BAYOU COCODRIE WATERSHED TMDL
FOR BIOCHEMICAL OXYGEN-DEMANDING SUBSTANCES

SUBSEGMENTS 101605

SURVEYED 8/3 - 5/2004

TMDL REPORT

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MARCH 21, 2005

REVISED: DECEMBER 22, 2005

EXECUTIVE SUMMARY

This report presents the results of a watershed based, calibrated modeling analysis of Bayou Cocodrie. The modeling was conducted to establish a TMDL for biochemical oxygen-demanding pollutants for the Bayou Cocodrie watershed. The model extends from the headwaters at Lake Concordia to Hwy 15. Bayou Cocodrie is located in central Louisiana. Bayou Cocodrie is in the Red River Basin and this study includes Water Quality Subsegment 101605. The area is sparsely populated and land use is dominated by agriculture. There were no permitted dischargers located along this subsegment.

Input data for the calibration model was developed from data collected during the August 2004 intensive survey; data collected by LDEQ monitoring stations in the watershed; USGS drainage area and low flow publications; and data garnered from several previous LDEQ studies on nonpoint source loadings. The nonpoint source loads included nonpoint loading not associated with flow. A satisfactory calibration was achieved for the main stem. For the projection models, data was taken from ambient temperature records. The Louisiana Total Maximum Daily Load Technical Procedures, 09/22/2003, have been followed in this study.

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

Modeling was limited to low flow scenarios for both the calibration and the projections since the constituent of concern was dissolved oxygen and the available data was limited to low flow conditions. The model used was LAQUAL, a modified version of QUAL-TX, which has been adapted to address specific needs of Louisiana waters.

Bayou Cocodrie, Subsegment 101605, was on the 2004 303(d) list. Subsegment 101605 is found to be "not supporting" its designated use of Fish and Wildlife Propagation. It is "fully supporting" Primary and Secondary Contact Recreation. Bayou Cocodrie was subsequently scheduled for TMDL development with other listed waters in the Red River Basin. The suspected cause of impairment is dissolved oxygen. The suspected sources are municipal point source discharges, package plants, permitted small flows discharges, and residential districts. This TMDL addresses the organic enrichment/low DO impairment. The results of the projection modeling for subsegment 101605 show that the water quality standard for dissolved oxygen can only be maintained during the summer critical season with a 95% reduction of total nonpoint pollution. The minimum DO is 5.48 mg/l.

Table 1. Total Maximum Daily Load (Sum of CBOD, NBOD, and SOD)

ALLOCATION	Summer	Winter
	May – Oct (lbs/day)	Nov - Apr (lbs/day)
Total Nonpoint Source LA	474	472
Future Growth Reserve (10%)	0	0
MOS (10%)	0	0
Total Nonpoint Reduction	95%	95%
TMDL	474	472

The results of the projection modeling for subsegment 101605 show that the water quality standard for dissolved oxygen can be maintained during the winter critical season with the same 95% reduction of total nonpoint pollution. The minimum DO is 6.96 mg/l in subsegment 101605 and has a winter seasonal water quality standard for dissolved oxygen of 5.0 mg/l.

The extremely high reduction in the total nonpoint loading, indicates that the current criterion for subsegment 101605 is inappropriate. There will be no future load allocations permitted for this stream under the current criteria. A reassessment of the dissolved oxygen criteria for this subsegment is recommended. All summer and winter runs assumed a 5.0 dissolved oxygen standard.

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 is continuing to implement a watershed approach to the surface water quality monitoring. In 2004 a four year sampling cycle replaces the previous five year cycle. Approximately one quarter of the states watersheds will be sampled in each year so that all of the states watersheds will be sampled within the four 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.

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Introduction

Bayou Cocodrie, subsegment 101605, of the Red River Basin is listed on the 303(d) list. The subsegment is listed as not supporting fish and wildlife propagation. It is, however, meeting its designated use of Primary and Secondary Contact Recreation. The suspected cause of impairment is low DO. The suspected sources are municipal point source discharges, package plant, other permitted small flows discharges, and residential districts. Because of the impairment, this subsegment requires the development of a total maximum daily load (TMDL) for oxygen demand substances. A calibrated water quality model for the Bayou Cocodrie, subsegment 101605 watershed was developed and projections for current dissolved oxygen standards were run to quantify the wasteload required to meet established dissolved oxygen criteria. This report presents the model development and results.

2. Study Area Description

2.1 General Information

Red River Basin

The Red River has its origin in eastern New Mexico and flows across portions of Texas, Oklahoma and Arkansas before entering northwestern Louisiana. The river flows south to Shreveport, where it turns southeast and flows for approximately 160 miles to its junction with the Atchafalaya River. From the Arkansas state line to Alexandria, the Red River is contained within high banks which range from 20 to 35 feet above low water level. Below Alexandria, the river flows through a flat alluvial plain which is subject to backwater flooding during periods of high water. The Sabine River Basin lies to the southwest of the Red River Basin, and the Ouachita River Basin lies to the east. The Calcasieu, Vermilion – Teche, and Atchafalaya River Basins lie south of the Red River Basin. The Red River drains approximately 7,760 squares miles within Louisiana. (LA DEQ, 1996)

Subsegment 101605 includes Bayou Cocodrie from Lake Concordia to Hwy 15. This area is typical of the basin and is primarily comprised of agriculture as documented in Table 2 (LADEQ, 1999). A detailed land cover map of Subsegment 101605 is also included in Appendix H2. Average annual precipitation in the segment, based on the nearest Louisiana Climatic Station, is 56 - 60 inches based on a 30-year period of record (LSU, 1999). There is a Louisiana average annual precipitation map located in Appendix H3.

Table 2. Land Uses in Segment 101605

Land Type	Acres	Percent Land Use
Agriculture/Cropland/Grassland	53,983.60	70.21
Wetland Forest Deciduous	16,992.72	22.10
Water	5,122.86	6.66
Vegetated Urban	492.60	0.64
Wetland S/S Deciduous	98.30	0.13
Upland S/S Evergreen	68.50	0.09
Upland S/S Mixed	50.48	0.07
Fresh Marsh	46.26	0.06
Upland Forest Evergreen	29.13	0.04

Figure 1 is a description of the model layout for Bayou Cocodrie, Subsegment 101605 TMDL. An additional copy is located in Appendix C1.

Figure 1. Model Layout

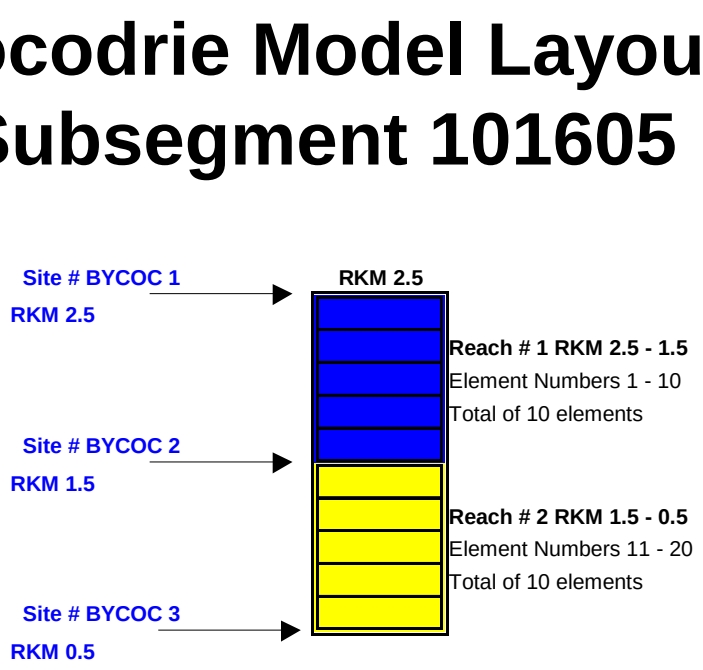
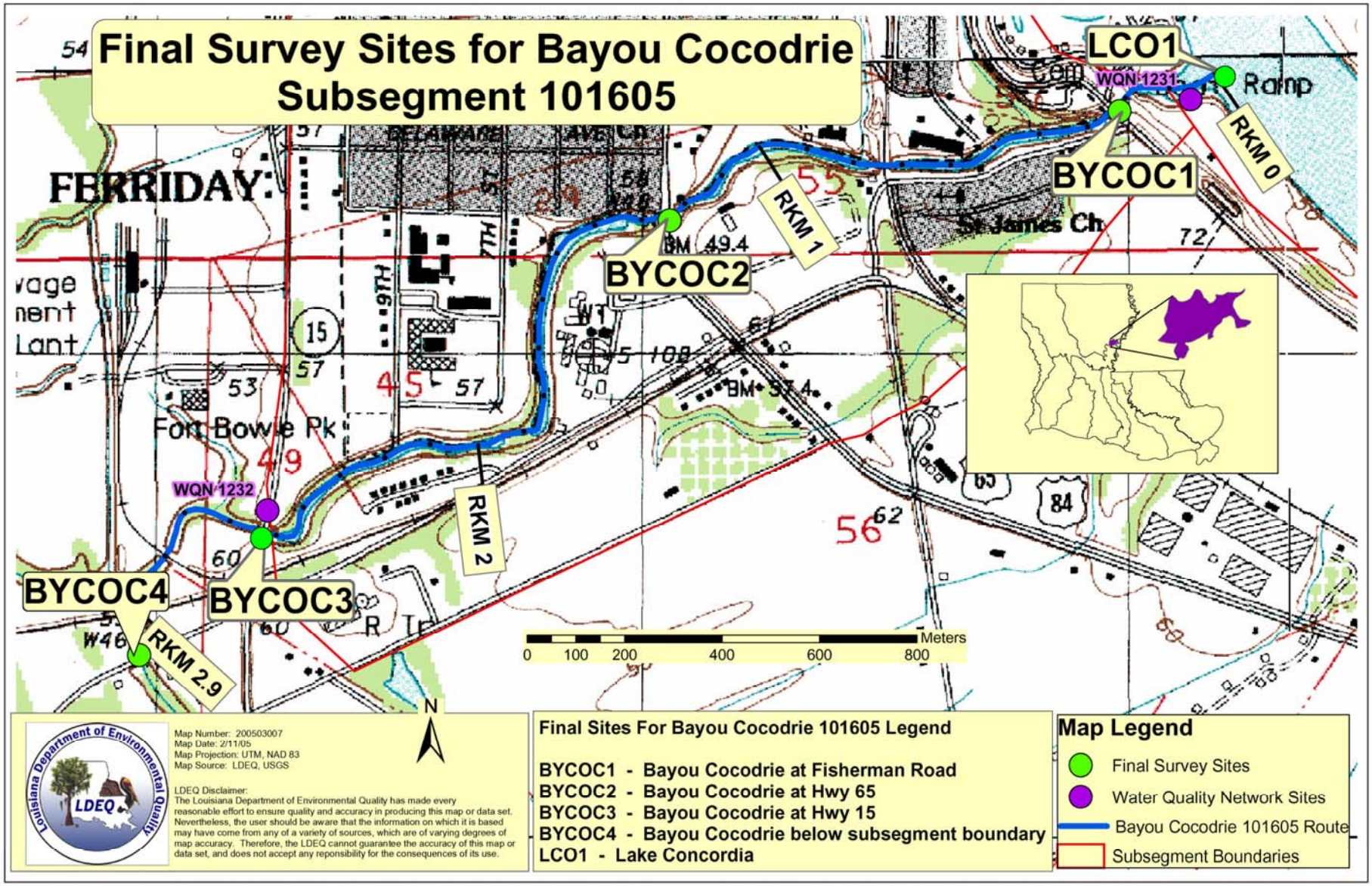


Figure 2 is a physical layout of the 101605 subsegment boundary, 2004 survey sites, river kilometers for the routed subsegment, and the water quality network sites layered with the USGS DRGs. An additional copy of this map is located in Appendix H1.

Figure 2. Map of Study Area



2.2 Water Quality Standards

The Water Quality criteria and designated uses for Bayou Cocodrie Watershed are shown in Table 3. As noted in the table, Bayou Cocodrie, Subsegment 101605 has a year round dissolved oxygen standard of 5.0 mg/L.

Table 3. Water Quality Numerical Criteria and Designated Uses

Parameter	Value
Designated Uses	A B C
DO, mg/L	5.0
Cl, mg/L	250
SO_4, mg/L	75
pH	6.0 – 8.5
BAC	1
Temperature, deg Celsius	32
TDS, mg/L	500

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/100mL maximum log mean and no more than 25% of samples exceeding 400 colonies/100mL 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

No facilities/dischargers were found to be discharging into this subsegment; therefore, there is no wasteload allocation for current discharges.

2.4 Water Quality Conditions/Assessment

Bayou Cocodrie, subsegment 101605, of the Red River Basin is listed on the 303(d) list. This subsegment is listed as not supporting fish and wildlife propagation. It is, however, meeting its designated use of Primary and Secondary Contact Recreation. The suspected cause of impairment in subsegment 101605 is DO. The suspected sources for 101605 are municipal point source discharges, package plant, other permitted small flows discharges, and residential districts. Because of the impairment, this subsegment requires the development of a total maximum daily load (TMDL) for oxygen demanding substances and nutrients.

2.5 Prior Studies

LDEQ had a monthly water quality sampling station on Bayou Cocodrie. LDEQ Water Quality Site 1232 has a period of record from January 2002 to December 2002. Data collected during the Eularian survey conducted in August 2004, included discharge data, cross-section data, field in-situ data, continuous monitor data, and lab water quality data. This data was used to establish the input for the model calibration and is presented in Appendix F.

3. Documentation 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 a 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 dissolved oxygen, temperature, or other parameter 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 of 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 August 3 - 5, 2004, was used to establish the input for the model calibration. It is presented in Appendix F. The flows in each reach and headwater were based on the measured survey discharges.

Field and laboratory water quality data were entered in a spreadsheet for ease of analysis. The total CBOD curves presented in Appendix F5 were derived using the Microsoft Excel Solver and were based on the measured daily CBOD values. The CBOD component was modeled as CBOD in the LAQUAL model. NBOD simulated 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 CBOD, CBOD decay rate, CBOD lag time, as well as the 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.

3.2.1 Model Schematics and Maps

A vector diagram of the modeled area is presented in Figure 1 and Appendix C1. The vector diagram shows the locations of survey stations and the reach/element design. An ARCVIEW map of the stream and subsegment showing river kilometers, survey stations, subsegment boundary and other points of interest are shown in Figure 2 and Appendix H1.

3.2.2 Model Options, Data Type 2

Five constituents were modeled during the calibration process. These were dissolved oxygen, carbonaceous biochemical oxygen demand, nitrogenous biochemical oxygen demand, chloride, and conductivity. The continuous monitors did show diurnal swings indicative of algal activity. The algae 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. A review of the data showed that field conductivity was probably more reliable as a conservative constituent for this watershed.

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 °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, 2004). For this model all values used were LAQUAL default values.

3.2.4 Reach Identification Data, Data Type 8

A diagram of the modeled area is presented in Figure 1 and Appendix C1. The vector diagram shows the reach/element design. The modeled area is characterized by four sample sites. The model starts with Bayou Cocodrie's headwaters with Lake Concordia and extends to Hwy 15. This calibrated model includes two reaches, twenty elements, and one headwater. A digitized map of the stream showing river kilometers, and the August 2004 survey sampling sites is included in Figure 2 and Appendix H1.

3.2.5 Advective Hydraulic Coefficients, Data Type 9

Louisiana streams typically do not empty out when the flow in the stream goes to zero. Therefore, hydraulic calculation method two was used for this stream to more accurately depict the geometry. The modified Leopold equations were utilized in this model for calibration. The measured widths and depths were averaged across reaches. These averages were used as the constants in data type 9. The coefficients and exponents were then acheived through calibration.

3.2.6 Initial Conditions, Data Type 11

The initial conditions are used to reduce the number of iterations required by the model. The values required for this model were temperature and DO by reach. The input values came from averaging survey sites along a reach. Chlorophyll a values were also used since the mild effects of algae on the dissolved oxygen concentrations were also simulated with this model. The input data and sources are shown in Appendix F.

3.2.7 Reaeration Rates, Data Type 12

The applicability of the various equations was examined. The review showed that the Texas Equation was most applicable for subsegment 101605. The input data and sources are shown in Appendix F.

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 D. The values were considered to be reasonable for this type of stream. The conversion ratio of settled CBOD and settled NBOD to SOD was considered to be one 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. Review of the measured CBOD daily values revealed one distinct CBOD component, which had varying decay rates and lag times.

This component had decay rates ranging from 0.086 to 0.090 per day. The total CBOD curves presented in Appendix F are based on the measured daily CBOD values. The decay and settling rates used for each reach are shown in Appendix F5.

3.2.10 Nitrogenous BOD Decay and Settling Rates, Data Type 13

These rates are labeled NBOD Decay and Settling in the model. The decay rates used were based on the bottle rates from the survey. NBOD decay rates were fairly consistent with main stem rates ranging from 0.071 to 0.082. The decay and settling rates used for each reach are shown in Appendix F5.

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

Incremental inflow was determined to be present based on the survey measurements and thus included in the model. Based on land use and water chemistry, the incremental inflow and outflow was probably due to bank flow and irrigation.

3.2.12 Nonpoint Sources, Data Type 19

Nonpoint source loads which are not associated with a 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, CBOD, and NBOD loads. The data and sources are presented in Appendix D.

3.2.13 Headwaters, Data Types 20, 21, and 22

The headwater begins at three pipe colverts that serve as an overflow system for Lake Concordia. The headwater flow was determined from the measurements obtained during the August 2004 survey. Site BYCOC1 measurement was used for this purpose. The data and sources are presented in Appendix F2.

3.2.14 Wasteloads, Data Types 23, 24, and 25

A facility review was performed on the subsegment and no permitted dischargers were found for subsegment 101605.

3.2.15 Boundary Conditions, Data Type 27

The lower boundary conditions were assumed to be equivalent to the measurements taken at survey station BYCOC4 (Bayou Cocodrie below subsegment boundary) with one exception. No chlorophyll a was collected for BYCOC4 due to survey constraints, therefore the cholorphyll a from BYCOC3 was used.

3.3 Model Discussion and Results

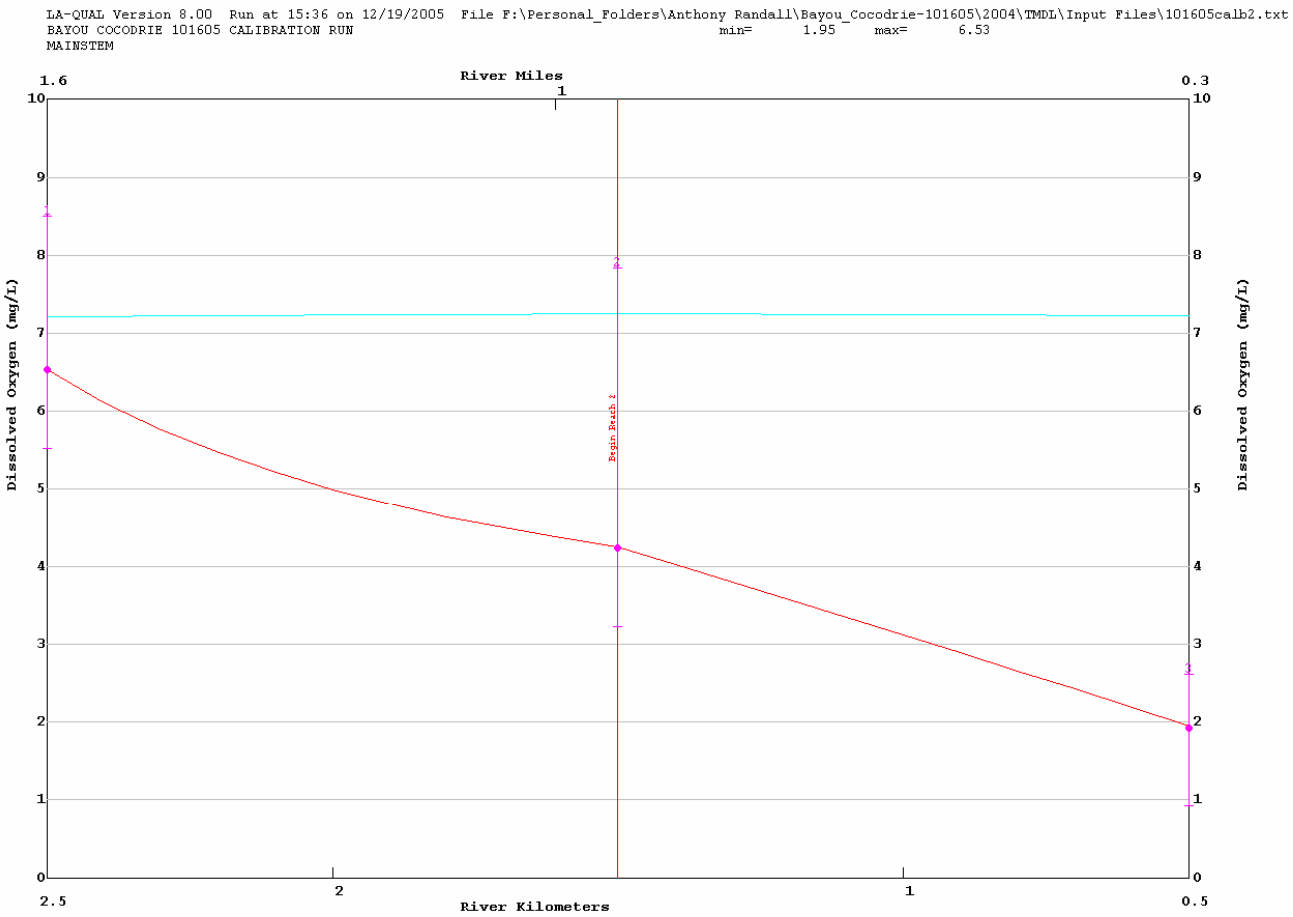
The calibration model input and output is presented in Appendix B1. The overlay plotting option was used to determine if calibration had been achieved. A plot of the dissolved oxygen concentration versus river kilometer is presented in Figure 3. The calibration points for dissolved oxygen were based

on the LDEQ standard operating procedures for calibration to a wide variation of dissolved oxygen. For all three calibration points, the diurnal cycle range was between 2 and 7. Therefore, all three calibration points were calculated to be one mg/l over the minimum DO for the 8/4/04 diurnal cycle. This calibration procedure is based upon the theoretical consideration of production and respiration rates. To accomplish calibration for this procedure, the algae oxygen production was set to zero and the effective BOD due to algae was set to 0.15.

The calibration points for temperature were calculated based on the average for which the water quality sample was taken. The calibration points for CBOD, and NBOD were the measured values from the water quality samples.

An adequate calibration was achieved for DO, UCBOD, NBOD, chlorides, and conductivity on the main stem. The calibration model shows that during August 2004 survey period, the DO standard of 5 mg/l was not being met in subsegment 101605 in the lower modeled reach. The calibration model minimum DO on the main stem was 1.95 mg/l.

Figure 3. Calibration Model Dissolved Oxygen versus River Kilometer



- numbered points indicate survey stations
- vertical lines indicate beginning of reach

- the horizontal line indicates the DO Criterion
- upper plotted line indicates DO saturation
- lower plotted 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. A winter projection was run based on the percent reduction of total nonpoint loads used for summer critical projections.

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 Bayou Cocodrie, subsegment 101605 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 Bayou Cocodrie using short term water quality data from Bayou Cocodrie water quality site number 1232 on the LDEQ Ambient Monitoring Network. The 90th percentile temperature for each season and the corresponding 90% of saturation DO was determined. Ambient temperature data, critical temperature and DO saturation determinations are shown in Appendix G.

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 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.

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 the Bayou Cocodrie, subsegment 101605 dissolved oxygen TMDL projection modeling by using the default values from the LTP, and the 90th percentile temperature from the WQN Station 1231. Since groundwater inflow was present during this survey, it is assumed to be present during both summer and winter conditions.

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 measures, an explicit MOS of 20% is standard practice for all loads to account for future growth, safety, model uncertainty and data inadequacies. However in this case, the summer projection calls for a 95% reduction in nonpoint sources. Therefore, a load allocation for future growth could not be established.

4.2 Input Data Documentation

The LTP states that the flow for summer conditions should be 0.1 cfs or the 7Q10, whichever is greater. The 7Q10 was zero for Bayou Cocodrie subsegment 101605, therefore the flow is set to 0.1 cfs for the summer projections and 1.0 cfs for the winter projections. This is documented in Appendix F2.

The calibration values were retained for the remaining parameters and used as input values in the summer and winter projections. The model adjusts the input values for SOD, CBODU decay, and NBODU decay based upon the input temperature. The model projects the width and depth values based upon the streamflow.

4.2.1 Model Options, Data Type 2

Three constituents were modeled during the calibration process. These were dissolved oxygen, carbonaceous biochemical oxygen demand, and nitrogenous biochemical oxygen demand.

4.2.2 Temperature Correction of Kinetics, Data Type 4

The temperature correction factors specified in the LTP are entered 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.

4.2.5 Initial Conditions, Data Type 11

The initial conditions were set to the 90th percentile critical season temperature in accordance with the LTP. The dissolved oxygen values for the initial conditions were set at the stream criteria.

4.2.6 Reaeration Rates, Carbonaceous BOD Decay and Settling Rates, Nitrogenous BOD Decay and Settling Rates, Data Type 12 and 13

The reaeration rate equations, CBOD decay and settling rates, NBOD decay and settling rates, and the fractions converting settled CBOD and settled NBOD to SOD were not changed from the calibration.

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

The incremental conditions were used in the calibration to represent nonpoint source loads associated with flows. Since incremental flow was present during a period of low-flow conditions the incremental flows were assumed to be present during projections and were included.

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

The NPS values were calculated for each projection scenario using a load equivalent spreadsheet. An analysis was made of the calibration NPS and SOD loads in terms of total loading in units of gm-O_2/m^2/day. The same spreadsheet also calculated load reductions for the headwaters and wasteloads. The values and sources of the input data and the load analyses are presented in Appendix A for each of the projection runs.

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 run-off 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 methods. 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 nonpoint CBOD, and NBOD loading was reduced by 95% for all reaches 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 CBOD and NBOD. These values were summed by reach, as justified above and adjusted for the margin of safety. Each reach's total benthic nonpoint load was then reduced to meet the dissolved oxygen criteria in each reach. Using the ratios determined in calibration, this reduced total nonpoint load was then broken into its components of CBOD, NBOD, and SOD. The percentage reduction within mainstem was calculated based on the comparison of the reduced total nonpoint benthic load to the calibration total nonpoint benthic load. These calculations are shown in Appendix A. The value and sources of CBOD and NBOD for each projection run are presented in Appendix D.

4.2.12 Boundary Conditions, Data Type 27

The lower boundary conditions were set at the 90th percentile critical season temperature, the dissolved oxygen criteria, and the measured stream UCBOD and UNBOD loads for all projections and scenarios.

4.3 Model Discussion and Results

The projection model input and output data sets are presented in Appendix D.

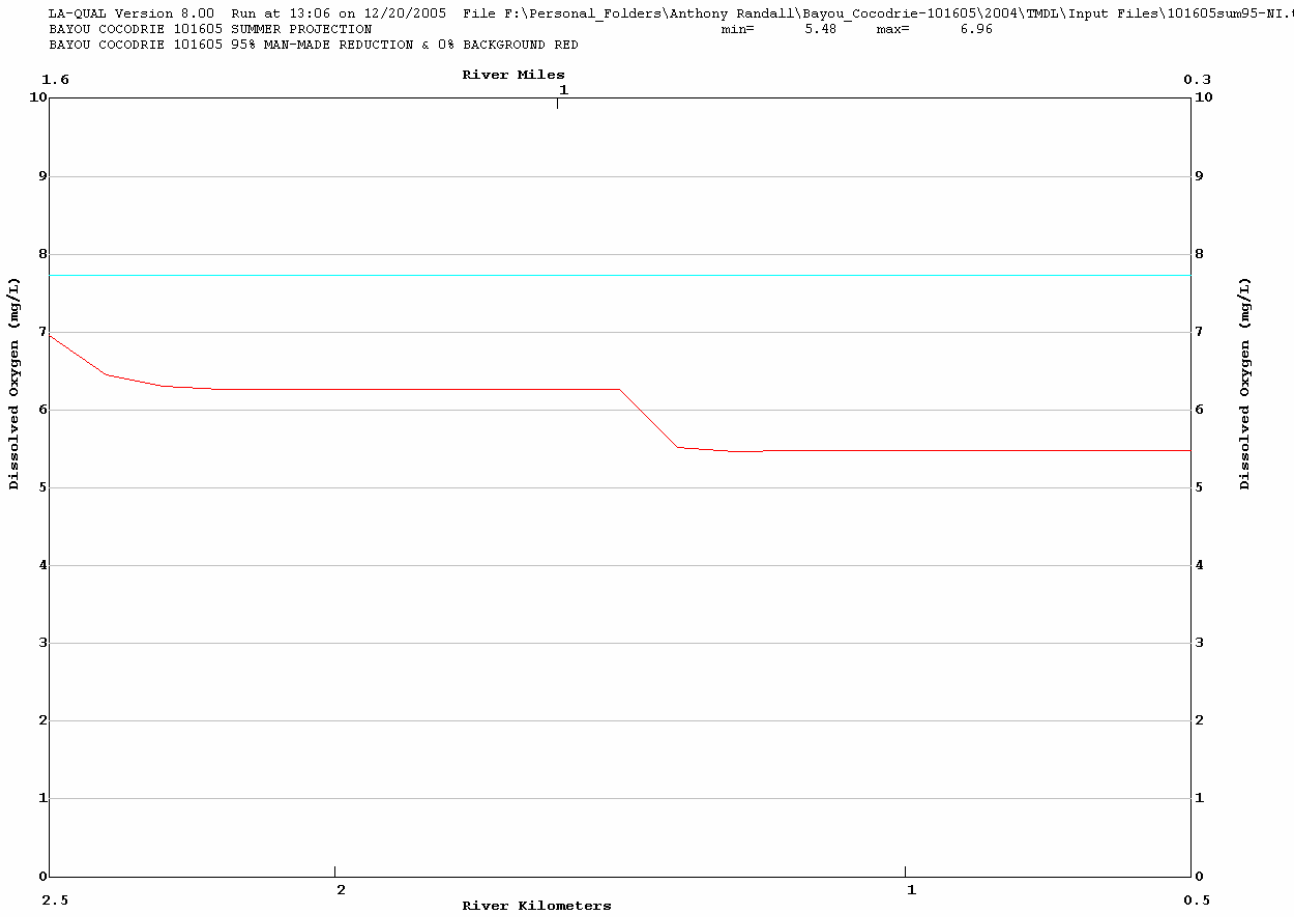
4.3.1 No Load Scenario

Under this Scenario, the SOD, NPS, headwater and wasteload values were reduced to reference stream values except where the calibration value was less than the reference stream value. The minimum DO is 6.74 mg/l. It is obvious that the current DO criterion should be reevaluated. This area is primarily forested with a large amount of groundwater inflow, making it predominately naturally distrophic.

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, a 95% reduction of total nonpoint sources is necessary. This means that no load allocations can be made for future growth. With these percentage reductions in the benthic oxygen loads, Bayou Cocodrie meets the dissolved oxygen criterion. The minimum DO on the main stem is 5.48 mg/L. A graph of the dissolved oxygen concentration versus river kilometer for the summer projection is presented in Figure 4.

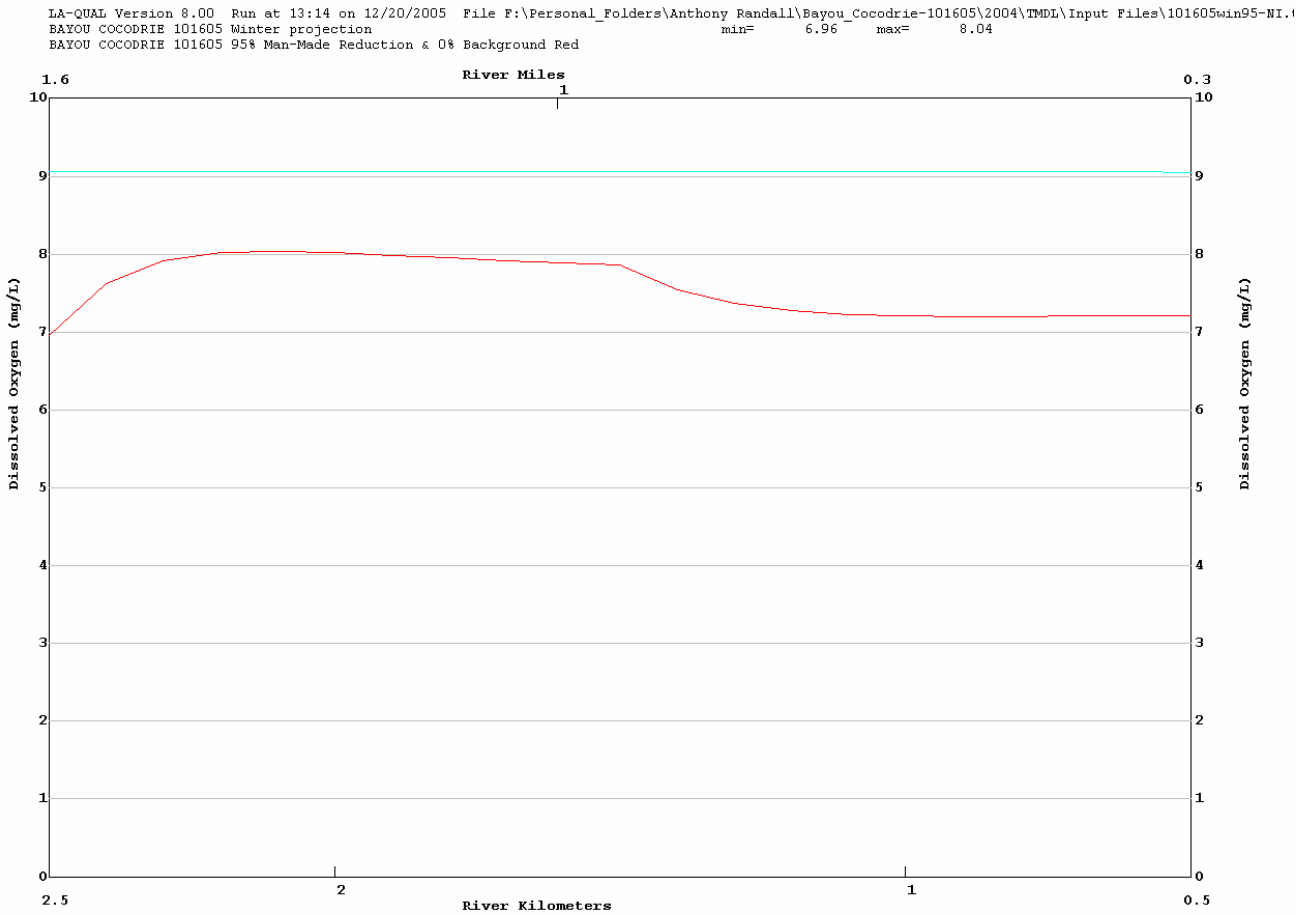
Figure 4. Summer Projection at 95% Removal of Man-Made NPS Loads



4.3.3 Winter Projection

The results of the model show that the water quality criterion for dissolved oxygen of Bayou Cocodrie of 5.0 mg/l can be maintained during the winter critical season. The minimum dissolved oxygen is 6.96 mg/l. This is acceptable. To achieve the criterion, the model assumed a 95% reduction from all manmade nonpoint sources. A graph of the dissolved oxygen concentration versus river kilometer for the winter projection is presented in Figure 5.

