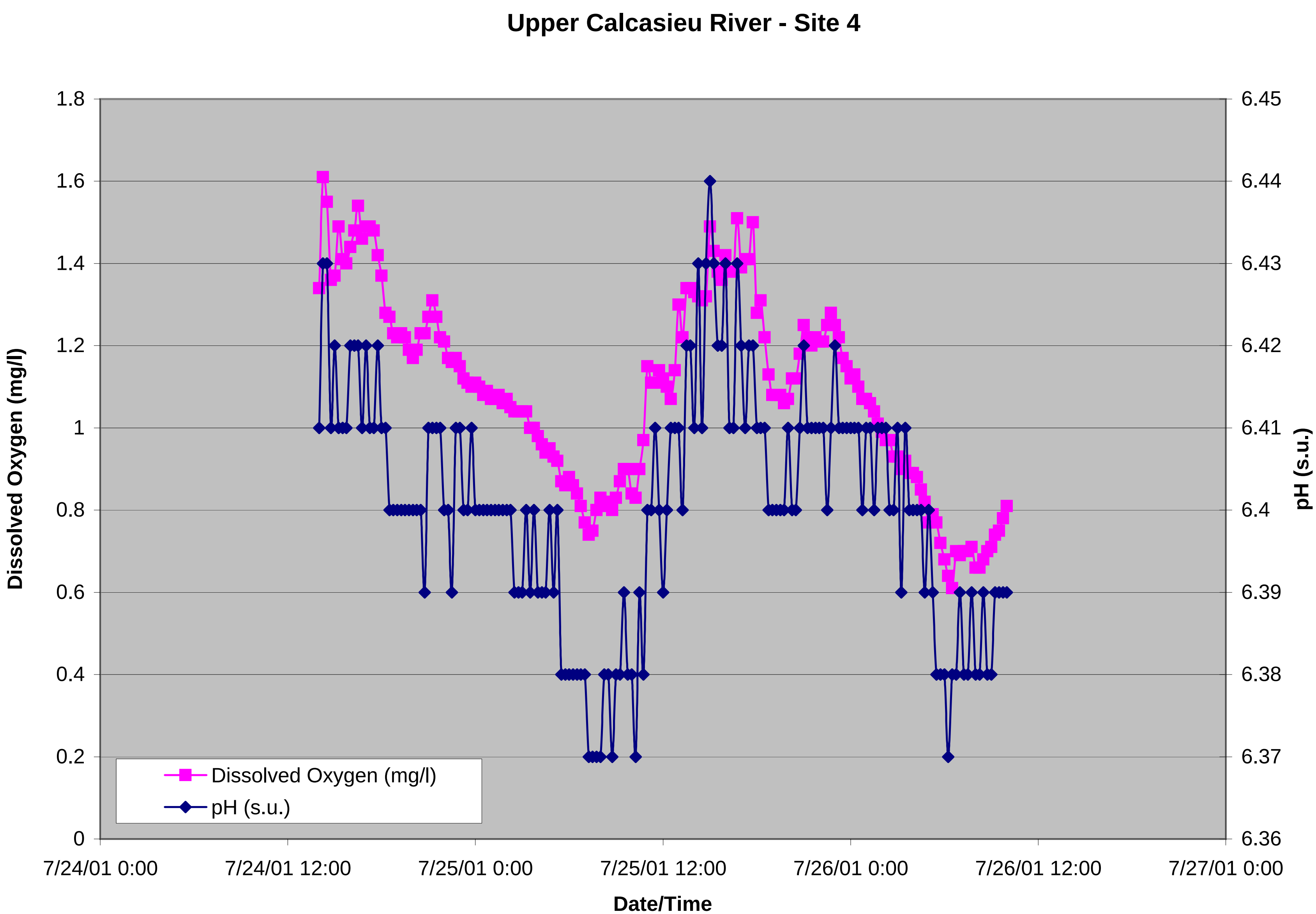
Upper Calcasieu River - Site 2
Dissolved Oxygen (mg/l)
pH (s.u.)
3
2.5
2
1.5
1
0.5
0
6.6
6.55
6.5
6.45
6.4
6.35
6.3
7/24/01 0:00
7/24/01 12:00
7/25/01 0:00
7/25/01 12:00
7/26/01 0:00
7/26/01 12:00
7/27/01 0:00
Date/Time



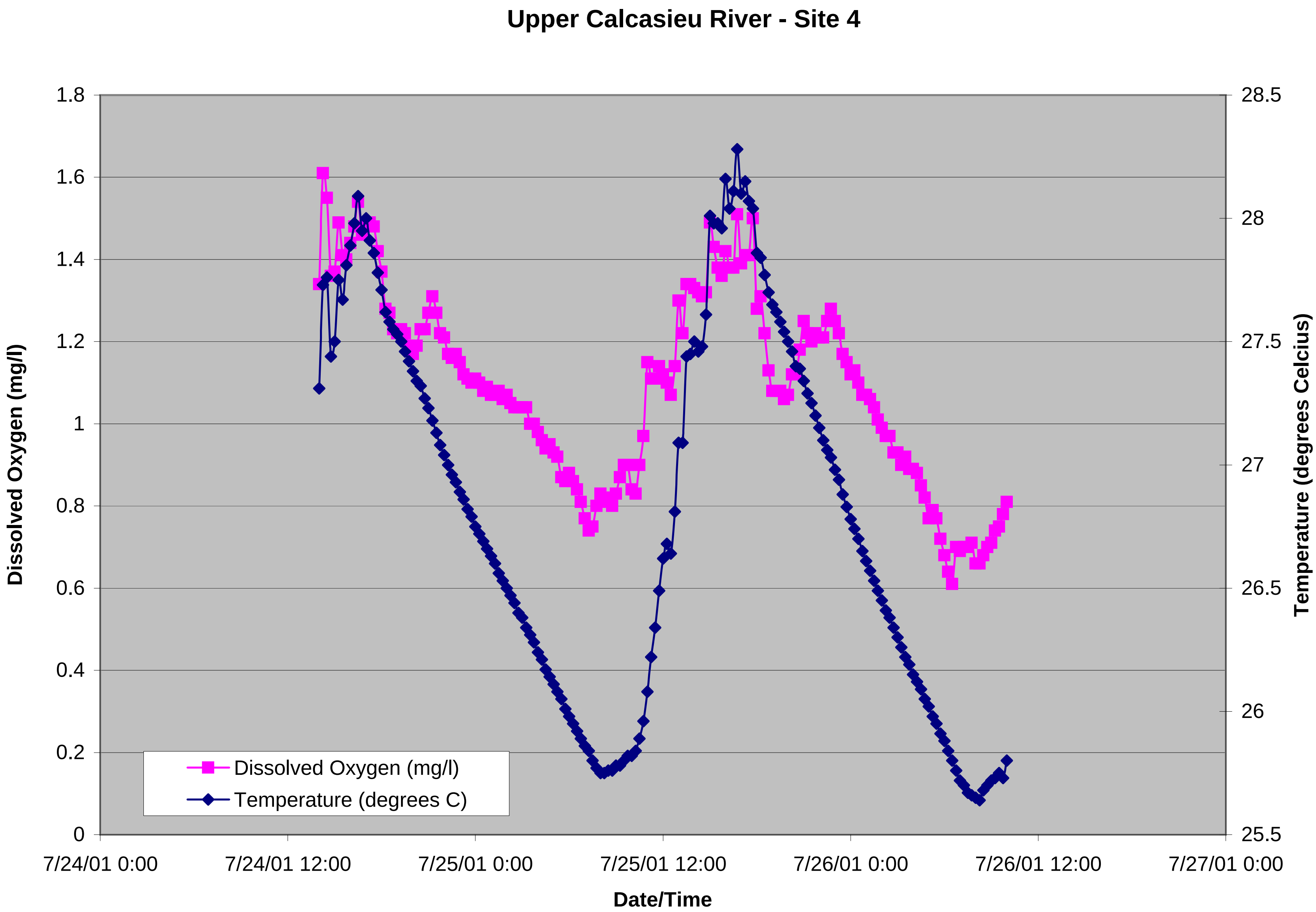
Upper Calcasieu River - Site 2
Dissolved Oxygen (mg/l)
Temperature (degrees Celcius)
Date/Time
0
0.5
1
1.5
2
2.5
3
24.2
24.4
24.6
24.8
25
25.2
25.4
25.6
25.8
26
7/24/01 0:00
7/24/01 12:00
7/25/01 0:00
7/25/01 12:00
7/26/01 0:00
7/26/01 12:00
7/27/01 0:00
Dissolved Oxygen (mg/l)
Temperature (degrees C)



Upper Calcasieu River - Site 4
Dissolved Oxygen (mg/l)
Specific Conductivity (uS/cm)
Date/Time
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
65.5
65
64.5
64
63.5
63
62.5
62
7/24/01 0:00
7/24/01 12:00
7/25/01 0:00
7/25/01 12:00
7/26/01 0:00
7/26/01 12:00
7/27/01 0:00
Dissolved Oxygen (mg/l)
Specific Conductivity (uS/cm)



Upper Calcasieu River - Site 4
Dissolved Oxygen (mg/l)
pH (s.u.)
Date/Time
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
6.45
6.44
6.43
6.42
6.41
6.4
6.39
6.38
6.37
6.36
7/24/01 0:00
7/24/01 12:00
7/25/01 0:00
7/25/01 12:00
7/26/01 0:00
7/26/01 12:00
7/27/01 0:00
Dissolved Oxygen (mg/l)
pH (s.u.)



Upper Calcasieu River - Site 4
Dissolved Oxygen (mg/l)
Temperature (degrees Celcius)
Date/Time
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
28.5
28
27.5
27
26.5
26
25.5
7/24/01 0:00
7/24/01 12:00
7/25/01 0:00
7/25/01 12:00
7/26/01 0:00
7/26/01 12:00
7/27/01 0:00
Dissolved Oxygen (mg/l)
Temperature (degrees C)

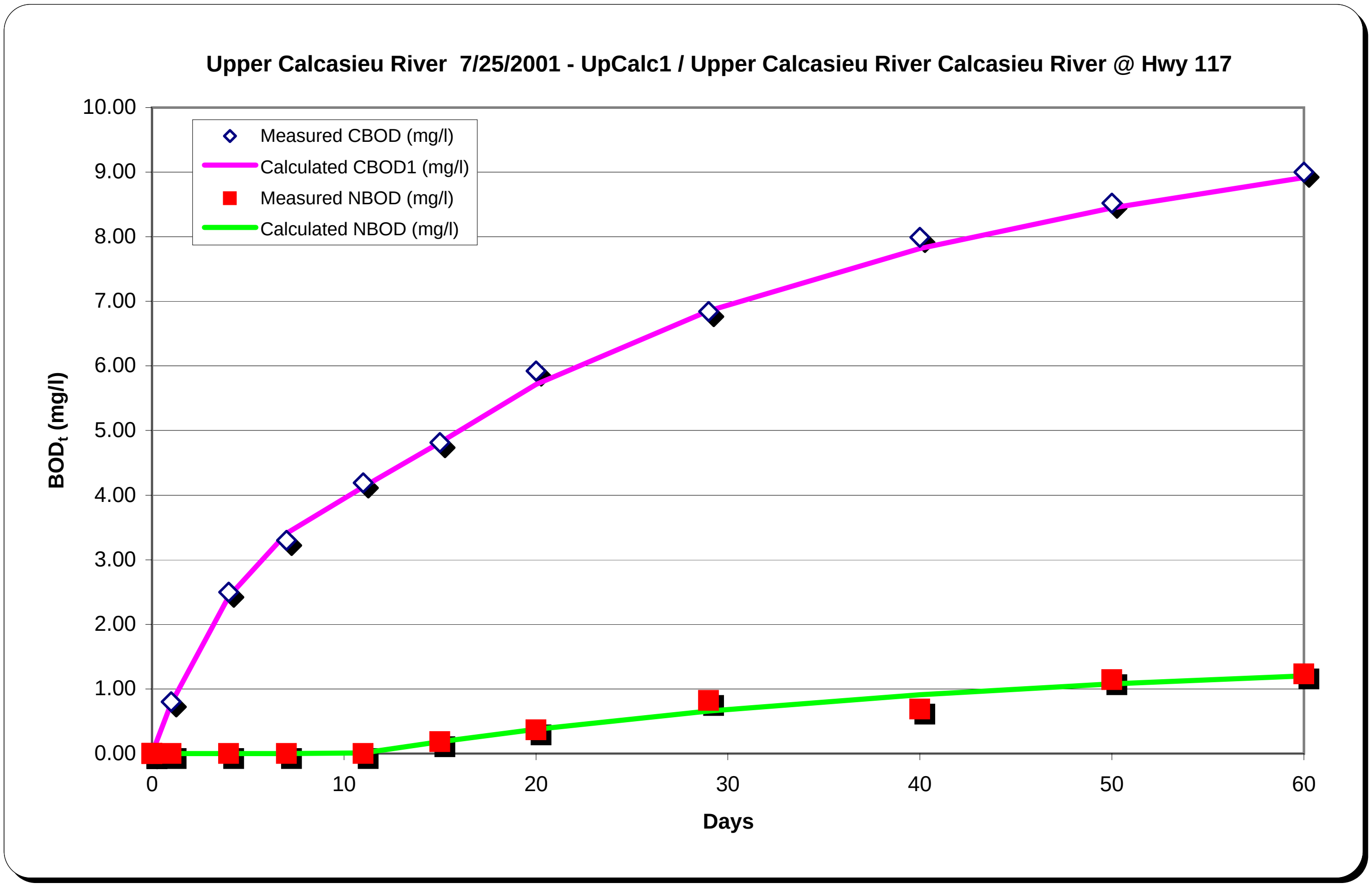
Appendix C5

Historical and Ambient Data

BOD calculation worksheets

BOD Analysis of the for: **Upper Calcasieu River 7/25/2001 - UpCalc1 / Upper Calcasieu River Calcasie**

Measured Data					Calculated Data			
Days	***Total BOD (mg/l)***	***NOx as N (mg/l)***	***NBOD (mg/l)***	***CBOD (mg/l)***	***NBOD (mg/l)***	***CBOD1 (mg/l)***	***CBOD2 (mg/l)***	***Total CBOD (mg/l)***
Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7	Note 7	
0		0.02						
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
1	0.8	0.02	0.00	0.80	0.00	0.77	0.00	0.77
4	2.5	0.02	0.00	2.50	0.00	2.43	0.00	2.43
7	3.3	0.02	0.00	3.30	0.00	3.41	0.00	3.41
11	4.2	0.02	0.00	4.19	0.01	4.13	0.00	4.13
15	5	0.06	0.18	4.81	0.19	4.48	0.34	4.82
20	6.3	0.1	0.37	5.92	0.38	4.69	1.03	5.72
29	7.5	0.2	0.82	6.84	0.66	4.80	2.05	6.85
40	8.9	0.17	0.69	7.99	0.91	4.83	2.99	7.82
50	9.6	0.27	1.14	8.52	1.08	4.83	3.62	8.45
60	10.2	0.29	1.23	9.00	1.20	4.83	4.09	8.92
			UBOD (mg/l)		1.55	4.83	5.48	10.31
			k rate (1/day)		0.03	0.17	0.03	
			Lag time (days)		10.79	0.00	12.82	



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.

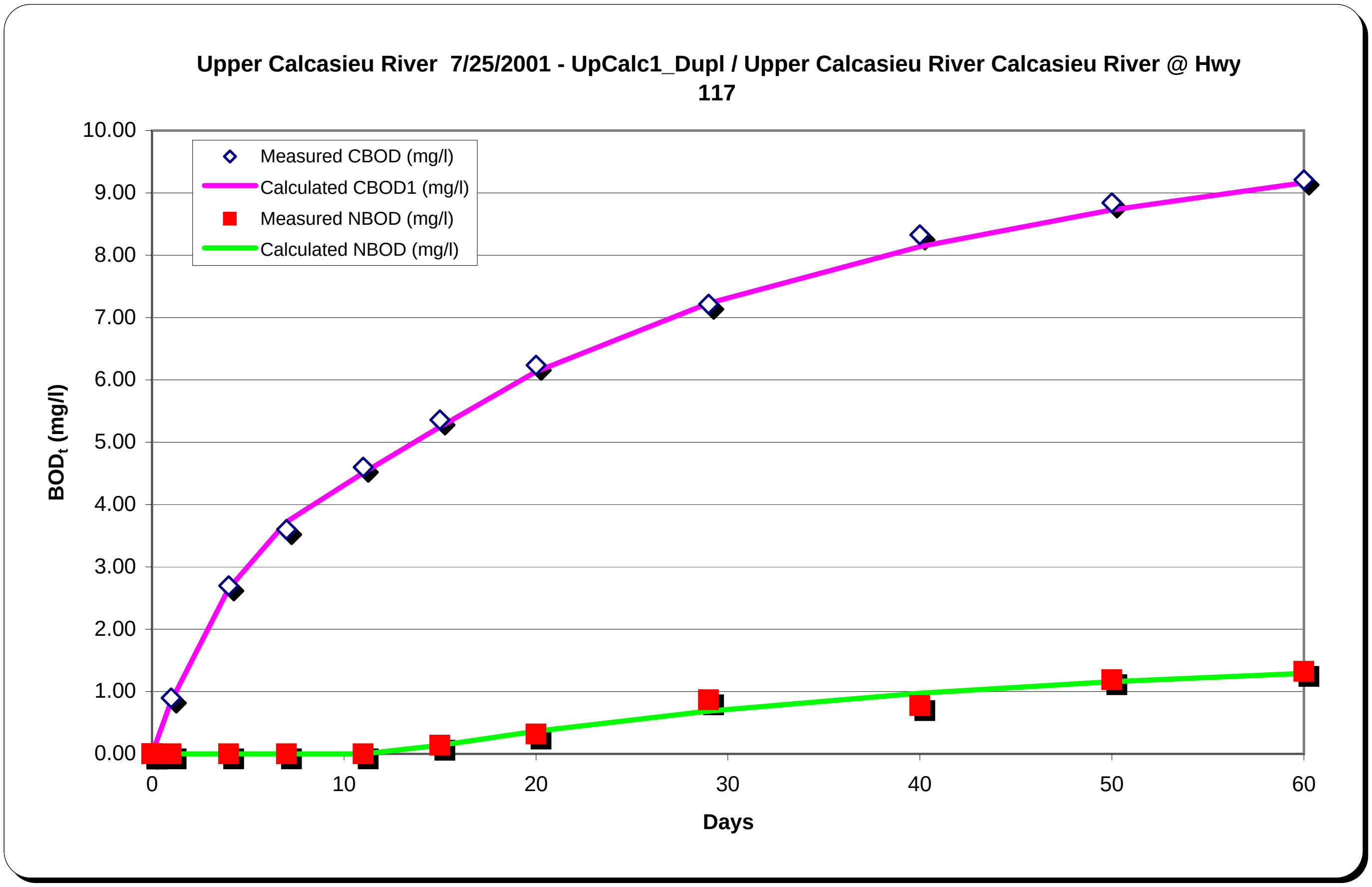
Note 5 - Determined by subtracting the calculated NBOD from the measured total BOD.