Figure 5. Winter Projection at 95% Removal of Man-Made NPS Loads



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 natural backgrounds benthic loading was estimated from reference stream resuspension (nonpoint CBOD and NBOD), and SOD load data.

4.4.1.2 The calibration man-made 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.
- The natural background benthic loading was subtracted from the calibration benthic loading to obtain the man-made calibration benthic loading.

4.4.1.3 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 CBOD, NBOD 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 natural background benthic load is subtracted from the projection benthic load to obtain the man-made projection benthic load for each reach.

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

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

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 Bayou Cocodrie, Subsegment 101605 TMDL

The TMDL for the biochemical oxygen demanding constituents (CBOD, NBOD, and SOD), have been calculated for the summer and winter critical seasons. The TMDL for the Bayou Cocodrie, Subsegment 101605 watershed were set equal to the total stream loading capacity. They are presented in Appendix A by reach. A summary of the loads is presented in Table 4.

Table 4. Total Maximum Daily Load (Sum of CBOD, NBOD, and SOD)

ALLOCATION	Summer	Winter
	May – Oct (lbs/day)	Nov - Apr (lbs/day)
Total Nonpoint Source LA	474	472
Future Growth Reserve (10%)	0	0
MOS (10%)	0	0
Total Nonpoint Reduction	95%	95%
TMDL	474	472

5. Sensitivity Analysis

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. The sensitivity of the model's minimum DO projections to these parameters is presented in Appendix I. Parameters were varied by +/- 30%, except temperature, which was adjusted +/- 2 degrees Centigrade.

Values reported in Appendix I are given by percentage variation of minimum DO in the main stem Bayou Cocodrie. As shown in Table 5, stream baseflow, stream velocity, SOD, headwater flow, incremental inflow, and incremental outflow are the parameters to which DO is most sensitive. The model is moderately sensitive to initial temperature, stream reaeration, headwater DO, and incremental DO. The model is slightly sensitive to the remaining parameters.

Table 5. 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	2.58	32.6	-30	0.51	-74.0
Initial Chlorophyll a	30	1.95	0.0	-30	1.95	0.0
Stream Velocity	30	2.31	18.6	-30	1.37	-29.8
Initial Temperature	2	1.64	-15.9	-2	2.24	15.1
BOD Decay Rate	30	1.89	-2.8	-30	2.01	2.9
BOD Settling Rate	30	1.95	0.2	-30	1.94	-0.3
NBOD Decay Rate	30	1.92	-1.7	-30	1.98	1.8
NBOD Settling Rate	30	1.95	0.1	-30	1.95	-0.1
Benthal Demand	30	1.39	-28.8	-30	2.54	30.2
Stream Dispersion	30	1.95	0.0	-30	1.95	0.0
Stream Reaeration	30	2.22	14.1	-30	1.66	-14.9
Headwater Flow	30	2.47	26.7	-30	1.34	-31.1
Headwater DO	30	2.32	19.2	-30	1.59	-18.2
Headwater BOD	30	1.92	-1.4	-30	1.98	1.3
Headwater NBOD	30	1.93	-0.8	-30	1.96	0.8
Stream Depth	30	1.83	-6.1	-30	2.10	7.5
Incremental Inflow	30	2.20	12.7	-30	1.45	-25.5
Incremental Outflow	30	1.44	-26.2	-30	2.29	17.4
Incremental Temperature	2	1.95	0.0	-2	1.95	0.0
Incremental DO	30	2.27	16.4	-30	1.64	-15.7
Incremental BOD	30	1.95	0.0	-30	1.95	0.0
Incremental NBOD	30	1.95	0.0	-30	1.95	0.0
Wasteload Flow	30	1.95	0.0	-30	1.95	0.0
Wasteload Temperature	2	1.95	0.0	-2	1.95	0.0
Wasteload DO	30	1.95	0.0	-30	1.95	0.0
Wasteload BOD	30	1.95	0.0	-30	1.95	0.0
Wasteload NBOD	30	1.95	0.0	-30	1.95	0.0
Lower Boundary Temperature	2	1.95	0.0	-2	1.95	0.0
Lower Boundary DO	30	1.95	0.0	-30	1.95	0.0
Lower Boundary BOD	30	1.95	0.0	-30	1.95	0.0
Lower Boundary NBOD	30	1.95	0.0	-30	1.95	0.0

6. Conclusions

The modeling, which has been conducted for this TMDL, is conservative and based on limited information. The TMDL requires a watershed-wide 95% decrease in total nonpoint source loads in order to meet the DO criterion of 5.0 mg/L in the summer critical season. The 95% decrease in loading will mean that no future allocations may be made to this subsegment without a standards

change. The high reduction of nonpoint loading indicates that a use-attainability analysis should be conducted for this subsegment to see if a standards change is indicated.

LDEQ has developed this TMDL to be consistent with the state antidegradation policy (LAC 33:IX.1109.A).

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 database 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 is continuing to implement a watershed approach to surface water quality monitoring. In 2004 a four year sampling cycle replaces the previous five year cycle. Approximately one quarter of the states watersheds will be sampled each year so that all of the state's watersheds will be sampled within the four year cycle. This will allow 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.

7. References

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8. Appendices

Appendix A - Detailed TMDL Analysis

Appendix A1 – Summer TMDL Summary

Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

Summer TMDL Summary:

BAYOU Cocodrie (SUBSEGMENT 101605)

Calculation of the TMDL - Kilograms per day

Load description	WLA (kg O_2/day)	CBOD1 LA (kg O_2/day)	CBOD2 LA (kg O_2/day)	Organic-N LA (kg/day)	Ammonia-N LA (kg/day)	NBOD LA (kg O_2/day)	SOD LA (kg O_2/day)	LA (kg O_2/day)	MOS Load (kg O_2/day)
Point Source loads	0								0
Headwater / Tributatary loads		1	0	0	0	0		1	0
Benthic loads		94	0	0	0	67	33	194	19
Incremental Loads		0	0	0	0	0		0	0
SUB-TOTAL	**0**	**95**	**0**	**0**	**0**	**67**	**33**	**195**	**19**
TMDL = WLA + LA + MOS								***214 kg/day***	

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

Calculation of the TMDL - Pounds per day

Load description	WLA (lbs O_2/day)	CBOD1 LA (lbs O_2/day)	CBOD2 LA (lbs O_2/day)	Organic-N LA (lbs/day)	Ammonia-N LA (lbs/day)	NBOD LA (lbs O_2/day)	SOD LA (lbs O_2/day)	LA (lbs O_2/day)	MOS Load (lbs O_2/day)
Point Source loads	0								0
Headwater / Tributatary loads		2	0	0	0	0		2	0
Benthic loads		207	0	0	0	148	73	428	42
Incremental Loads		0	0	0	0	0		0	0
SUB-TOTAL	**0**	**209**	**0**	**0**	**0**	**148**	**73**	**430**	**42**
TMDL = WLA + LA + MOS								***472 lb/day***	

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

Calculation of the TMDL - Kilograms per day

Load description	WLA (kg O_2/day)	CBOD1 LA (kg O_2/day)	CBOD2 LA (kg O_2/day)	Organic-N LA (kg/day)	Ammonia-N LA (kg/day)	NBOD LA (kg O_2/day)	SOD LA (kg O_2/day)	LA (kg O_2/day)	MOS Load (kg O_2/day)
Point Source loads	0								0
Natural Nonpoint Loads		57	0	0	0	44	20	121	
Manmade Nonpoint Loads		39	0	0	0	23	13	75	19
SUB-TOTAL	**0**	**96**	**0**	**0**	**0**	**67**	**33**	**196**	**19**
TMDL = WLA + LA + MOS								***215 kg/day***	

Calculation of the TMDL - Pounds per day

Load description	WLA (lbs O_2/day)	CBOD1 LA (lbs O_2/day)	CBOD2 LA (lbs O_2/day)	Organic-N LA (lbs/day)	Ammonia-N LA (lbs/day)	NBOD LA (lbs O_2/day)	SOD LA (lbs O_2/day)	LA (lbs O_2/day)	MOS Load (lbs O_2/day)
Point Source loads	0								0
Natural Nonpoint Loads		126	0	0	0	97	44	267	
Manmade Nonpoint Loads		86	0	0	0	51	29	165	42
SUB-TOTAL	**0**	**212**	**0**	**0**	**0**	**148**	**73**	**432**	**42**
TMDL = WLA + LA + MOS								***474 lb/day***	

Appendix A2 – Winter TMDL Summary

Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

Winter TMDL Summary:

BAYOU Cocodrie (SUBSEGMENT 101605)

Calculation of the TMDL - Kilograms per day

Load description	WLA (kg O_2/day)	CBOD1 LA (kg O_2/day)	CBOD2 LA (kg O_2/day)	Organic-N LA (kg/day)	Ammonia-N LA (kg/day)	NBOD LA (kg O_2/day)	SOD LA (kg O_2/day)	LA (kg O_2/day)	MOS Load (kg O_2/day)
Point Source loads	0								0
Headwater / Tributatary loads		12	0	0	0	4		16	0
Benthic loads		94	0	0	0	67	19	180	17
Incremental Loads		0	0	0	0	0		0	0
SUB-TOTAL	**0**	**106**	**0**	**0**	**0**	**71**	**19**	**196**	**17**
TMDL = WLA + LA + MOS								***213 kg/day***	

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

Calculation of the TMDL - Pounds per day

Load description	WLA (lbs O_2/day)	CBOD1 LA (lbs O_2/day)	CBOD2 LA (lbs O_2/day)	Organic-N LA (lbs/day)	Ammonia-N LA (lbs/day)	NBOD LA (lbs O_2/day)	SOD LA (lbs O_2/day)	LA (lbs O_2/day)	MOS Load (lbs O_2/day)
Point Source loads	0								0
Headwater / Tributatary loads		26	0	0	0	9		35	0
Benthic loads		207	0	0	0	148	42	397	37
Incremental Loads		0	0	0	0	0		0	0
SUB-TOTAL	**0**	**233**	**0**	**0**	**0**	**157**	**42**	**432**	**37**
TMDL = WLA + LA + MOS								***469 lb/day***	

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

Calculation of the TMDL - Kilograms per day

Load description	WLA (kg O_2/day)	CBOD1 LA (kg O_2/day)	CBOD2 LA (kg O_2/day)	Organic-N LA (kg/day)	Ammonia-N LA (kg/day)	NBOD LA (kg O_2/day)	SOD LA (kg O_2/day)	LA (kg O_2/day)	MOS Load (kg O_2/day)
Point Source loads	0								0
Natural Nonpoint Loads		67	0	0	0	47	12	126	
Manmade Nonpoint Loads		40	0	0	0	23	8	71	17
SUB-TOTAL	**0**	**107**	**0**	**0**	**0**	**70**	**20**	**197**	**17**
TMDL = WLA + LA + MOS								***214 kg/day***	

Calculation of the TMDL - Pounds per day

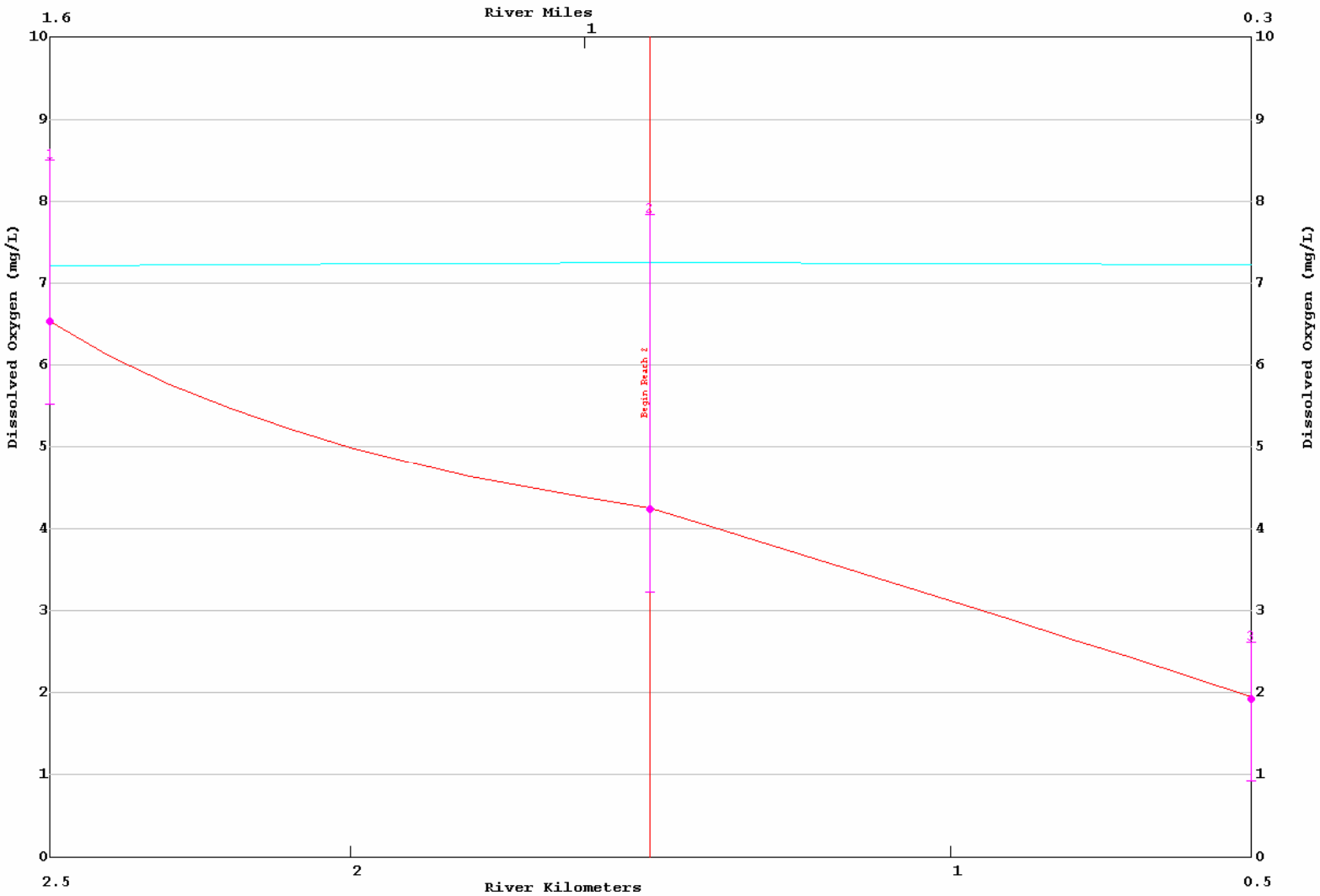
Load description	WLA (lbs O_2/day)	CBOD1 LA (lbs O_2/day)	CBOD2 LA (lbs O_2/day)	Organic-N LA (lbs/day)	Ammonia-N LA (lbs/day)	NBOD LA (lbs O_2/day)	SOD LA (lbs O_2/day)	LA (lbs O_2/day)	MOS Load (lbs O_2/day)
Point Source loads	0								0
Natural Nonpoint Loads		148	0	0	0	104	26	278	
Manmade Nonpoint Loads		88	0	0	0	51	18	157	37
SUB-TOTAL	**0**	**236**	**0**	**0**	**0**	**155**	**44**	**435**	**37**
TMDL = WLA + LA + MOS								***472 lb/day***	

Appendix B – Calibration Model Input and Output Data Sets

Appendix B1 – Calibration Output and Graphs

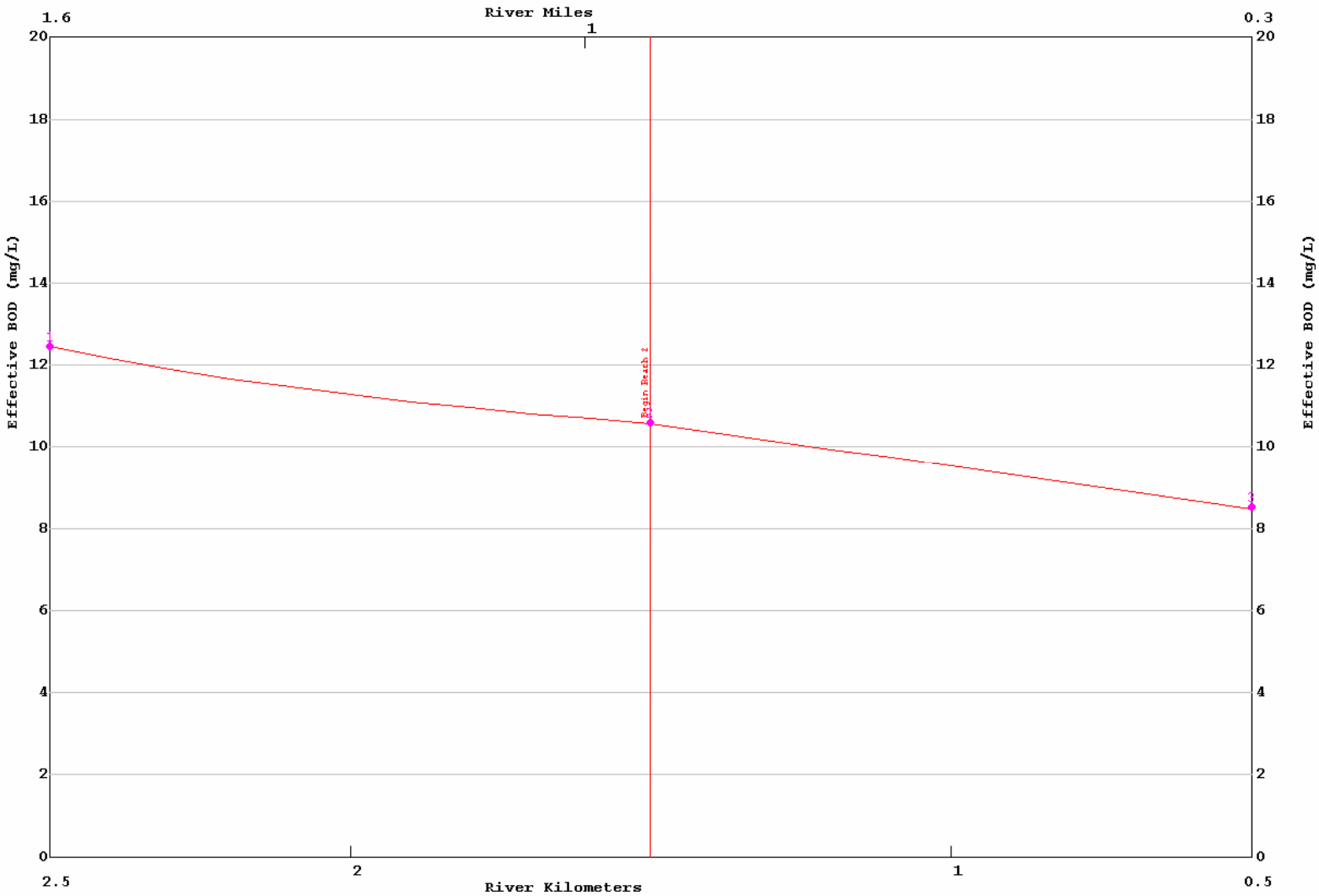
Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

LA-QUAL Version 8.00 Run at 15:36 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605calb2.txt
BAYOU COCODRIE 101605 CALIBRATION RUN min= 1.95 max= 6.53
MAINSTEM



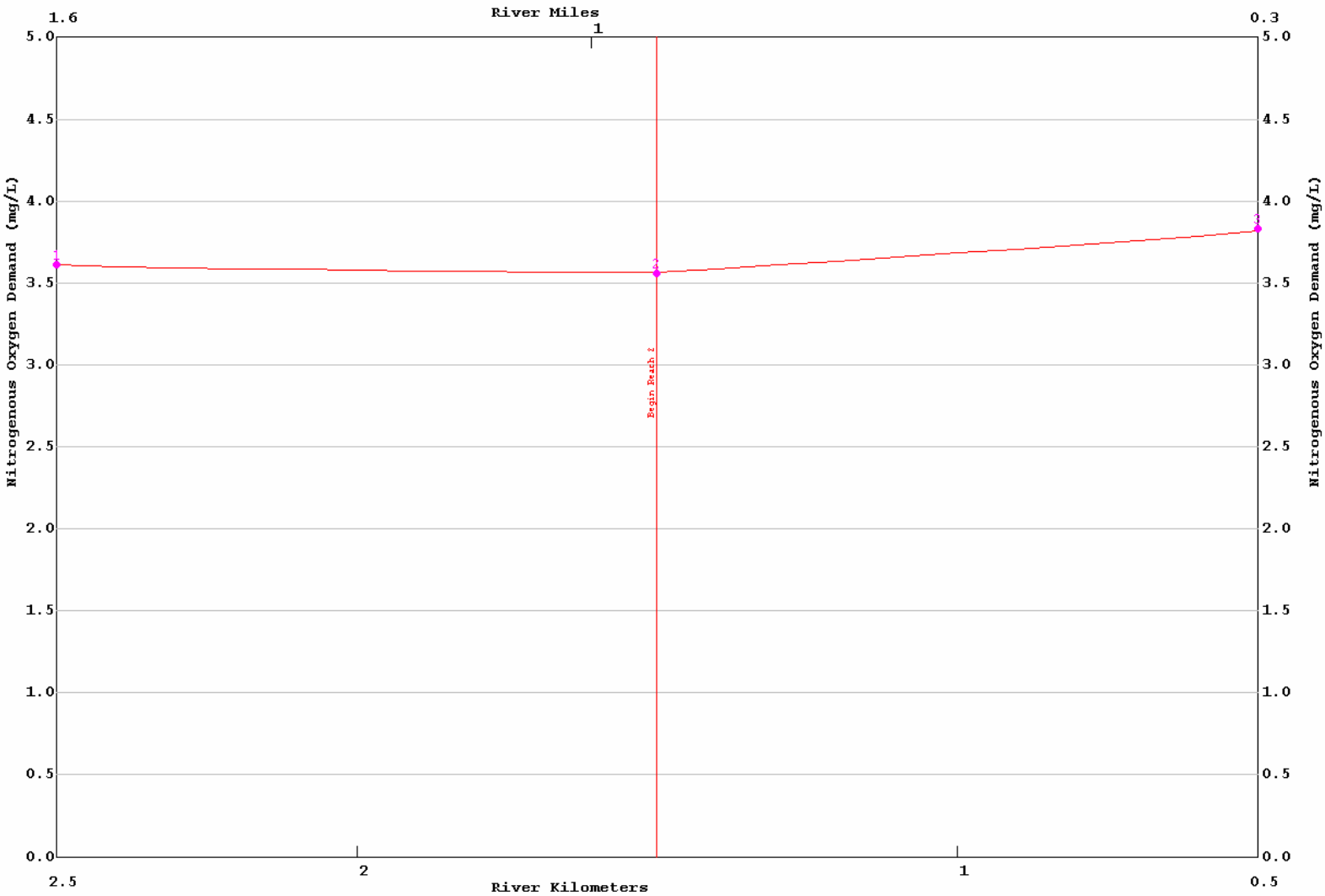
Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

LA-QUAL Version 8.00 Run at 15:36 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605calb2.txt
BAYOU COCODRIE 101605 CALIBRATION RUN min= 8.47 max= 12.46
MAINSTEM



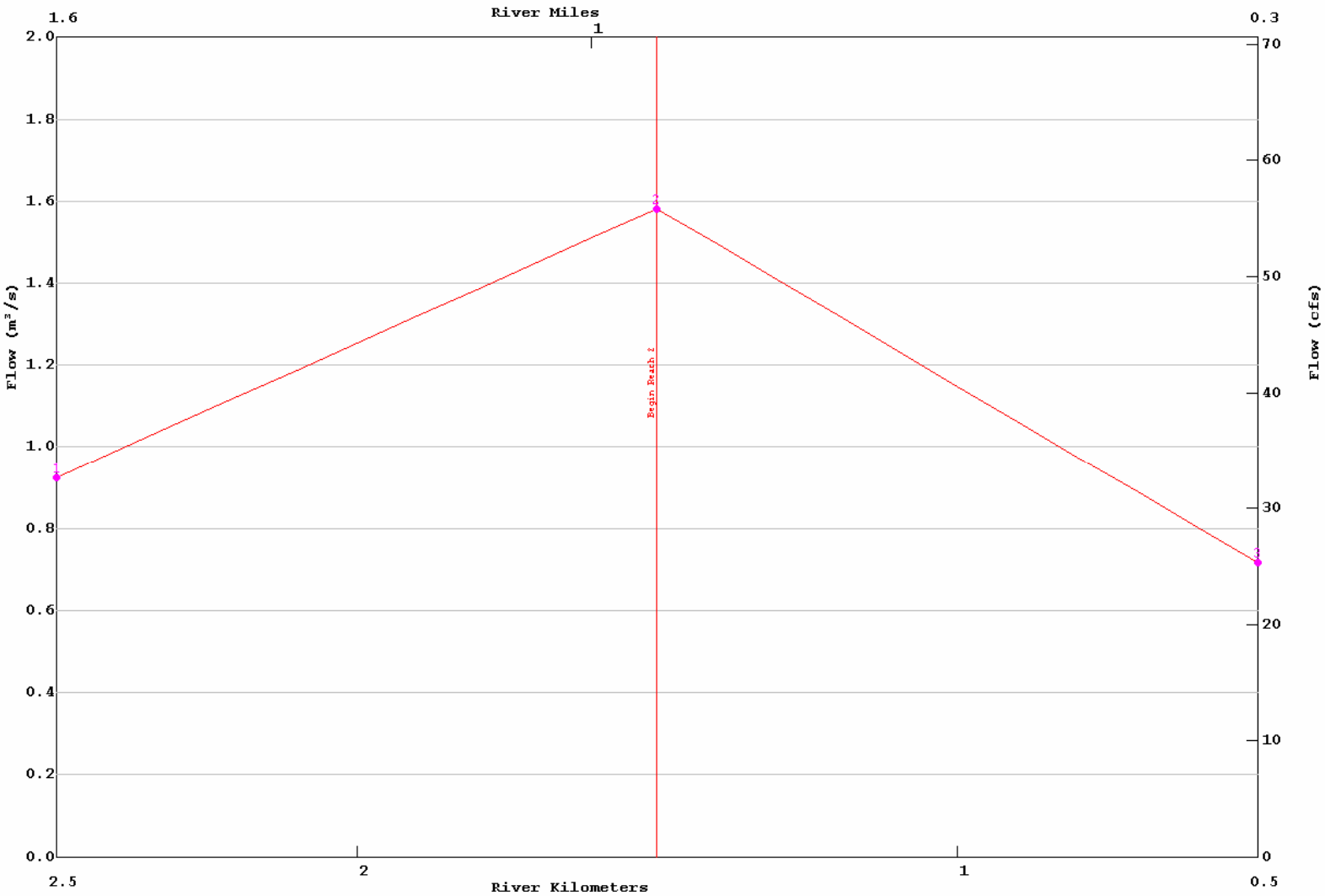
Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

LA-QUAL Version 8.00 Run at 15:36 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605calb2.txt
BAYOU COCODRIE 101605 CALIBRATION RUN min= 3.56 max= 3.82
MAINSTEM



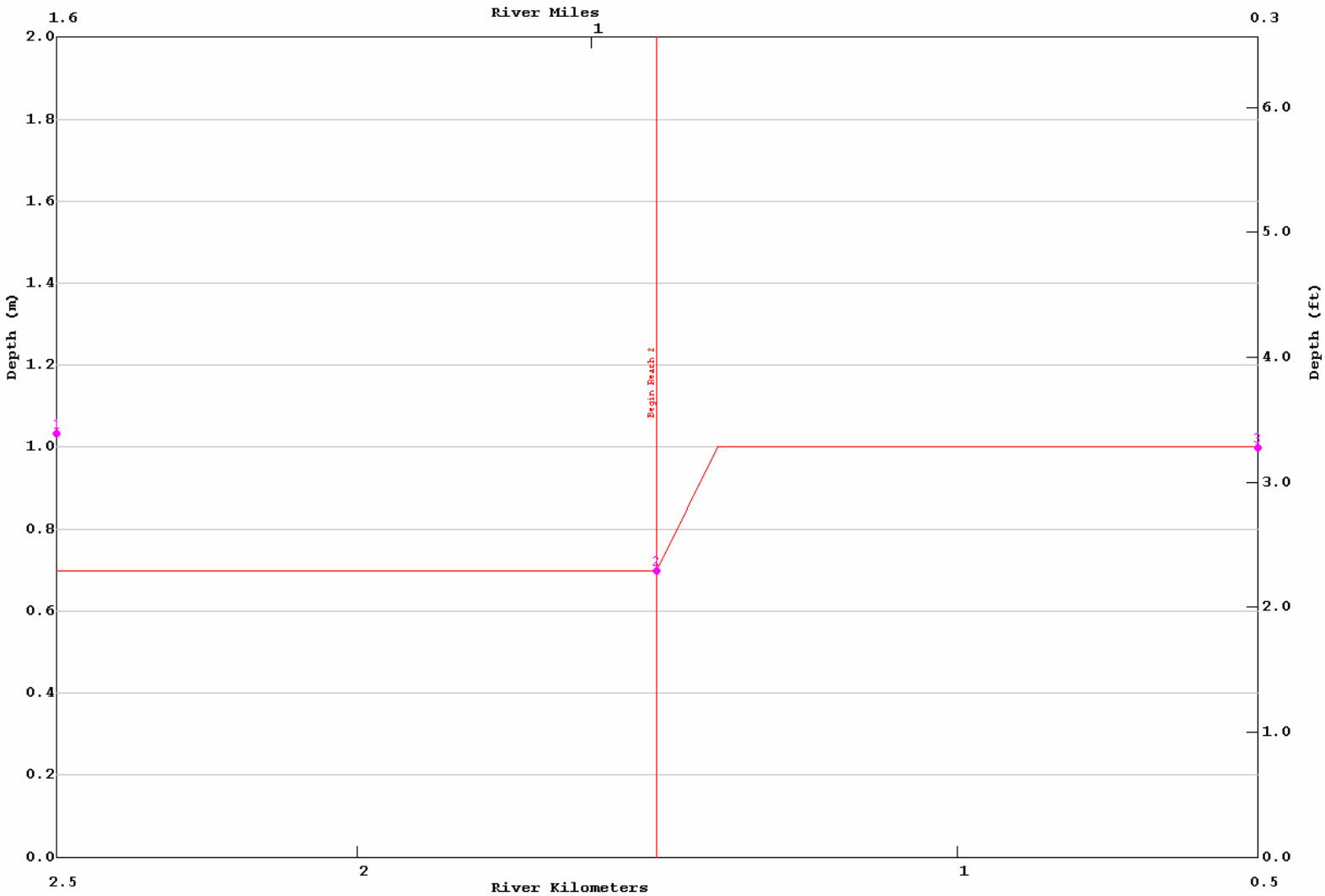
Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

LA-QUAL Version 8.00 Run at 15:36 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605calb2.txt
BAYOU COCODRIE 101605 CALIBRATION RUN min= 0.72 max= 1.58
MAINSTEM