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: **Upper Calcasieu River 7/25/2001 - UpCalc1_Dupl / Upper Calcasieu River Ca**

Measured Data					Calculated Data			
Days	*Total BOD (mg/l)*	*NOx as N (mg/l)*	*NBOD (mg/l)*	*CBOD (mg/l)*	*NBOD (mg/l)*	*CBOD1 (mg/l)*	*CBOD2 (mg/l)*	*Total CBOD (mg/l)*
Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7	Note 7	
0		0.02						
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
1	0.9	0.02	0.00	0.90	0.00	0.85	0.00	0.85
4	2.7	0.02	0.00	2.70	0.00	2.65	0.00	2.65
7	3.6	0.02	0.00	3.60	0.00	3.72	0.00	3.72
11	4.6	0.02	0.00	4.60	0.00	4.51	0.00	4.51
15	5.5	0.05	0.14	5.36	0.14	4.89	0.35	5.25
20	6.6	0.09	0.32	6.24	0.36	5.12	1.01	6.13
29	7.9	0.21	0.87	7.21	0.69	5.25	1.98	7.23
40	9.3	0.19	0.78	8.33	0.97	5.27	2.86	8.14
50	10	0.28	1.19	8.84	1.16	5.28	3.45	8.73
60	10.5	0.31	1.33	9.21	1.29	5.28	3.88	9.16
			UBOD (mg/l)		1.64	5.28	5.14	10.41
			k rate (1/day)		0.03	0.17	0.03	
			Lag time (days)		12.25	0.00	12.62	



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.

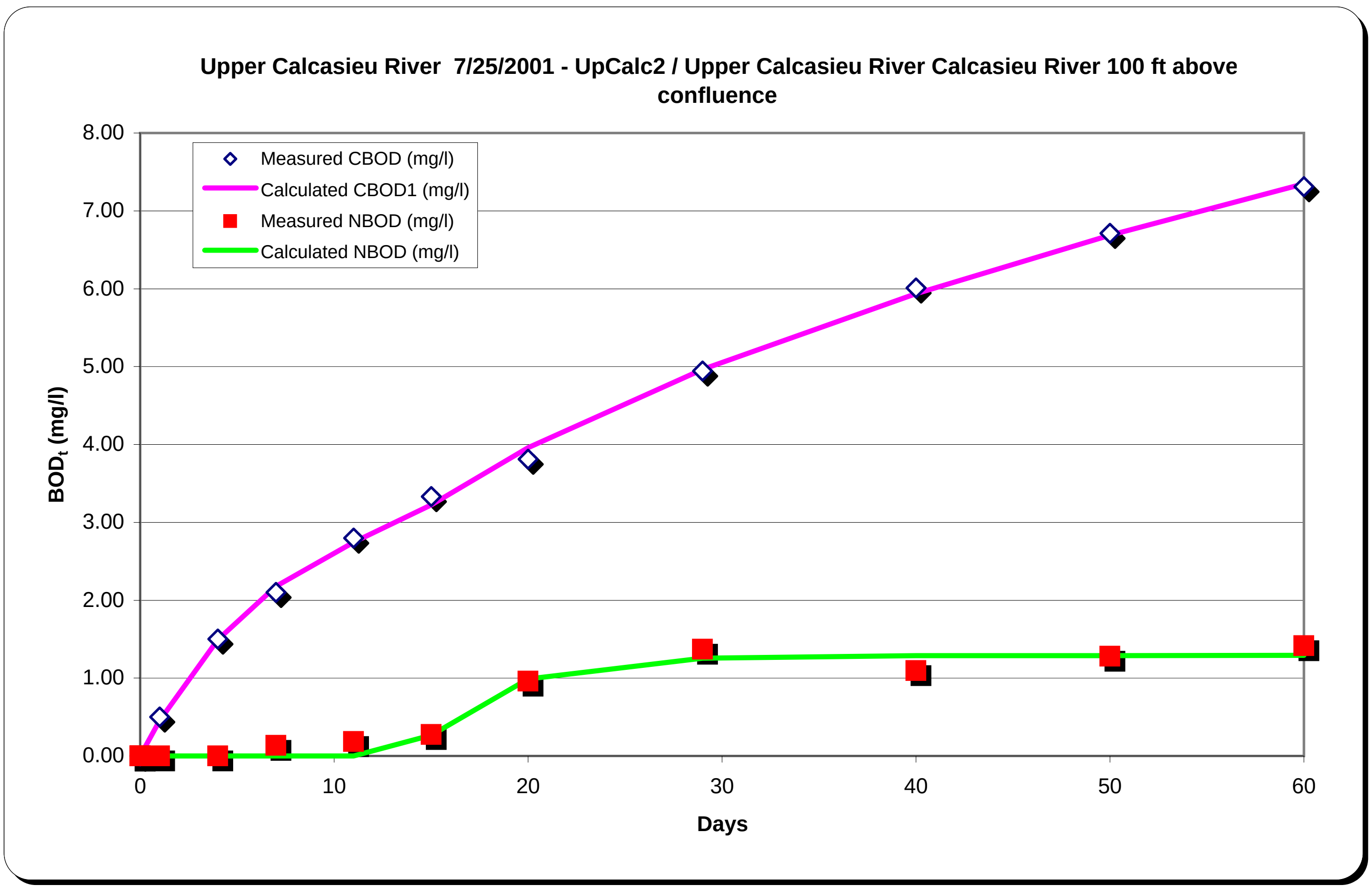
Note 5 - Determined by subtracting the calculated NBOD from the measured total BOD.

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: **Upper Calcasieu River 7/25/2001 - UpCalc2 / Upper Calcasieu River Calcasie**

Measured Data					Calculated Data			
Days	***Total BOD (mg/l)***	***NOx as N (mg/l)***	***NBOD (mg/l)***	***CBOD (mg/l)***	***NBOD (mg/l)***	***CBOD1 (mg/l)***	***CBOD2 (mg/l)***	***Total CBOD (mg/l)***
Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7	Note 7	
0		0.02						
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
1	0.5	0.02	0.00	0.50	0.00	0.45	0.00	0.45
4	1.5	0.02	0.00	1.50	0.00	1.49	0.00	1.49
7	2.1	0.05	0.14	2.10	0.00	2.18	0.00	2.18
11	2.8	0.06	0.18	2.80	0.00	2.74	0.00	2.74
15	3.6	0.08	0.27	3.33	0.27	3.07	0.16	3.22
20	4.8	0.23	0.96	3.81	0.99	3.28	0.67	3.96
29	6.2	0.32	1.37	4.94	1.26	3.44	1.53	4.96
40	7.3	0.26	1.10	6.01	1.29	3.49	2.45	5.94
50	8	0.3	1.28	6.71	1.29	3.50	3.19	6.69
60	8.6	0.33	1.42	7.31	1.29	3.50	3.85	7.35
			UBOD (mg/l)		1.29	3.50	8.98	12.48
			k rate (1/day)		0.24	0.14	0.01	
			Lag time (days)		14.05	0.00	13.51	



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.

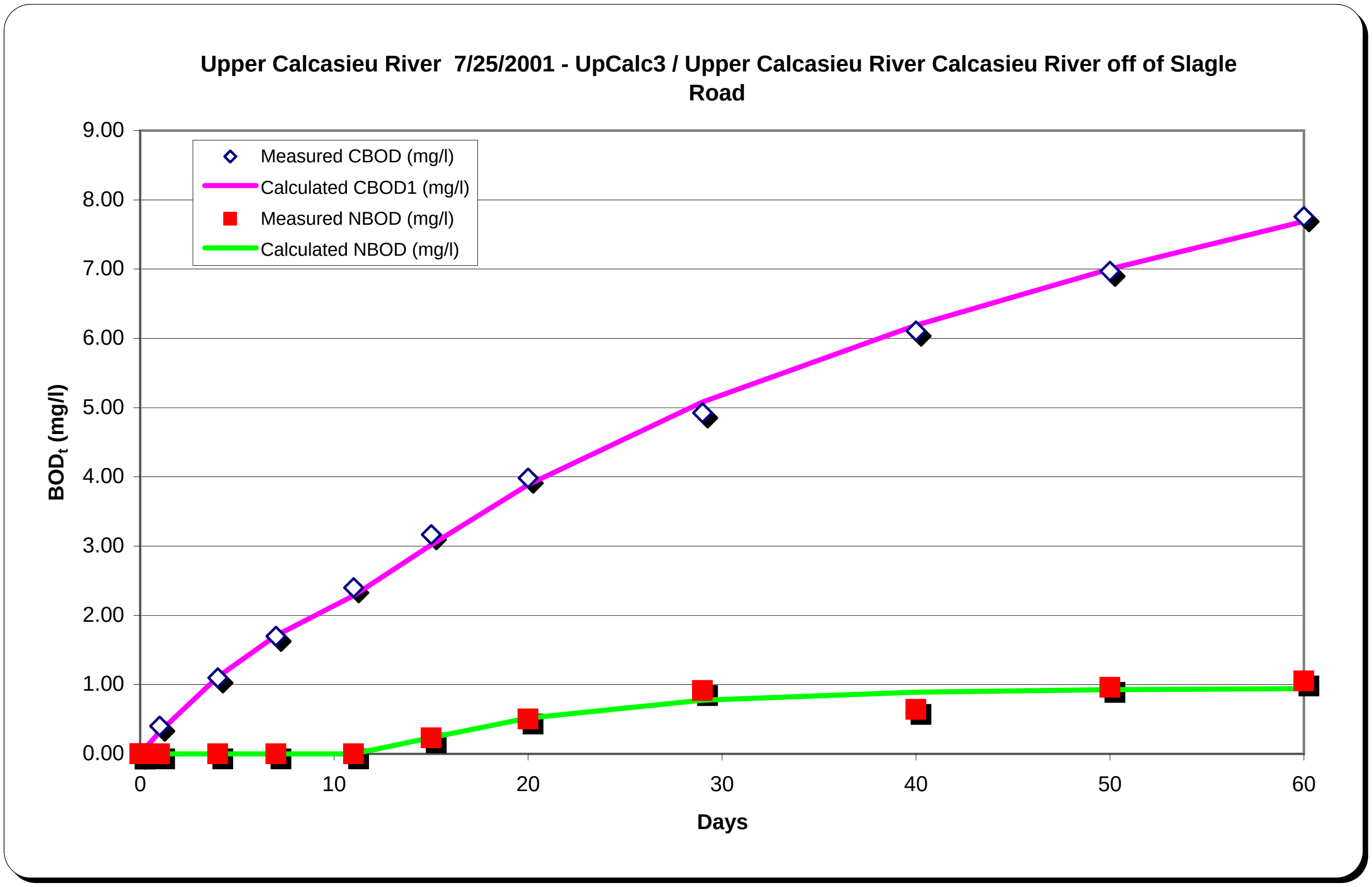
Note 5 - Determined by subtracting the calculated NBOD from the measured total BOD.