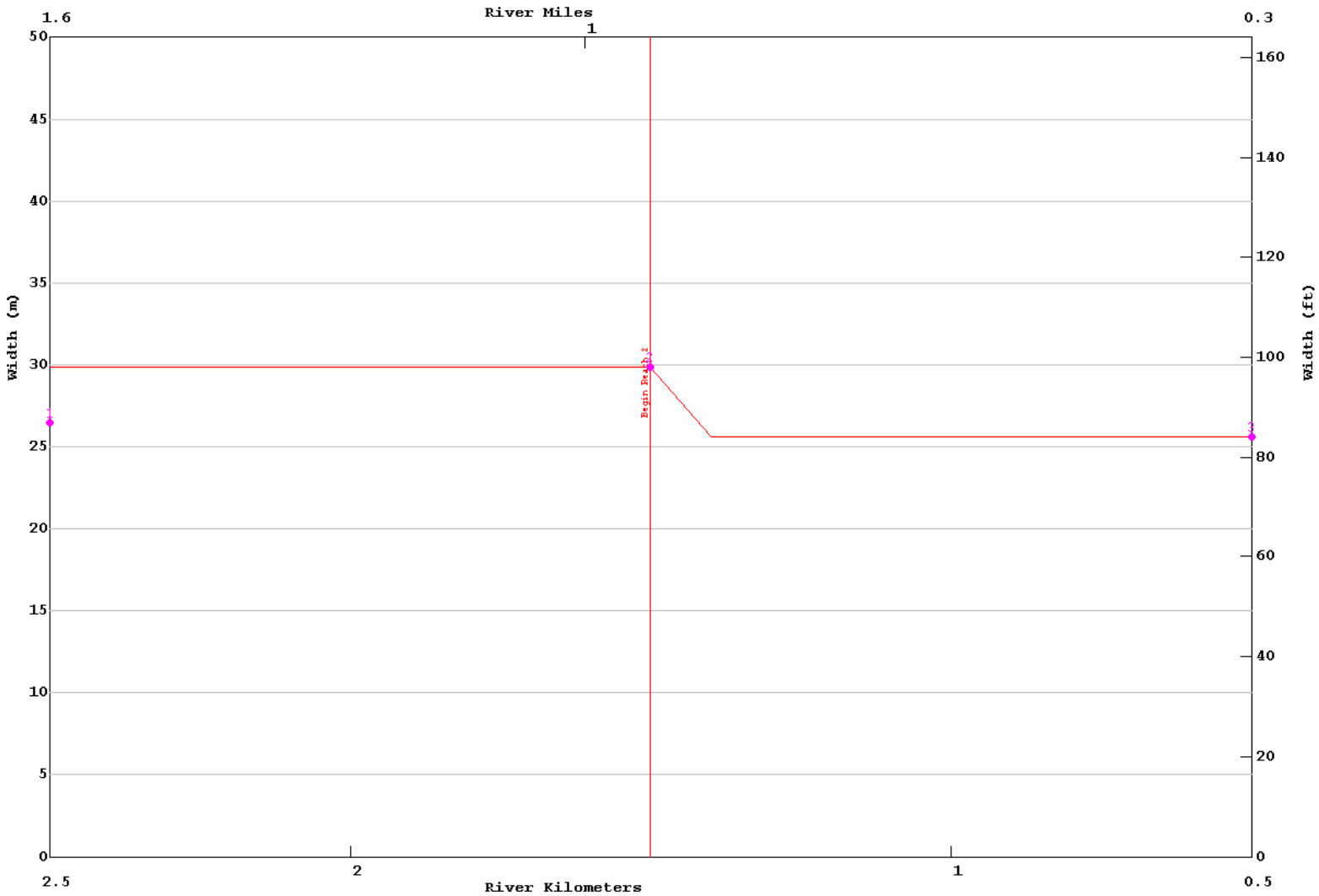
Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

LA-QUAL Version 8.00 Run at 15:36 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605calb2.txt
BAYOU COCODRIE 101605 CALIBRATION RUN min= 0.70 max= 1.00
MAINSTEM



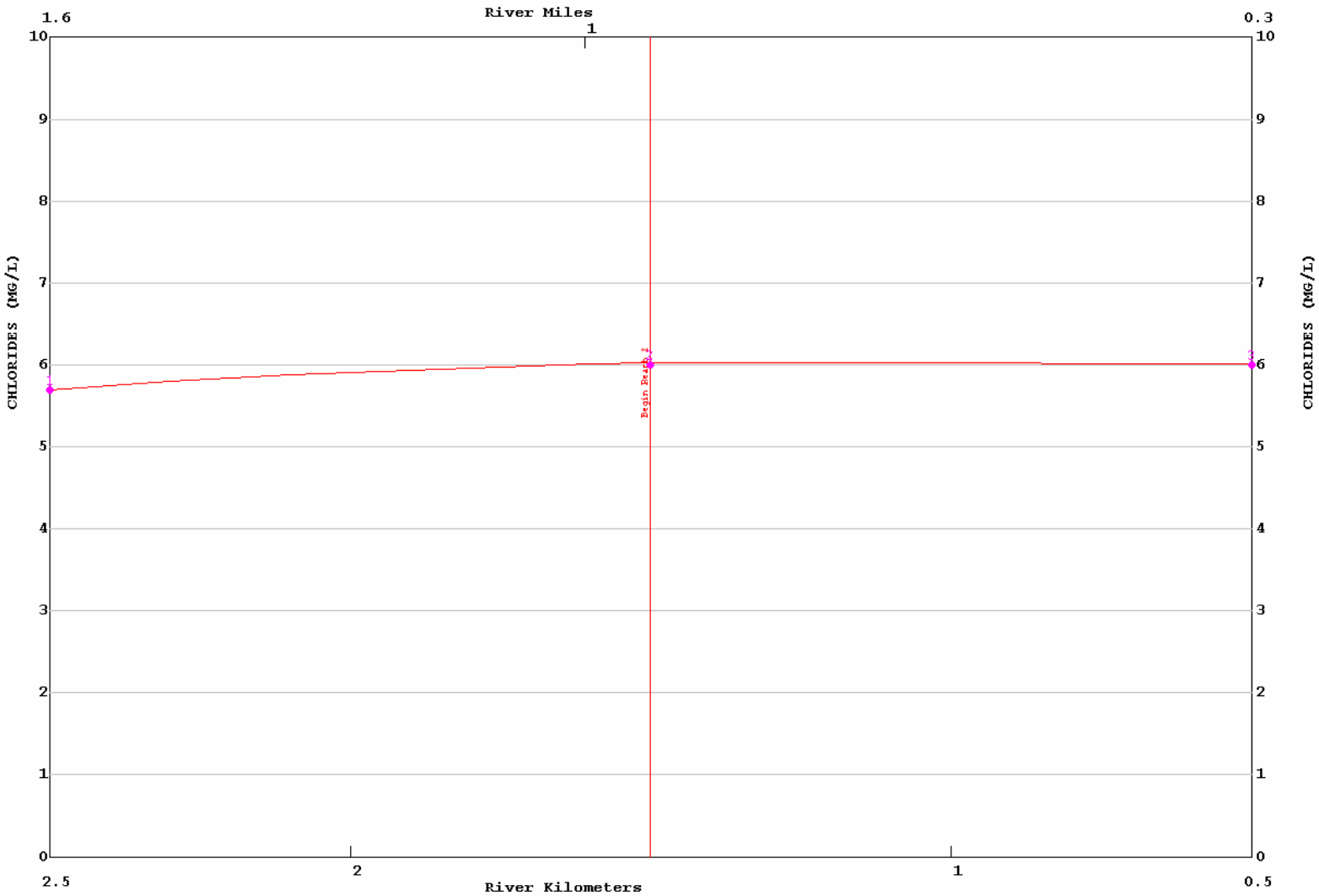
Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

LA-QUAL Version 8.00 Run at 15:36 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605calb2.txt
BAYOU COCODRIE 101605 CALIBRATION RUN min= 25.60 max= 29.87
MAINSTEM



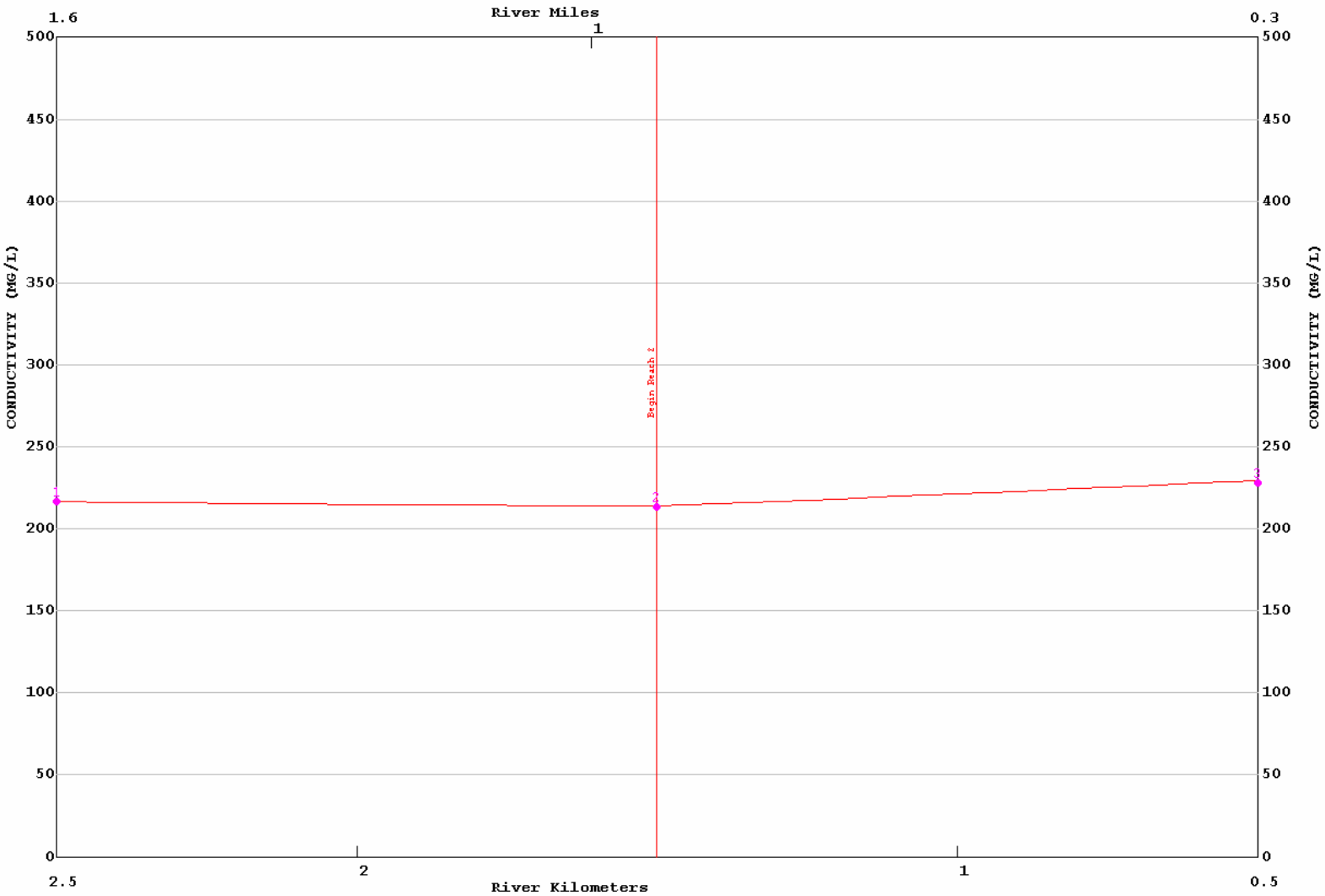
Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

LA-QUAL Version 8.00 Run at 15:36 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605calb2.txt
BAYOU COCODRIE 101605 CALIBRATION RUN min= 5.70 max= 6.03
MAINSTEM



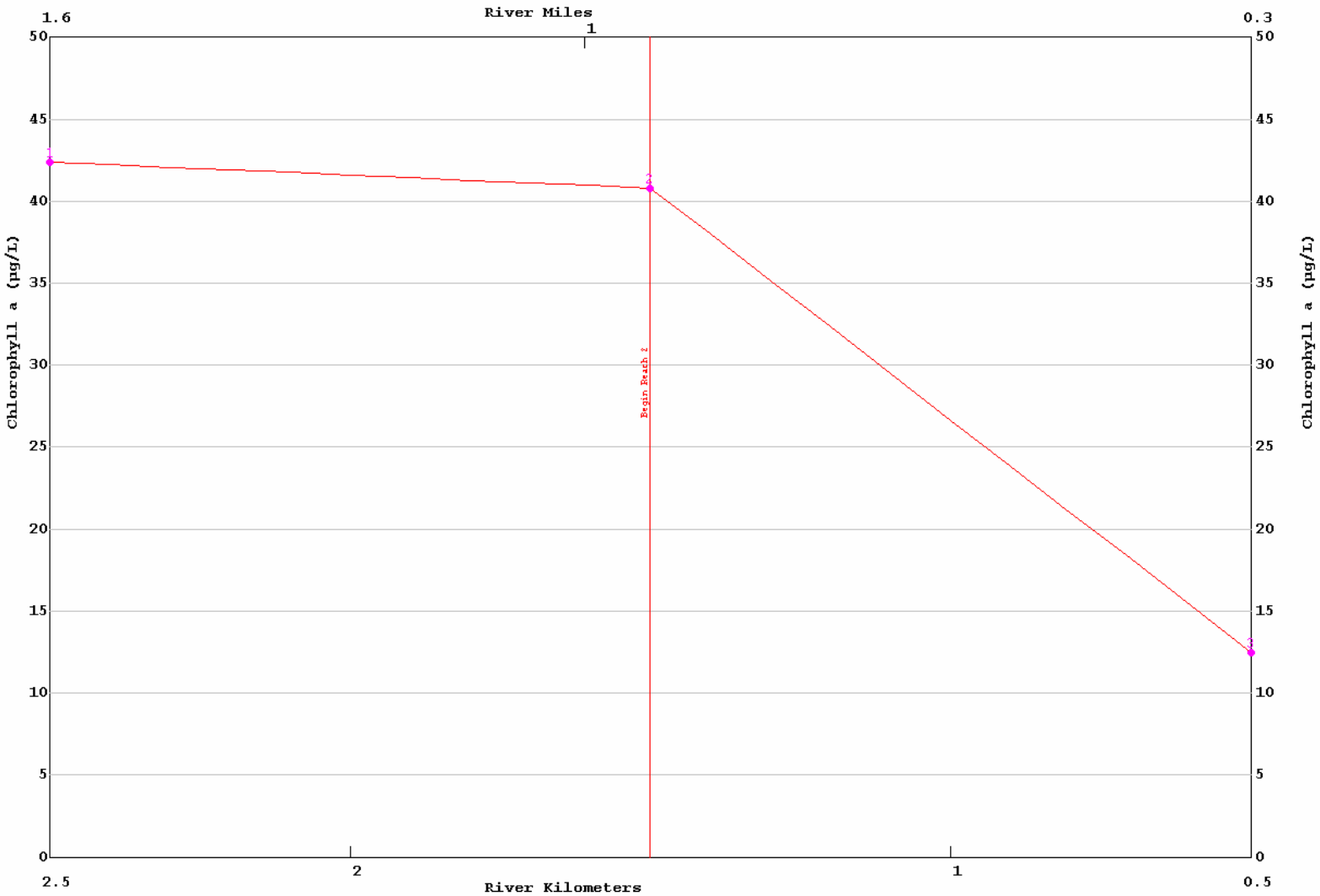
Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

LA-QUAL Version 8.00 Run at 15:36 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605calb2.txt
BAYOU COCODRIE 101605 CALIBRATION RUN min= 213.63 max= 229.23
MAINSTEM



Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

LA-QUAL Version 8.00 Run at 15:36 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605calb2.txt
BAYOU COCODRIE 101605 CALIBRATION RUN min= 12.50 max= 42.40
MAINSTEM



Bayou Cocodrie 101605 Calibration Input Data Set

```
CNTROL01     BAYOU COCODRIE 101605
CNTROL02     BAYOU COCODRIE 101605 CALIBRATION RUN
CNTROL04 YES METRIC UNITS
ENDATA01
MODOPT01  NO TEMPERATURE
MODOPT02  NO SALINITY
MODOPT03 YES CONSERVATIVE MATERIAL  I = CHLORIDES                 IN MG/L
MODOPT04 YES CONSERVATIVE MATERIAL II = CONDUCTIVITY              IN MG/L
MODOPT05 YES DISSOLVED OXYGEN
MODOPT06 YES BOD1 BIOCHEMICAL OXYGEN DEMAND
MODOPT07  NO BOD2 BIOCHEMICAL OXYGEN DEMAND
MODOPT08 YES NBOD OXYGEN DEMAND
MODOPT10  NO PHOSPHORUS
MODOPT11  NO CHLOROPHYLL A
MODOPT12  NO MACROPHYTES
MODOPT13  NO COLIFORM
ENDATA02
PROGRAM  KL MINIMUM                        =     0.7
PROGRAM  INHIBITION CONTROL VALUE          =     3.
PROGRAM  HYDRAULIC CALCULATION METHOD      =     2.
PROGRAM  SETTLING RATE UNITS               =     2.
PROGRAM  ALGAE OXYGEN PROD                 =     0.
PROGRAM  EFFECTIVE BOD DUE TO ALGAE        =     0.15
ENDATA03
!Temperature Correction Constants
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ******** ********
ENDATA04
ENDATA05
ENDATA06
ENDATA07
!Reach Identification Data
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -- ********************************----------**********----------
!          R#  ID   SITE NAME                          RKM        RKM   LENGTH
REACH ID    1  PC HEADWATER BYCOC 1 - BYCOC 2          2.5        1.5     0.1
REACH ID    2  PC BYCOC 2 - BYCOC 3                    1.5        0.5     0.1
```

```
ENDATA08
!Advective Hydraulic Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------*******-------*******-------*******-------*******
!                a      b       c     d      e        f
!               WIDTH  WIDTH   WIDTH DEPTH  DEPTH   DEPTH
!          R#   COEFF   EXP    CONST COEFF   EXP    CONST SLOPE MANNING
HYDR-1      1   0.00   0.20   29.870 0.00   0.30    0.698
HYDR-1      2   0.00   0.20   25.603 0.00   0.30    1.000
ENDATA09
!Dispersive Hydraulic Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -----**********----------**********----------
!              TIDAL
!          R#  RANGE    a          b         c         d
ENDATA10
!Initial Conditions
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  --------********--------********--------********--------********
!          R#    TEMP  SALINITY   DO     NH3 N  NIT NIT  PHOS   CHL A   MACROPHYTES
INITIAL     1    32.73           5.38                           42.4
INITIAL     2    32.44           3.08                           40.8
ENDATA11
!Reaeration, Sediment Oxygen Demand and BOD Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8---------9
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -----******----- ******-------*******-------*******-------*******-------***
!                                             BOD 1  BOD 1               BOD 2    BOD 2
!          R#  REA  KL MIN               SOD  DECAY  SETT                DECAY    SETT
COEF-1      1  11.00                     1.50 0.0896 0.30
COEF-1      2  11.00                     4.50 0.0864 0.45
ENDATA12
!Nitrogen and Phosphorus Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------*******-------*******-------*******-------
!              NBOD     NBOD
!          R#  DECAY    SETT
```

```
COEF-2      1  0.0712   0.20
COEF-2      2  0.0818   0.20
ENDATA13
ENDATA14
!Coliform and Nonconservative Cofficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------*******-------*******
ENDATA15
!Incremental Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------*********
!          R#   OUTFLOW   INFLOW  TEMP     SALINITY CHLORIDE  COND
INCR-1      1    0.0000   0.6567  32.730     0.1      6.50    210.00
INCR-1      2   -1.5230   0.6567  32.440     0.1      6.00    250.00
ENDATA16
!Incremental Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------*********
!          R#      DO     BOD 1     NBOD    NH3 N   NIT NIT    BOD 2
INCR-2      1     2.00
INCR-2      2     2.00
ENDATA17
!Incremental Data for Phosphorus, Chlorophyll, Coliform and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********
!          R#   PHOSPH    CHL A   COLIFORM NONCONSERVATIVE
INCR-3      1              42.4
INCR-3      2              40.8
ENDATA18
!Nonpoint Source Data
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------*********
!          R#     BOD 1    NBOD   COLIFORM NONCONS    DO      BOD 2
NONPOINT    1     180.0    230.0
NONPOINT    2     650.0    275.0
ENDATA19
```

```
!Headwater Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  -------------------- *** --------********--------********--------
!         E#    NAME                      FLOW    TEMP  SALIN   CHLORIDE   COND
HDWTR-1     1  HEADWATER             0.  0.9252  32.89  0.1       5.7      216.2
ENDATA20
!Headwater Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------********---------********---------********
!          E#      DO      BOD 1    NBOD    NH3 N    NIT NIT  BOD 2
HDWTR-2     1      6.53    12.46    3.61
ENDATA21
!Headwater Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------********---------********
!          E#  PHOSPHOR   CHL A   COLIFORM  NONCONSERVATIVE
HDWTR-3     1              42.4
ENDATA22
ENDATA23
!Wasteload Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  --------------------********---------********---------********
!          E#     NAME               FLOW      TEMP   SALINITY CHLORIDE  COND
ENDATA24
!Wasteload Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------********-----********---------*****---------********
!          E#       DO    BOD 1         NBOD    NH3 N          NIT NIT  BOD 2
ENDATA25
!Wasteload Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------********---------********
!          E#  PHOSPHOR  CHL A    COLIFORM NONCONSERVATIVE
ENDATA26
LOWER BC TEMPERATURE                        =  32.59
```

```
LOWER BC SALINITY                           =   0.11
LOWER BC CONSERVATIVE MATERIAL I            =   6.50
LOWER BC CONSERVATIVE MATERIAL II           = 227.40
LOWER BC DISSOLVED OXYGEN                   =   1.56
LOWER BC BOD1 BIOCHEMICAL OXYGEN DEMAND     =   8.50
LOWER BC NBOD                               =   3.75
LOWER BC CHLOROPHYLL A                      =  12.50
ENDATA27
!Dam Data
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ******************** ** ******** ******** ********
ENDATA28
ENDATA29
NUMBER OF PLOTS = 1
NUMBER OF REACHES IN PLOT 1 =   2                        INCREMENT =  0.1
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** **
PLOT RCH  1  2
ENDATA30
OVERLAY 1 101605ovl.txt                   :MAINSTEM
ENDATA31
```

Bayou Cocodrie 101605 Calibration Output Data Set

```
LA-QUAL Version 8.00
Louisiana Department of Environmental Quality

Input file is F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605calb2.txt
Output produced at 11:01 on 12/21/2005

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

CARD TYPE       CONTROL TITLES

TITLE01         BAYOU COCODRIE 101605
TITLE02         BAYOU COCODRIE 101605 CALIBRATION RUN
CNTROL04  YES   METRIC UNITS
ENDATA01
```

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

CARD TYPE       MODEL OPTION

MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL  I = CHLORIDES                 IN MG/L
MODOPT04  YES   CONSERVATIVE MATERIAL II = CONDUCTIVITY               IN MG/L
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BOD1 BIOCHEMICAL OXYGEN DEMAND
MODOPT07   NO   BOD2 BIOCHEMICAL OXYGEN DEMAND
MODOPT08  YES   NBOD OXYGEN DEMAND
MODOPT10   NO   PHOSPHORUS
MODOPT11   NO   CHLOROPHYLL A
MODOPT12   NO   MACROPHYTES
MODOPT13   NO   COLIFORM
ENDATA02

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

CARD TYPE       DESCRIPTION OF CONSTANT                       VALUE

PROGRAM         KL MINIMUM                        =         0.70000 meters/day
PROGRAM         INHIBITION CONTROL VALUE          =         3.00000 (inhibit all rates but SOD)
PROGRAM         HYDRAULIC CALCULATION METHOD      =         2.00000 (widths and depths)
PROGRAM         SETTLING RATE UNITS               =         2.00000 (values entered as per day)
PROGRAM         ALGAE OXYGEN PROD                 =         0.00000 mg O/ug chl a/day
PROGRAM         EFFECTIVE BOD DUE TO ALGAE        =         0.15000 mg/L BOD per ug/L chl a
ENDATA03

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

 CARD TYPE     RATE CODE     THETA VALUE

ENDATA04

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

CARD TYPE       DESCRIPTION OF CONSTANT                       VALUE

ENDATA05
```

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

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA06

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

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA07

$$$ DATA TYPE 8 (REACH IDENTIFICATION DATA) $$$
                                                        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   PC  HEADWATER BYCOC 1 - BYCOC 2        2.50  TO    1.50   0.1000     1.00      10        1     10
REACH ID      2   PC  BYCOC 2 - BYCOC 3                  1.50  TO    0.50   0.1000     1.00      10       11     20
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   PC       0.000       0.200      29.870       0.000       0.300       0.698     0.00000   0.000
HYDR-1        2   PC       0.000       0.200      25.603       0.000       0.300       1.000     0.00000   0.000
ENDATA09

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

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

ENDATA10

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

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

```
INITIAL           1   PC       32.73      0.00      5.38      0.00      0.00      0.00     42.40      0.00
INITIAL           2   PC       32.44      0.00      3.08      0.00      0.00      0.00     40.80      0.00
ENDATA11

$$$ DATA TYPE 12 (REAERATION, SEDIMENT OXYGEN DEMAND, BOD COEFFICIENTS) $$$
                                                                                                  BOD     ANAER                          BOD2
ANAER
CARD     RCH  RCH  K2                    K2        K2        K2    BKGRND       BOD       BOD      CONV      BOD2      BOD2      BOD2      CONV
BOD2
TYPE     NUM   ID  OPT                  "A"       "B"       "C"       SOD     DECAY      SETT    TO SOD     DECAY     DECAY      SETT    TO SOD
DECAY
                                                                  g/m²/d   per day       m/d             per day   per day       m/d
per day

COEF-1     1   PC  11 TEXAS           0.000     0.000     0.000     1.500     0.090     0.300     0.000     0.000     0.000     0.000     0.000
0.000
COEF-1     2   PC  11 TEXAS           0.000     0.000     0.000     4.500     0.086     0.450     0.000     0.000     0.000     0.000     0.000
0.000
ENDATA12

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

CARD TYPE      REACH  ID        NBOD      NBOD   ORGN CONV       NH3       NH3      PHOS     DENIT
                                DECA      SETT  TO NH3 SRCE     DECA      SRCE      SRCE      RATE

COEF-2           1   PC       0.071     0.200     0.000       0.000     0.000     0.000     0.000
COEF-2           2   PC       0.082     0.200     0.000       0.000     0.000     0.000     0.000
ENDATA13

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

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

ENDATA14

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

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

```
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   PC       0.00000     0.65670     32.73      0.10      6.50    210.00   0.65670   0.00000
INCR-1           2   PC      -1.52300     0.65670     32.44      0.10      6.00    250.00   0.65670  -1.52300
ENDATA16

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

CARD TYPE      REACH  ID          DO       BOD      NBOD                          BOD#2

INCR-2           1   PC        2.00      0.00      0.00      0.00      0.00      0.00
INCR-2           2   PC        2.00      0.00      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   PC        0.00     42.40      0.00      0.00
INCR-3           2   PC        0.00     40.80      0.00      0.00
ENDATA18

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

CARD TYPE      REACH  ID       BOD#1     NBOD       COLI       NCM        DO     BOD#2

NONPOINT         1   PC      180.00    230.00      0.00      0.00      0.00      0.00
NONPOINT         2   PC      650.00    275.00      0.00      0.00      0.00      0.00
ENDATA19

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

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

HDWTR-1          1     HEADWATER               0   0.92520   32.669   32.89     0.10     5.700   216.200
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ENDATA20

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

CARD TYPE     ELEMENT   NAME                          DO     BOD#1     NBOD                          BOD#2
                                                    mg/L      mg/L      mg/L      mg/L      mg/L      mg/L

HDWTR-2           1     HEADWATER                   6.53     12.46      3.61      0.00      0.00      0.00
ENDATA21

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

CARD TYPE     ELEMENT   NAME                         PHOS     CHL A      COLI       NCM
                                                    mg/L      mg/L      mg/L      mg/L

HDWTR-3           1     HEADWATER                    0.00     42.40      0.00      0.00
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       FLOW     FLOW    TEMP    SALIN      CM-I     CM-II
                                                      m³/s        cfs      MGD   deg C      ppt      MG/L      MG/L

ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$
                                                                  % BOD                          %
CARD TYPE     ELEMENT   NAME                          DO       BOD      RMVL     NBOD                NITRIF                BOD#2
                                                    mg/L      mg/L                mg/L      mg/L                mg/L      mg/L

ENDATA25

$$$ DATA TYPE 26 (WASTELOAD DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES) $$$
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```
CARD TYPE     ELEMENT   NAME                        PHOS     CHL A      COLI       NCM
                                                    mg/L      mg/L      mg/L      mg/L

ENDATA26

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

CARD TYPE    CONSTITUENT                    CONCENTRATION

LOWER BC     TEMPERATURE                       =     32.590     deg C
LOWER BC     SALINITY                          =      0.110     ppt
LOWER BC     CONSERVATIVE MATERIAL I           =      6.500     MG/L
LOWER BC     CONSERVATIVE MATERIAL II          =    227.400     MG/L
LOWER BC     DISSOLVED OXYGEN                  =      1.560     mg/L
LOWER BC     BOD1 BIOCHEMICAL OXYGEN DEMAND    =      8.500     mg/L
LOWER BC     NBOD                              =      3.750     mg/L
LOWER BC     CHLOROPHYLL A                     =     12.500     µg/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 =   2
PLOT RCH  1  2
ENDATA30

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

```
OVERLAY 1 101605ovl.txt                    :MAINSTEM
ENDATA31


     .....NO ERRORS DETECTED IN INPUT DATA
     .....HYDRAULIC CALCULATIONS COMPLETED
     .....TRIDIAGONAL MATRIX TERMS INITIALIZED
     .....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
     .....CONSTITUENT CALCULATIONS COMPLETED
     .....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 11


INTERMEDIATE REPORT
 Dissolved Oxygen                                                BAYOU COCODRIE 101605
     mg/L                                                        BAYOU COCODRIE 101605 CALIBRATION RUN


  ID   RCH  ELEM         +0        +1        +2        +3        +4        +5        +6        +7        +8        +9

  PC     1     1        6.12      5.77      5.47      5.22      5.00      4.81      4.64      4.49      4.37      4.25
  PC     2    11        4.03      3.80      3.57      3.35      3.12      2.89      2.66      2.42      2.19      1.95


INTERMEDIATE REPORT
 Effective BOD                                                   BAYOU COCODRIE 101605
     mg/L                                                        BAYOU COCODRIE 101605 CALIBRATION RUN


  ID   RCH  ELEM         +0        +1        +2        +3        +4        +5        +6        +7        +8        +9

  PC     1     1       12.16     11.90     11.67     11.46     11.28     11.11     10.96     10.82     10.69     10.57
  PC     2    11       10.36     10.15      9.94      9.73      9.52      9.31      9.10      8.89      8.68      8.47


INTERMEDIATE REPORT
 Biochemical Oxygen Demand                                       BAYOU COCODRIE 101605
     mg/L                                                        BAYOU COCODRIE 101605 CALIBRATION RUN
```

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	5.83	5.59	5.38	5.20	5.04	4.90	4.77	4.65	4.55	4.45
PC	2	11	4.67	4.88	5.10	5.31	5.53	5.74	5.96	6.17	6.38	6.60

INTERMEDIATE REPORT
Nitrogenous Oxygen Demand
mg/L

BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	3.60	3.59	3.59	3.58	3.58	3.58	3.57	3.57	3.57	3.56
PC	2	11	3.59	3.61	3.63	3.66	3.68	3.71	3.73	3.76	3.79	3.82

INTERMEDIATE REPORT
Chlorophyll a
µg/L

BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	42.24	42.08	41.92	41.76	41.60	41.44	41.28	41.12	40.96	40.80
PC	2	11	37.97	35.14	32.31	29.48	26.65	23.82	20.99	18.16	15.33	12.50

INTERMEDIATE REPORT
Temperature
deg C

BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	32.70	32.67	32.64	32.61	32.58	32.56	32.53	32.50	32.47	32.44
PC	2	11	32.45	32.47	32.49	32.50	32.51	32.53	32.54	32.56	32.58	32.59

INTERMEDIATE REPORT
Salinity

BAYOU COCODRIE 101605

ppt BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PC	2	11	0.01	0.02	0.03	0.04	0.05	0.07	0.08	0.09	0.10	0.11

INTERMEDIATE REPORT
CHLORIDES BAYOU COCODRIE 101605
MG/L BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	5.75	5.80	5.84	5.88	5.91	5.94	5.97	5.99	6.01	6.03
PC	2	11	6.03	6.03	6.03	6.03	6.03	6.02	6.02	6.02	6.02	6.02

INTERMEDIATE REPORT
CONDUCTIVITY BAYOU COCODRIE 101605
MG/L BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	215.79	215.43	215.11	214.83	214.58	214.35	214.14	213.95	213.78	213.63
PC	2	11	215.08	216.55	218.04	219.55	221.09	222.65	224.24	225.87	227.53	229.23

INTERMEDIATE REPORT
River Distance BAYOU COCODRIE 101605
km BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
PC	2	11	1.	1.	1.	1.	1.	1.	1.	1.	1.	0.

INTERMEDIATE REPORT
Flow
m^3/s

BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	1.0	1.1	1.1	1.2	1.3	1.3	1.4	1.5	1.5	1.6
PC	2	11	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.9	0.8	0.7

INTERMEDIATE REPORT
Dispersion
m^2/s

BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PC	2	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERMEDIATE REPORT
Advective Velocity
m/s

BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PC	2	11	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERMEDIATE REPORT
Depth
m

BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9

PC	1	1	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
PC	2	11	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

INTERMEDIATE REPORT
Width
m

BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9
PC	2	11	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6

INTERMEDIATE REPORT
Cross-Sectional Area
m^2

BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8
PC	2	11	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6

INTERMEDIATE REPORT
Reaeration Rate
per day

BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	1.454	1.479	1.503	1.526	1.547	1.568	1.588	1.608	1.627	1.645
PC	2	11	1.111	1.093	1.075	1.055	1.035	1.013	0.990	0.965	0.939	0.910

INTERMEDIATE REPORT
BOD Decay Rate
per day

BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
PC	2	11	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15

INTERMEDIATE REPORT
BOD Settling Rate
per day

BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	0.41	0.41	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
PC	2	11	0.60	0.60	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61

INTERMEDIATE REPORT
Sediment Oxygen Demand
$g/m^2/d$

BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
PC	1	1	3.34	3.33	3.33	3.32	3.31	3.31	3.30	3.30	3.29	3.28
PC	2	11	9.86	9.87	9.88	9.89	9.90	9.91	9.92	9.92	9.93	9.94

CONDENSED CAPSULE SUMMARY FOR HEADWATER

DIST km	FLOW m^3/s	TEMP deg C	SALN ppt	DO mg/L	EBOD1 mg/L	EBOD2 mg/L	ORGN mg/L	NH3 µg/L	CHLA 1/da	REAER RATE 1/da	BOD1 DECA 1/da	BOD1 SETT 1/da	BOD2 DECA 1/da	BOD2 SETT 1/da	NH3 DECA 1/da	SOD $g/m^2/d$
HDWTR	0.92520	32.89	0.10	6.53	12.46	0.00	3.61	0.00	42.40							
2.40	0.99087	32.70	0.00	6.12	12.16	0.00	3.60	0.00	42.24	1.45	0.16	0.41	0.00	0.00	0.00	3.34
2.30	1.05654	32.67	0.00	5.77	11.90	0.00	3.59	0.00	42.08	1.48	0.16	0.41	0.00	0.00	0.00	3.33
2.20	1.12221	32.64	0.00	5.47	11.67	0.00	3.59	0.00	41.92	1.50	0.16	0.40	0.00	0.00	0.00	3.33
2.10	1.18788	32.61	0.00	5.22	11.46	0.00	3.58	0.00	41.76	1.53	0.16	0.40	0.00	0.00	0.00	3.32
2.00	1.25355	32.58	0.00	5.00	11.28	0.00	3.58	0.00	41.60	1.55	0.16	0.40	0.00	0.00	0.00	3.31

1.90	1.31922	32.56	0.00	4.81	11.11	0.00	3.58	0.00	41.44	1.57	0.16	0.40	0.00	0.00	0.00	3.31
1.80	1.38489	32.53	0.00	4.64	10.96	0.00	3.57	0.00	41.28	1.59	0.16	0.40	0.00	0.00	0.00	3.30
1.70	1.45056	32.50	0.00	4.49	10.82	0.00	3.57	0.00	41.12	1.61	0.16	0.40	0.00	0.00	0.00	3.30
1.60	1.51623	32.47	0.00	4.37	10.69	0.00	3.57	0.00	40.96	1.63	0.16	0.40	0.00	0.00	0.00	3.29
1.50	1.58190	32.44	0.00	4.25	10.57	0.00	3.56	0.00	40.80	1.64	0.16	0.40	0.00	0.00	0.00	3.28
1.40	1.49527	32.45	0.01	4.03	10.36	0.00	3.59	0.00	37.97	1.11	0.15	0.60	0.00	0.00	0.00	9.86
1.30	1.40864	32.47	0.02	3.80	10.15	0.00	3.61	0.00	35.14	1.09	0.15	0.60	0.00	0.00	0.00	9.87
1.20	1.32201	32.49	0.03	3.57	9.94	0.00	3.63	0.00	32.31	1.07	0.15	0.61	0.00	0.00	0.00	9.88
1.10	1.23538	32.50	0.04	3.35	9.73	0.00	3.66	0.00	29.48	1.06	0.15	0.61	0.00	0.00	0.00	9.89
1.00	1.14875	32.51	0.05	3.12	9.52	0.00	3.68	0.00	26.65	1.03	0.15	0.61	0.00	0.00	0.00	9.90
0.90	1.06212	32.53	0.07	2.89	9.31	0.00	3.71	0.00	23.82	1.01	0.15	0.61	0.00	0.00	0.00	9.91
0.80	0.97549	32.54	0.08	2.66	9.10	0.00	3.73	0.00	20.99	0.99	0.15	0.61	0.00	0.00	0.00	9.92
0.70	0.88886	32.56	0.09	2.42	8.89	0.00	3.76	0.00	18.16	0.97	0.15	0.61	0.00	0.00	0.00	9.92
0.60	0.80223	32.58	0.10	2.19	8.68	0.00	3.79	0.00	15.33	0.94	0.15	0.61	0.00	0.00	0.00	9.93
0.50	0.71560	32.59	0.11	1.95	8.47	0.00	3.82	0.00	12.50	0.91	0.15	0.61	0.00	0.00	0.00	9.94

EXPANDED CAPSULE SUMMARY FOR HEADWATER

IOR	REACH	DIST km	FLOW m³/s	TEMP deg C	SALN ppt	DO mg/L	EBOD1 mg/L	EBOD2 mg/L	NBOD mg/L	NH3 mg/L	CHLA µg/L	DISP m²/s	DEPTH m	WIDTH m	ADVEC VELO m/s	MEAN VELO m/s	DO SAT mg/L	REAER RATE 1/da	BOD1 DECA 1/da	BOD1 SETT 1/da	BOD2 DECA 1/da	BOD2 SETT 1/da	NH3 DECA 1/da	SOD g/m²/d
		HDWTR	0.925	32.9	0.1	6.5	12.5	0.0	3.6	0.0	42.4													
1	PC 1	2.40	0.991	32.7	0.0	6.1	12.2	0.0	3.6	0.0	42.2	0.0	0.70	29.9	0.048	0.048	7.2	1.454	0.16	0.41	0.00	0.00	0.00	3.34
2	PC 1	2.30	1.057	32.7	0.0	5.8	11.9	0.0	3.6	0.0	42.1	0.0	0.70	29.9	0.051	0.051	7.2	1.479	0.16	0.41	0.00	0.00	0.00	3.33
3	PC 1	2.20	1.122	32.6	0.0	5.5	11.7	0.0	3.6	0.0	41.9	0.0	0.70	29.9	0.054	0.054	7.2	1.503	0.16	0.40	0.00	0.00	0.00	3.33
4	PC 1	2.10	1.188	32.6	0.0	5.2	11.5	0.0	3.6	0.0	41.8	0.0	0.70	29.9	0.057	0.057	7.2	1.526	0.16	0.40	0.00	0.00	0.00	3.32
5	PC 1	2.00	1.254	32.6	0.0	5.0	11.3	0.0	3.6	0.0	41.6	0.0	0.70	29.9	0.060	0.060	7.2	1.547	0.16	0.40	0.00	0.00	0.00	3.31
6	PC 1	1.90	1.319	32.6	0.0	4.8	11.1	0.0	3.6	0.0	41.4	0.0	0.70	29.9	0.063	0.063	7.2	1.568	0.16	0.40	0.00	0.00	0.00	3.31
7	PC 1	1.80	1.385	32.5	0.0	4.6	11.0	0.0	3.6	0.0	41.3	0.0	0.70	29.9	0.066	0.066	7.2	1.588	0.16	0.40	0.00	0.00	0.00	3.30
8	PC 1	1.70	1.451	32.5	0.0	4.5	10.8	0.0	3.6	0.0	41.1	0.0	0.70	29.9	0.070	0.070	7.2	1.608	0.16	0.40	0.00	0.00	0.00	3.30
9	PC 1	1.60	1.516	32.5	0.0	4.4	10.7	0.0	3.6	0.0	41.0	0.0	0.70	29.9	0.073	0.073	7.2	1.627	0.16	0.40	0.00	0.00	0.00	3.29
10	PC 1	1.50	1.582	32.4	0.0	4.3	10.6	0.0	3.6	0.0	40.8	0.0	0.70	29.9	0.076	0.076	7.3	1.645	0.16	0.40	0.00	0.00	0.00	3.28
11	PC 2	1.40	1.495	32.5	0.0	4.0	10.4	0.0	3.6	0.0	38.0	0.0	1.00	25.6	0.058	0.058	7.2	1.111	0.15	0.60	0.00	0.00	0.00	9.86
12	PC 2	1.30	1.409	32.5	0.0	3.8	10.2	0.0	3.6	0.0	35.1	0.0	1.00	25.6	0.055	0.055	7.2	1.093	0.15	0.60	0.00	0.00	0.00	9.87
13	PC 2	1.20	1.322	32.5	0.0	3.6	9.9	0.0	3.6	0.0	32.3	0.0	1.00	25.6	0.052	0.052	7.2	1.075	0.15	0.61	0.00	0.00	0.00	9.88
14	PC 2	1.10	1.235	32.5	0.0	3.3	9.7	0.0	3.7	0.0	29.5	0.0	1.00	25.6	0.048	0.048	7.2	1.055	0.15	0.61	0.00	0.00	0.00	9.89
15	PC 2	1.00	1.149	32.5	0.1	3.1	9.5	0.0	3.7	0.0	26.6	0.0	1.00	25.6	0.045	0.045	7.2	1.035	0.15	0.61	0.00	0.00	0.00	9.90
16	PC 2	0.90	1.062	32.5	0.1	2.9	9.3	0.0	3.7	0.0	23.8	0.0	1.00	25.6	0.041	0.041	7.2	1.013	0.15	0.61	0.00	0.00	0.00	9.91
17	PC 2	0.80	0.975	32.5	0.1	2.7	9.1	0.0	3.7	0.0	21.0	0.0	1.00	25.6	0.038	0.038	7.2	0.990	0.15	0.61	0.00	0.00	0.00	9.92
18	PC 2	0.70	0.889	32.6	0.1	2.4	8.9	0.0	3.8	0.0	18.2	0.0	1.00	25.6	0.035	0.035	7.2	0.965	0.15	0.61	0.00	0.00	0.00	9.92
19	PC 2	0.60	0.802	32.6	0.1	2.2	8.7	0.0	3.8	0.0	15.3	0.0	1.00	25.6	0.031	0.031	7.2	0.939	0.15	0.61	0.00	0.00	0.00	9.93
20	PC 2	0.50	0.716	32.6	0.1	1.9	8.5	0.0	3.8	0.0	12.5	0.0	1.00	25.6	0.028	0.028	7.2	0.910	0.15	0.61	0.00	0.00	0.00	9.94

SPECIAL REPORT: HEADWATER
WATER QUALITY CONSTITUENT VALUES

ELEM NO.	ENDING km	TEMP deg C	SALN ppt	CM-I *	CM-II *	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD#1 mg/L	EBOD#2 mg/L	NBOD mg/L	mg/L	mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO **	COLI #/100mL	NCM *
1	2.400	32.70	0.0	5.8	215.8	6.12	5.83	0.00	12.16	0.00	3.60	0.00	0.00	0.00	0.00	42.2	0.0	0.	0.00
2	2.300	32.67	0.0	5.8	215.4	5.77	5.59	0.00	11.90	0.00	3.59	0.00	0.00	0.00	0.00	42.1	0.0	0.	0.00
3	2.200	32.64	0.0	5.8	215.1	5.47	5.38	0.00	11.67	0.00	3.59	0.00	0.00	0.00	0.00	41.9	0.0	0.	0.00
4	2.100	32.61	0.0	5.9	214.8	5.22	5.20	0.00	11.46	0.00	3.58	0.00	0.00	0.00	0.00	41.8	0.0	0.	0.00
5	2.000	32.58	0.0	5.9	214.6	5.00	5.04	0.00	11.28	0.00	3.58	0.00	0.00	0.00	0.00	41.6	0.0	0.	0.00

6	1.900	32.56	0.0	5.9	214.3	4.81	4.90	0.00	11.11	0.00	3.58	0.00	0.00	0.00	0.00	41.4	0.0	0.	0.00
7	1.800	32.53	0.0	6.0	214.1	4.64	4.77	0.00	10.96	0.00	3.57	0.00	0.00	0.00	0.00	41.3	0.0	0.	0.00
8	1.700	32.50	0.0	6.0	214.0	4.49	4.65	0.00	10.82	0.00	3.57	0.00	0.00	0.00	0.00	41.1	0.0	0.	0.00
9	1.600	32.47	0.0	6.0	213.8	4.37	4.55	0.00	10.69	0.00	3.57	0.00	0.00	0.00	0.00	41.0	0.0	0.	0.00
10	1.500	32.44	0.0	6.0	213.6	4.25	4.45	0.00	10.57	0.00	3.56	0.00	0.00	0.00	0.00	40.8	0.0	0.	0.00
11	1.400	32.45	0.0	6.0	215.1	4.03	4.67	0.00	10.36	0.00	3.59	0.00	0.00	0.00	0.00	38.0	0.0	0.	0.00
12	1.300	32.47	0.0	6.0	216.5	3.80	4.88	0.00	10.15	0.00	3.61	0.00	0.00	0.00	0.00	35.1	0.0	0.	0.00
13	1.200	32.49	0.0	6.0	218.0	3.57	5.10	0.00	9.94	0.00	3.63	0.00	0.00	0.00	0.00	32.3	0.0	0.	0.00
14	1.100	32.50	0.0	6.0	219.5	3.35	5.31	0.00	9.73	0.00	3.66	0.00	0.00	0.00	0.00	29.5	0.0	0.	0.00
15	1.000	32.51	0.1	6.0	221.1	3.12	5.53	0.00	9.52	0.00	3.68	0.00	0.00	0.00	0.00	26.6	0.0	0.	0.00
16	0.900	32.53	0.1	6.0	222.6	2.89	5.74	0.00	9.31	0.00	3.71	0.00	0.00	0.00	0.00	23.8	0.0	0.	0.00
17	0.800	32.54	0.1	6.0	224.2	2.66	5.96	0.00	9.10	0.00	3.73	0.00	0.00	0.00	0.00	21.0	0.0	0.	0.00
18	0.700	32.56	0.1	6.0	225.9	2.42	6.17	0.00	8.89	0.00	3.76	0.00	0.00	0.00	0.00	18.2	0.0	0.	0.00
19	0.600	32.58	0.1	6.0	227.5	2.19	6.38	0.00	8.68	0.00	3.79	0.00	0.00	0.00	0.00	15.3	0.0	0.	0.00
20	0.500	32.59	0.1	6.0	229.2	1.95	6.60	0.00	8.47	0.00	3.82	0.00	0.00	0.00	0.00	12.5	0.0	0.	0.00

SPECIAL REPORT: HEADWATER
BIOLOGICAL AND PHYSICAL COEFFICIENTS

ELEM NO.	ENDING DIST	SAT D.O.	REAER RATE	BOD#1 DECAY	BOD#1 SETT	ABOD#1 DECAY	BOD#1 DECAY	BOD#2 SETT	ABOD#2 DECAY	FULL SOD	CORR SOD	NBOD DECAY	NBOD SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	NCM SETT
	km	mg/L	1/da	1/da	1/da	1/da	1/da	1/da	1/da	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
1	2.400	7.22	1.45	0.16	0.41	0.00	0.00	0.00	0.00	3.34	3.34	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.300	7.22	1.48	0.16	0.41	0.00	0.00	0.00	0.00	3.33	3.33	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	2.200	7.23	1.50	0.16	0.40	0.00	0.00	0.00	0.00	3.33	3.33	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	2.100	7.23	1.53	0.16	0.40	0.00	0.00	0.00	0.00	3.32	3.32	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.000	7.23	1.55	0.16	0.40	0.00	0.00	0.00	0.00	3.31	3.31	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	1.900	7.24	1.57	0.16	0.40	0.00	0.00	0.00	0.00	3.31	3.31	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	1.800	7.24	1.59	0.16	0.40	0.00	0.00	0.00	0.00	3.30	3.30	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

8	1.700	7.24	1.61	0.16	0.40	0.00	0.00	0.00	0.00	3.30	3.30	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00																						
9	1.600	7.25	1.63	0.16	0.40	0.00	0.00	0.00	0.00	3.29	3.29	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00																						
10	1.500	7.25	1.64	0.16	0.40	0.00	0.00	0.00	0.00	3.28	3.28	0.14	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00																						
11	1.400	7.25	1.11	0.15	0.60	0.00	0.00	0.00	0.00	9.86	9.86	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00																						
12	1.300	7.25	1.09	0.15	0.60	0.00	0.00	0.00	0.00	9.87	9.87	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00																						
13	1.200	7.24	1.07	0.15	0.61	0.00	0.00	0.00	0.00	9.88	9.88	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00																						
14	1.100	7.24	1.06	0.15	0.61	0.00	0.00	0.00	0.00	9.89	9.89	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00																						
15	1.000	7.24	1.03	0.15	0.61	0.00	0.00	0.00	0.00	9.90	9.90	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00																						
16	0.900	7.24	1.01	0.15	0.61	0.00	0.00	0.00	0.00	9.91	9.91	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00																						
17	0.800	7.23	0.99	0.15	0.61	0.00	0.00	0.00	0.00	9.92	9.92	0.14	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00																						
18	0.700	7.23	0.97	0.15	0.61	0.00	0.00	0.00	0.00	9.92	9.92	0.14	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00																						
19	0.600	7.23	0.94	0.15	0.61	0.00	0.00	0.00	0.00	9.93	9.93	0.13	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00																						
20	0.500	7.23	0.91	0.15	0.61	0.00	0.00	0.00	0.00	9.94	9.94	0.12	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00																						

SPECIAL REPORT: HEADWATER
HYDRAULIC PARAMETER VALUES

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m^3/s	ADVCTV VELO m/s	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
1	2.50	2.40	0.9909	0.048	0.70	29.9	2085.	2987.0	20.8	0.	0.000	0.000	0.048
2	2.40	2.30	1.0565	0.051	0.70	29.9	2085.	2987.0	20.8	0.	0.000	0.000	0.051
3	2.30	2.20	1.1222	0.054	0.70	29.9	2085.	2987.0	20.8	0.	0.000	0.000	0.054
4	2.20	2.10	1.1879	0.057	0.70	29.9	2085.	2987.0	20.8	0.	0.000	0.000	0.057
5	2.10	2.00	1.2536	0.060	0.70	29.9	2085.	2987.0	20.8	0.	0.000	0.000	0.060
6	2.00	1.90	1.3192	0.063	0.70	29.9	2085.	2987.0	20.8	0.	0.000	0.000	0.063

7	1.90	1.80	1.3849	0.066	0.70	29.9	2085.	2987.0	20.8	0.	0.000	0.000	0.066
8	1.80	1.70	1.4506	0.070	0.70	29.9	2085.	2987.0	20.8	0.	0.000	0.000	0.070
9	1.70	1.60	1.5162	0.073	0.70	29.9	2085.	2987.0	20.8	0.	0.000	0.000	0.073
10	1.60	1.50	1.5819	0.076	0.70	29.9	2085.	2987.0	20.8	0.	0.000	0.000	0.076
11	1.50	1.40	1.4953	0.058	1.00	25.6	2560.	2560.3	25.6	0.	0.000	0.000	0.058
12	1.40	1.30	1.4086	0.055	1.00	25.6	2560.	2560.3	25.6	0.	0.000	0.000	0.055
13	1.30	1.20	1.3220	0.052	1.00	25.6	2560.	2560.3	25.6	0.	0.000	0.000	0.052
14	1.20	1.10	1.2354	0.048	1.00	25.6	2560.	2560.3	25.6	0.	0.000	0.000	0.048
15	1.10	1.00	1.1488	0.045	1.00	25.6	2560.	2560.3	25.6	0.	0.000	0.000	0.045
16	1.00	0.90	1.0621	0.041	1.00	25.6	2560.	2560.3	25.6	0.	0.000	0.000	0.041
17	0.90	0.80	0.9755	0.038	1.00	25.6	2560.	2560.3	25.6	0.	0.000	0.000	0.038
18	0.80	0.70	0.8889	0.035	1.00	25.6	2560.	2560.3	25.6	0.	0.000	0.000	0.035
19	0.70	0.60	0.8022	0.031	1.00	25.6	2560.	2560.3	25.6	0.	0.000	0.000	0.031
20	0.60	0.50	0.7156	0.028	1.00	25.6	2560.	2560.3	25.6	0.	0.000	0.000	0.028

FINAL REPORT HEADWATER BAYOU COCODRIE 101605
REACH NO. 1 HEADWATER BYCOC 1 - BYCOC 2 BAYOU COCODRIE 101605 CALIBRATION RUN

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM
1	HDWTR	0.92520	32.89	0.10	5.70	216.20	6.53	6.10	0.00	12.46	0.00	3.61	0.00	0.00	0.00	42.40	0.00	0.00
EACH	INCR	0.06567	32.73	0.10	6.50	210.00	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 m^3/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
1	2.50	2.40	0.99087	0.0	0.04753	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.048
2	2.40	2.30	1.05654	0.0	0.05068	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.051
3	2.30	2.20	1.12221	0.0	0.05382	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.054
4	2.20	2.10	1.18788	0.0	0.05697	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.057
5	2.10	2.00	1.25355	0.0	0.06012	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.060
6	2.00	1.90	1.31922	0.0	0.06327	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.063

7	1.90	1.80	1.38489	0.0	0.06642	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.066
8	1.80	1.70	1.45056	0.0	0.06957	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.070
9	1.70	1.60	1.51623	0.0	0.07272	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.073
10	1.60	1.50	1.58190	0.0	0.07587	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.076
TOT						0.19			20849.26	29870.00					
AVG					0.0603		0.70	29.87			20.85				
CUM						0.19									

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

ELEM NO.	ENDING NCM DIST	SAT D.O.	REAER RATE	BOD#1 DECAY	BOD#1 SETT	ABOD#1 DECAY	BOD#2 DECAY	BOD#2 SETT	ABOD#2 DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	NCM SETT
		mg/L	1/da	1/da	1/da	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
1	2.400	7.22	1.45	0.16	0.41	0.00	0.00	0.00	0.00	3.34	3.34	3.34	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.300	7.22	1.48	0.16	0.41	0.00	0.00	0.00	0.00	3.33	3.33	3.33	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	2.200	7.23	1.50	0.16	0.40	0.00	0.00	0.00	0.00	3.33	3.33	3.33	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	2.100	7.23	1.53	0.16	0.40	0.00	0.00	0.00	0.00	3.32	3.32	3.32	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.000	7.23	1.55	0.16	0.40	0.00	0.00	0.00	0.00	3.31	3.31	3.31	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	1.900	7.24	1.57	0.16	0.40	0.00	0.00	0.00	0.00	3.31	3.31	3.31	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	1.800	7.24	1.59	0.16	0.40	0.00	0.00	0.00	0.00	3.30	3.30	3.30	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	1.700	7.24	1.61	0.16	0.40	0.00	0.00	0.00	0.00	3.30	3.30	3.30	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	1.600	7.25	1.63	0.16	0.40	0.00	0.00	0.00	0.00	3.29	3.29	3.29	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	1.500	7.25	1.64	0.16	0.40	0.00	0.00	0.00	0.00	3.28	3.28	3.28	0.14	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AVG 20 DEG C RATE 1.24 0.09 0.30 0.00 0.00 0.00 0.00 1.50 0.07 0.20 0.00 0.00 0.00 0.00 0.00 0.00 0.00

* g/m²/d ** mg/L/day

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

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO g/m³	COLI #/100mL	NCM
1	2.400	32.70	0.00	5.75	215.79	6.12	5.83	0.00	12.16	0.00	3.60	0.00	0.00	0.00	0.00	42.24	0.00	0.	0.00
2	2.300	32.67	0.00	5.80	215.43	5.77	5.59	0.00	11.90	0.00	3.59	0.00	0.00	0.00	0.00	42.08	0.00	0.	0.00
3	2.200	32.64	0.00	5.84	215.11	5.47	5.38	0.00	11.67	0.00	3.59	0.00	0.00	0.00	0.00	41.92	0.00	0.	0.00
4	2.100	32.61	0.00	5.88	214.83	5.22	5.20	0.00	11.46	0.00	3.58	0.00	0.00	0.00	0.00	41.76	0.00	0.	0.00
5	2.000	32.58	0.00	5.91	214.58	5.00	5.04	0.00	11.28	0.00	3.58	0.00	0.00	0.00	0.00	41.60	0.00	0.	0.00
6	1.900	32.56	0.00	5.94	214.35	4.81	4.90	0.00	11.11	0.00	3.58	0.00	0.00	0.00	0.00	41.44	0.00	0.	0.00
7	1.800	32.53	0.00	5.97	214.14	4.64	4.77	0.00	10.96	0.00	3.57	0.00	0.00	0.00	0.00	41.28	0.00	0.	0.00
8	1.700	32.50	0.00	5.99	213.95	4.49	4.65	0.00	10.82	0.00	3.57	0.00	0.00	0.00	0.00	41.12	0.00	0.	0.00
9	1.600	32.47	0.00	6.01	213.78	4.37	4.55	0.00	10.69	0.00	3.57	0.00	0.00	0.00	0.00	40.96	0.00	0.	0.00
10	1.500	32.44	0.00	6.03	213.63	4.25	4.45	0.00	10.57	0.00	3.56	0.00	0.00	0.00	0.00	40.80	0.00	0.	0.00

FINAL REPORT HEADWATER BAYOU COCODRIE 101605
REACH NO. 2 BYCOC 2 - BYCOC 3 BAYOU COCODRIE 101605 CALIBRATION RUN

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 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	1.58190	32.44	0.00	6.03	213.63	4.25	4.45	0.00	10.57	0.00	3.56	0.00	0.00	0.00	40.80	0.00	0.00
EACH	INCR	0.06567	32.44	0.10	6.00	250.00	2.00	0.00	0.00			0.00	0.00	0.00	0.00	0.00	0.00	
EACH	INCR	-0.15230																

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

ELEM NO.	BEGIN DIST	ENDING DIST	FLOW	PCT EFF	ADVCTV VELO	TRAVEL TIME	DEPTH	WIDTH	VOLUME	SURFACE AREA	X-SECT AREA	TIDAL PRISM	TIDAL VELO	DISPRSN	MEAN VELO

	km	km	m³/s		m/s	days	m	m	m³	m²	m²	m³	m/s	m²/s	m/s
11	1.50	1.40	1.49527	0.0	0.05840	0.02	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.058
12	1.40	1.30	1.40864	0.0	0.05502	0.02	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.055
13	1.30	1.20	1.32201	0.0	0.05163	0.02	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.052
14	1.20	1.10	1.23538	0.0	0.04825	0.02	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.048
15	1.10	1.00	1.14875	0.0	0.04487	0.03	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.045
16	1.00	0.90	1.06212	0.0	0.04148	0.03	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.041
17	0.90	0.80	0.97549	0.0	0.03810	0.03	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.038
18	0.80	0.70	0.88886	0.0	0.03472	0.03	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.035
19	0.70	0.60	0.80223	0.0	0.03133	0.04	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.031
20	0.60	0.50	0.71560	0.0	0.02795	0.04	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.028
TOT						0.28			25603.00	25603.00					
AVG					0.0409		1.00	25.60			25.60				
CUM						0.47									

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

ELEM NO.	ENDING DIST	SAT D.O.	REAER RATE	BOD#1 DECAY	BOD#1 SETT	ABOD#1 DECAY	BOD#2 DECAY	BOD#2 SETT	ABOD#2 DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	NCM SETT
		mg/L	1/da	1/da	1/da	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
11	1.400	7.25	1.11	0.15	0.60	0.00	0.00	0.00	0.00	9.86	9.86	9.86	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	1.300	7.25	1.09	0.15	0.60	0.00	0.00	0.00	0.00	9.87	9.87	9.87	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	1.200	7.24	1.07	0.15	0.61	0.00	0.00	0.00	0.00	9.88	9.88	9.88	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	1.100	7.24	1.06	0.15	0.61	0.00	0.00	0.00	0.00	9.89	9.89	9.89	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	1.000	7.24	1.03	0.15	0.61	0.00	0.00	0.00	0.00	9.90	9.90	9.90	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.900	7.24	1.01	0.15	0.61	0.00	0.00	0.00	0.00	9.91	9.91	9.91	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.800	7.23	0.99	0.15	0.61	0.00	0.00	0.00	0.00	9.92	9.92	9.92	0.14	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

18	0.700	7.23	0.97	0.15	0.61	0.00	0.00	0.00	0.00	9.92	9.92	9.92	0.14	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.600	7.23	0.94	0.15	0.61	0.00	0.00	0.00	0.00	9.93	9.93	9.93	0.13	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.500	7.23	0.91	0.15	0.61	0.00	0.00	0.00	0.00	9.94	9.94	9.94	0.12	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.81	0.09	0.45	0.00	0.00	0.00	0.00	4.50			0.08	0.20	0.00	0.00	0.00	0.00			0.00	0.00

* g/m²/d ** mg/L/day

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

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO g/m³	COLI #/100mL	NCM
11	1.400	32.45	0.01	6.03	215.08	4.03	4.67	0.00	10.36	0.00	3.59	0.00	0.00	0.00	0.00	37.97	0.00	0.	0.00
12	1.300	32.47	0.02	6.03	216.55	3.80	4.88	0.00	10.15	0.00	3.61	0.00	0.00	0.00	0.00	35.14	0.00	0.	0.00
13	1.200	32.49	0.03	6.03	218.04	3.57	5.10	0.00	9.94	0.00	3.63	0.00	0.00	0.00	0.00	32.31	0.00	0.	0.00
14	1.100	32.50	0.04	6.03	219.55	3.35	5.31	0.00	9.73	0.00	3.66	0.00	0.00	0.00	0.00	29.48	0.00	0.	0.00
15	1.000	32.51	0.05	6.03	221.09	3.12	5.53	0.00	9.52	0.00	3.68	0.00	0.00	0.00	0.00	26.65	0.00	0.	0.00
16	0.900	32.53	0.07	6.02	222.65	2.89	5.74	0.00	9.31	0.00	3.71	0.00	0.00	0.00	0.00	23.82	0.00	0.	0.00
17	0.800	32.54	0.08	6.02	224.24	2.66	5.96	0.00	9.10	0.00	3.73	0.00	0.00	0.00	0.00	20.99	0.00	0.	0.00
18	0.700	32.56	0.09	6.02	225.87	2.42	6.17	0.00	8.89	0.00	3.76	0.00	0.00	0.00	0.00	18.16	0.00	0.	0.00
19	0.600	32.58	0.10	6.02	227.53	2.19	6.38	0.00	8.68	0.00	3.79	0.00	0.00	0.00	0.00	15.33	0.00	0.	0.00
20	0.500	32.59	0.11	6.02	229.23	1.95	6.60	0.00	8.47	0.00	3.82	0.00	0.00	0.00	0.00	12.50	0.00	0.	0.00

STREAM SUMMARY BAYOU COCODRIE 101605
HEADWATER BAYOU COCODRIE 101605 CALIBRATION RUN

TRAVEL TIME = 0.47 DAYS

MAXIMUM EFFLUENT = 0.00 PERCENT

FLOW = 0.71560 TO 1.58190 m³/s
DISPERSION = 0.0000 TO 0.0000 m²/s
VELOCITY = 0.02795 TO 0.07587 m/s
DEPTH = 0.70 TO 1.00 m

WIDTH	=	25.60	TO	29.87	m
BOD DECAY	=	0.15	TO	0.16	per day
NH3 DECAY	=	0.00	TO	0.00	per day
SOD	=	3.28	TO	9.94	g/m²/d
NH3 SOURCE	=	0.00	TO	0.00	g/m²/d
REAERATION	=	0.91	TO	1.64	per day
BOD SETTLING	=	0.40	TO	0.61	per day
NBOD DECAY	=	0.12	TO	0.16	per day
NBOD SETTLING	=	0.27	TO	0.27	per day
TEMPERATURE	=	32.44	TO	32.70	deg C
DISSOLVED OXYGEN	=	1.95	TO	6.12	mg/L

BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

REACH SUMMARY REPORT FOR HEADWATER

RCH NO.	REACH NAME	BEGIN DIST km	ENDING DIST km	REACH LENGTH km	TRAVEL TIME days	FLOW AT EOR m3/s	AVERAGE VELO m/s	AVG DEPTH m	AVG WIDTH m	FLOW AT EOR cfs	AVERAGE VELO fps	AVG DEPTH ft	AVG WIDTH ft
1	HEADWATER BYCOC 1 - BYCOC 2	2.50	1.50	1.00	0.19	1.58190	0.06035	0.698	29.87	55.857	0.198	2.290	98.00
2	BYCOC 2 - BYCOC 3	1.50	0.50	1.00	0.28	0.71560	0.04090	1.000	25.60	25.268	0.134	3.281	84.00

DISSOLVED OXYGEN LOADING FOR REACH 1: HEADWATER

IOR MAC	UPMN TOT ADV OUT	UPTR TOT ADV IN	LOWR ADV	UPMN DISP	UPTR DISP	LOWR DISP	INCR IN	INCR OUT	NONP IN	WSLD IN	WITH OUT	REAE IN	BOD1 DECA	DECA	NBOD DECA	NCM DECA	SOD BKGD	SOD BOD1	SOD ALG	SOD NCM	ALG PHOT	ALG RESP	PHOT
1	522.	0.	-524.	0.	0.	0.	11.	0.	0.	0.	0.	3.	-2.	0.	-1.	0.	-10.	0.	0.	0.	0.	0.	0.
2	524.	0.	-526.	0.	0.	0.	11.	0.	0.	0.	0.	4.	-2.	0.	-1.	0.	-10.	0.	0.	0.	0.	0.	0.
3	526.	0.	-530.	0.	0.	0.	11.	0.	0.	0.	0.	6.	-2.	0.	-1.	0.	-10.	0.	0.	0.	0.	0.	0.
4	530.	0.	-535.	0.	0.	0.	11.	0.	0.	0.	0.	6.	-2.	0.	-1.	0.	-10.	0.	0.	0.	0.	0.	0.
5	535.	0.	-541.	0.	0.	0.	11.	0.	0.	0.	0.	7.	-2.	0.	-1.	0.	-10.	0.	0.	0.	0.	0.	0.
6	541.	0.	-548.	0.	0.	0.	11.	0.	0.	0.	0.	8.	-2.	0.	-1.	0.	-10.	0.	0.	0.	0.	0.	0.
7	548.	0.	-555.	0.	0.	0.	11.	0.	0.	0.	0.	9.	-2.	0.	-1.	0.	-10.	0.	0.	0.	0.	0.	0.
8	555.	0.	-563.	0.	0.	0.	11.	0.	0.	0.	0.	9.	-2.	0.	-1.	0.	-10.	0.	0.	0.	0.	0.	0.
9	563.	0.	-572.	0.	0.	0.	11.	0.	0.	0.	0.	10.	-2.	0.	-1.	0.	-10.	0.	0.	0.	0.	0.	0.
10	572.	0.	-581.	0.	0.	0.	11.	0.	0.	0.	0.	10.	-1.	0.	-1.	0.	-10.	0.	0.	0.	0.	0.	0.
11	581.	0.	-520.	0.	0.	0.	11.	-53.	0.	0.	0.	9.	-2.	0.	-2.	0.	-25.	0.	0.	0.	0.	0.	0.
12	520.	0.	-463.	0.	0.	0.	11.	-50.	0.	0.	0.	10.	-2.	0.	-1.	0.	-25.	0.	0.	0.	0.	0.	0.
13	463.	0.	-408.	0.	0.	0.	11.	-47.	0.	0.	0.	10.	-2.	0.	-1.	0.	-25.	0.	0.	0.	0.	0.	0.
14	408.	0.	-357.	0.	0.	0.	11.	-44.	0.	0.	0.	11.	-2.	0.	-1.	0.	-25.	0.	0.	0.	0.	0.	0.
15	357.	0.	-309.	0.	0.	0.	11.	-41.	0.	0.	0.	11.	-2.	0.	-1.	0.	-25.	0.	0.	0.	0.	0.	0.
16	309.	0.	-265.	0.	0.	0.	11.	-38.	0.	0.	0.	11.	-2.	0.	-1.	0.	-25.	0.	0.	0.	0.	0.	0.
17	265.	0.	-224.	0.	0.	0.	11.	-35.	0.	0.	0.	12.	-2.	0.	-1.	0.	-25.	0.	0.	0.	0.	0.	0.

IOR MAC	UPMN TOT ADV OUT	UPTR TOT ADV IN	LOWR ADV	UPMN DISP	UPTR DISP	LOWR DISP	INCR IN	INCR OUT	NONP IN	WSLD IN	WITH OUT	REAE IN	BOD1 DECA	DECA	NBOD DECA	NCM DECA	SOD BKGD	SOD BOD1	SOD ALG	SOD NCM	ALG PHOT	ALG RESP	PHOT
1	-536.7	536.7	0.00																				
2	-539.4	539.4	0.00																				
3	-543.2	543.2	0.00																				
4	-548.1	548.1	0.00																				
5	-553.9	553.9	0.00																				
6	-560.4	560.4	0.00																				
7	-567.8	567.8	0.00																				
8	-575.8	575.8	0.00																				
9	-584.4	584.4	0.00																				
10	-593.6	593.6	0.00																				
11	-601.8	601.8	0.00																				
12	-541.2	541.2	0.00																				
13	-484.0	484.0	0.00																				
14	-430.1	430.1	0.00																				
15	-379.5	379.5	0.00																				
16	-332.1	332.1	0.00																				
17	-288.0	288.0	0.00																				

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  18    224.      0.   -186.    0.    0.    0.   11.  -32.    0.    0.    0.   12.   -2.    0.   -1.    0.  -25.    0.    0.    0.    0.    0.
0.   -247.2    247.2   0.00
  19    186.      0.   -152.    0.    0.    0.   11.  -29.    0.    0.    0.   12.   -2.    0.   -1.    0.  -25.    0.    0.    0.    0.    0.
0.   -209.6    209.6  -0.01
  20    152.      0.   -121.    0.    0.    0.   11.  -26.    0.    0.    0.   12.   -3.    0.   -1.    0.  -25.    0.    0.    0.    0.    0.
0.   -175.3    175.3  -0.01
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BAYOU COCODRIE 101605
BAYOU COCODRIE 101605 CALIBRATION RUN

INPUT/OUTPUT LOADING SUMMARY

	FLOW	DO	BOD#1	BOD#2	NBOD			PHOS	CHL A	NCM
	m^3/s	kg/d	kg/d	kg/d	kg/d	kg/d	kg/d	kg/d		
HEADWATER FLOW	0.925	522.0	487.6	0.0	288.6	0.0	0.0	0.0	0.0	0.0
INCREMENTAL INFLOW	1.313	227.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INCREMENTAL OUTFLOW	-1.523	-394.4	-741.2	0.0	-486.7	0.0	0.0	0.0	0.0	0.0
WASTELOADS	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WITHDRAWLS	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FLOW THRU LOWER BNDRY	-0.716	-120.5	-407.8	0.0	-236.1	0.0	0.0	0.0	0.0	0.0
DISPERSION THRU LOWER BNDRY		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DISPERSION THRU HDWTR BNDRY		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NON-POINT INPUT		0.0	830.0	0.0	505.0					0.0
NATURAL REAERATION		182.3								
DAM REAERATION		0.0								
BACKGROUND SOD		-352.4								
BOD#1 DECAY		-38.8	-38.8							
BOD#1 SETTLING		0.0	-129.8							
ANAEROBIC BOD#1 DECAY			0.0							
BOD#2 DECAY		0.0		0.0						
BOD#2 SETTLING		0.0		0.0						
ANAEROBIC BOD#2 DECAY				0.0						
NBOD DECAY		-25.2			-25.2	0.0				
NBOD SETTLING					-45.6	0.0				
NH3 DECAY		0.0				0.0	0.0			
BACKGROUND NH3 SOURCE						0.0				
OTHER DENITRIFICATION							0.0			
PHOSPHORUS SOURCE								0.0		
ALGAE PHOTOSYNTHESIS		0.0				0.0	0.0	0.0	0.0	
ALGAE RESPIRATION		0.0				0.0		0.0	0.0	
ALGAE SETTLING		0.0							0.0	
MACRO PHOTOSYNTHESIS		0.0				0.0	0.0	0.0		
NCM DECAY		0.0								0.0
NCM SETTLING		0.0								0.0

TOTAL INPUTS	2.239	931.3	1317.6	0.0	793.6	0.0	0.0	0.0	0.0	0.0
TOTAL OUTPUTS	-2.239	-931.3	-1317.6	0.0	-793.6	0.0	0.0	0.0	0.0	0.0
NET CONVERGENCE ERROR	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

.....EXECUTION COMPLETED

Appendix B2 – Calib Justification

DATA TYPE 3 - PROGRAM CONSTANTS			
CONSTANT NAME	**VALUE**	**UNITS**	**DATA SOURCE**
KL MINIMUM	0.7	m/day	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
INHIBITION CONTROL VALUE	3		The water column dissolved oxygen demand is assumed to come primarily from facultative bacteria under anoxic conditions and SOD is not influenced by modeled dissolved oxygen levels in the upper water column.
HYDRAULIC CALCULATION METHOD	2		The low slopes in this waterbody cause a substantial amount of water to be present during critical flow conditions. This method allows the model to predict a more accurate depth and width during low flow conditions.
ALGAE OXYGEN PRODUCTION	0		Standard practice for steady state calibration to a wide variation in DO.
EFFECTIVE BOD DUE TO ALGAE	0.15		Standard practice for steady state calibration to a wide variation in DO.
SETTLING RATE UNITS	2		By making the settling rate a velocity the rate becomes dependent upon the depth.

DATA TYPE 8 - REACH IDENTIFICATION DATA						
Reach	**ID**	**Name**	**Upstream River Kilometer**	**Downstream River Kilometer**	**Element Length, meters**	**Data Source**
1	BC	BYCOC1 -BYCOC2	2.50	1.50	100.0000	ARC MAP Calc.
2	BC	BYCOC2 - BYCOC3	1.50	0.50	100.0000	ARC MAP Calc.

		DATA TYPE 9 - ADVECTIVE HYDRAULIC COEFFICIENTS			
Reach	**Name**	**Width Coeff. "a"**	**Width Exp. "b"**	**Width Const. "c"**	**Data Source**
1	BYCOC1 -BYCOC2	0	0.2	29.87	BYCOC2
2	BYCOC2 - BYCOC3	0	0.2	25.603	BYCOC3

		DATA TYPE 9 - ADVECTIVE HYDRAULIC COEFFICIENTS			
Reach	**Name**	**Depth Coeff. "d"**	**Depth Exp. "e"**	**Depth Const. "f"**	**Data Source**
1	BYCOC1 -BYCOC2	0	0.3	0.698	BYCOC2
2	BYCOC2 - BYCOC3	0	0.3	1	BYCOC3

		DATA TYPE 11 - INITIAL CONDITIONS					
Reach	**Name**	**Temp, deg C**	**Data Source**	**DO, mg/l**	**Data Source**	**Chlorophyll a**	**Data Source**
1	BYCOC1 -BYCOC2	32.73	Average BYCOC1, BYCOC2 Continuous Monitoring	5.38	Average ((1+ Min) BYCOC1, (1+Min) BYCOC2) Continuous Monitoring	42.4	BYCOC1 Lab Data
2	BYCOC2 - BYCOC3	32.44	Average BYCOC2, BYCOC3 Continuous Monitoring	3.08	Average ((1+ Min) BYCOC2, (1+Min) BYCOC3) Continuous Monitoring	40.8	BYCOC2 Lab Data

		DATA TYPE 12 - REAERATION, SEDIMENT OXYGEN DEMAND AND BOD COEFFICIENTS							
REACH	NAME	K2 OPT	Data Source	BKGRND SOD, gmO2/m2/day at 20 deg C	Data Source	Aerobic BOD1 Dec Rate (1/day)	Data Source	BOD1 SETT RATE (m/day, ft/day or 1/day)	Data Source
1	BYCOC1 -BYCOC2	11	Texas Equation	1.50	Calibration	0.0896	AVG(BYCOC1, BYCOC2)	0.30	Calibration
2	BYCOC2 - BYCOC3	11	Texas Equation	4.50	Calibration	0.0864	AVG(BYCOC2, BYCOC3)	0.45	Calibration

DATA TYPE 13 - NITROGEN AND PHOSPHORUS COEFFICIENTS					
Reach	Name	NBOD decay rate, 1/day	Data Source	NBOD settling rate, 1/day	Data Source
1	BYCOC1 -BYCOC2	0.0712	AVG(BYCOC1, BYCOC2)	0.20	Calibration
2	BYCOC2 - BYCOC3	0.0818	AVG(BYCOC2, BYCOC3)	0.20	Calibration

DATA TYPES 16 - INCREMENTAL DATA FOR TEMP AND CONS				
Reach	Reach Name	Incr. Ouflow, m3	Incr. Inflow, m3	Data Source
1	BYCOC1 -BYCOC2	0.0000	0.6567	Flow Balance Calculation
2	BYCOC2 - BYCOC3	-1.5230	0.6567	Flow Balance Calculation

DATA TYPES 16 - INCREMENTAL DATA FOR TEMP AND CONS								
Reach	**Reach Name**	**Temp, deg C**	**Data Source**	**Sal., ppt**	**Cond**	**Data Source**	**Chl**	**Data Source**
1	BYCOC1 -BYCOC2	32.730	AVG(BYCOC1, BYCOC2)	0.100	210	Insitu Data	6.5	Calibration
2	BYCOC2 - BYCOC3	32.440	AVG(BYCOC2, BYCOC3)	0.100	250	Insitu Data	6.0	Calibration

DATA TYPES 17 - INCREMENTAL DATA FOR DO			
Reach	**Reach Name**	**DO, mg/l**	**Data Source**
1	BYCOC1 - BYCOC2	2	Normal Groundwater DO
2	BYCOC2 - BYCOC3	2	Normal Groundwater DO

DATA TYPES 18 - INCREMENTAL DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES			
Reach	**Reach Name**	**Chl a, ug/L**	**Data Source**
1	BYCOC1 -BYCOC2	42.4	BYCOC1
2	BYCOC2 - BYCOC3	40.8	BYCOC2

	DATA TYPE 19 - NONPOINT SOURCES				
Reach	Reach Name	Length of Reach, km	UCBOD1, kg/day or lb/day	NBOD, kg/day	Data Source
1	BYCOC1 -BYCOC2	1.00	180.0	230.00	Calibration
2	BYCOC2 - BYCOC3	1	650.0	275.00	Calibration

DATA TYPES 20 - HEADWATER DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES								
Headwater Name	Element No.	Logical Unit Number	Headwater Flow, cms	Temp, deg C	Salinity, ppt	Chlorides	Conductivity	Data Source
Headwater 1	1	1	0.9252	32.89	0.1	5.7	216.20	BYCOC1

DATA TYPES 21 - HEADWATER DATA FOR DO, BOD, AND NITROGEN				
Headwater Name	Dissolved Oxygen, mg/L	UCBOD1, mg/l	NBOD mg/l	Data Source
Headwater 1	6.53	12.46	3.61	BYCOC1 Continuous Monitoring (1+Min)

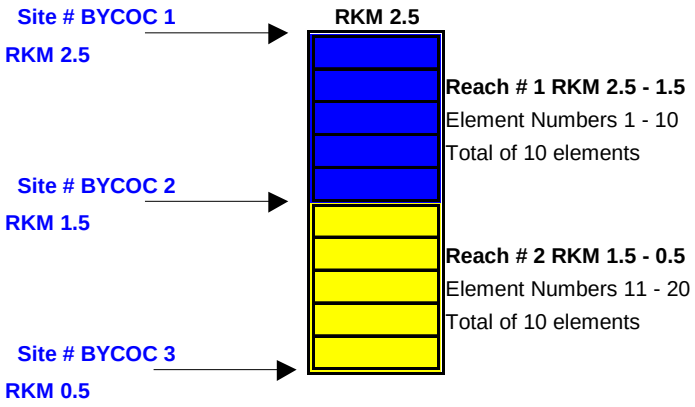
DATA TYPES 22 - HEADWATER DATA FOR CHLOROPHYLL		
Headwater Name	Chlorophyll a, ug/L	Date Source
Headwater 1	42.4	BYCOC1 Lab Data

DATA TYPES 27 - LOWER BOUNDARY CONDITIONS Survey Site Name: Bayou Cocodrie downstream side of Hwy 15			
Parameter	**Value**	**Units**	**Data Source**
TEMPERATURE	32.59	^{O}C	BYCOC4 In Situ
SALINITY	0.11	mg/L	BYCOC4 In Situ
CHLORIDES	6.50	ppm	BYCOC4 Lab Data
CONDUCTIVITY	227.40	umhos/cm	BYCOC4 In Situ
DISSOLVED OXYGEN	1.56	mg/L	BYCOC4 In Situ
CHLOROPHYLL A	12.50	ug/L	BYCOC3 Lab Data
BIOCHEMICAL OXYGEN DEMAND 1	8.50	mg/L	BYCOC4 Lab Data
NBOD	3.75	mg/L	BYCOC4 Lab Data

Appendix C – Calibration Model Development

Appendix C1 – Vector Diagram

Cocodrie Model Layout Subsegment 101605



Appendix C2 – Reach Setup

Bayou Cocodrie 101605					Modeled Length	Element Length				
Reach #	Description	Headwater Yes/No	Starting modeled Kilometer	Ending modeled Kilometer	kilometers	kilometers	Element Count	Cumulative Elements	Begin Element #	End Element #
1	Headwater BYCOC 1 to Site BYCOC 2	Yes	2.5	1.5	1.00	0.100	10	10	1	10
2	Site BYCOC 2 to Site BYCOC 3	No	1.5	0.5	1.00	0.100	10	10	11	20

Appendix C3 – Calibration Loading

Calibration Model Non-Point Load Equivalent Calculations:

Modeled stream or water body: **BAYOU Cocodrie (SUBSEGMENT 101605)**

Shaded cells are input values for calculations.

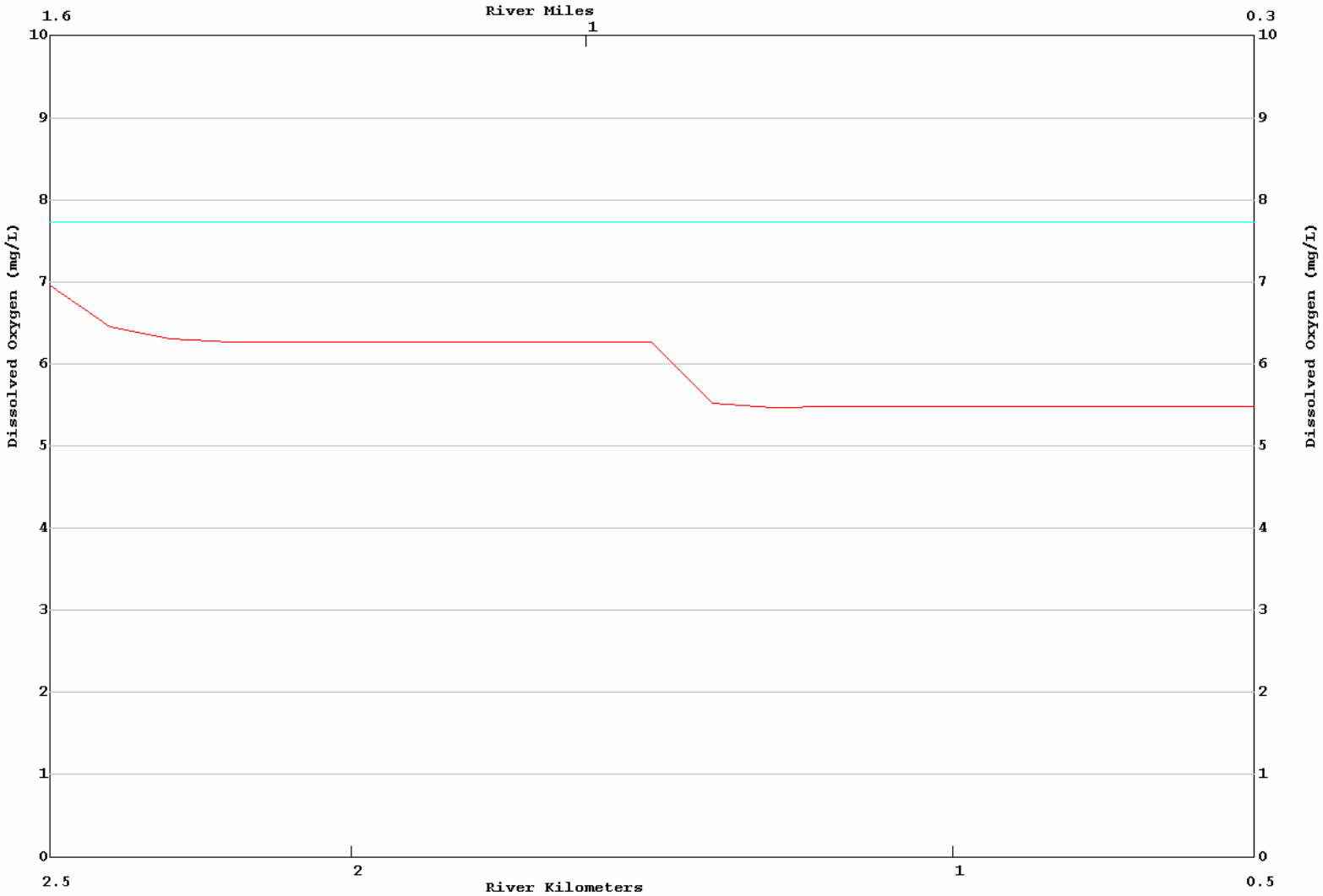
REACH NUMBER & DESCRIPTION	Calibration Model Reach Length	Calibration Model Average Reach Width	Calibration Model UCBOD1 Nonpoint loading	Calibration Model Total UCBOD Nonpoint loading	Calibration Model UNBOD Nonpoint loading	Calibration Model Total UNBOD Nonpoint loading	Calibration Model Total UCBOD Nonpoint loading	Calibration Model Total UNBOD Nonpoint loading	Calibration Model SOD	Calibration Model TOTAL Benthic Load
	km	meters	kg O_2/day	kg O_2/day	kg O_2/day	kg O_2/day	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]
REACH 1: BYCOC1 TO BYCOC2	1.00	29.87	180.00	180.00	230.00	230.00	6.026	7.700	1.50	**15.23**
REACH 2: BYCOC2 TO BYBCOC3	1.00	25.60	650.00	650.00	275.00	275.00	25.388	10.741	4.50	**40.63**

Appendix D – Projection Model Input and Output Data Sets

Appendix D1 – Summer Output and Graphs

Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

LA-QUAL Version 8.00 Run at 08:51 on 12/20/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605sum95-NI.
BAYOU COCODRIE 101605 SUMMER PROJECTION min= 5.48 max= 6.96
BAYOU COCODRIE 101605 95% MAN-MADE REDUCTION & 0% BACKGROUND RED



Bayou Cocodrie 101605 Summer Projection Input Data Set