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: **Upper Calcasieu River 7/25/2001 - UpCalc3 / Upper Calcasieu River Calcasie**

Measured Data					Calculated Data			
Days	*Total BOD (mg/l)*	*NOx as N (mg/l)*	*NBOD (mg/l)*	*CBOD (mg/l)*	*NBOD (mg/l)*	*CBOD1 (mg/l)*	*CBOD2 (mg/l)*	*Total CBOD (mg/l)*
Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7	Note 7	
0		0.02						
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
1	0.4	0.02	0.00	0.40	0.00	0.32	0.00	0.32
4	1.1	0.02	0.00	1.10	0.00	1.11	0.00	1.11
7	1.7	0.02	0.00	1.70	0.00	1.71	0.00	1.71
11	2.4	0.02	0.00	2.40	0.00	2.28	0.00	2.28
15	3.4	0.07	0.23	3.16	0.24	2.67	0.34	3.02
20	4.5	0.13	0.50	3.98	0.52	3.00	0.89	3.88
29	5.7	0.22	0.91	4.92	0.78	3.30	1.78	5.08
40	7	0.16	0.64	6.11	0.89	3.44	2.75	6.19
50	7.9	0.23	0.96	6.97	0.93	3.49	3.51	7.00
60	8.7	0.25	1.05	7.76	0.94	3.51	4.18	7.69
			UBOD (mg/l)		0.95	3.52	9.00	12.52
			k rate (1/day)		0.10	0.09	0.01	
			Lag time (days)		12.15	0.00	12.00	



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.

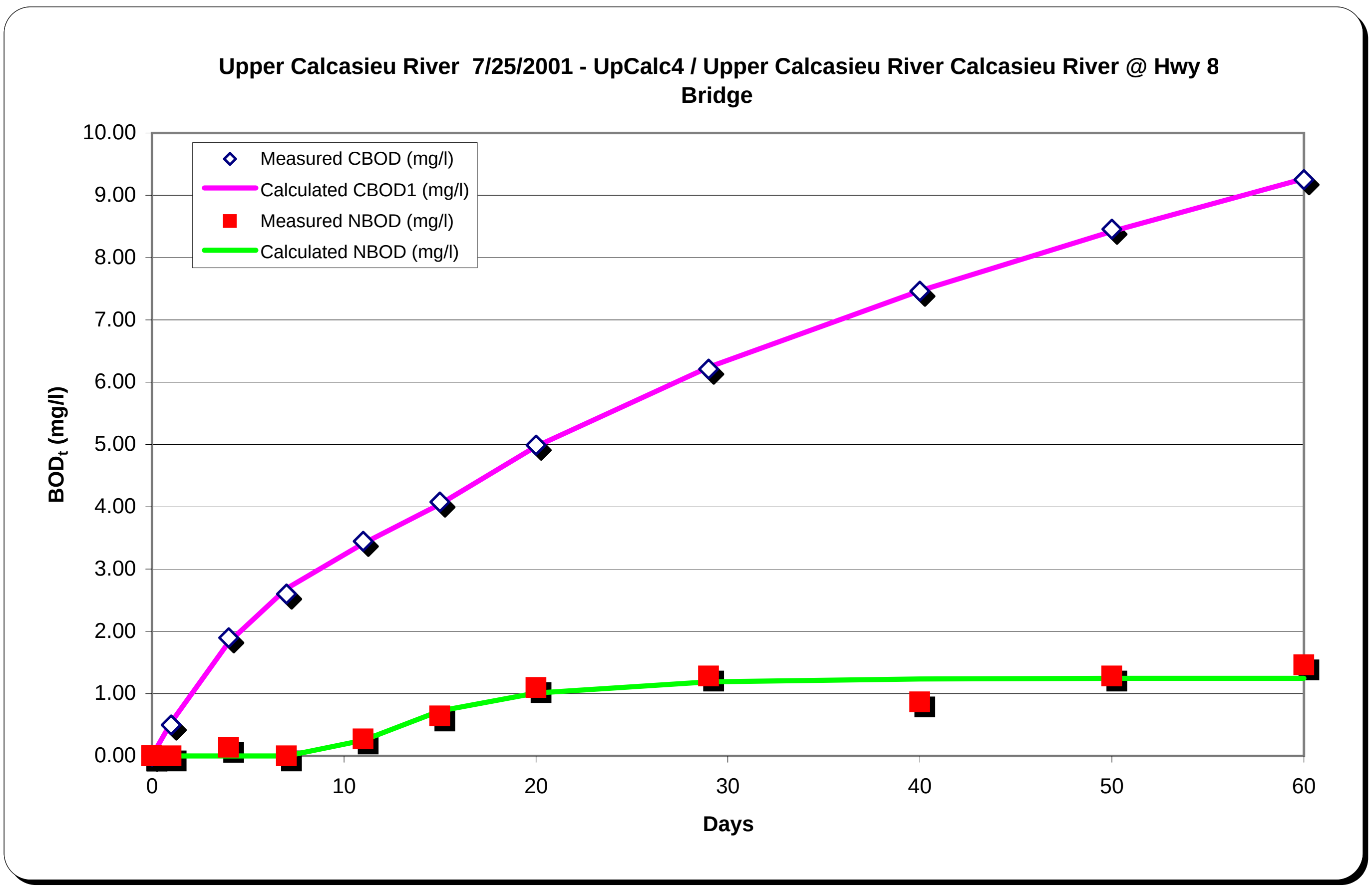
Note 5 - Determined by subtracting the calculated NBOD from the measured total BOD.

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: **Upper Calcasieu River 7/25/2001 - UpCalc4 / Upper Calcasieu River Calcasie**

Measured Data					Calculated Data			
Days	***Total BOD (mg/l)***	***NOx as N (mg/l)***	***NBOD (mg/l)***	***CBOD (mg/l)***	***NBOD (mg/l)***	***CBOD1 (mg/l)***	***CBOD2 (mg/l)***	***Total CBOD (mg/l)***
Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7	Note 7	
0		0.02						
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
0	0.00	0.00			0.00	0.00	0.00	0.00
1	0.5	0.02	0.00	0.50	0.00	0.54	0.00	0.54
4	1.9	0.05	0.14	1.90	0.00	1.82	0.00	1.82
7	2.6	0.02	0.00	2.60	0.00	2.69	0.00	2.69
11	3.7	0.08	0.27	3.45	0.25	3.41	0.00	3.41
15	4.8	0.16	0.64	4.08	0.72	3.84	0.20	4.04
20	6.0	0.26	1.10	4.99	1.01	4.13	0.83	4.97
29	7.4	0.30	1.28	6.21	1.19	4.35	1.89	6.24
40	8.7	0.21	0.87	7.46	1.24	4.43	3.04	7.47
50	9.7	0.30	1.28	8.45	1.25	4.44	3.98	8.42
60	10.5	0.34	1.46	9.25	1.25	4.45	4.82	9.27
			UBOD (mg/l)		1.25	4.45	12.18	16.63
			k rate (1/day)		0.16	0.13	0.01	
			Lag time (days)		9.58	0.03	13.45	



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

Appendix D1

Historical and Ambient Data

United States Census Records for Richland Parish

U.S. Census Bureau

State and County QuickFacts

QuickFacts Main | FAQs | What's New

Vernon Parish, Louisiana

Louisiana counties - view map

Select a county Go

Select a state
USA QuickFacts

Locate a county by place name

Follow the ? link for definition and source information.

Browse more data sets for Vernon Parish, Louisiana

People QuickFacts	Vernon Parish	Louisiana
Population, 2000	52,531	4,468,976
Population, percent change, 1990 to 2000	-15.2%	5.9%
Persons under 5 years old, percent, 2000	9.5%	7.1%
Persons under 18 years old, percent, 2000	29.1%	27.3%
Persons 65 years old and over, percent, 2000	7.9%	11.6%
White persons, percent, 2000 (a)	73.7%	63.9%
Black or African American persons, percent, 2000 (a)	17.1%	32.5%
American Indian and Alaska Native persons, percent, 2000 (a)	1.5%	0.6%
Asian persons, percent, 2000 (a)	1.6%	1.2%
Native Hawaiian and Other Pacific Islander, percent, 2000 (a)	0.3%	Z
Persons reporting some other race, percent, 2000 (a)	2.5%	0.7%
Persons reporting two or more races, percent, 2000	3.4%	1.1%
Female persons, percent, 2000	47.8%	51.6%
Persons of Hispanic or Latino origin, percent, 2000 (b)	5.9%	2.4%
White persons, not of Hispanic/Latino origin, percent, 2000	71.4%	62.5%
High school graduates, persons 25 years and over, 1990	23,437	1,733,122
College graduates, persons 25 years and over, 1990	3,154	409,123
Housing units, 2000	21,030	1,847,181
Homeownership rate, 2000	56.7%	67.9%
Households, 2000	18,260	1,656,053
Persons per household, 2000	2.69	2.62
Households with persons under 18, percent, 2000	45.4%	39.2%
Median household money income, 1997 model-based estimate	$28,836	$30,466
Persons below poverty, percent, 1997 model-based estimate	16.5%	18.4%
Children below poverty, percent, 1997 model-based estimate	20.5%	26.0%

Business QuickFacts	Vernon Parish	Louisiana
Private nonfarm establishments, 1999	635	101,020
Private nonfarm employment, 1999	7,218	1,579,949
Private nonfarm employment, percent change 1990-1999	33.1%	24.3%
Nonemployer establishments, 1998	1,621	219,073

?	Manufacturers shipments, 1997 ($1000)	NA	80,423,978
?	Retail sales, 1997 ($1000)	216,137	35,807,894
?	Retail sales per capita, 1997	$4,177	$8,229
?	Minority-owned firms, percent of total, 1997	18.3%	14.1%
?	Women-owned firms, percent of total, 1997	32.1%	23.9%
?	Housing units authorized by building permits, 2000	1	14,720
?	Federal funds and grants, 2000 ($1000)	649,509	25,955,188
?	Local government employment - full-time equivalent, 1997	2,237	169,976

	Geography QuickFacts	Vernon Parish	Louisiana
?	Land area, 2000 (square miles)	1,328	43,562
?	Persons per square mile, 2000	39.6	102.6
?	Metropolitan Area	None	

(a) Includes persons reporting only one race.
(b) Hispanics may be of any race, so also are included in applicable race categories.