```
CNTROL01     BAYOU COCODRIE 101605 95% MAN-MADE REDUCTION & 0% BACKGROUND REDUCTION
CNTROL02     BAYOU COCODRIE 101605 SUMMER PROJECTION
CNTROL04 YES METRIC UNITS
ENDATA01
MODOPT01  NO TEMPERATURE
MODOPT02  NO SALINITY
MODOPT03 YES CONSERVATIVE MATERIAL  I = CHLORIDES                  IN MG/L
MODOPT04 YES CONSERVATIVE MATERIAL II = CONDUCTIVITY               IN MG/L
MODOPT05 YES DISSOLVED OXYGEN
MODOPT06 YES BOD1 BIOCHEMICAL OXYGEN DEMAND
MODOPT07  NO BOD2 BIOCHEMICAL OXYGEN DEMAND
MODOPT08 YES NBOD OXYGEN DEMAND
MODOPT10  NO PHOSPHORUS
MODOPT11  NO CHLOROPHYLL A
MODOPT12  NO MACROPHYTES
MODOPT13  NO COLIFORM
ENDATA02
PROGRAM  KL MINIMUM                        =     0.7
PROGRAM  INHIBITION CONTROL VALUE          =     3.
PROGRAM  HYDRAULIC CALCULATION METHOD      =     2.
PROGRAM  SETTLING RATE UNITS               =     2.
PROGRAM  ALGAE OXYGEN PROD                 =     0.
PROGRAM  EFFECTIVE BOD DUE TO ALGAE        =     0.15
ENDATA03
!Temperature Correction Constants
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ******** ********
ENDATA04
ENDATA05
ENDATA06
ENDATA07
!Reach Identification Data
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -- ********************************----------**********----------
!          R#  ID   SITE NAME                          RKM        RKM   LENGTH
REACH ID    1  PC HEADWATER BYCOC 1 - BYCOC 2          2.5        1.5     0.1
REACH ID    2  PC BYCOC 2 - BYCOC 3                    1.5        0.5     0.1
```

```
ENDATA08
!Advective Hydraulic Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------*******-------*******-------*******-------*******
!                a      b       c     d      e        f
!               WIDTH  WIDTH   WIDTH DEPTH  DEPTH   DEPTH
!          R#   COEFF   EXP    CONST COEFF   EXP    CONST SLOPE MANNING
HYDR-1      1   0.00   0.20   29.870 0.00   0.30    0.698
HYDR-1      2   0.00   0.20   25.603 0.00   0.30    1.000
ENDATA09
!Dispersive Hydraulic Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -----**********----------**********----------
!              TIDAL
!          R#  RANGE    a          b         c         d
ENDATA10
!Initial Conditions
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  --------********--------********--------********--------********
!          R#    TEMP  SALINITY   DO     NH3 N  NIT NIT  PHOS   CHL A   MACROPHYTES
INITIAL     1    28.70           5.00                           42.4
INITIAL     2    28.70           5.00                           40.8
ENDATA11
!Reaeration, Sediment Oxygen Demand and BOD Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8---------9
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -----******----- ******-------*******-------*******-------*******-------***
!                                             BOD 1  BOD 1               BOD 2    BOD 2
!          R#  REA  KL MIN               SOD  DECAY  SETT                DECAY    SETT
COEF-1      1  11.00                     0.28 0.0896 0.30
COEF-1      2  11.00                     0.49 0.0864 0.45
ENDATA12
!Nitrogen and Phosphorus Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------*******-------*******-------*******-------
!              NBOD     NBOD
!          R#  DECAY    SETT
```

```
COEF-2      1  0.0712   0.20
COEF-2      2  0.0818   0.20
ENDATA13
ENDATA14
!Coliform and Nonconservative Cofficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------*******-------*******
ENDATA15
!Incremental Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------*********
!          R#   OUTFLOW   INFLOW  TEMP     SALINITY CHLORIDE  COND
INCR-1      1    0.0000   0.0000  28.700     0.1      6.50    210.00
INCR-1      2    0.0000   0.0000  28.700     0.1      6.00    250.00
ENDATA16
!Incremental Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------*********
!          R#      DO     BOD 1     NBOD    NH3 N   NIT NIT    BOD 2
INCR-2      1     2.00
INCR-2      2     2.00
ENDATA17
!Incremental Data for Phosphorus, Chlorophyll, Coliform and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********
!          R#   PHOSPH    CHL A   COLIFORM NONCONSERVATIVE
INCR-3      1              42.4
INCR-3      2              40.8
ENDATA18
!Nonpoint Source Data
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------*********
!          R#     BOD 1    NBOD   COLIFORM NONCONS    DO      BOD 2
NONPOINT    1      43.1     31.0
NONPOINT    2     109.3     14.0
ENDATA19
```

```
!Headwater Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  -------------------- *** --------********--------********--------
!         E#    NAME                      FLOW    TEMP  SALIN   CHLORIDE   COND
HDWTR-1     1  HEADWATER             0.  0.0028  28.70  0.1       5.7      216.2
ENDATA20
!Headwater Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------********---------********---------********
!          E#      DO      BOD 1    NBOD    NH3 N    NIT NIT  BOD 2
HDWTR-2     1      6.96     5.68    1.65
ENDATA21
!Headwater Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------********---------********
!          E#  PHOSPHOR   CHL A   COLIFORM  NONCONSERVATIVE
HDWTR-3     1              42.4
ENDATA22
ENDATA23
!Wasteload Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  --------------------********---------********---------********
!          E#     NAME               FLOW      TEMP   SALINITY CHLORIDE  COND
ENDATA24
!Wasteload Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------********-----********---------*****---------********
!          E#       DO    BOD 1         NBOD    NH3 N          NIT NIT  BOD 2
ENDATA25
!Wasteload Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------********---------********
!          E#  PHOSPHOR  CHL A    COLIFORM NONCONSERVATIVE
ENDATA26
LOWER BC TEMPERATURE                        =  28.70
```

```
LOWER BC SALINITY                          =   0.11
LOWER BC CONSERVATIVE MATERIAL I           =   6.50
LOWER BC CONSERVATIVE MATERIAL II          = 227.40
LOWER BC DISSOLVED OXYGEN                  =   5.00
LOWER BC BOD1 BIOCHEMICAL OXYGEN DEMAND    =   8.50
LOWER BC NBOD                              =   3.75
LOWER BC CHLOROPHYLL A                     =  12.50
ENDATA27
!Dam Data
!--------1---------2---------3---------4--------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  ******************** ** ******** ******** ********
ENDATA28
ENDATA29
NUMBER OF PLOTS = 1
NUMBER OF REACHES IN PLOT 1 =   2                        INCREMENT =  0.1
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** **
PLOT RCH  1  2
ENDATA30
ENDATA31
```

Bayou Cocodrie 101605 Summer Projection Output Data Set

```
LA-QUAL Version 8.00
Louisiana Department of Environmental Quality

Input file is F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605sum95-NI.txt
Output produced at 10:22 on 12/22/2005

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

CARD TYPE       CONTROL TITLES

TITLE01         BAYOU COCODRIE 101605 95% MAN-MADE REDUCTION & 0% BACKGROUND RED
TITLE02         BAYOU COCODRIE 101605 SUMMER PROJECTION
CNTROL04  YES   METRIC UNITS
ENDATA01

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

```
CARD TYPE       MODEL OPTION

MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL  I = CHLORIDES                 IN MG/L
MODOPT04  YES   CONSERVATIVE MATERIAL II = CONDUCTIVITY               IN MG/L
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BOD1 BIOCHEMICAL OXYGEN DEMAND
MODOPT07   NO   BOD2 BIOCHEMICAL OXYGEN DEMAND
MODOPT08  YES   NBOD OXYGEN DEMAND
MODOPT10   NO   PHOSPHORUS
MODOPT11   NO   CHLOROPHYLL A
MODOPT12   NO   MACROPHYTES
MODOPT13   NO   COLIFORM
ENDATA02

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

CARD TYPE       DESCRIPTION OF CONSTANT                       VALUE

PROGRAM         KL MINIMUM                        =         0.70000 meters/day
PROGRAM         INHIBITION CONTROL VALUE          =         3.00000 (inhibit all rates but SOD)
PROGRAM         HYDRAULIC CALCULATION METHOD      =         2.00000 (widths and depths)
PROGRAM         SETTLING RATE UNITS               =         2.00000 (values entered as per day)
PROGRAM         ALGAE OXYGEN PROD                 =         0.00000 mg O/ug chl a/day
PROGRAM         EFFECTIVE BOD DUE TO ALGAE        =         0.15000 mg/L BOD per ug/L chl a
ENDATA03

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

 CARD TYPE     RATE CODE     THETA VALUE

ENDATA04

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

CARD TYPE       DESCRIPTION OF CONSTANT                       VALUE

ENDATA05
```

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

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA06

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

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA07

$$$ DATA TYPE 8 (REACH IDENTIFICATION DATA) $$$
                                                        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   PC  HEADWATER BYCOC 1 - BYCOC 2        2.50  TO    1.50   0.1000     1.00      10        1     10
REACH ID      2   PC  BYCOC 2 - BYCOC 3                  1.50  TO    0.50   0.1000     1.00      10       11     20
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   PC       0.000       0.200      29.870       0.000       0.300       0.698     0.00000   0.000
HYDR-1        2   PC       0.000       0.200      25.603       0.000       0.300       1.000     0.00000   0.000
ENDATA09

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

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

ENDATA10

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

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

```
INITIAL           1   PC       28.70      0.00      5.00      0.00      0.00      0.00     42.40      0.00
INITIAL           2   PC       28.70      0.00      5.00      0.00      0.00      0.00     40.80      0.00
ENDATA11

$$$ DATA TYPE 12 (REAERATION, SEDIMENT OXYGEN DEMAND, BOD COEFFICIENTS) $$$
                                                                                                  BOD     ANAER                          BOD2
ANAER
CARD     RCH  RCH  K2                    K2        K2        K2    BKGRND       BOD       BOD      CONV      BOD2      BOD2      BOD2      CONV
BOD2
TYPE     NUM   ID  OPT                  "A"       "B"       "C"       SOD     DECAY      SETT    TO SOD     DECAY     DECAY      SETT    TO SOD
DECAY
                                                                  g/m²/d   per day       m/d             per day   per day       m/d
per day

COEF-1     1   PC  11 TEXAS           0.000     0.000     0.000     0.280     0.090     0.300     0.000     0.000     0.000     0.000     0.000
0.000
COEF-1     2   PC  11 TEXAS           0.000     0.000     0.000     0.490     0.086     0.450     0.000     0.000     0.000     0.000     0.000
0.000
ENDATA12

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

CARD TYPE      REACH  ID        NBOD      NBOD   ORGN CONV       NH3       NH3      PHOS     DENIT
                                DECA      SETT  TO NH3 SRCE     DECA      SRCE      SRCE      RATE

COEF-2           1   PC       0.071     0.200     0.000       0.000     0.000     0.000     0.000
COEF-2           2   PC       0.082     0.200     0.000       0.000     0.000     0.000     0.000
ENDATA13

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

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

ENDATA14

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

CARD TYPE      REACH  ID    COLIFORM       NCM       NCM    NCM CONV
                             DIE-OFF     DECAY      SETT     TO SOD
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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   PC       0.00000     0.00000     28.70      0.10      6.50    210.00   0.00000   0.00000
INCR-1           2   PC       0.00000     0.00000     28.70      0.10      6.00    250.00   0.00000   0.00000
ENDATA16

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

CARD TYPE      REACH  ID          DO       BOD      NBOD                          BOD#2

INCR-2           1   PC        2.00      0.00      0.00      0.00      0.00      0.00
INCR-2           2   PC        2.00      0.00      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   PC        0.00     42.40      0.00      0.00
INCR-3           2   PC        0.00     40.80      0.00      0.00
ENDATA18

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

CARD TYPE      REACH  ID       BOD#1     NBOD       COLI       NCM        DO     BOD#2

NONPOINT         1   PC       43.10     31.00      0.00      0.00      0.00      0.00
NONPOINT         2   PC      109.30     14.00      0.00      0.00      0.00      0.00
ENDATA19

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

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

HDWTR-1          1     HEADWATER              0   0.00280    0.099   28.70     0.10     5.700   216.200
ENDATA20
```

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

CARD TYPE     ELEMENT   NAME                          DO     BOD#1     NBOD                          BOD#2
                                                    mg/L      mg/L      mg/L      mg/L      mg/L      mg/L

HDWTR-2           1     HEADWATER                   6.96      5.68      1.65      0.00      0.00      0.00
ENDATA21

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

CARD TYPE     ELEMENT   NAME                         PHOS     CHL A      COLI       NCM
                                                    mg/L      mg/L      mg/L      mg/L

HDWTR-3           1     HEADWATER                    0.00     42.40      0.00      0.00
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       FLOW     FLOW    TEMP    SALIN      CM-I     CM-II
                                                      m³/s        cfs      MGD   deg C      ppt      MG/L      MG/L

ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$
                                                                  % BOD                          %
CARD TYPE     ELEMENT   NAME                          DO       BOD      RMVL     NBOD                NITRIF                BOD#2
                                                    mg/L      mg/L                mg/L      mg/L                mg/L      mg/L

ENDATA25

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

CARD TYPE     ELEMENT   NAME                         PHOS     CHL A      COLI       NCM
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                                                    mg/L      mg/L      mg/L      mg/L

ENDATA26

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

CARD TYPE    CONSTITUENT                    CONCENTRATION

LOWER BC     TEMPERATURE                       =     28.700     deg C
LOWER BC     SALINITY                          =      0.110     ppt
LOWER BC     CONSERVATIVE MATERIAL I           =      6.500     MG/L
LOWER BC     CONSERVATIVE MATERIAL II          =    227.400     MG/L
LOWER BC     DISSOLVED OXYGEN                  =      5.000     mg/L
LOWER BC     BOD1 BIOCHEMICAL OXYGEN DEMAND    =      8.500     mg/L
LOWER BC     NBOD                              =      3.750     mg/L
LOWER BC     CHLOROPHYLL A                     =     12.500     µg/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 =   2
PLOT RCH  1  2
ENDATA30