FN: Footnote on this item for this area in place of data
NA: Not available
D: Suppressed to avoid disclosure of confidential information
X: Not applicable
S: Suppressed; does not meet publication standards
Z: Value greater than zero but less than half unit of measure shown
F: Fewer than 100 firms

Data Quality Statement

What do you think of our new QuickFacts? Send comments to quickfacts@lists.census.gov

Source U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, 2000 Census of Population and Housing, 1990 Census of Population and Housing, Small Area Income and Poverty Estimates, County Business Patterns, 1997 Economic Census, Minority- and Women-Owned Business, Building Permits, Consolidated Federal Funds Report, 1997 Census of Governments

Last Revised: Wednesday, 21-Nov-2001 12:48:23 EST

Browse more data sets for Vernon Parish, Louisiana

Appendix D2

Historical and Ambient Data

Ambient data

Calcasieu River Northeast of Slagle, Louisiana

This page last updated on: 01/09/02

DATE	TIME	DEPTH meters	FIELD PH	WATER TEMP (C)	D.O. mg/l	FIELD COND. umhos	SECCHI DISK inches	SALIN- ITY ppt
11/30/99	1315	1.0	6.90	15.10	3.98	92.0	.	.
11/03/99	1230	1.0	6.98	20.55	6.68	86.0	.	.
10/06/99	1200	1.0	6.64	16.42	5.60	47.0	.	.
09/08/99	0950	1.0	6.50	24.91	2.10	78.0	.	.
08/04/99	1300	1.0	7.41	32.11	5.70	65.0	.	.
07/07/99	1243	1.0	6.67	26.60	1.81	71.0	.	.
06/02/99	1115	1.0	6.78	23.57	4.88	51.0	.	.
05/05/99	1100	1.0	6.01	21.86	2.40	67.0	.	.
04/07/99	1100	1.0	6.02	20.16	5.10	40.0	.	.
03/01/99	1030	1.0	6.02	14.31	6.03	52.0	.	.
02/03/99	0927	1.0	7.03	12.62	7.40	.	47.0	.
01/06/99	1115	1.0	6.80	6.21	10.35	48.0	.	.

Calcasieu River Northeast of Slagle, Louisiana

This page last updated on: 01/09/02

DATE	TIME	DEPTH meters	ALKA-LINITY mg/l	HARD-NESS mg/l	TURB-IDITY NTU	COLOR PT-CO units	CHLOR-IDES mg/l	SULFATE mg/l
11/30/99	1315	1.0	25.5	17.5	7.9	5.0	15.8	.
11/03/99	1230	1.0	17.7	11.1	12.0	55.0	5.3	1.6
10/06/99	1200	1.0	24.2	28.4	75.0	110.0	4.7	4.5
09/08/99	0950	1.0	40.0	43.8	14.0	100.0	4.7	1.3
08/04/99	1300	1.0	21.7	22.9	26.0	120.0	4.3	1.4
07/07/99	1243	1.0	23.9	27.1	21.0	160.0	3.7	2.0
06/02/99	1115	1.0	10.3	12.1	50.0	80.0	4.0	2.5
05/05/99	1100	1.0	22.6	29.4	20.0	50.0	6.4	1.6
04/07/99	1100	1.0	9.1	10.8	36.0	60.0	3.7	2.7
03/01/99	1030	1.0	11.8	12.2	45.0	40.0	5.2	3.4
02/03/99	0927	1.0	9.5	11.1	26.0	50.0	4.8	3.1
01/06/99	1115	1.0	8.3	9.7	23.0	50.0	9.4	4.6

Calcasieu River Northeast of Slagle, Louisiana

This page last updated on: 01/09/02

DATE	TIME	DEPTH meters	NO2+NO3 mg/l	T.K.N. mg/l	PHOS. TOTAL mg/l	T.O.C. mg/l
11/30/99	1315	1.0	.020	.19	.10	2.60
11/03/99	1230	1.0	.020	1.52	.07	13.40
10/06/99	1200	1.0	.150	1.08	.15	11.50
09/08/99	0950	1.0	.040	.54	.07	14.90
08/04/99	1300	1.0	.030	1.16	.13	10.14
07/07/99	1243	1.0	.040	1.08	.08	17.80
06/02/99	1115	1.0	.510	1.00	.11	11.90
05/05/99	1100	1.0	.070	.50	.13	10.00
04/07/99	1100	1.0	.080	.72	.10	11.60
03/01/99	1030	1.0	.100	.65	.13	11.30
02/03/99	0927	1.0	.020	.63	.14	9.20
01/06/99	1115	1.0	.040	.55	.09	.04

Appendix D3

Historical and Ambient Data

Subsegment 030101 landuse data

Landuse data from Lousiana GAP data
Subsegment 030101

Land Use	AREA (sq meters)	Percent Area
Wetland Forest Deciduous	5,508,900	4.43
Wetland Forest Mixed	1,373,400	1.11
Upland Forest Deciduous	1,357,200	1.09
Upland Forest Evergreen	63,000,000	50.69
Upland Forest Mixed	6,277,500	5.05
Dense Pine Thicket	5,522,400	4.44
Wetland Forest Mixed	230,400	0.19
Upland Forest Evergreen	3,080,700	2.48
Upland Forest Mixed	26,262,000	21.13
Dense Pine Thicket	7,219,800	5.81
Water	4,446,900	3.58

Total area (sq meters)	124,279,200	100.0	0.00%

Total area (sq kilometers)	124.28

Total area (sq miles)	47.98

Total area (acres)	30,710

Appendix E

Recommended TMDL

Calibration Model Non-Point Load Equivalent Calculations:

Modeled stream or water body:	Upper Calcasieu River in the Calcasieu River - 030101

Shaded cells are input values for calculations.

REACH NUMBER & DESCRIPTION	Calibration Model Reach Length (km)	Calibration Model Average Reach Width (meters)	Calibration Model UCBOD1 Nonpoint loading (kg/day)	Calibration Model UCBOD2 Nonpoint loading (kg/day)	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** (Note 1)	**E = C / (A x B)**	**F = D / (A x B)**	**G**	**H = E + F + G**
1	1.00	1.47	0.57	0.50	1.070	0.30	0.728	0.202	2.60	**3.53**
2	2.10	1.58	0.81	0.83	1.640	0.55	0.494	0.165	2.85	**3.51**
3	2.10	1.70	0.61	0.83	1.440	0.64	0.403	0.179	3.15	**3.73**
4	2.10	1.83	0.46	0.83	1.290	0.64	0.336	0.166	3.50	**4.00**
5	2.10	1.97	0.36	0.82	1.180	0.55	0.285	0.133	4.10	**4.52**
6	2.10	2.34	0.36	0.75	1.110	0.55	0.226	0.112	4.35	**4.69**
7	2.10	2.71	0.51	0.75	1.260	0.55	0.221	0.096	4.65	**4.97**
8	2.10	3.08	0.56	1.20	1.760	0.55	0.272	0.085	4.90	**5.26**
9	1.20	2.63	0.81	2.20	3.010	0.91	0.954	0.290	5.30	**6.54**
10	1.20	2.17	0.86	2.60	3.460	0.91	1.329	0.351	5.80	**7.48**
11	1.20	1.66	0.96	2.70	3.660	1.01	1.837	0.505	6.60	**8.94**

Note 1, This values was calculated as the resuspended non-point Organic Nitrogen input value for each reach multiplied by 4.57 to convert it to an equivalent oxygen demand load.

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

Modeled stream or water body:	**Upper Calcasieu River in the Calcasieu River - 030101**

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	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)	Reduced TCBL adjusted for MOS	Non-Point UCBOD	Non-Point UNBOD	SOD @ 20°C
	gm O_2 / [(m²)(day)]	gm O_2 / [(m²)(day)]	gm O_2 / [(m²)(day)]	gm O_2 / [(m²)(day)]	Kilo-meters	gm O_2 / [(m²)(day)]	%	gm O_2 / [(m²)(day)]	Meters	(degrees Celcius)	%	gm O_2 / [(m²)(day)]	gm O_2 / [(m²)(day)]	gm O_2 / [(m²)(day)]	gm O_2 / [(m²)(day)]	gm O_2 / [(m²)(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)	**K,** (note 3)	**L = (K)(A / D)**	**M = (K)(B / D)**	**N = (K)(C / D)**
1	0.728	0.202	2.60	3.530	1.00	0.00	0%	0.00	1.53	29.40	82.5%	0.62	0.77	0.159	0.044	0.57
2	0.494	0.165	2.85	3.510	2.10	0.00	0%	0.00	1.64	29.40	82.5%	0.61	0.77	0.108	0.036	0.62
3	0.403	0.179	3.15	3.733	2.10	0.00	0%	0.00	1.75	29.40	82.5%	0.65	0.82	0.088	0.039	0.69
4	0.336	0.166	3.50	4.002	2.10	0.00	0%	0.00	1.85	29.40	82.5%	0.70	0.88	0.073	0.036	0.77
5	0.285	0.133	4.10	4.518	2.10	0.00	0%	0.00	1.96	29.40	82.5%	0.79	0.99	0.062	0.029	0.90
6	0.226	0.112	4.35	4.687	2.10	0.00	0%	0.00	2.29	29.40	82.5%	0.82	1.03	0.049	0.024	0.95
7	0.221	0.096	4.65	4.968	2.10	0.00	0%	0.00	2.61	29.40	82.5%	0.87	1.09	0.048	0.021	1.02
8	0.272	0.085	4.90	5.257	2.10	0.00	0%	0.00	2.94	29.40	82.5%	0.92	1.15	0.060	0.019	1.07
9	0.954	0.290	5.30	6.543	1.20	0.00	0%	0.00	2.46	29.40	82.5%	1.15	1.43	0.209	0.063	1.16
10	1.329	0.351	5.80	7.480	1.20	0.00	0%	0.00	1.98	29.40	82.5%	1.31	1.64	0.291	0.077	1.27
11	1.837	0.505	6.60	8.942	1.20	0.00	0%	0.00	1.51	29.40	82.5%	1.56	1.96	0.402	0.110	1.44
Sub-Total												10.00				