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

ENDATA31

```
     .....NO ERRORS DETECTED IN INPUT DATA
     .....HYDRAULIC CALCULATIONS COMPLETED
     .....TRIDIAGONAL MATRIX TERMS INITIALIZED
     .....OXYGEN DEPENDENT RATES CONVERGENT IN   2 ITERATIONS
     .....CONSTITUENT CALCULATIONS COMPLETED
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FINAL REPORT HEADWATER BAYOU COCODRIE 101605 95% MAN-MADE REDUCTION & 0% BACKGROUND RED
REACH NO. 1 HEADWATER BYCOC 1 - BYCOC 2 BAYOU COCODRIE 101605 SUMMER PROJECTION

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 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	28.70	0.10	5.70	216.20	6.96	0.00	0.00	5.68	0.00	1.65	0.00	0.00	0.00	42.40	0.00	0.00

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m^3/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
1	2.50	2.40	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
2	2.40	2.30	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
3	2.30	2.20	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
4	2.20	2.10	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
5	2.10	2.00	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
6	2.00	1.90	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
7	1.90	1.80	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
8	1.80	1.70	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
9	1.70	1.60	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
10	1.60	1.50	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
TOT						86.18			20849.26	29870.00					

AVG						0.0001				0.70	29.87								20.85			
CUM									86.18													

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

ELEM NO.	ENDING NCM DIST	SAT D.O.	REAER RATE	BOD#1 DECAY	BOD#1 SETT	ABOD#1 DECAY	BOD#2 DECAY	BOD#2 SETT	ABOD#2 DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	NCM SETT
		mg/L	1/da	1/da	1/da	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
1	2.400	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.48	0.48	0.48	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.300	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.48	0.48	0.48	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	2.200	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.48	0.48	0.48	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	2.100	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.48	0.48	0.48	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.000	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.48	0.48	0.48	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	1.900	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.48	0.48	0.48	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	1.800	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.48	0.48	0.48	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	1.700	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.48	0.48	0.48	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	1.600	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.48	0.48	0.48	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	1.500	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.48	0.48	0.48	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			1.00	0.09	0.30	0.00	0.00	0.00	0.00	0.28			0.07	0.20	0.00	0.00	0.00	0.00			0.00	0.00	0.00

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

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

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO g/m³	COLI #/100mL	NCM
1	2.400	28.70	0.00	5.70	216.20	6.46	3.34	0.00	9.68	0.00	3.48	0.00	0.00	0.00	0.00	42.24	0.00	0.	0.00
2	2.300	28.70	0.00	5.70	216.20	6.31	3.97	0.00	10.28	0.00	3.92	0.00	0.00	0.00	0.00	42.08	0.00	0.	0.00
3	2.200	28.70	0.00	5.70	216.20	6.27	4.09	0.00	10.38	0.00	4.03	0.00	0.00	0.00	0.00	41.92	0.00	0.	0.00
4	2.100	28.70	0.00	5.70	216.20	6.26	4.11	0.00	10.37	0.00	4.05	0.00	0.00	0.00	0.00	41.76	0.00	0.	0.00
5	2.000	28.70	0.00	5.70	216.20	6.26	4.11	0.00	10.35	0.00	4.06	0.00	0.00	0.00	0.00	41.60	0.00	0.	0.00
6	1.900	28.70	0.00	5.70	216.20	6.26	4.11	0.00	10.33	0.00	4.06	0.00	0.00	0.00	0.00	41.44	0.00	0.	0.00
7	1.800	28.70	0.00	5.70	216.20	6.26	4.11	0.00	10.31	0.00	4.06	0.00	0.00	0.00	0.00	41.28	0.00	0.	0.00
8	1.700	28.70	0.00	5.70	216.20	6.26	4.12	0.00	10.28	0.00	4.06	0.00	0.00	0.00	0.00	41.12	0.00	0.	0.00
9	1.600	28.70	0.00	5.70	216.20	6.26	4.12	0.00	10.26	0.00	4.06	0.00	0.00	0.00	0.00	40.96	0.00	0.	0.00
10	1.500	28.70	0.00	5.70	216.20	6.26	4.12	0.00	10.24	0.00	4.06	0.00	0.00	0.00	0.00	40.80	0.00	0.	0.00

FINAL REPORT HEADWATER BAYOU COCODRIE 101605 95% MAN-MADE REDUCTION & 0% BACKGROUND RED
REACH NO. 2 BYCOC 2 - BYCOC 3 BAYOU COCODRIE 101605 SUMMER PROJECTION

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 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	28.70	0.00	5.70	216.20	6.26	4.12	0.00	10.24	0.00	4.06	0.00	0.00	0.00	40.80	0.00	0.00

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
11	1.50	1.40	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
12	1.40	1.30	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
13	1.30	1.20	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
14	1.20	1.10	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
15	1.10	1.00	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
16	1.00	0.90	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
17	0.90	0.80	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000

18	0.80	0.70	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
19	0.70	0.60	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
20	0.60	0.50	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
TOT						105.83			25603.00	25603.00					
AVG					0.0001		1.00	25.60			25.60				
CUM						192.01									

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

ELEM NO.	ENDING DIST	SAT D.O.	REAER RATE	BOD#1 DECAY	BOD#1 SETT	ABOD#1 DECAY	BOD#2 DECAY	BOD#2 SETT	ABOD#2 DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	NCM SETT
		mg/L	1/da	1/da	1/da	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
11	1.400	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.85	0.85	0.85	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	1.300	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.85	0.85	0.85	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	1.200	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.85	0.85	0.85	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	1.100	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.85	0.85	0.85	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	1.000	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.85	0.85	0.85	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.900	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.85	0.85	0.85	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.800	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.85	0.85	0.85	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.700	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.85	0.85	0.85	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.600	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.85	0.85	0.85	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.500	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.85	0.85	0.85	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.70	0.09	0.45	0.00	0.00	0.00	0.00	0.49			0.08	0.20	0.00	0.00	0.00	0.00			0.00	0.00	0.00

* g/m²/d ** mg/L/day

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

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO g/m³	COLI #/100mL	NCM
11	1.400	28.70	0.01	5.70	216.20	5.52	6.00	0.00	11.69	0.00	1.95	0.00	0.00	0.00	0.00	37.97	0.00	0.	0.00
12	1.300	28.70	0.02	5.70	216.20	5.48	6.23	0.00	11.50	0.00	1.53	0.00	0.00	0.00	0.00	35.14	0.00	0.	0.00
13	1.200	28.70	0.03	5.70	216.20	5.48	6.26	0.00	11.10	0.00	1.45	0.00	0.00	0.00	0.00	32.31	0.00	0.	0.00
14	1.100	28.70	0.04	5.70	216.20	5.48	6.26	0.00	10.68	0.00	1.44	0.00	0.00	0.00	0.00	29.48	0.00	0.	0.00
15	1.000	28.70	0.05	5.70	216.20	5.48	6.26	0.00	10.26	0.00	1.43	0.00	0.00	0.00	0.00	26.65	0.00	0.	0.00
16	0.900	28.70	0.07	5.70	216.20	5.48	6.26	0.00	9.83	0.00	1.43	0.00	0.00	0.00	0.00	23.82	0.00	0.	0.00
17	0.800	28.70	0.08	5.70	216.20	5.48	6.26	0.00	9.41	0.00	1.43	0.00	0.00	0.00	0.00	20.99	0.00	0.	0.00
18	0.700	28.70	0.09	5.70	216.20	5.48	6.26	0.00	8.98	0.00	1.43	0.00	0.00	0.00	0.00	18.16	0.00	0.	0.00
19	0.600	28.70	0.10	5.70	216.20	5.48	6.26	0.00	8.56	0.00	1.43	0.00	0.00	0.00	0.00	15.33	0.00	0.	0.00
20	0.500	28.70	0.11	5.70	216.20	5.48	6.26	0.00	8.13	0.00	1.43	0.00	0.00	0.00	0.00	12.50	0.00	0.	0.00

STREAM SUMMARY BAYOU COCODRIE 101605 95% MAN-MADE REDUCTION & 0% BACKGROUND RED
HEADWATER BAYOU COCODRIE 101605 SUMMER PROJECTION

TRAVEL TIME = 192.01 DAYS

MAXIMUM EFFLUENT = 0.00 PERCENT

FLOW	=	0.00280	TO	0.00280	m³/s
DISPERSION	=	0.0000	TO	0.0000	m²/s
VELOCITY	=	0.00011	TO	0.00013	m/s
DEPTH	=	0.70	TO	1.00	m
WIDTH	=	25.60	TO	29.87	m
BOD DECAY	=	0.13	TO	0.13	per day
NH3 DECAY	=	0.00	TO	0.00	per day
SOD	=	0.48	TO	0.85	g/m²/d
NH3 SOURCE	=	0.00	TO	0.00	g/m²/d
REAERATION	=	0.82	TO	1.18	per day
BOD SETTLING	=	0.37	TO	0.55	per day
NBOD DECAY	=	0.12	TO	0.14	per day

```
 NBOD SETTLING     =    0.25   TO    0.25      per day

 TEMPERATURE       =   28.70   TO   28.70      deg C
 DISSOLVED OXYGEN  =    5.48   TO    6.46      mg/L


     .....EXECUTION COMPLETED
```

Appendix D2 – Summer Justifications

DATA TYPE 3 - PROGRAM CONSTANTS			
CONSTANT NAME	**VALUE**	**UNITS**	**DATA SOURCE**
KL MINIMUM	0.7	m/day	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
INHIBITION CONTROL VALUE	3		The water column dissolved oxygen demand is assumed to come primarily from facultative bacteria under anoxic conditions and SOD is not influenced by modeled dissolved oxygen levels in the upper water column.
HYDRAULIC CALCULATION METHOD	2		The low slopes in this waterbody cause a substantial amount of water to be present during critical flow conditions. This method allows the model to predict a more accurate depth and width during low flow conditions.
ALGAE OXYGEN PRODUCTION	0		Standard practice for steady state calibration to a wide variation in DO.
EFFECTIVE BOD DUE TO ALGAE	0.15		Standard practice for steady state calibration to a wide variation in DO.
SETTLING RATE UNITS	2		By making the settling rate a velocity the rate becomes dependent upon the depth.

DATA TYPE 8 - REACH IDENTIFICATION DATA						
Reach	**ID**	**Name**	**Upstream River Kilometer**	**Downstream River Kilometer**	**Element Length, meters**	**Data Source**
1	BC	BYCOC1 -BYCOC2	2.50	1.50	100.0000	ARC MAP Calc.
2	BC	BYCOC2 - BYCOC3	1.50	0.50	100.0000	ARC MAP Calc.

		DATA TYPE 9 - ADVECTIVE HYDRAULIC COEFFICIENTS			
Reach	**Name**	**Width Coeff. "a"**	**Width Exp. "b"**	**Width Const. "c"**	**Data Source**
1	BYCOC1 -BYCOC2	0	0.2	29.87	BYCOC2
2	BYCOC2 - BYCOC3	0	0.2	25.603	BYCOC3

		DATA TYPE 9 - ADVECTIVE HYDRAULIC COEFFICIENTS			
Reach	**Name**	**Depth Coeff. "d"**	**Depth Exp. "e"**	**Depth Const. "f"**	**Data Source**
1	BYCOC1 -BYCOC2	0	0.3	0.698	BYCOC2
2	BYCOC2 - BYCOC3	0	0.3	1	BYCOC3

		DATA TYPE 11 - INITIAL CONDITIONS					
Reach	**Name**	**Temp, deg C**	**Data Source**	**DO, mg/l**	**Data Source**	**Chlorophyll a**	**Data Source**
1	BYCOC1 -BYCOC2	28.70	Summer Season 90th Percentile Temperature	5.00	DO Standard for 101605	42.4	BYCOC1 Lab Data
2	BYCOC2 - BYCOC3	28.70	Summer Season 90th Percentile Temperature	5.00	DO Standard for 101605	40.8	BYCOC2 Lab Data

		DATA TYPE 12 - REAERATION, SEDIMENT OXYGEN DEMAND AND BOD COEFFICIENTS							
REACH	NAME	K2 OPT	Data Source	BKGRND SOD, gmO2/m2/day at 20 deg C	Data Source	Aerobic BOD1 Dec Rate (1/day)	Data Source	BOD1 SETT RATE (m/day, ft/day or 1/day)	Data Source
1	BYCOC1 -BYCOC2	11	Texas Equation	0.28	95% Reduction	0.0896	AVG(BYCOC1, BYCOC2)	0.30	Calibration
2	BYCOC2 - BYCOC3	11	Texas Equation	0.49	95% Reduction	0.0864	AVG(BYCOC2, BYCOC3)	0.45	Calibration

DATA TYPE 13 - NITROGEN AND PHOSPHORUS COEFFICIENTS					
Reach	Name	NBOD decay rate, 1/day	Data Source	NBOD settling rate, 1/day	Data Source
1	BYCOC1 -BYCOC2	0.0712	AVG(BYCOC1, BYCOC2)	0.20	Calibration
2	BYCOC2 - BYCOC3	0.0818	AVG(BYCOC2, BYCOC3)	0.20	Calibration

DATA TYPES 16 - INCREMENTAL DATA FOR TEMP AND CONS						
Reach	**Reach Name**	**Incr. Ouflow, m3**	**Incr. Inflow, m3**	**Data Source**	**Temp, deg C**	**Data Source**
1	BYCOC1 -BYCOC2	0.0000	0.0000	No Incremental Flow for projections	28.700	Summer Season 90th Percentile Temperature
2	BYCOC2 - BYCOC3	0.0000	0.0000	No Incremental Flow for projections	28.700	Summer Season 90th Percentile Temperature

DATA TYPES 16 - INCREMENTAL DATA FOR TEMP AND CONS						
Reach	**Reach Name**	**Sal., ppt**	**Cond**	**Data Source**	**Chl**	**Data Source**
1	BYCOC1 -BYCOC2	0.100	210	Insitu Data	6.5	Calibration
2	BYCOC2 - BYCOC3	0.100	250	Insitu Data	6.0	Calibration

DATA TYPES 17 - INCREMENTAL DATA FOR DO			
Reach	**Reach Name**	**DO, mg/l**	**Data Source**
1	BYCOC1 - BYCOC2	2	Normal Groundwater DO
2	BYCOC2 - BYCOC3	2	Normal Groundwater DO

DATA TYPES 18 - INCREMENTAL DATA FOR PHOSPHORUS, CHLOROPHYLL, COLIFORM, AND NONCONSERVATIVES			
Reach	**Reach Name**	**Chl a, ug/L**	**Data Source**
1	BYCOC1 -BYCOC2	42.4	BYCOC1
2	BYCOC2 - BYCOC3	40.8	BYCOC2

	DATA TYPE 19 - NONPOINT SOURCES				
Reach	**Reach Name**	**Length of Reach, km**	**UCBOD1, kg/day**	**NBOD, kg/day**	**Data Source**
1	BYCOC1 -BYCOC2	1.00	43.1	31.00	95% Reduction
2	BYCOC2 - BYCOC3	1	109.3	14.00	95% Reduction

DATA TYPES 20 - HEADWATER DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES							
Headwater Name	**Element No.**	**Logical Unit Number**	**Headwater Flow, cms**	**Temp, deg C**	**Chlorides**	**Conductivity**	**Data Source**
Headwater 1	1	1	0.0028	28.7	5.7	216.20	LTP Minimum Flow for Bayou Cocodrie, Summer Season 90th Percentile Temperature, BYCOC1 for chlorides and conductivity

DATA TYPES 21 - HEADWATER DATA FOR DO, BOD, AND NITROGEN				
Headwater Name	**Dissolved Oxygen, mg/L**	**UCBOD1, mg/l**	**NBOD mg/l**	**Data Source**
Headwater 1	6.96	5.68	1.65	Summer Season 90% DO Sat, 95% Reduction

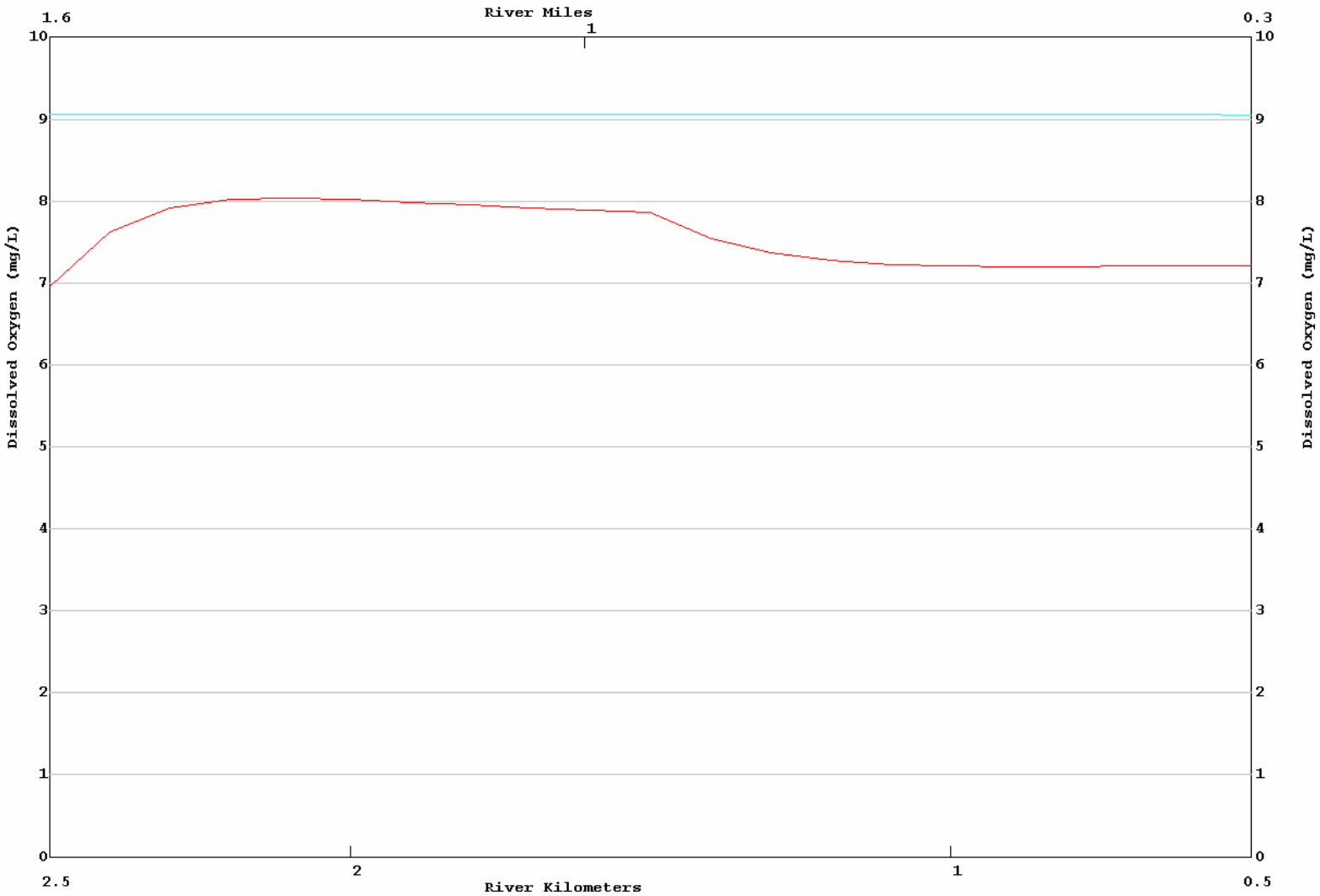
DATA TYPES 22 - HEADWATER DATA FOR CHLOROPHYLL		
Headwater Name	**Chlorophyll a, ug/L**	**Date Source**
Headwater 1	42.4	BYCOC1 Lab Data

DATA TYPES 27 - LOWER BOUNDARY CONDITIONS Survey Site Name: Bayou Cocodrie downstream side of Hwy 15			
Parameter	**Value**	**Units**	**Data Source**
TEMPERATURE	28.70	^{O}C	Summer Season 90th Percentile Temperature
SALINITY	0.11	mg/L	BYCOC4 In Situ
CHLORIDES	6.50	ppm	BYCOC4 Lab Data
CONDUCTIVITY	227.40	umhos/cm	BYCOC4 In Situ
DISSOLVED OXYGEN	5.00	mg/L	DO Standard for 101605
CHLOROPHYLL A	12.50	ug/L	BYCOC3 Lab Data
BIOCHEMICAL OXYGEN DEMAND 1	8.50	mg/L	BYCOC4 Lab Data
NBOD	3.75	mg/L	BYCOC4 Lab Data

Appendix D3 – Winter output and Graphs

Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

LA-QUAL Version 8.00 Run at 13:14 on 12/20/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605win95-NI.
BAYOU COCODRIE 101605 Winter projection min= 6.96 max= 8.04
BAYOU COCODRIE 101605 95% Man-Made Reduction & 0% Background Red



Bayou Cocodrie 101605 Winter Projection input Data Set

```
CNTROL01     BAYOU COCODRIE 101605 95% Man-Made Reduction & 0% Background Reduction
CNTROL02     BAYOU COCODRIE 101605 Winter projection
CNTROL04 YES METRIC UNITS
ENDATA01
MODOPT01  NO TEMPERATURE
MODOPT02  NO SALINITY
MODOPT03 YES CONSERVATIVE MATERIAL  I = CHLORIDES                  IN MG/L
MODOPT04 YES CONSERVATIVE MATERIAL II = CONDUCTIVITY               IN MG/L
MODOPT05 YES DISSOLVED OXYGEN
MODOPT06 YES BOD1 BIOCHEMICAL OXYGEN DEMAND
MODOPT07  NO BOD2 BIOCHEMICAL OXYGEN DEMAND
MODOPT08 YES NBOD OXYGEN DEMAND
MODOPT10  NO PHOSPHORUS
MODOPT11  NO CHLOROPHYLL A
MODOPT12  NO MACROPHYTES
MODOPT13  NO COLIFORM
ENDATA02
PROGRAM  KL MINIMUM                        =     0.7
PROGRAM  INHIBITION CONTROL VALUE          =     3.
PROGRAM  HYDRAULIC CALCULATION METHOD      =     2.
PROGRAM  SETTLING RATE UNITS               =     2.
PROGRAM  ALGAE OXYGEN PROD                 =     0.
PROGRAM  EFFECTIVE BOD DUE TO ALGAE        =     0.15
ENDATA03
!Temperature Correction Constants
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ******** ********
ENDATA04
ENDATA05
ENDATA06
ENDATA07
!Reach Identification Data
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -- ********************************----------**********----------
!          R#  ID   SITE NAME                          RKM        RKM   LENGTH
REACH ID    1  PC HEADWATER BYCOC 1 - BYCOC 2          2.5        1.5     0.1
REACH ID    2  PC BYCOC 2 - BYCOC 3                    1.5        0.5     0.1
```

```
ENDATA08
!Advective Hydraulic Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------*******-------*******-------*******-------*******
!                a      b       c     d      e        f
!               WIDTH  WIDTH   WIDTH DEPTH  DEPTH   DEPTH
!          R#   COEFF   EXP    CONST COEFF   EXP    CONST SLOPE MANNING
HYDR-1      1   0.00   0.20   29.870 0.00   0.30    0.698
HYDR-1      2   0.00   0.20   25.603 0.00   0.30    1.000
ENDATA09
!Dispersive Hydraulic Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -----**********----------**********----------
!              TIDAL
!          R#  RANGE    a          b         c         d
ENDATA10
!Initial Conditions
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  --------********--------********--------********--------********
!          R#    TEMP  SALINITY   DO     NH3 N  NIT NIT  PHOS   CHL A   MACROPHYTES
INITIAL     1    20.18           5.00                           42.4
INITIAL     2    20.18           5.00                           40.8
ENDATA11
!Reaeration, Sediment Oxygen Demand and BOD Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8---------9
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -----******----- ******-------*******-------*******-------*******-------***
!                                             BOD 1  BOD 1               BOD 2    BOD 2
!          R#  REA  KL MIN               SOD  DECAY  SETT                DECAY    SETT
COEF-1      1  11.00                     0.28 0.0896 0.30
COEF-1      2  11.00                     0.49 0.0864 0.45
ENDATA12
!Nitrogen and Phosphorus Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------*******-------*******-------*******-------
!              NBOD     NBOD
!          R#  DECAY    SETT
```

```
COEF-2      1  0.0712   0.20
COEF-2      2  0.0818   0.20
ENDATA13
ENDATA14
!Coliform and Nonconservative Cofficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------*******-------*******
ENDATA15
!Incremental Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------*********
!          R#   OUTFLOW   INFLOW  TEMP     SALINITY CHLORIDE  COND
INCR-1      1    0.0000   0.0000  20.180     0.1      6.50    210.00
INCR-1      2    0.0000   0.0000  20.180     0.1      6.00    250.00
ENDATA16
!Incremental Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------*********
!          R#      DO     BOD 1     NBOD    NH3 N   NIT NIT    BOD 2
INCR-2      1     2.00
INCR-2      2     2.00
ENDATA17
!Incremental Data for Phosphorus, Chlorophyll, Coliform and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********
!          R#   PHOSPH    CHL A   COLIFORM NONCONSERVATIVE
INCR-3      1              42.4
INCR-3      2              40.8
ENDATA18
!Nonpoint Source Data
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------*********
!          R#     BOD 1    NBOD   COLIFORM NONCONS    DO      BOD 2
NONPOINT    1      33.4     42.7
NONPOINT    2      70.6     29.9
ENDATA19
```

```
!Headwater Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  -------------------- *** --------********--------********--------
!         E#    NAME                      FLOW    TEMP  SALIN   CHLORIDE   COND
HDWTR-1     1  HEADWATER             0.  0.028   28.70  0.1       5.7      216.2
ENDATA20
!Headwater Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  ---------********---------********---------********
!          E#      DO      BOD 1    NBOD    NH3 N    NIT NIT  BOD 2
HDWTR-2     1      6.96     5.19    1.51
ENDATA21
!Headwater Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  ---------********---------********
!          E#  PHOSPHOR   CHL A   COLIFORM  NONCONSERVATIVE
HDWTR-3     1              42.4
ENDATA22
ENDATA23
!Wasteload Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  --------------------********---------********---------********
!          E#     NAME               FLOW      TEMP   SALINITY CHLORIDE  COND
ENDATA24
!Wasteload Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  ---------********-----********---------*****---------********
!          E#       DO    BOD 1         NBOD    NH3 N          NIT NIT  BOD 2
ENDATA25
!Wasteload Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  ---------********---------********
!          E#  PHOSPHOR  CHL A    COLIFORM NONCONSERVATIVE
ENDATA26
LOWER BC TEMPERATURE                        =  20.18
```

```
LOWER BC SALINITY                          =   0.11
LOWER BC CONSERVATIVE MATERIAL I           =   6.50
LOWER BC CONSERVATIVE MATERIAL II          = 227.40
LOWER BC DISSOLVED OXYGEN                  =   5.00
LOWER BC BOD1 BIOCHEMICAL OXYGEN DEMAND    =   8.50
LOWER BC NBOD                              =   3.75
LOWER BC CHLOROPHYLL A                     =  12.50
ENDATA27
!Dam Data
!--------1---------2---------3---------4--------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  ******************** ** ******** ******** ********
ENDATA28
ENDATA29
NUMBER OF PLOTS = 1
NUMBER OF REACHES IN PLOT 1 =   2                        INCREMENT =  0.1
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** **
PLOT RCH  1  2
ENDATA30
ENDATA31
```

Bayou Cocodrie 101605 Winter Projection Output Data Set

```
LA-QUAL Version 8.00
Louisiana Department of Environmental Quality

Input file is F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605win95-NI.txt
Output produced at 10:24 on 12/22/2005

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

CARD TYPE       CONTROL TITLES

TITLE01         BAYOU COCODRIE 101605 95% Man-Made Reduction & 0% Background Red
TITLE02         BAYOU COCODRIE 101605 Winter projection
CNTROL04  YES   METRIC UNITS
ENDATA01

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

```
CARD TYPE       MODEL OPTION

MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL  I = CHLORIDES                 IN MG/L
MODOPT04  YES   CONSERVATIVE MATERIAL II = CONDUCTIVITY              IN MG/L
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BOD1 BIOCHEMICAL OXYGEN DEMAND
MODOPT07   NO   BOD2 BIOCHEMICAL OXYGEN DEMAND
MODOPT08  YES   NBOD OXYGEN DEMAND
MODOPT10   NO   PHOSPHORUS
MODOPT11   NO   CHLOROPHYLL A
MODOPT12   NO   MACROPHYTES
MODOPT13   NO   COLIFORM
ENDATA02

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

CARD TYPE       DESCRIPTION OF CONSTANT                       VALUE

PROGRAM         KL MINIMUM                        =         0.70000 meters/day
PROGRAM         INHIBITION CONTROL VALUE          =         3.00000 (inhibit all rates but SOD)
PROGRAM         HYDRAULIC CALCULATION METHOD      =         2.00000 (widths and depths)
PROGRAM         SETTLING RATE UNITS               =         2.00000 (values entered as per day)
PROGRAM         ALGAE OXYGEN PROD                 =         0.00000 mg O/ug chl a/day
PROGRAM         EFFECTIVE BOD DUE TO ALGAE        =         0.15000 mg/L BOD per ug/L chl a
ENDATA03

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

 CARD TYPE     RATE CODE     THETA VALUE

ENDATA04

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

CARD TYPE       DESCRIPTION OF CONSTANT                       VALUE

ENDATA05
```

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

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA06

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

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA07

$$$ DATA TYPE 8 (REACH IDENTIFICATION DATA) $$$
                                                        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   PC  HEADWATER BYCOC 1 - BYCOC 2        2.50  TO    1.50   0.1000     1.00      10        1     10
REACH ID      2   PC  BYCOC 2 - BYCOC 3                  1.50  TO    0.50   0.1000     1.00      10       11     20
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   PC       0.000       0.200      29.870       0.000       0.300       0.698     0.00000   0.000
HYDR-1        2   PC       0.000       0.200      25.603       0.000       0.300       1.000     0.00000   0.000
ENDATA09

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

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

ENDATA10

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

CARD TYPE      REACH  ID        TEMP     SALIN        DO       NH3     NO3+2      PHOS     CHL A     MACRO
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```
INITIAL           1   PC       20.18      0.00      5.00      0.00      0.00      0.00     42.40      0.00
INITIAL           2   PC       20.18      0.00      5.00      0.00      0.00      0.00     40.80      0.00
ENDATA11

$$$ DATA TYPE 12 (REAERATION, SEDIMENT OXYGEN DEMAND, BOD COEFFICIENTS) $$$
                                                                                                  BOD     ANAER                          BOD2
ANAER
CARD     RCH  RCH  K2                    K2        K2        K2    BKGRND       BOD       BOD      CONV      BOD2      BOD2      BOD2      CONV
BOD2
TYPE     NUM   ID  OPT                  "A"       "B"       "C"       SOD     DECAY      SETT    TO SOD     DECAY     DECAY      SETT    TO SOD
DECAY
                                                                  g/m²/d   per day       m/d             per day   per day       m/d
per day

COEF-1     1   PC  11 TEXAS           0.000     0.000     0.000     0.280     0.090     0.300     0.000     0.000     0.000     0.000     0.000
0.000
COEF-1     2   PC  11 TEXAS           0.000     0.000     0.000     0.490     0.086     0.450     0.000     0.000     0.000     0.000     0.000
0.000
ENDATA12

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

CARD TYPE      REACH  ID        NBOD      NBOD   ORGN CONV       NH3       NH3      PHOS     DENIT
                                DECA      SETT  TO NH3 SRCE     DECA      SRCE      SRCE      RATE

COEF-2           1   PC       0.071     0.200     0.000       0.000     0.000     0.000     0.000
COEF-2           2   PC       0.082     0.200     0.000       0.000     0.000     0.000     0.000
ENDATA13

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

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

ENDATA14

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

CARD TYPE      REACH  ID    COLIFORM       NCM       NCM    NCM CONV
                             DIE-OFF     DECAY      SETT     TO SOD
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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   PC       0.00000     0.00000     20.18      0.10      6.50    210.00   0.00000   0.00000
INCR-1           2   PC       0.00000     0.00000     20.18      0.10      6.00    250.00   0.00000   0.00000
ENDATA16

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

CARD TYPE      REACH  ID          DO       BOD      NBOD                          BOD#2

INCR-2           1   PC        2.00      0.00      0.00      0.00      0.00      0.00
INCR-2           2   PC        2.00      0.00      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   PC        0.00     42.40      0.00      0.00
INCR-3           2   PC        0.00     40.80      0.00      0.00
ENDATA18

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

CARD TYPE      REACH  ID       BOD#1     NBOD       COLI       NCM        DO     BOD#2

NONPOINT         1   PC       33.40     42.70      0.00      0.00      0.00      0.00
NONPOINT         2   PC       70.60     29.90      0.00      0.00      0.00      0.00
ENDATA19

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

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

HDWTR-1          1     HEADWATER              0   0.02800    0.989   28.70     0.10     5.700   216.200
ENDATA20
```

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

CARD TYPE     ELEMENT   NAME                        DO     BOD#1     NBOD                          BOD#2
                                                  mg/L      mg/L      mg/L      mg/L      mg/L      mg/L

HDWTR-2           1     HEADWATER                 6.96      5.19      1.51      0.00      0.00      0.00
ENDATA21

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

CARD TYPE     ELEMENT   NAME                       PHOS     CHL A      COLI       NCM
                                                   mg/L      mg/L      mg/L      mg/L

HDWTR-3           1     HEADWATER                  0.00     42.40      0.00      0.00
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       FLOW     FLOW    TEMP    SALIN      CM-I     CM-II
                                                     m³/s        cfs      MGD   deg C      ppt      MG/L      MG/L

ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$
                                                                  % BOD                          %
CARD TYPE     ELEMENT   NAME                        DO       BOD      RMVL     NBOD               NITRIF                BOD#2
                                                  mg/L      mg/L                mg/L      mg/L                mg/L      mg/L

ENDATA25

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

CARD TYPE     ELEMENT   NAME                       PHOS     CHL A      COLI       NCM
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                                                    mg/L      mg/L      mg/L      mg/L

ENDATA26

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

CARD TYPE    CONSTITUENT                    CONCENTRATION

LOWER BC     TEMPERATURE                       =     20.180     deg C
LOWER BC     SALINITY                          =      0.110     ppt
LOWER BC     CONSERVATIVE MATERIAL I           =      6.500     MG/L
LOWER BC     CONSERVATIVE MATERIAL II          =    227.400     MG/L
LOWER BC     DISSOLVED OXYGEN                  =      5.000     mg/L
LOWER BC     BOD1 BIOCHEMICAL OXYGEN DEMAND    =      8.500     mg/L
LOWER BC     NBOD                              =      3.750     mg/L
LOWER BC     CHLOROPHYLL A                     =     12.500     µg/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 =   2
PLOT RCH  1  2
ENDATA30

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

ENDATA31