	Projected Model Loads						Margin of Safety Loads						Man-made Model equivalents				Man-made Model loads				Background Model loads			
Reach Number and Description	Non-Point UCBOD INPUTS	Non-Point UCBOD INPUTS	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	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
	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	gm O_2 / [(m²)(day)]	gm O_2 / [(m²)(day)]	gm O_2 / [(m²)(day)]	gm O_2 / [(m²)(day)]	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)
	O = (E)(G)(L)	(Note 7)	(Note 7)	**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**	**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**
1	0.24	0.130	0.114	0.07	1.57	1.88	0.24	0.17	0.05	0.01	0.31	0.38	0.77	0.159	0.044	0.57	0.24	0.07	1.57	1.88	0.00	0.00	0.00	0.00
2	0.37	0.184	0.188	0.12	3.88	4.38	0.53	0.43	0.07	0.02	0.78	0.88	0.77	0.108	0.036	0.62	0.37	0.12	3.88	4.38	0.00	0.00	0.00	0.00
3	0.32	0.137	0.187	0.14	4.58	5.05	0.60	0.51	0.06	0.03	0.92	1.01	0.82	0.088	0.039	0.69	0.32	0.14	4.58	5.05	0.00	0.00	0.00	0.00
4	0.29	0.102	0.184	0.14	5.38	5.80	0.68	0.59	0.06	0.03	1.08	1.16	0.88	0.073	0.036	0.77	0.29	0.14	5.38	5.80	0.00	0.00	0.00	0.00
5	0.26	0.078	0.178	0.12	6.67	7.05	0.81	0.74	0.05	0.02	1.33	1.41	0.99	0.062	0.029	0.90	0.26	0.12	6.67	7.05	0.00	0.00	0.00	0.00
6	0.24	0.077	0.161	0.12	8.27	8.63	0.99	0.92	0.05	0.02	1.65	1.73	1.03	0.049	0.024	0.95	0.24	0.12	8.27	8.63	0.00	0.00	0.00	0.00
7	0.27	0.107	0.158	0.12	10.08	10.46	1.19	1.12	0.05	0.02	2.02	2.09	1.09	0.048	0.021	1.02	0.27	0.12	10.08	10.46	0.00	0.00	0.00	0.00
8	0.37	0.117	0.251	0.11	11.96	12.44	1.42	1.32	0.07	0.02	2.39	2.49	1.15	0.060	0.019	1.07	0.37	0.11	11.96	12.44	0.00	0.00	0.00	0.00
9	0.62	0.166	0.450	0.19	6.19	6.99	0.85	0.68	0.12	0.04	1.24	1.40	1.43	0.209	0.063	1.16	0.62	0.19	6.19	6.99	0.00	0.00	0.00	0.00
10	0.69	0.172	0.519	0.18	5.45	6.32	0.78	0.60	0.14	0.04	1.09	1.26	1.64	0.291	0.077	1.27	0.69	0.18	5.45	6.32	0.00	0.00	0.00	0.00
11	0.73	0.191	0.537	0.20	4.73	5.66	0.71	0.52	0.15	0.04	0.95	1.13	1.96	0.402	0.110	1.44	0.73	0.20	4.73	5.66	0.00	0.00	0.00	0.00
Sub-Total	4.39			1.51	68.75	**74.66**	8.79		0.88	0.30	13.75	**14.93**					4.39	1.51	68.75	**74.66**	0.00	0.00	0.00	**0.00**

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 $1.065^{(\mathbf{I}-20)}$

Note 7, These columns are calculated as the CBOD1 & CBOD2 components of the model input kg/day for Total CBOD. They are based on the CBOD1 & CBOD2 values and the total CBOD value for each reach.

EXPLICIT MARGINS:

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

Summer TMDL Calculations for Point Source loads:

Upper Calcasieu River in the Calcasieu River - 030101

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 with MOS (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
Blansett Appartments (LAG530087)	Parmer Creek (below Slagle)	No	0.000068	0.000085	45.00	10.00	0.20	103.50	0.76	0.61	0.15	43.00	0.32	0.25	0.06	**1.07**	**0.86**	**0.21**
Magee's Trailer Park (LAG530348)	Parmer Creek	No	0.000125	0.000156	45.00	10.00	0.20	103.50	1.40	1.12	0.28	43.00	0.58	0.46	0.12	**1.98**	**1.58**	**0.40**
Marshall Trailer Park (LAG530353)	Big Branch (north of Slagle)	No	0.000053	0.000066	45.00	10.00	0.20	103.50	0.59	0.47	0.12	43.00	0.24	0.20	0.05	**0.83**	**0.67**	**0.17**
Moore's Trailer Park	Parmer Creek	No	0.000079	0.000099	45.00	10.00	0.20	103.50	0.88	0.71	0.18	43.00	0.37	0.29	0.07	**1.25**	**1.00**	**0.25**
SUB-TOTAL Loads			**0.000324**						**3.62**	**2.90**	**0.72**		**1.51**	**1.20**	**0.30**	**5.13**	**4.10**	**1.03**

(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]

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

Upper Calcasieu River in the Calcasieu River - 030101

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**
Upper Calcasieu River	0.0028	10.37	2.97	2.51	0.72	0	0.00	0%	0.00	0.00	83%	0.44	0.13	0.55	0.16	2.27	0.65	**0.14**	**0.56**
SUB-TOTAL TMDL LOADING				**3**	**1**				**0**	**0**		**0**	**0**	**1**	**0**			**0.14**	**0.56**

EXPLICIT MARGINS:

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

Summer TMDL calculations and Projection model calculations for Incremental loads:

Upper Calcasieu River in the Calcasieu River - 030101

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

Incremental Load Determinations:																					
	Calibration Load determinations:										Percentage Reduction calculations:			Projection Model Input determinations:				Projection Model Input determinations:			
Reach Description and #	Projection Flow (cms)	Calb. UCBOD conc. (mg/l)	Unadjusted UCBOD (kg/day)	Calb. UNBOD conc. (mg/l)	Unadjusted UNBOD (kg/day)	Background Conc. UCBOD (mg/l)	Background Conc. UNBOD (mg/l)	Background % Reduction	Background Load UCBOD (kg/day)	Background Load UNBOD (kg/day)	Actual % Reduction of Man-Made Loads	Increm. UCBOD Load Adjusted For % Reduction **(LA load)**	Increm. UNBOD Load Adjusted For % Reduction **(LA load)**	Increm. UCBOD Adjusted for MOS (kg/day) (1)	Increm. UNBOD Adjusted for MOS (kg/day) (1)	Projection UCBOD conc. (mg/l)	Projection UNBOD conc. (mg/l)	Proj. UCBOD MOS load (kg/day)	Proj. UNBOD MOS load (kg/day)	**Sub-total MOS load (kg/day)**	**Sub-total LA load (kg/day)**
	A	**B**	**C** = (86.4)(**A**)(**B**)	**D**	**E** = (86.4)(**A**)(**D**)	**F**	**G**	**H1**	**H** = (1-**H1**) (86.4)(**A**)(**F**)	**I** = (1-**H1**) (86.4)(**A**)(**G**)	**J**, Note 1	**K** = (**C**-**H**)(1-**J**) + **H**	**L** = (**E**-**I**)(1-**J**) + **I**	**M** = (**K-H**) / (1-**MOS**) + H	**N** = (**L-I**) / (1-**MOS**) + I	**M** / [(**A**)(86.4)]	**N** / [(**A**)(86.4)]	**O** = **M** - **K**	**P** = **N** - **L**	**O + P**	**K + L**
1								0%			83%										
2								0%			83%										
3								0%			83%										
4								0%			83%										
5								0%			83%										
6								0%			83%										
7								0%			83%										
8								0%			83%										
9								0%			83%										
10								0%			83%										
11								0%			83%										
Sub-Total benthic loading									0	0		0	0	0	0			0	0	0	0

Note 1: The percentage reduction values are taken from the "Non-Point Benthic Load Input and TMDL Calculations" worksheet.

EXPLICIT MARGINS:

MARGIN OF SAFETY (MOS) (%) =	**10%**

Summer TMDL Summary:

Upper Calcasieu River in the Calcasieu River - 030101

Calculation of the TMDL - Kilograms per day			
Load description	WLA (kg/day)	LA (kg/day)	MOS Load (kg/day)
Point Source loads	4.10		1.03
Headwater / Tributatary loads		0.57	0.14
Benthic loads		59.72	14.93
Incremental Loads		0	0
SUB-TOTAL	**4.10**	**60.29**	**16.10**
TMDL = WLA + LA + MOS	*80.49 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	9.04		2.27
Headwater / Tributatary loads		1.25	0.31
Benthic loads		131.68	32.92
Incremental Loads		0.00	0.00
SUB-TOTAL	**9.04**	**132.93**	**35.50**
TMDL = WLA + LA + MOS		*177.47 lbs/day*	

Calculation of the TMDL - Kilograms per day			
Load description	WLA (kg/day)	LA (kg/day)	MOS Load (kg/day)
Point Source loads	4.10		1.03
Total Nonpoint Loads		60.29	15.07
SUB-TOTAL	**4.10**	**60.29**	**16.10**
TMDL = WLA + LA + MOS	*80.49 kg/day*		

Calculation of the TMDL - Pounds per day			
Load description	WLA (lbs/day)	LA (lbs/day)	MOS Load (lbs/day)
Point Source loads	9.04		2.27
Total Nonpoint Loads		132.94	33.23
SUB-TOTAL	**9.04**	**132.94**	**35.50**
TMDL = WLA + LA + MOS		*177.48 lbs/day*	

Notes:

(1) - Load(lbs/day) = Load(kg/day) x 2.205

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

Modeled stream or water body:	Upper Calcasieu River in the Calcasieu River - 030101

Shaded cells are input values for calculations.

Values to be used in the projection models.

	Calibration Model Values												Projection Model Equivalents				Projected Model Loads						Margin of Safety Loads						Man-made 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	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)	Reduced TCBL adjusted for MOS	Non-Point UCBOD	Non-Point UNBOD	SOD @ 20°C	Non-Point UCBOD INPUTS	Non-Point UCBOD INPUTS	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	Manmade portion of TCBL	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)]	%	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)]	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/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**	**F = F1*(1-F2)**	**G**	**I**	**H**	J, (note 2)	K, (note 3)	**L = (K)(A / D)**	**M = (K)(B / D)**	**N = (K)(C / D)**	**O = (E)(G)(L)**	(Note 7)	(Note 7)	**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**	**W = K - F**	**X = (W)(A / D)**	**Y = (W)(B / D)**	**Z = (W)(C / D)**
1	0.728	0.202	2.60	3.530	1.00	0.00	0%	0.00	1.69	20.40	82.5%	0.62	0.77	0.159	0.044	0.57	0.269	0.143	0.126	0.07	0.99	1.33	0	0	0	0	0	0	0.77	0.159	0.044	0.57
2	0.494	0.165	2.85	3.510	2.10	0.00	0%	0.00	1.90	20.40	82.5%	0.61	0.77	0.108	0.036	0.62	0.431	0.213	0.218	0.14	2.55	3.13	1	0	0	0	1	1	0.77	0.108	0.036	0.62
3	0.403	0.179	3.15	3.733	2.10	0.00	0%	0.00	2.11	20.40	82.5%	0.65	0.82	0.088	0.039	0.69	0.391	0.166	0.225	0.17	3.13	3.70	1	1	0	0	1	1	0.82	0.088	0.039	0.69
4	0.336	0.166	3.50	4.002	2.10	0.00	0%	0.00	2.32	20.40	82.5%	0.70	0.88	0.073	0.036	0.77	0.358	0.128	0.230	0.18	3.83	4.36	1	1	0	0	1	1	0.88	0.073	0.036	0.77
5	0.285	0.133	4.10	4.518	2.10	0.00	0%	0.00	2.54	20.40	82.5%	0.79	0.99	0.062	0.029	0.90	0.333	0.102	0.231	0.15	4.91	5.39	1	1	0	0	1	1	0.99	0.062	0.029	0.90
6	0.226	0.112	4.35	4.687	2.10	0.00	0%	0.00	2.94	20.40	82.5%	0.82	1.03	0.049	0.024	0.95	0.305	0.099	0.206	0.15	6.02	6.48	1	1	0	0	1	1	1.03	0.049	0.024	0.95
7	0.221	0.096	4.65	4.968	2.10	0.00	0%	0.00	3.34	20.40	82.5%	0.87	1.09	0.048	0.021	1.02	0.340	0.137	0.202	0.15	7.32	7.80	2	1	0	0	1	2	1.09	0.048	0.021	1.02
8	0.272	0.085	4.90	5.257	2.10	0.00	0%	0.00	3.74	20.40	82.5%	0.92	1.15	0.060	0.019	1.07	0.468	0.149	0.319	0.15	8.63	9.25	2	2	0	0	2	2	1.15	0.060	0.019	1.07
9	0.954	0.290	5.30	6.543	1.20	0.00	0%	0.00	3.11	20.40	82.5%	1.15	1.43	0.209	0.063	1.16	0.779	0.210	0.569	0.24	4.44	5.45	1	1	0	0	1	1	1.43	0.209	0.063	1.16
10	1.329	0.351	5.80	7.480	1.20	0.00	0%	0.00	2.49	20.40	82.5%	1.31	1.64	0.291	0.077	1.27	0.868	0.216	0.653	0.23	3.89	4.99	1	1	0	0	1	1	1.64	0.291	0.077	1.27
11	1.837	0.505	6.60	8.942	1.20	0.00	0%	0.00	1.86	20.40	82.5%	1.56	1.96	0.402	0.110	1.44	0.897	0.235	0.662	0.25	3.30	4.45	1	1	0	0	1	1	1.96	0.402	0.110	1.44
Sub-Total												10.00					5			2	49	**56**	11		1	0	10	**11**				

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 $1.065^{(\mathrm{I}-20)}$

Note 6, **AC** = **E** x **G** x **Z** x $1.065^{(\mathbf{I}-20)}$

EXPLICIT MARGINS:

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

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

Modeled stream or water body:	Upper Calcasieu River in the Calcasieu River - 030101

Shaded cells are input values for calculations.

Values to be used in the projection models.

	Calibration Model Values											Man-made Model loads				Background Model loads			
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	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)]	Kilo-meters	gm O_2 / [(m^2)(day)]	%	gm O_2 / [(m^2)(day)]	Meters	(degrees Celcius)	%	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/day)	(kg/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**	**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**
1	0.728	0.202	2.60	3.530	1.00	0.00	0%	0.00	1.69	20.40	82.5%	0	0	1	1.33	0	0	0	0.00
2	0.494	0.165	2.85	3.510	2.10	0.00	0%	0.00	1.90	20.40	82.5%	0	0	3	3.13	0	0	0	0.00
3	0.403	0.179	3.15	3.733	2.10	0.00	0%	0.00	2.11	20.40	82.5%	0	0	3	3.70	0	0	0	0.00
4	0.336	0.166	3.50	4.002	2.10	0.00	0%	0.00	2.32	20.40	82.5%	0	0	4	4.36	0	0	0	0.00
5	0.285	0.133	4.10	4.518	2.10	0.00	0%	0.00	2.54	20.40	82.5%	0	0	5	5.39	0	0	0	0.00
6	0.226	0.112	4.35	4.687	2.10	0.00	0%	0.00	2.94	20.40	82.5%	0	0	6	6.48	0	0	0	0.00
7	0.221	0.096	4.65	4.968	2.10	0.00	0%	0.00	3.34	20.40	82.5%	0	0	7	7.80	0	0	0	0.00
8	0.272	0.085	4.90	5.257	2.10	0.00	0%	0.00	3.74	20.40	82.5%	0	0	9	9.25	0	0	0	0.00
9	0.954	0.290	5.30	6.543	1.20	0.00	0%	0.00	3.11	20.40	82.5%	1	0	4	5.45	0	0	0	0.00
10	1.329	0.351	5.80	7.480	1.20	0.00	0%	0.00	2.49	20.40	82.5%	1	0	4	4.99	0	0	0	0.00
11	1.837	0.505	6.60	8.942	1.20	0.00	0%	0.00	1.86	20.40	82.5%	1	0	3	4.45	0	0	0	0.00
Sub-Total												5	2	49	**56**	0	0	0	**0**

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%**

Appendix F

Maps and Diagrams

Appendix F1

Maps and Diagrams

Reconnaissance survey digital photographs

Upper Calcasieu River, Reconnaissance trip 3/27/01.
Downstream of Hwy 117 bridge

Upper Calcasieu River, Reconnaissance trip 3/27/01.
Downstream of confluence with Indian Bayou

Upper Calcasieu River, Reconnaissance trip 3/27/01.
Upstream of LSU sampling station

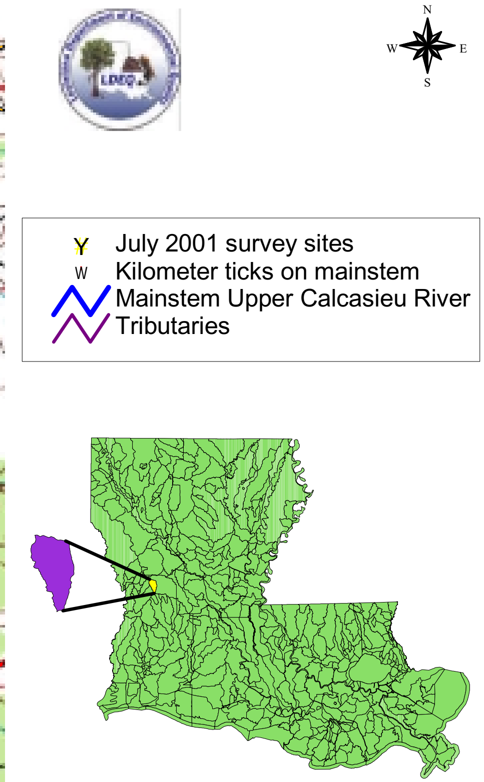
Upper Calcasieu River, Reconnaissance trip 3/27/01.
Upstream of Hwy 8 bridge