```
     .....NO ERRORS DETECTED IN INPUT DATA
     .....HYDRAULIC CALCULATIONS COMPLETED
     .....TRIDIAGONAL MATRIX TERMS INITIALIZED
     .....OXYGEN DEPENDENT RATES CONVERGENT IN   2 ITERATIONS
     .....CONSTITUENT CALCULATIONS COMPLETED


FINAL REPORT    HEADWATER                                    BAYOU COCODRIE 101605 95% Man-Made Reduction & 0% Background Red
REACH NO.  1    HEADWATER BYCOC 1 - BYCOC 2                  BAYOU COCODRIE 101605 Winter projection
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********** REACH INPUTS **********

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 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	28.70	0.10	5.70	216.20	6.96	0.00	0.00	5.19	0.00	1.51	0.00	0.00	0.00	42.40	0.00	0.00

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m^3/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
1	2.50	2.40	0.02800	0.0	0.00134	0.86	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.001
2	2.40	2.30	0.02800	0.0	0.00134	0.86	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.001
3	2.30	2.20	0.02800	0.0	0.00134	0.86	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.001
4	2.20	2.10	0.02800	0.0	0.00134	0.86	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.001
5	2.10	2.00	0.02800	0.0	0.00134	0.86	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.001
6	2.00	1.90	0.02800	0.0	0.00134	0.86	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.001
7	1.90	1.80	0.02800	0.0	0.00134	0.86	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.001
8	1.80	1.70	0.02800	0.0	0.00134	0.86	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.001
9	1.70	1.60	0.02800	0.0	0.00134	0.86	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.001
10	1.60	1.50	0.02800	0.0	0.00134	0.86	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.001
TOT						8.62			20849.26	29870.00					

AVG						0.0013			0.70	29.87								20.85				
CUM								8.62														

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

ELEM NO.	ENDING NCM DIST	SAT D.O.	REAER RATE	BOD#1 DECAY	BOD#1 SETT	ABOD#1 DECAY	BOD#2 DECAY	BOD#2 SETT	ABOD#2 DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	NCM SETT
		mg/L	1/da	1/da	1/da	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
1	2.400	9.06	1.01	0.09	0.30	0.00	0.00	0.00	0.00	0.28	0.28	0.28	0.07	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.300	9.06	1.01	0.09	0.30	0.00	0.00	0.00	0.00	0.28	0.28	0.28	0.07	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	2.200	9.06	1.01	0.09	0.30	0.00	0.00	0.00	0.00	0.28	0.28	0.28	0.07	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	2.100	9.06	1.01	0.09	0.30	0.00	0.00	0.00	0.00	0.28	0.28	0.28	0.07	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.000	9.06	1.01	0.09	0.30	0.00	0.00	0.00	0.00	0.28	0.28	0.28	0.07	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	1.900	9.06	1.01	0.09	0.30	0.00	0.00	0.00	0.00	0.28	0.28	0.28	0.07	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	1.800	9.06	1.01	0.09	0.30	0.00	0.00	0.00	0.00	0.28	0.28	0.28	0.07	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	1.700	9.06	1.01	0.09	0.30	0.00	0.00	0.00	0.00	0.28	0.28	0.28	0.07	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	1.600	9.06	1.01	0.09	0.30	0.00	0.00	0.00	0.00	0.28	0.28	0.28	0.07	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	1.500	9.06	1.01	0.09	0.30	0.00	0.00	0.00	0.00	0.28	0.28	0.28	0.07	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			1.00	0.09	0.30	0.00	0.00	0.00	0.00	0.28			0.07	0.20	0.00	0.00	0.00	0.00			0.00	0.00	0.00

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

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

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO g/m³	COLI #/100mL	NCM
1	2.400	20.18	0.00	5.70	216.20	7.62	1.03	0.00	7.37	0.00	2.66	0.00	0.00	0.00	0.00	42.24	0.00	0.	0.00
2	2.300	20.18	0.00	5.70	216.20	7.91	1.80	0.00	8.12	0.00	3.59	0.00	0.00	0.00	0.00	42.08	0.00	0.	0.00
3	2.200	20.18	0.00	5.70	216.20	8.02	2.38	0.00	8.67	0.00	4.34	0.00	0.00	0.00	0.00	41.92	0.00	0.	0.00
4	2.100	20.18	0.00	5.70	216.20	8.04	2.81	0.00	9.08	0.00	4.96	0.00	0.00	0.00	0.00	41.76	0.00	0.	0.00
5	2.000	20.18	0.00	5.70	216.20	8.02	3.13	0.00	9.37	0.00	5.45	0.00	0.00	0.00	0.00	41.60	0.00	0.	0.00
6	1.900	20.18	0.00	5.70	216.20	7.99	3.38	0.00	9.59	0.00	5.86	0.00	0.00	0.00	0.00	41.44	0.00	0.	0.00
7	1.800	20.18	0.00	5.70	216.20	7.95	3.56	0.00	9.75	0.00	6.18	0.00	0.00	0.00	0.00	41.28	0.00	0.	0.00
8	1.700	20.18	0.00	5.70	216.20	7.92	3.69	0.00	9.86	0.00	6.45	0.00	0.00	0.00	0.00	41.12	0.00	0.	0.00
9	1.600	20.18	0.00	5.70	216.20	7.89	3.79	0.00	9.94	0.00	6.66	0.00	0.00	0.00	0.00	40.96	0.00	0.	0.00
10	1.500	20.18	0.00	5.70	216.20	7.87	3.87	0.00	9.99	0.00	6.84	0.00	0.00	0.00	0.00	40.80	0.00	0.	0.00

FINAL REPORT HEADWATER BAYOU COCODRIE 101605 95% Man-Made Reduction & 0% Background Red
REACH NO. 2 BYCOC 2 - BYCOC 3 BAYOU COCODRIE 101605 Winter projection

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 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	20.18	0.00	5.70	216.20	7.87	3.87	0.00	9.99	0.00	6.84	0.00	0.00	0.00	40.80	0.00	0.00

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
11	1.50	1.40	0.02800	0.0	0.00109	1.06	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.001
12	1.40	1.30	0.02800	0.0	0.00109	1.06	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.001
13	1.30	1.20	0.02800	0.0	0.00109	1.06	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.001
14	1.20	1.10	0.02800	0.0	0.00109	1.06	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.001
15	1.10	1.00	0.02800	0.0	0.00109	1.06	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.001
16	1.00	0.90	0.02800	0.0	0.00109	1.06	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.001
17	0.90	0.80	0.02800	0.0	0.00109	1.06	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.001

18	0.80	0.70	0.02800	0.0	0.00109	1.06	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.001
19	0.70	0.60	0.02800	0.0	0.00109	1.06	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.001
20	0.60	0.50	0.02800	0.0	0.00109	1.06	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.001
TOT						10.58			25603.00	25603.00					
AVG					0.0011		1.00	25.60			25.60				
CUM						19.20									

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

ELEM NO.	ENDING NCM DIST	SAT D.O.	REAER RATE	BOD#1 DECAY	BOD#1 SETT	ABOD#1 DECAY	BOD#2 DECAY	BOD#2 SETT	ABOD#2 DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	NCM SETT
		mg/L	1/da	1/da	1/da	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
11	1.400	9.06	0.70	0.09	0.45	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.08	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	1.300	9.06	0.70	0.09	0.45	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.08	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	1.200	9.06	0.70	0.09	0.45	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.08	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	1.100	9.06	0.70	0.09	0.45	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.08	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	1.000	9.06	0.70	0.09	0.45	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.08	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.900	9.06	0.70	0.09	0.45	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.08	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.800	9.06	0.70	0.09	0.45	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.08	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.700	9.05	0.70	0.09	0.45	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.08	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.600	9.05	0.70	0.09	0.45	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.08	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.500	9.05	0.70	0.09	0.45	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.08	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.70	0.09	0.45	0.00	0.00	0.00	0.00	0.49			0.08	0.20	0.00	0.00	0.00	0.00			0.00	0.00	0.00

* g/m²/d ** mg/L/day

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

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO g/m³	COLI #/100mL	NCM
11	1.400	20.18	0.01	5.70	216.20	7.55	4.32	0.00	10.02	0.00	6.23	0.00	0.00	0.00	0.00	37.97	0.00	0.	0.00
12	1.300	20.18	0.02	5.70	216.20	7.37	4.61	0.00	9.88	0.00	5.76	0.00	0.00	0.00	0.00	35.14	0.00	0.	0.00
13	1.200	20.18	0.03	5.70	216.20	7.28	4.79	0.00	9.64	0.00	5.40	0.00	0.00	0.00	0.00	32.31	0.00	0.	0.00
14	1.100	20.18	0.04	5.70	216.20	7.23	4.91	0.00	9.33	0.00	5.12	0.00	0.00	0.00	0.00	29.48	0.00	0.	0.00
15	1.000	20.18	0.05	5.70	216.20	7.21	4.98	0.00	8.98	0.00	4.90	0.00	0.00	0.00	0.00	26.65	0.00	0.	0.00
16	0.900	20.18	0.07	5.70	216.20	7.20	5.03	0.00	8.61	0.00	4.74	0.00	0.00	0.00	0.00	23.82	0.00	0.	0.00
17	0.800	20.18	0.08	5.70	216.20	7.20	5.06	0.00	8.21	0.00	4.61	0.00	0.00	0.00	0.00	20.99	0.00	0.	0.00
18	0.700	20.18	0.09	5.70	216.20	7.21	5.08	0.00	7.81	0.00	4.51	0.00	0.00	0.00	0.00	18.16	0.00	0.	0.00
19	0.600	20.18	0.10	5.70	216.20	7.21	5.09	0.00	7.39	0.00	4.43	0.00	0.00	0.00	0.00	15.33	0.00	0.	0.00
20	0.500	20.18	0.11	5.70	216.20	7.22	5.10	0.00	6.98	0.00	4.38	0.00	0.00	0.00	0.00	12.50	0.00	0.	0.00

STREAM SUMMARY BAYOU COCODRIE 101605 95% Man-Made Reduction & 0% Background Red
HEADWATER BAYOU COCODRIE 101605 Winter projection

TRAVEL TIME = 19.20 DAYS

MAXIMUM EFFLUENT = 0.00 PERCENT

FLOW	=	0.02800	TO	0.02800	m³/s
DISPERSION	=	0.0000	TO	0.0000	m²/s
VELOCITY	=	0.00109	TO	0.00134	m/s
DEPTH	=	0.70	TO	1.00	m
WIDTH	=	25.60	TO	29.87	m
BOD DECAY	=	0.09	TO	0.09	per day
NH3 DECAY	=	0.00	TO	0.00	per day
SOD	=	0.28	TO	0.50	g/m²/d
NH3 SOURCE	=	0.00	TO	0.00	g/m²/d
REAERATION	=	0.70	TO	1.01	per day
BOD SETTLING	=	0.30	TO	0.45	per day
NBOD DECAY	=	0.07	TO	0.08	per day

```
 NBOD SETTLING     =    0.20   TO    0.20      per day

 TEMPERATURE       =   20.18   TO   20.18      deg C
 DISSOLVED OXYGEN  =    7.20   TO    8.04      mg/L


     .....EXECUTION COMPLETED
```

Appendix D4 – Winter Justifications

DATA TYPE 3 - PROGRAM CONSTANTS			
CONSTANT NAME	**VALUE**	**UNITS**	**DATA SOURCE**
KL MINIMUM	0.7	m/day	The minimum KL of 2.3 ft/day converted to 0.70 m/day.
INHIBITION CONTROL VALUE	3		The water column dissolved oxygen demand is assumed to come primarily from facultative bacteria under anoxic conditions and SOD is not influenced by modeled dissolved oxygen levels in the upper water column.
HYDRAULIC CALCULATION METHOD	2		The low slopes in this waterbody cause a substantial amount of water to be present during critical flow conditions. This method allows the model to predict a more accurate depth and width during low flow conditions.
ALGAE OXYGEN PRODUCTION	0		Standard practice for steady state calibration to a wide variation in DO.
EFFECTIVE BOD DUE TO ALGAE	0.15		Standard practice for steady state calibration to a wide variation in DO.
SETTLING RATE UNITS	2		By making the settling rate a velocity the rate becomes dependent upon the depth.

DATA TYPE 8 - REACH IDENTIFICATION DATA						
Reach	**ID**	**Name**	**Upstream River Kilometer**	**Downstream River Kilometer**	**Element Length, meters**	**Data Source**
1	BC	BYCOC1 -BYCOC2	2.50	1.50	100.0000	ARC MAP Calc.
2	BC	BYCOC2 - BYCOC3	1.50	0.50	100.0000	ARC MAP Calc.

		DATA TYPE 9 - ADVECTIVE HYDRAULIC COEFFICIENTS			
Reach	**Name**	**Width Coeff. "a"**	**Width Exp. "b"**	**Width Const. "c"**	**Data Source**
1	BYCOC1 -BYCOC2	0	0.2	29.87	Average Widths for the Reach
2	BYCOC2 - BYCOC3	0	0.2	25.603	Average Widths for the Reach

		DATA TYPE 9 - ADVECTIVE HYDRAULIC COEFFICIENTS			
Reach	**Name**	**Depth Coeff. "d"**	**Depth Exp. "e"**	**Depth Const. "f"**	**Data Source**
1	BYCOC1 -BYCOC2	0	0.3	0.698	Average Depths for the Reach
2	BYCOC2 - BYCOC3	0	0.3	1	Average Depths for the Reach

		DATA TYPE 11 - INITIAL CONDITIONS					
Reach	**Name**	**Temp, deg C**	**Data Source**	**DO, mg/l**	**Data Source**	**Chlorophyll a**	**Data Source**
1	BYCOC1 -BYCOC2	20.18	Winter Season 90th Percentile Temperature	5.00	DO Standard for 101605	42.4	BYCOC1 Lab Data
2	BYCOC2 - BYCOC3	20.18	Winter Season 90th Percentile Temperature	5.00	DO Standard for 101605	40.8	BYCOC2 Lab Data

		DATA TYPE 12 - REAERATION, SEDIMENT OXYGEN DEMAND AND BOD COEFFICIENTS							
REACH	NAME	K2 OPT	Data Source	BKGRND SOD, gmO2/m2/day at 20 deg C	Data Source	Aerobic BOD1 Dec Rate (1/day)	Data Source	BOD1 SETT RATE (m/day, ft/day or 1/day)	Data Source
1	BYCOC1 -BYCOC2	11	Texas Equation	0.28	95% Reduction	0.0896	AVG(BYCOC1, BYCOC2)	0.30	Calibration
2	BYCOC2 - BYCOC3	11	Texas Equation	0.49	95% Reduction	0.0864	AVG(BYCOC2, BYCOC3)	0.45	Calibration

DATA TYPE 13 - NITROGEN AND PHOSPHORUS COEFFICIENTS					
Reach	Name	NBOD decay rate, 1/day	Data Source	NBOD settling rate, 1/day	Data Source
1	BYCOC1 -BYCOC2	0.0712	AVG(BYCOC1, BYCOC2)	0.20	Calibration
2	BYCOC2 - BYCOC3	0.0818	AVG(BYCOC2, BYCOC3)	0.20	Calibration

DATA TYPES 16 - INCREMENTAL DATA FOR TEMP AND CONSERVATIVES											
Reach	Reach Name	Incr. Ouflow, m3	Incr. Inflow, m3	Data Source	Temp, deg C	Data Source	Sal., ppt	Cond	Data Source	Chl	Data Source
1	BYCOC1 -BYCOC2	0.0000	0.0000	Incremental Flow Not needed for the Projections	20.180	Winter Season 90th Percentile Temperature	0.100	210	Insitu Data	6.5	Calibration
2	BYCOC2 - BYCOC3	0.0000	0.0000	Incremental Flow Not needed for the Projections	20.180	Winter Season 90th Percentile Temperature	0.100	250	Insitu Data	6.0	Calibration

DATA TYPES 17 - INCREMENTAL DATA FOR DO			
Reach	**Reach Name**	**DO, mg/l**	**Data Source**
1	BYCOC1 - BYCOC2	2	Normal Groundwater DO
2	BYCOC2 - BYCOC3	2	Normal Groundwater DO

	DATA TYPE 19 - NONPOINT SOURCES				
Reach	**Reach Name**	**Length of Reach, km**	**UCBOD1, kg/day or lb/day**	**NBOD, kg/day or lb/day**	**Data Source**
1	BYCOC1 -BYCOC2	1.00	33.4	42.70	95% Reduction
2	BYCOC2 - BYCOC3	1	70.6	29.90	95% Reduction

DATA TYPES 20 - HEADWATER DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES							
Headwater Name	**Element No.**	**Logical Unit Number**	**Headwater Flow, cms**	**Temp, deg C**	**Chlorides**	**Conductivity**	**Data Source**
Headwater 1	1	1	0.0280	20.18	5.7	216.20	LTP Minimum Flow for Bayou Cocodrie, Winter Season 90th Percentile Temperature, BYCOC1 for chlorides and conductivity

DATA TYPES 21 - HEADWATER DATA FOR DO, BOD, AND NITROGEN				
Headwater Name	**Dissolved Oxygen, mg/L**	**UCBOD1, mg/l**	**NBOD mg/l**	**Data Source**
Headwater 1	6.96	5.19	1.51	Winter Season 90% DO Sat, 95% Reduction

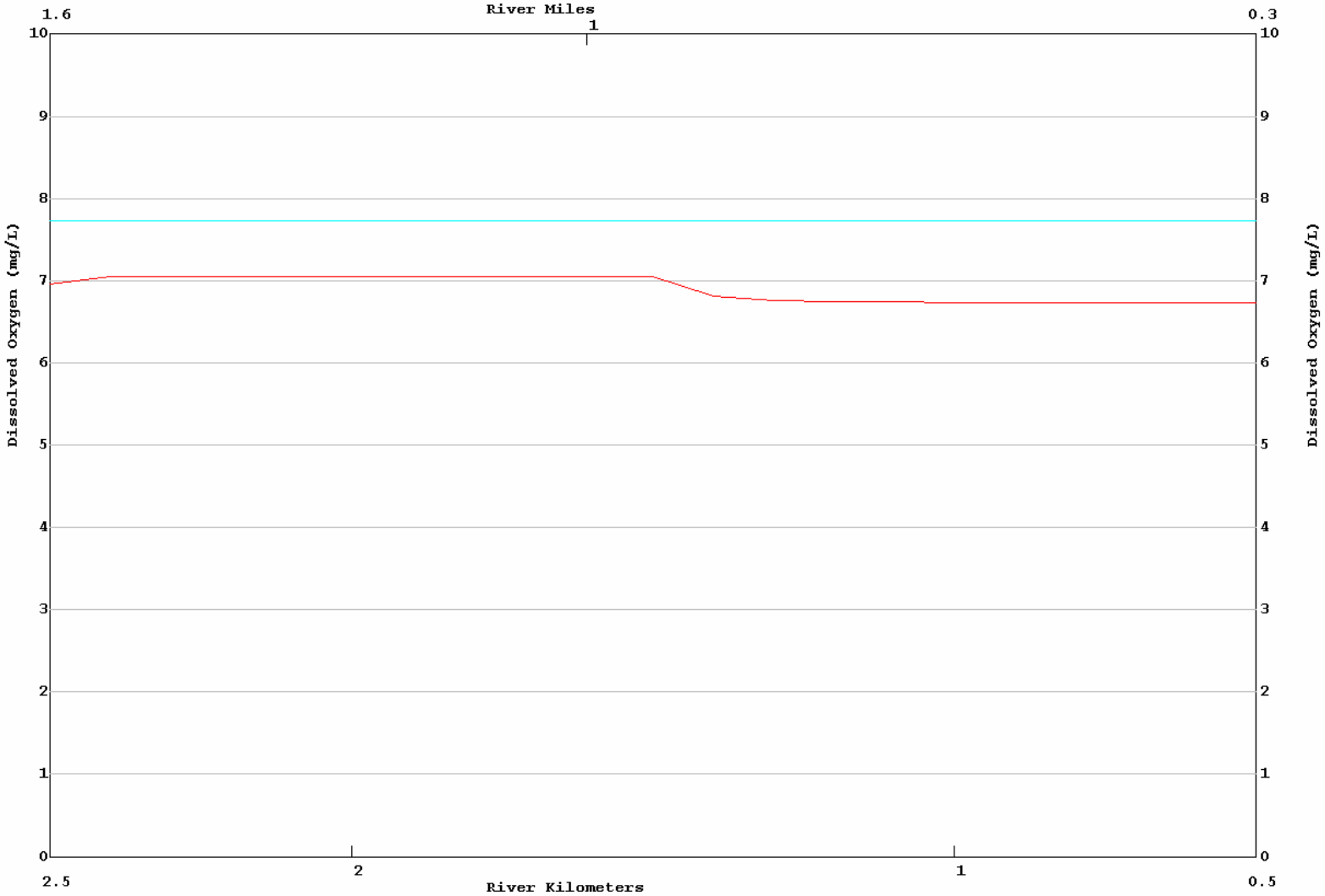
DATA TYPES 22 - HEADWATER DATA FOR CHLOROPHYLL		
Headwater Name	**Chlorophyll a, ug/L**	**Date Source**
Headwater 1	42.4	BYCOC1 Lab Data

DATA TYPES 27 - LOWER BOUNDARY CONDITIONS Survey Site Name: Bayou Cocodrie downstream side of Hwy 15			
Parameter	**Value**	**Units**	**Data Source**
TEMPERATURE	20.18	^{O}C	Winter Season 90th Percentile Temperature
SALINITY	0.11	mg/L	BYCOC4 In Situ
CHLORIDES	6.50	ppm	BYCOC4 Lab Data
CONDUCTIVITY	227.40	umhos/cm	BYCOC4 In Situ
DISSOLVED OXYGEN	5.00	mg/L	DO Standard for 101605
CHLOROPHYLL A	12.50	ug/L	BYCOC3 Lab Data
BIOCHEMICAL OXYGEN DEMAND 1	8.50	mg/L	BYCOC4 Lab Data
NBOD	3.75	mg/L	BYCOC4 Lab Data

Appendix D5 – Summer No Load Output and Graphs

Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

LA-QUAL Version 8.00 Run at 15:20 on 12/20/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605sum100-NI
BAYOU COCODRIE 101605 min= 6.74 max= 7.06
BAYOU COCODRIE 101605 100% Man-Made Reduction & 0% Background



Bayou Cocodrie 101605 Summer No Load Projection Input Data Set

```
CNTROL01     BAYOU COCODRIE 101605 100% Man-Made Reduction & 0% Background
CNTROL02     BAYOU COCODRIE 101605
CNTROL04 YES METRIC UNITS
ENDATA01
MODOPT01  NO TEMPERATURE
MODOPT02  NO SALINITY
MODOPT03 YES CONSERVATIVE MATERIAL  I = CHLORIDES                 IN MG/L
MODOPT04 YES CONSERVATIVE MATERIAL II = CONDUCTIVITY              IN MG/L
MODOPT05 YES DISSOLVED OXYGEN
MODOPT06 YES BOD1 BIOCHEMICAL OXYGEN DEMAND
MODOPT07  NO BOD2 BIOCHEMICAL OXYGEN DEMAND
MODOPT08 YES NBOD OXYGEN DEMAND
MODOPT10  NO PHOSPHORUS
MODOPT11  NO CHLOROPHYLL A
MODOPT12  NO MACROPHYTES
MODOPT13  NO COLIFORM
ENDATA02
PROGRAM  KL MINIMUM                        =     0.7
PROGRAM  INHIBITION CONTROL VALUE          =     3.
PROGRAM  HYDRAULIC CALCULATION METHOD      =     2.
PROGRAM  SETTLING RATE UNITS               =     2.
PROGRAM  ALGAE OXYGEN PROD                 =     0.
PROGRAM  EFFECTIVE BOD DUE TO ALGAE        =     0.15
ENDATA03
!Temperature Correction Constants
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ******** ********
ENDATA04
ENDATA05
ENDATA06
ENDATA07
!Reach Identification Data
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -- ********************************----------**********----------
!          R#  ID   SITE NAME                          RKM        RKM   LENGTH
REACH ID    1  PC HEADWATER BYCOC 1 - BYCOC 2          2.5        1.5     0.1
REACH ID    2  PC BYCOC 2 - BYCOC 3                    1.5        0.5     0.1
```

```
ENDATA08
!Advective Hydraulic Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!         ***  -------*******-------*******-------*******-------*******
!                a      b       c     d      e        f
!               WIDTH  WIDTH   WIDTH DEPTH  DEPTH   DEPTH
!          R#   COEFF   EXP    CONST COEFF   EXP    CONST SLOPE MANNING
HYDR-1      1   0.00   0.20   29.870 0.00   0.30    0.698
HYDR-1      2   0.00   0.20   25.603 0.00   0.30    1.000
ENDATA09
!Dispersive Hydraulic Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!         ***  -----**********----------**********----------
!              TIDAL
!          R#  RANGE    a          b         c         d
ENDATA10
!Initial Conditions
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!         ***  --------********--------********--------********--------********
!          R#    TEMP  SALINITY   DO     NH3 N  NIT NIT  PHOS   CHL A   MACROPHYTES
INITIAL     1    28.70           5.00                           42.4
INITIAL     2    28.70           5.00                           40.8
ENDATA11
!Reaeration, Sediment Oxygen Demand and BOD Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8---------9
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!         ***  -----******----- ******-------*******-------*******-------*******-------***
!                                             BOD 1  BOD 1               BOD 2    BOD 2
!          R#  REA  KL MIN               SOD  DECAY  SETT                DECAY    SETT
COEF-1      1  11.00                     0.20 0.0896 0.30
COEF-1      2  11.00                     0.22 0.0864 0.45
ENDATA12
!Nitrogen and Phosphorus Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!         ***  -------*******-------*******-------*******-------
!              NBOD     NBOD
!          R#  DECAY    SETT
```

```
COEF-2      1  0.0712   0.20
COEF-2      2  0.0818   0.20
ENDATA13
ENDATA14
!Coliform and Nonconservative Cofficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------******-------*******
ENDATA15
!Incremental Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------********---------********---------********
!          R#   OUTFLOW   INFLOW  TEMP     SALINITY CHLORIDE  COND
INCR-1      1    0.0000   0.0000  28.700     0.1      6.50    210.00
INCR-1      2    0.0000   0.0000  28.700     0.1      6.00    250.00
ENDATA16
!Incremental Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------********---------********---------********
!          R#      DO     BOD 1     NBOD    NH3 N   NIT NIT    BOD 2
INCR-2      1     2.00
INCR-2      2     2.00
ENDATA17
!Incremental Data for Phosphorus, Chlorophyll, Coliform and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------********---------********
!          R#   PHOSPH    CHL A   COLIFORM NONCONSERVATIVE
INCR-3      1              42.4
INCR-3      2              40.8
ENDATA18
!Nonpoint Source Data
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------********---------********---------********
!          R#     BOD 1    NBOD   COLIFORM NONCONS    DO      BOD 2
NONPOINT    1      23.64.0     31.0
NONPOINT    2      32.0     14.0
ENDATA19
```

```
!Headwater Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  -------------------- *** --------********--------********--------
!         E#    NAME                      FLOW    TEMP  SALIN   CHLORIDE   COND
HDWTR-1     1  HEADWATER             0.  0.0028  28.70  0.1       5.7      216.2
ENDATA20
!Headwater Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------********---------********---------********
!          E#      DO      BOD 1    NBOD    NH3 N    NIT NIT  BOD 2
HDWTR-2     1      6.96     4.71    1.37
ENDATA21
!Headwater Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------********---------********
!          E#  PHOSPHOR   CHL A   COLIFORM  NONCONSERVATIVE
HDWTR-3     1              42.4
ENDATA22
ENDATA23
!Wasteload Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  --------------------********---------********---------********
!          E#     NAME               FLOW      TEMP   SALINITY CHLORIDE  COND
ENDATA24
!Wasteload Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------********-----********---------*****---------********
!          E#       DO    BOD 1         NBOD    NH3 N          NIT NIT  BOD 2
ENDATA25
!Wasteload Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ---------********---------********
!          E#  PHOSPHOR  CHL A    COLIFORM NONCONSERVATIVE
ENDATA26
LOWER BC TEMPERATURE                        =  28.70
```

```
LOWER BC SALINITY                           =   0.11
LOWER BC CONSERVATIVE MATERIAL I            =   6.50
LOWER BC CONSERVATIVE MATERIAL II           = 227.40
LOWER BC DISSOLVED OXYGEN                   =   5.00
LOWER BC BOD1 BIOCHEMICAL OXYGEN DEMAND     =   0.00
LOWER BC NBOD                               =   0.00
LOWER BC CHLOROPHYLL A                      =  12.50
ENDATA27
!Dam Data
!--------1---------2---------3---------4--------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  ******************** ** ******** ******** ********
ENDATA28
ENDATA29
NUMBER OF PLOTS = 1
NUMBER OF REACHES IN PLOT 1 =   2                        INCREMENT =  0.1
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** **
PLOT RCH  1  2
ENDATA30
ENDATA31
```

Bayou Cocodrie 101605 Summer No Load Projection Output Data Set

```
LA-QUAL Version 8.00
Louisiana Department of Environmental Quality

Input file is F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605sum100-NI.txt
Output produced at 10:25 on 12/22/2005

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

CARD TYPE       CONTROL TITLES

TITLE01         BAYOU COCODRIE 101605 100% Man-Made Reduction & 0% Background
TITLE02         BAYOU COCODRIE 101605
CNTROL04  YES   METRIC UNITS
ENDATA01

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

```
CARD TYPE       MODEL OPTION

MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL  I = CHLORIDES                 IN MG/L
MODOPT04  YES   CONSERVATIVE MATERIAL II = CONDUCTIVITY               IN MG/L
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BOD1 BIOCHEMICAL OXYGEN DEMAND
MODOPT07   NO   BOD2 BIOCHEMICAL OXYGEN DEMAND
MODOPT08  YES   NBOD OXYGEN DEMAND
MODOPT10   NO   PHOSPHORUS
MODOPT11   NO   CHLOROPHYLL A
MODOPT12   NO   MACROPHYTES
MODOPT13   NO   COLIFORM
ENDATA02

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

CARD TYPE       DESCRIPTION OF CONSTANT                       VALUE

PROGRAM         KL MINIMUM                        =         0.70000 meters/day
PROGRAM         INHIBITION CONTROL VALUE          =         3.00000 (inhibit all rates but SOD)
PROGRAM         HYDRAULIC CALCULATION METHOD      =         2.00000 (widths and depths)
PROGRAM         SETTLING RATE UNITS               =         2.00000 (values entered as per day)
PROGRAM         ALGAE OXYGEN PROD                 =         0.00000 mg O/ug chl a/day
PROGRAM         EFFECTIVE BOD DUE TO ALGAE        =         0.15000 mg/L BOD per ug/L chl a
ENDATA03

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

 CARD TYPE     RATE CODE     THETA VALUE

ENDATA04

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

CARD TYPE       DESCRIPTION OF CONSTANT                       VALUE

ENDATA05
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```
$$$ DATA TYPE 6 (ALGAE CONSTANTS) $$$

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   PC  HEADWATER BYCOC 1 - BYCOC 2        2.50  TO    1.50   0.1000     1.00      10        1     10
REACH ID      2   PC  BYCOC 2 - BYCOC 3                  1.50  TO    0.50   0.1000     1.00      10       11     20
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   PC       0.000       0.200      29.870       0.000       0.300       0.698     0.00000   0.000
HYDR-1        2   PC       0.000       0.200      25.603       0.000       0.300       1.000     0.00000   0.000
ENDATA09

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

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

ENDATA10

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

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

```
INITIAL           1   PC       28.70      0.00      5.00      0.00      0.00      0.00     42.40      0.00
INITIAL           2   PC       28.70      0.00      5.00      0.00      0.00      0.00     40.80      0.00
ENDATA11

$$$ DATA TYPE 12 (REAERATION, SEDIMENT OXYGEN DEMAND, BOD COEFFICIENTS) $$$
                                                                                                  BOD     ANAER                           BOD2
ANAER
CARD     RCH  RCH  K2                    K2        K2        K2    BKGRND       BOD       BOD      CONV      BOD2      BOD2      BOD2      CONV
BOD2
TYPE     NUM   ID  OPT                  "A"       "B"       "C"       SOD     DECAY      SETT    TO SOD     DECAY     DECAY      SETT    TO SOD
DECAY
                                                                  g/m²/d   per day       m/d             per day   per day       m/d
per day

COEF-1     1   PC  11 TEXAS           0.000     0.000     0.000     0.200     0.090     0.300     0.000     0.000     0.000     0.000     0.000
0.000
COEF-1     2   PC  11 TEXAS           0.000     0.000     0.000     0.220     0.086     0.450     0.000     0.000     0.000     0.000     0.000
0.000
ENDATA12

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

CARD TYPE      REACH  ID        NBOD      NBOD   ORGN CONV       NH3       NH3      PHOS     DENIT
                                DECA      SETT  TO NH3 SRCE     DECA      SRCE      SRCE      RATE

COEF-2           1   PC       0.071     0.200     0.000       0.000     0.000     0.000     0.000
COEF-2           2   PC       0.082     0.200     0.000       0.000     0.000     0.000     0.000
ENDATA13

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

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

ENDATA14

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

CARD TYPE      REACH  ID    COLIFORM       NCM       NCM    NCM CONV
                             DIE-OFF     DECAY      SETT     TO SOD
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```
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   PC       0.00000     0.00000     28.70      0.10      6.50    210.00   0.00000   0.00000
INCR-1           2   PC       0.00000     0.00000     28.70      0.10      6.00    250.00   0.00000   0.00000
ENDATA16

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

CARD TYPE      REACH  ID          DO       BOD      NBOD                          BOD#2

INCR-2           1   PC        2.00      0.00      0.00      0.00      0.00      0.00
INCR-2           2   PC        2.00      0.00      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   PC        0.00     42.40      0.00      0.00
INCR-3           2   PC        0.00     40.80      0.00      0.00
ENDATA18

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

CARD TYPE      REACH  ID       BOD#1     NBOD       COLI       NCM        DO     BOD#2

NONPOINT         1   PC       23.64      0.03      0.00      0.00      0.00      0.00
NONPOINT         2   PC       32.00     14.00      0.00      0.00      0.00      0.00
ENDATA19

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

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

HDWTR-1          1     HEADWATER              0   0.00280    0.099   28.70     0.10     5.700   216.200
ENDATA20
```

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

CARD TYPE     ELEMENT   NAME                        DO     BOD#1     NBOD                          BOD#2
                                                   mg/L    mg/L      mg/L      mg/L      mg/L      mg/L

HDWTR-2           1     HEADWATER                 6.96     4.71      1.37      0.00      0.00      0.00
ENDATA21

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

CARD TYPE     ELEMENT   NAME                       PHOS     CHL A      COLI       NCM
                                                   mg/L      mg/L      mg/L      mg/L

HDWTR-3           1     HEADWATER                  0.00     42.40      0.00      0.00
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       FLOW     FLOW    TEMP    SALIN      CM-I     CM-II
                                                     m³/s        cfs      MGD   deg C      ppt      MG/L      MG/L

ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$
                                                                  % BOD                          %
CARD TYPE     ELEMENT   NAME                        DO       BOD      RMVL     NBOD                NITRIF                BOD#2
                                                   mg/L      mg/L                mg/L      mg/L                mg/L      mg/L

ENDATA25

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

CARD TYPE     ELEMENT   NAME                       PHOS     CHL A      COLI       NCM
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                                                    mg/L      mg/L      mg/L      mg/L

ENDATA26

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

CARD TYPE    CONSTITUENT                    CONCENTRATION

LOWER BC     TEMPERATURE                       =     28.700     deg C
LOWER BC     SALINITY                          =      0.110     ppt
LOWER BC     CONSERVATIVE MATERIAL I           =      6.500     MG/L
LOWER BC     CONSERVATIVE MATERIAL II          =    227.400     MG/L
LOWER BC     DISSOLVED OXYGEN                  =      5.000     mg/L
LOWER BC     BOD1 BIOCHEMICAL OXYGEN DEMAND    =      0.000     mg/L
LOWER BC     NBOD                              =      0.000     mg/L
LOWER BC     CHLOROPHYLL A                     =     12.500     µg/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 =   2
PLOT RCH  1  2
ENDATA30

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

ENDATA31

```
     .....NO ERRORS DETECTED IN INPUT DATA
     .....HYDRAULIC CALCULATIONS COMPLETED
     .....TRIDIAGONAL MATRIX TERMS INITIALIZED
     .....OXYGEN DEPENDENT RATES CONVERGENT IN   2 ITERATIONS
     .....CONSTITUENT CALCULATIONS COMPLETED
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FINAL REPORT HEADWATER BAYOU COCODRIE 101605 100% Man-Made Reduction & 0% Background
REACH NO. 1 HEADWATER BYCOC 1 - BYCOC 2 BAYOU COCODRIE 101605

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 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	28.70	0.10	5.70	216.20	6.96	0.00	0.00	4.71	0.00	1.37	0.00	0.00	0.00	42.40	0.00	0.00

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m^3/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
1	2.50	2.40	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
2	2.40	2.30	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
3	2.30	2.20	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
4	2.20	2.10	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
5	2.10	2.00	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
6	2.00	1.90	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
7	1.90	1.80	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
8	1.80	1.70	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
9	1.70	1.60	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
10	1.60	1.50	0.00280	0.0	0.00013	8.62	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.000
TOT						86.18			20849.26	29870.00					

AVG						0.0001				0.70	29.87							20.85				
CUM									86.18													

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

ELEM NO.	ENDING NCM DIST	SAT D.O.	REAER RATE	BOD#1 DECAY	BOD#1 SETT	ABOD#1 DECAY	BOD#2 DECAY	BOD#2 SETT	ABOD#2 DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	NCM SETT
		mg/L	1/da	1/da	1/da	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
1	2.400	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.300	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	2.200	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	2.100	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.000	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	1.900	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	1.800	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	1.700	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	1.600	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	1.500	7.73	1.18	0.13	0.37	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			1.00	0.09	0.30	0.00	0.00	0.00	0.00	0.20			0.07	0.20	0.00	0.00	0.00	0.00			0.00	0.00	0.00

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

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

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO g/m³	COLI #/100mL	NCM
1	2.400	28.70	0.00	5.70	216.20	7.06	1.83	0.00	8.17	0.00	0.33	0.00	0.00	0.00	0.00	42.24	0.00	0.	0.00
2	2.300	28.70	0.00	5.70	216.20	7.06	2.18	0.00	8.49	0.00	0.08	0.00	0.00	0.00	0.00	42.08	0.00	0.	0.00
3	2.200	28.70	0.00	5.70	216.20	7.06	2.24	0.00	8.53	0.00	0.02	0.00	0.00	0.00	0.00	41.92	0.00	0.	0.00
4	2.100	28.70	0.00	5.70	216.20	7.06	2.25	0.00	8.52	0.00	0.01	0.00	0.00	0.00	0.00	41.76	0.00	0.	0.00
5	2.000	28.70	0.00	5.70	216.20	7.06	2.26	0.00	8.50	0.00	0.01	0.00	0.00	0.00	0.00	41.60	0.00	0.	0.00
6	1.900	28.70	0.00	5.70	216.20	7.06	2.26	0.00	8.47	0.00	0.00	0.00	0.00	0.00	0.00	41.44	0.00	0.	0.00
7	1.800	28.70	0.00	5.70	216.20	7.06	2.26	0.00	8.45	0.00	0.00	0.00	0.00	0.00	0.00	41.28	0.00	0.	0.00
8	1.700	28.70	0.00	5.70	216.20	7.06	2.26	0.00	8.43	0.00	0.00	0.00	0.00	0.00	0.00	41.12	0.00	0.	0.00
9	1.600	28.70	0.00	5.70	216.20	7.06	2.26	0.00	8.40	0.00	0.00	0.00	0.00	0.00	0.00	40.96	0.00	0.	0.00
10	1.500	28.70	0.00	5.70	216.20	7.06	2.26	0.00	8.38	0.00	0.00	0.00	0.00	0.00	0.00	40.80	0.00	0.	0.00

FINAL REPORT HEADWATER BAYOU COCODRIE 101605 100% Man-Made Reduction & 0% Background
REACH NO. 2 BYCOC 2 - BYCOC 3 BAYOU COCODRIE 101605

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 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	28.70	0.00	5.70	216.20	7.06	2.26	0.00	8.38	0.00	0.00	0.00	0.00	0.00	40.80	0.00	0.00

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
11	1.50	1.40	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
12	1.40	1.30	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
13	1.30	1.20	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
14	1.20	1.10	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
15	1.10	1.00	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
16	1.00	0.90	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
17	0.90	0.80	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000

18	0.80	0.70	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
19	0.70	0.60	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
20	0.60	0.50	0.00280	0.0	0.00011	10.58	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.000
TOT						105.83			25603.00	25603.00					
AVG					0.0001		1.00	25.60			25.60				
CUM						192.01									

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

ELEM NO.	ENDING NCM DIST	SAT D.O.	REAER RATE	BOD#1 DECAY	BOD#1 SETT	ABOD#1 DECAY	BOD#2 DECAY	BOD#2 SETT	ABOD#2 DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	NCM SETT
		mg/L	1/da	1/da	1/da	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
11	1.400	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.38	0.38	0.38	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	1.300	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.38	0.38	0.38	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	1.200	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.38	0.38	0.38	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	1.100	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.38	0.38	0.38	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	1.000	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.38	0.38	0.38	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.900	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.38	0.38	0.38	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.800	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.38	0.38	0.38	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.700	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.38	0.38	0.38	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.600	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.38	0.38	0.38	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.500	7.73	0.82	0.13	0.55	0.00	0.00	0.00	0.00	0.38	0.38	0.38	0.14	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.70	0.09	0.45	0.00	0.00	0.00	0.00	0.22			0.08	0.20	0.00	0.00	0.00	0.00			0.00	0.00	0.00

* g/m²/d ** mg/L/day

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

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO g/m³	COLI #/100mL	NCM
11	1.400	28.70	0.01	5.70	216.20	6.81	1.88	0.00	7.58	0.00	1.14	0.00	0.00	0.00	0.00	37.97	0.00	0.	0.00
12	1.300	28.70	0.02	5.70	216.20	6.76	1.84	0.00	7.11	0.00	1.37	0.00	0.00	0.00	0.00	35.14	0.00	0.	0.00
13	1.200	28.70	0.03	5.70	216.20	6.74	1.83	0.00	6.68	0.00	1.41	0.00	0.00	0.00	0.00	32.31	0.00	0.	0.00
14	1.100	28.70	0.04	5.70	216.20	6.74	1.83	0.00	6.25	0.00	1.42	0.00	0.00	0.00	0.00	29.48	0.00	0.	0.00
15	1.000	28.70	0.05	5.70	216.20	6.74	1.83	0.00	5.83	0.00	1.42	0.00	0.00	0.00	0.00	26.65	0.00	0.	0.00
16	0.900	28.70	0.07	5.70	216.20	6.74	1.83	0.00	5.41	0.00	1.42	0.00	0.00	0.00	0.00	23.82	0.00	0.	0.00
17	0.800	28.70	0.08	5.70	216.20	6.74	1.83	0.00	4.98	0.00	1.42	0.00	0.00	0.00	0.00	20.99	0.00	0.	0.00
18	0.700	28.70	0.09	5.70	216.20	6.74	1.83	0.00	4.56	0.00	1.42	0.00	0.00	0.00	0.00	18.16	0.00	0.	0.00
19	0.600	28.70	0.10	5.70	216.20	6.74	1.83	0.00	4.13	0.00	1.42	0.00	0.00	0.00	0.00	15.33	0.00	0.	0.00
20	0.500	28.70	0.11	5.70	216.20	6.74	1.83	0.00	3.71	0.00	1.42	0.00	0.00	0.00	0.00	12.50	0.00	0.	0.00

STREAM SUMMARY BAYOU COCODRIE 101605 100% Man-Made Reduction & 0% Background
HEADWATER BAYOU COCODRIE 101605

TRAVEL TIME = 192.01 DAYS

MAXIMUM EFFLUENT = 0.00 PERCENT

FLOW	=	0.00280	TO	0.00280	m³/s
DISPERSION	=	0.0000	TO	0.0000	m²/s
VELOCITY	=	0.00011	TO	0.00013	m/s
DEPTH	=	0.70	TO	1.00	m
WIDTH	=	25.60	TO	29.87	m
BOD DECAY	=	0.13	TO	0.13	per day
NH3 DECAY	=	0.00	TO	0.00	per day
SOD	=	0.35	TO	0.38	g/m²/d
NH3 SOURCE	=	0.00	TO	0.00	g/m²/d
REAERATION	=	0.82	TO	1.18	per day
BOD SETTLING	=	0.37	TO	0.55	per day
NBOD DECAY	=	0.12	TO	0.14	per day

```
 NBOD SETTLING     =    0.25   TO    0.25      per day

 TEMPERATURE       =   28.70   TO   28.70      deg C
 DISSOLVED OXYGEN  =    6.74   TO    7.06      mg/L


     .....EXECUTION COMPLETED
```

Appendix E – Projection Model Development

Appendix E1 – Summer Loading

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

Modeled stream or water body: **BAYOU Cocodrie (SUBSEGMENT 101605)**

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

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

	Calibration Model Values											
Reach Number and Description	Total Non-Point UCBOD	Total Non-Point UNBOD	SOD @ 20°C	Total Calb. Benthic Load (TCBL)	Reach Length	Proj. Model Avg. Reach Width	Proj. Temp.	Background Benthic Load	Effective Background Benthic Load	Man-Made Benthic Load	Background percentage reduction	Percentage Reduction of man-made sources
	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	Kilo-meters	Meters	(deg Celcius)	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	%	%
REACH 1: BYCOC1 TO BYCOC2	6.026	7.700	1.50	15.226	1.00	29.87	28.70	2.00	2.00	13.23	0%	95%
REACH 2: BYCOC2 TO BYBCOC3	25.388	10.741	4.50	40.629	1.00	25.60	28.70	2.00	2.00	38.63	0%	95%
Sub-Total									4.00	51.85		

	Reduced Man-Made Loads						Projected Model Loads						
Reach Number and Description	Reduced Background Benthic Load	Reduced Man-Made Benthic Load	Reduced TCBL adjusted for MOS	Reduced Total UCBOD Load	Reduced UNBOD Load	Reduced SOD Load at Projection Temp.	SOD @ 20°C	Total Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	**Total MOS at Projection Temp.**	**Non-Point UCBOD LA**	**Non-Point UNBOD LA**	**SOD LA at Projection Temp.**
	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	kg O_2/day	kg O_2/day	kg O_2/day	g O_2 / [(m^2)(day)]	kg O_2/day	kg O_2/day	kg O_2/day	kg O_2/day	kg O_2/day	kg O_2/day
REACH 1: BYCOC1 TO BYCOC2	2.00	0.66	2.83	7.82	9.99	3.37	0.28	33.42	42.70	5.29	31.46	40.20	13.54
REACH 2: BYCOC2 TO BYBCOC3	2.00	1.93	4.41	30.90	13.07	9.47	0.49	70.62	29.88	13.36	62.90	26.61	19.28
Sub-Total	4.00	2.59	7.24	38.72	23.06	12.84		104.04	72.58	18.65	**94.36**	**66.81**	**32.83**

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

BAYOU Cocodrie (SUBSEGMENT 101605)

Shaded cells are input values for calculations.	N OF SAFETY (MOS) (%) =	20%
Values to be used in the projection models.	If modeling the nitrogen series, be sure that	

Headwater / Tributary Load Determin

	FROM CALIBRATION				BACKGROUND VALUES				
Headwater / Tributary Description and Reach #	Seasonal Critical flow (cms)	Total UCBOD (mg O_2/L)	UNBOD (mg O_2/L)	Total UNBOD (mg O_2/L)	Background UCBOD conc. (mg O_2/L)	Background UNBOD conc. (mg O_2/L)	Background UNBOD conc. (mg O_2/L)	Background % Reduction	Percent reduction of Man-Made loads
Bayou Cocodrie 101605 Headwater	0.0028	12.46	3.61	3.61	4.71	1.37	1.37	0%	95%
SUB-TOTAL TMDL LOADING									

Headwater / Tributary Load Determinations

	Reduced Background Loads		Reduced Man-Made Loads		PROJECTION VALUES				
Headwater / Tributary Description and Reach #	Total reduced Background UCBOD load (kg O_2/day)	Reduced Background UNBOD load (kg O_2/day)	Reduced UCBOD load (kg O_2/day)	Reduced UNBOD load (kg O_2/day)	Projection UCBOD input conc. (mg O_2/L)	Projection UNBOD input conc. (mg O_2/L)	**Total MOS (kg O_2/day)**	**Total CBOD LA (kg O_2/day)**	**Total NBOD LA (kg O_2/day)**
Bayou Cocodrie 101605 Headwater	1.14	0.33	0.09	0.03	5.19	1.51	**0.03**	**1.23**	**0.36**
SUB-TOTAL TMDL LOADING	**1.14**	**0.33**	**0.09**	**0.03**			**0.03**	**1.23**	**0.36**

Summer TMDL calculations and Projection model calculations for Incremental loads:

BAYOU Cocodrie (SUBSEGMENT 101605)

Shaded cells are input values for calculations.	If modeling the ni	
Values to be used in the projection models.	Y (MOS) (%) =	**20%**

Incremental Load Determina

Calibration Load Determinations				Background Loading Concentrations			Reduced Background Loads	
Reach Description and #	Projection Flow (cms)	Calb. Total UCBOD conc. (mg O_2/L)	Calb. Total UNBOD conc. (mg O_2/L)	Background Conc. Total UCBOD (mg O_2/L)	Background Conc. Total UNBOD (mg O_2/L)	Background % Reduction	Reduced Background Total UCBOD (kg O_2/day)	Reduced Background UNBOD (kg O_2/day)
REACH 1: BYCOC1 TO BYCOC2	0.0000	0.00	0.00	0.00	0.00	0%	0.00	0.00
REACH 2: BYCOC2 TO BYBCOC3	0.0000	0.00	0.00	0.00	0.00	0%	0.00	0.00
Sub-Total benthic loading							**0.00**	**0.00**

Incremental Load Determinations:

Calibration Load Determinations	Reduced Man-Made Loads			'rojection Model Input determination:				
Reach Description and #	Actual % Reduction of Man-Made Loads	Reduced Total UCBOD Load (kg O_2/day)	Reduced UNBOD Load (kg O_2/day)	Projection Total UCBOD conc. (mg O_2/L)	Projection UNBOD conc. (mg O_2/L)	**Total MOS (kg O_2/day)**	**Total CBOD LA (kg O_2/day)**	**Total NBOD LA (kg O_2/day)**
REACH 1: BYCOC1 TO BYCOC2	95%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REACH 2: BYCOC2 TO BYBCOC3	95%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sub-Total benthic loading		**0.00**	**0.00**			**0.00**	**0.00**	**0.00**

Appendix E2 – Winter Loading

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

Modeled stream or water body **BAYOU Cocodrie (SUBSEGMENT 101605)**

Shaded cells are input values for calcu ARGIN OF SAFETY (MOS) (%) = [MOG + MOU] = **20%**

Values to be used in the projection models.

	Calibration Model Values											
Reach Number and Description	Total Non-Point UCBOD	Total Non-Point UNBOD	SOD @ 20°C	Total Calb. Benthic Load (TCBL)	Reach Length	Proj. Model Avg. Reach Width	Proj. Temp.	Background Benthic Load	Effective Background Benthic Load	Man-Made Benthic Load	Background percentage reduction	Percentage Reduction of man-made sources
	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	Kilo-meters	Meters	(deg Celcius)	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	%	%
REACH 1: BYCOC1 TO BYCOC2	6.026	7.700	1.50	15.226	1.00	29.87	20.18	2.00	2.00	13.23	0%	95%
REACH 2: BYCOC2 TO BYBCOC3	25.388	10.741	4.50	40.629	1.00	25.60	20.18	2.00	2.00	38.63	0%	95%
Sub-Total									4.00	51.85		

				Reduced Man-Made Loads				Projected Model Loads					
Reach Number and Description	Reduced Background Benthic Load	Reduced Man-Made Benthic Load	Reduced TCBL adjusted for MOS	Reduced Total UCBOD Load	Reduced UNBOD Load	Reduced SOD Load at Projection Temp.	SOD @ 20°C	Total Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	**Total MOS at Projection Temp.**	**Non-Point UCBOD LA**	**Non-Point UNBOD LA**	**SOD LA at Projection Temp.**
	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	kg O_2/day	kg O_2/day	kg O_2/day	g O_2 / [(m^2)(day)]	kg O_2/day	kg O_2/day	kg O_2/day	kg O_2/day	kg O_2/day	kg O_2/day
REACH 1: BYCOC1 TO BYCOC2	2.00	0.66	2.83	7.82	9.99	1.97	0.28	33.42	42.70	4.94	31.46	40.20	7.92
REACH 2: BYCOC2 TO BYBCOC3	2.00	1.93	4.41	30.90	13.07	5.54	0.49	70.62	29.88	12.38	62.90	26.61	11.28
Sub-Total	4.00	2.59	7.24	38.72	23.06	7.51		104.04	72.58	17.32	**94.36**	**66.81**	**19.20**

Winter TMDL calculations and Projection model calculations for Headwater / Tributary

BAYOU Cocodrie (SUBSEGMENT 101605)

Shaded cells are input values for calculations.	TY (MOS) (%) =	20%
Values to be used in the projection models.	If modeling the nitrogen series,	

Headwater / Tributary Loa

	FROM CALIBRATION			BACKGROUND VALUES			
Headwater / Tributary Description and Reach #	Seasonal Critical flow (cms)	Total UCBOD (mg O_2/L)	Total UNBOD (mg O_2/L)	Background UCBOD conc. (mg O_2/L)	Background UNBOD conc. (mg O_2/L)	Background % Reduction	Percent reduction of Man-Made loads
Bayou Cocodrie 101605 Headwater	0.03	12.46	3.61	4.71	1.37	0%	95%
SUB-TOTAL TMDL LOADING							

Headwater / Tributary Load Determinations

	educed Background Loa		educed Man-Made Loa		PROJECTION VALUES				
Headwater / Tributary Description and Reach #	Total reduced Background UCBOD load (kg O_2/day)	Reduced Background UNBOD load (kg O_2/day)	Reduced UCBOD load (kg O_2/day)	Reduced UNBOD load (kg O_2/day)	Projection UCBOD input conc. (mg O_2/L)	Projection UNBOD input conc. (mg O_2/L)	**Total MOS (kg O_2/day)**	**Total CBOD LA (kg O_2/day)**	**Total NBOD LA (kg O_2/day)**
Bayou Cocodrie 101605 Headwater	11.39	3.31	0.94	0.27	5.19	1.51	**0.30**	**12.33**	**3.59**
SUB-TOTAL TMDL LOADING	**11.39**	**3.31**	**0.94**	**0.27**			**0.30**	**12.33**	**3.59**

Winter TMDL calculations and Projection model calculations for Incremental loads:

BAYOU Cocodrie (SUBSEGMENT 101605)

Shaded cells are input values for calculations.	If modeling the ni	
Values to be used in the projection models.	Y (MOS) (%) =	**20%**

Incremental Load Determina

Calibration Load Determinations				Background Loading Concentrations			Reduced Background Loads	
Reach Description and #	Projection Flow (cms)	Calb. Total UCBOD conc. (mg O_2/L)	Calb. Total UNBOD conc. (mg O_2/L)	Background Conc. Total UCBOD (mg O_2/L)	Background Conc. Total UNBOD (mg O_2/L)	Background % Reduction	Reduced Background Total UCBOD (kg O_2/day)	Reduced Background UNBOD (kg O_2/day)
REACH 1: BYCOC1 TO BYCOC2	0.0000	0.00	0.00	0.00	0.00	0%	0.00	0.00
REACH 2: BYCOC2 TO BYBCOC3	0.0000	0.00	0.00	0.00	0.00	0%	0.00	0.00
Sub-Total benthic loading							**0.00**	**0.00**

Incremental Load Determinations:

Calibration Load Determinations	Reduced Man-Made Loads			'rojection Model Input determination				
Reach Description and #	Actual % Reduction of Man-Made Loads	Reduced Total UCBOD Load (kg O_2/day)	Reduced UNBOD Load (kg O_2/day)	Projection Total UCBOD conc. (mg O_2/L)	Projection UNBOD conc. (mg O_2/L)	**Total MOS (kg O_2/day)**	**Total CBOD LA (kg O_2/day)**	**Total NBOD LA (kg O_2/day)**
REACH 1: BYCOC1 TO BYCOC2	95%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REACH 2: BYCOC2 TO BYBCOC3	95%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sub-Total benthic loading		**0.00**	**0.00**			**0.00**	**0.00**	**0.00**

Appendix E3 – Summer No Load Loading

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

Modeled stream or water body: **BAYOU Cocodrie (SUBSEGMENT 101605)**

Shaded cells are input values for calculations. RGIN OF SAFETY (MOS) (%) = [MOG + MOU] = **20%**

Values to be used in the projection models.

	Calibration Model Values											
Reach Number and Description	Total Non-Point UCBOD	Total Non-Point UNBOD	SOD @ 20°C	Total Calb. Benthic Load (TCBL)	Reach Length	Proj. Model Avg. Reach Width	Proj. Temp.	Background Benthic Load	Effective Background Benthic Load	Man-Made Benthic Load	Background percentage reduction	Percentage Reduction of man-made sources
	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	Kilo-meters	Meters	(deg Celcius)	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	%	%
REACH 1: BYCOC1 TO BYCOC2	6.026	7.700	1.50	15.226	1.00	29.87	28.70	2.00	2.00	13.23	0%	100%
REACH 2: BYCOC2 TO BYBCOC3	25.388	10.741	4.50	40.629	1.00	25.60	28.70	2.00	2.00	38.63	0%	100%
Sub-Total									4.00	51.85		

	Reduced Man-Made Loads							Projected Model Loads					
Reach Number and Description	Reduced Background Benthic Load	Reduced Man-Made Benthic Load	Reduced TCBL adjusted for MOS	Reduced Total UCBOD Load	Reduced UNBOD Load	Reduced SOD Load at Projection Temp.	SOD @ 20°C	Total Non-Point UCBOD INPUTS	Non-Point UNBOD INPUTS	**Total MOS at Projection Temp.**	**Non-Point UCBOD LA**	**Non-Point UNBOD LA**	**SOD LA at Projection Temp.**
	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	g O_2 / [(m^2)(day)]	kg O_2/day	kg O_2/day	kg O_2/day	g O_2 / [(m^2)(day)]	kg O_2/day	kg O_2/day	kg O_2/day	kg O_2/day	kg O_2/day	kg O_2/day
REACH 1: BYCOC1 TO BYCOC2	2.00	0.00	2.00	0.00	0.00	0.00	0.20	23.64	30.21	0.00	23.64	30.21	10.18
REACH 2: BYCOC2 TO BYBCOC3	2.00	0.00	2.00	0.00	0.00	0.00	0.22	32.00	13.54	0.00	32.00	13.54	9.81
Sub-Total	4.00	0.00	4.00	0.00	0.00	0.00		55.64	43.75	0.00	**55.64**	**43.75**	**19.99**

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

BAYOU Cocodrie (SUBSEGMENT 101605)

Shaded cells are input values for calculations.	N OF SAFETY (MOS) (%) =	20%
Values to be used in the projection models.	If modeling the nitrogen series, be sure tha	

Headwater / Tributary Load Determi

	FROM CALIBRATION				BACKGROUND VALUES				
Headwater / Tributary Description and Reach #	Seasonal Critical flow (cms)	Total UCBOD (mg O_2/L)	UNBOD (mg O_2/L)	Total UNBOD (mg O_2/L)	Background UCBOD conc. (mg O_2/L)	Background UNBOD conc. (mg O_2/L)	Background UNBOD conc. (mg O_2/L)	Background % Reduction	Percent reduction of Man-Made loads
Bayou Cocodrie 101605 Headwater	0.0028	12.46	3.61	3.61	4.71	1.37	1.37	0%	100%
SUB-TOTAL TMDL LOADING									

Headwater / Tributary Load Determinations

	Reduced Background Loads		Reduced Man-Made Loads		PROJECTION VALUES				
Headwater / Tributary Description and Reach #	Total reduced Background UCBOD load (kg O_2/day)	Reduced Background UNBOD load (kg O_2/day)	Reduced UCBOD load (kg O_2/day)	Reduced UNBOD load (kg O_2/day)	Projection UCBOD input conc. (mg O_2/L)	Projection UNBOD input conc. (mg O_2/L)	**Total MOS (kg O_2/day)**	**Total CBOD LA (kg O_2/day)**	**Total NBOD LA (kg O_2/day)**
Bayou Cocodrie 101605 Headwater	1.14	0.33	0.00	0.00	4.71	1.37	**0.00**	**1.14**	**0.33**
SUB-TOTAL TMDL LOADING	**1.14**	**0.33**	**0.00**	**0.00**			**0.00**	**1.14**	**0.33**

Summer TMDL calculations and Projection model calculations for Incremental loads:

BAYOU Cocodrie (SUBSEGMENT 101605)

Shaded cells are input values for calculations.	If modeling the n	
Values to be used in the projection models.	Y (MOS) (%) =	20%

Incremental Load Determina

Reach Description and #	Calibration Load Determinations: Projection Flow (cms)	Calb. Total UCBOD conc. (mg O_2/L)	Calb. Total UNBOD conc. (mg O_2/L)	Background Loading Concentrations: Background Conc. Total UCBOD (mg O_2/L)	Background Conc. Total UNBOD (mg O_2/L)	Background % Reduction	Reduced Background Loads: Reduced Background Total UCBOD (kg O_2/day)	Reduced Background UNBOD (kg O_2/day)
REACH 1: BYCOC1 TO BYCOC2	0.0000	0.00	0.00	0.00	0.00	0%	0.00	0.00
REACH 2: BYCOC2 TO BYBCOC3	0.0000	0.00	0.00	0.00	0.00	0%	0.00	0.00
Sub-Total benthic loading							**0.00**	**0.00**

Incremental Load Determinations:

Reach Description and #	Calibration Load Determinations: Actual % Reduction of Man Made Loads	Reduced Man-Made Loads: Reduced Total UCBOD Load (kg O_2/day)	Reduced UNBOD Load (kg O_2/day)	Projection Model Input determinations: Projection Total UCBOD conc. (mg O_2/L)	Projection UNBOD conc. (mg O_2/L)	**Total MOS (kg O_2/day)**	**Total CBOD LA (kg O_2/day)**	**Total NBOD LA (kg O_2/day)**
REACH 1: BYCOC1 TO BYCOC2	100%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REACH 2: BYCOC2 TO BYBCOC3	100%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sub-Total benthic loading		**0.00**	**0.00**			**0.00**	**0.00**	**0.00**

Appendix E4 – Critical Temp DO Saturation Calculations

Critical Temperature and DO Determinations:

SITE NUMBER: 1232

SITE DESCRIPTION: Bayou Cocodrie southwest of Feriday, Louisiana

	Summer Season	***Winter Season***
90th Percentile Temperature(°C):	28.70	20.18
90 % DO Sat (mg/L):	6.96	8.15
Months:	May To Oct	Nov To Apr

Date	***Water Temp. (°C)***	***DO (mg/L)***
12/17/2002	11.92	9.30
11/19/2002	15.05	6.56
10/22/2002	19.64	0.95
9/24/2002	23.24	0.68
8/20/2002	29.25	1.11
7/23/2002	28.34	1.32
6/18/2002	25.22	1.61
5/21/2002	19.88	3.02
4/16/2002	22.76	6.14
3/26/2002	17.59	6.49
2/18/2002	12.10	8.58
1/22/2002	11.31	7.92

Appendix F – Survey Data Measurements and Analysis Results

Appendix F1 – Water Quality Data

Bayou Cocodrie 101605 Lab Data

Site	Site_Description	Site_Location	Lab_ID	Analysis_Name	Result	Units	Analysis_Set_Up	Analysis_Read	Date_Nitrates_Sampled	Collection_date	Collection_time
LCO1	Lake Concordia	at Bayou Cocodrie	AG21048	TSS	11.5	ppm	8/6/2004	8/9/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21048	TDS	135	ppm	8/5/2004	8/6/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21048	Alkalinity	115	ppm	8/11/2004	8/11/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21048	Turbidity	8.1	NTU	8/5/2004	8/5/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21048	Specific Conductance	217	umhos/cm	8/11/2004	8/11/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21048	True Color	42	PCU	8/5/2004	8/5/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21048	Chloride, Ion Chromatograph	6.1	ppm	8/10/2004	8/10/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21048	Sulfate	ND	ppm	8/10/2004	8/10/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21049	Hardness	103	ppm	9/23/2004	9/23/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21049	Nitrate+Nitrite Nitrogen	ND	ppm	8/16/2004	8/16/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21049	TP	0.07	ppm	8/19/2004	8/19/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21049	TKN	2.91	ppm	8/19/2004	8/19/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21049	Ammonia-Nitrogen	ND	ppm	8/12/2004	8/12/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21050	TOC	11.8	ppm	8/11/2004	8/11/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	pH, Ultimate BOD survey	8.0	pH units	10/4/2004	10/4/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	TOC (60 Day BOD)	5.7	ppm	10/6/2004	10/7/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	TKN (60 Day BOD)	0.79	ppm	10/26/2004	10/26/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	NO2NO3 - Initial Reading	ND	ppm	9/2/2004	9/2/2004	8/5/2004	8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	NO2NO3 - Reading 1	ND	ppm	9/2/2004	9/2/2004	8/6/2004	8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	NO2NO3 - Reading 2	ND	ppm	9/2/2004	9/2/2004	8/9/2004	8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	NO2NO3 - Reading 3	ND	ppm	9/3/2004	9/3/2004	8/11/2004	8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	NO2NO3 - Reading 4	ND	ppm	9/3/2004	9/3/2004	8/13/2004	8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	NO2NO3 - Reading 5	ND	ppm	9/9/2004	9/9/2004	8/16/2004	8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	NO2NO3 - Reading 6	ND	ppm	9/9/2004	9/9/2004	8/20/2004	8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	NO2NO3 - Reading 7	0.18	ppm	9/20/2004	9/20/2004	8/25/2004	8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	NO2NO3 - Reading 8	0.54	ppm	9/20/2004	9/20/2004	9/3/2004	8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	NO2NO3 - Reading 9	0.93	ppm	10/6/2004	10/6/2004	9/14/2004	8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	NO2NO3 - Reading 10	0.96	ppm	10/6/2004	10/6/2004	9/24/2004	8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	NO2NO3 - Final	0.91	ppm	10/11/2004	10/11/2004	10/5/2004	8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	Non-Filtered BOD 60 - Reading 1	0.6	ppm	8/5/2004	8/6/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	Non-Filtered BOD 60 - Reading 2	5.5	ppm	8/5/2004	8/9/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	Non-Filtered BOD 60 - Reading 3	7.9	