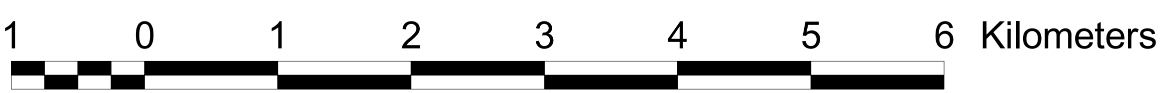
Appendix F2

Maps and Diagrams

ARCVIEW mapping

Upper Calcasieu River



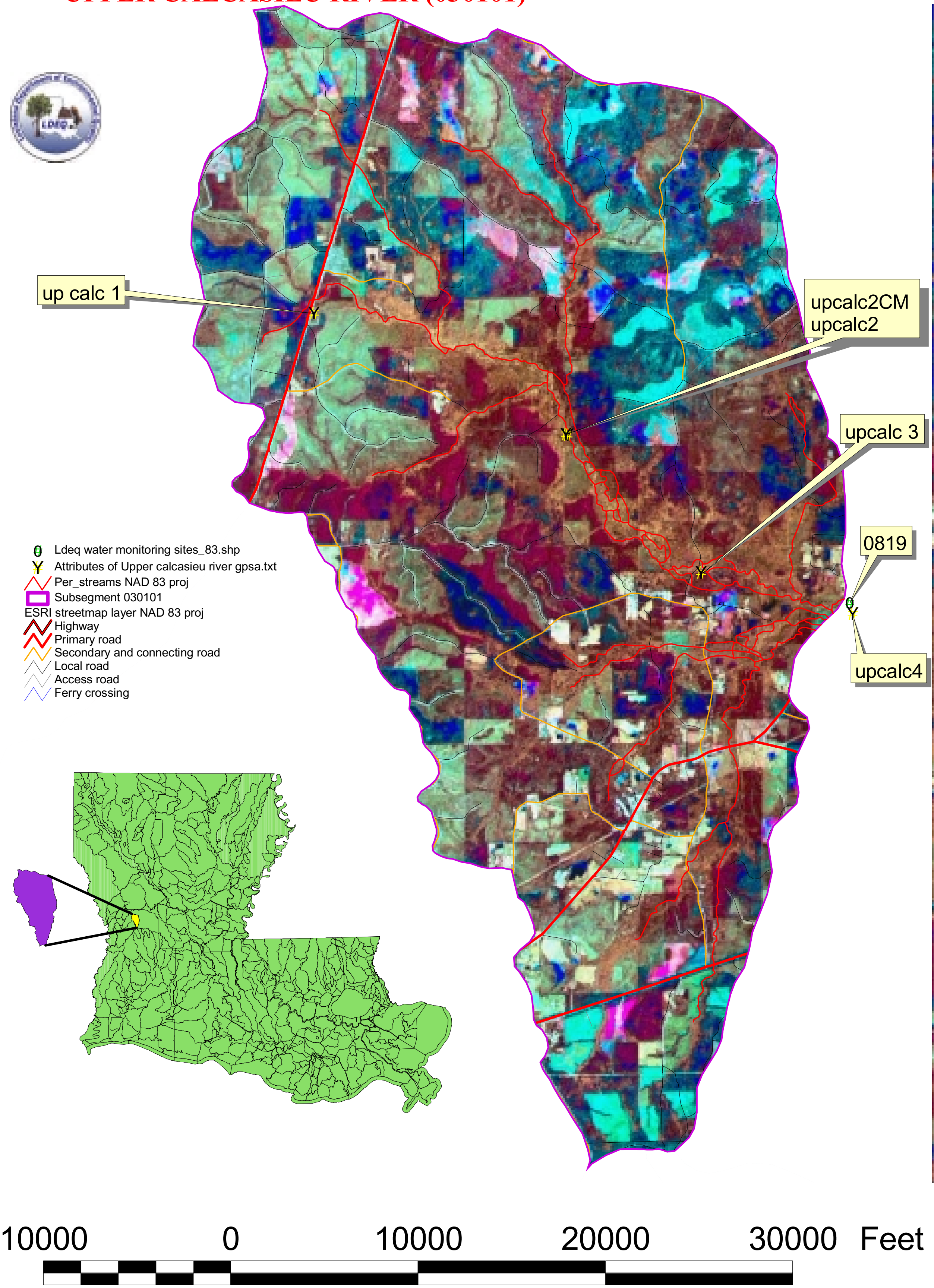


Environmental Technology Division
Map No. 200103033, December 2001
Base Map: Basin Subsegment lines are from LDEQ's 2000 determinations
Roads based on ESRI's streetmap software.
Site locations determined by LDEQ personnel.
USGS 7.5 minute quad maps
Projection: UTM Zone 15 NAD 1927

UPPER CALCASIEU RIVER (030101)

Environmental Technology Division
Map No. 200103034, December 2001
Base Map: Basin Subsegment lines are from LDEQ's 2000 determinations
Roads based on ESRI's streetmap software.
Site locations determined by LDEQ personnel.
USGS 7.5 minute quad maps
Projection: UTM Zone 15 NAD 1927

UPPER CALCASIEU RIVER (030101)

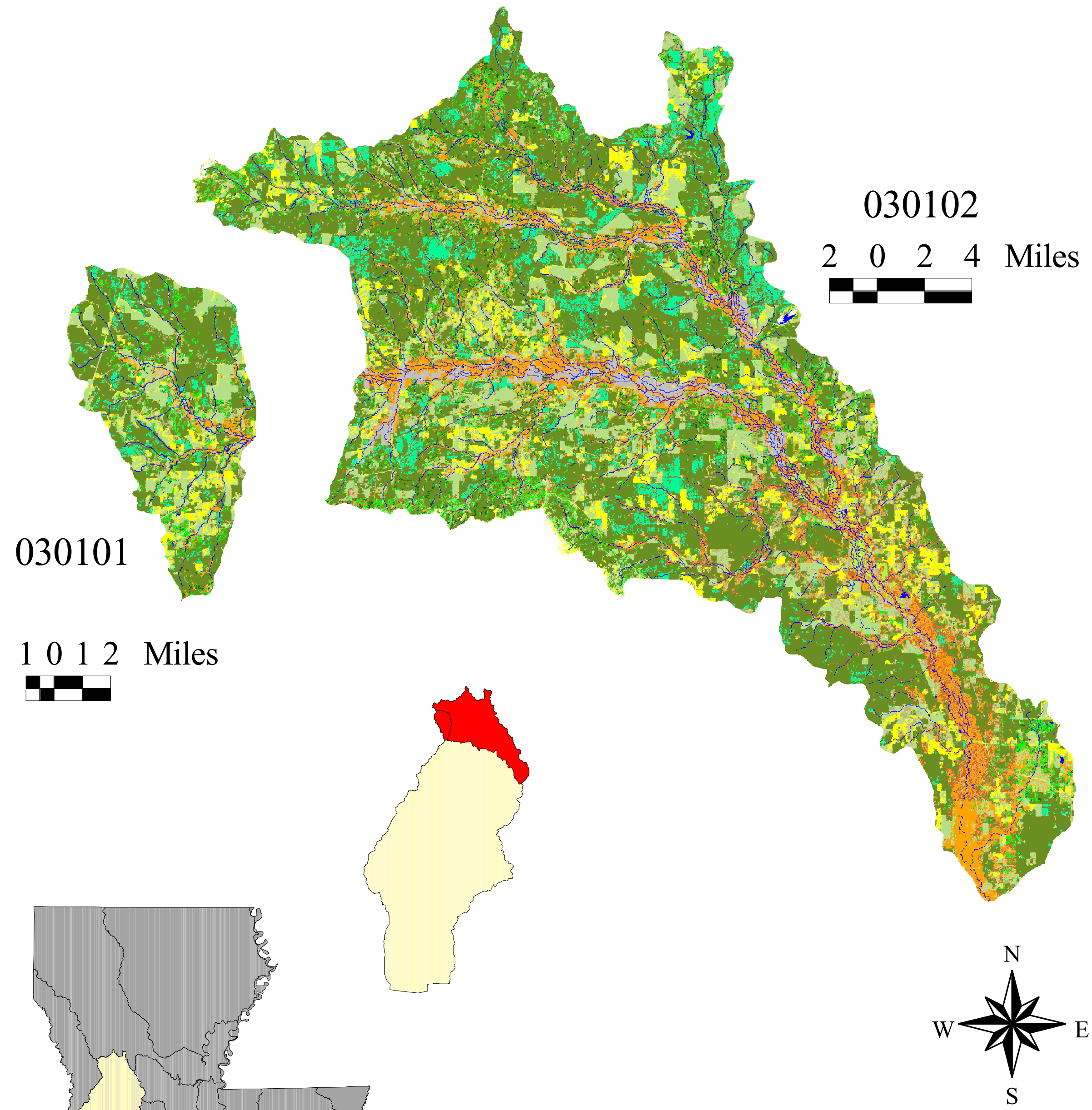


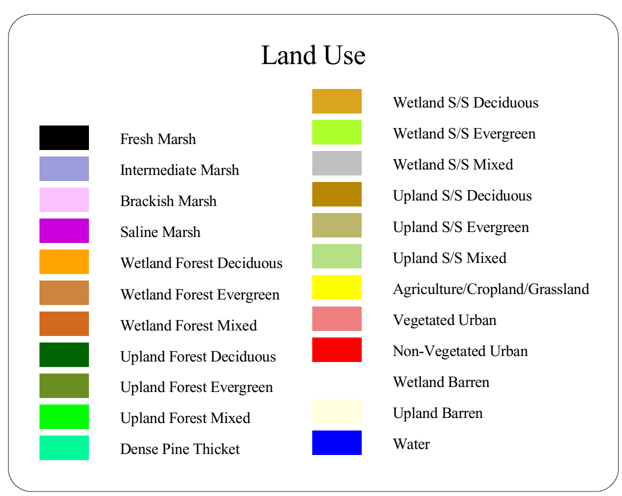
Environmental Technology Division
Map No. 200103035, December 2001
Base Map: Basin Subsegment lines are from LDEQ's 2000 determinations
Roads based on ESRI's streetmap software.
Site locations determined by LDEQ personnel.
IRS-TM Merge
Projection: UTM Zone 15 NAD 1927

LDEQ Disclaimer:
The Louisiana Department of Environmental Quality (LDEQ) has made every reasonable effort to ensure quality and accuracy in producing this map or data set. Nevertheless, the user should be aware that the information on which it is based may have come from any of a variety of sources, which are of varying degrees of map accuracy. Therefore, LDEQ cannot guarantee the accuracy of this map or data set, and does not accept any responsibility for the consequences of its use.

LDEQ SUBSEGMENTS

Louisiana GAP Land Use





Map date: April 30, 2001
Map number: 200101057
Mapsources: LDEQ basin-subsegment data, USGS Louisiana GAP data

Appendix F3

Maps and Diagrams

Vector Diagram

Vector Diagram for Upper Calcasieu River in the Calcasieu River Basin: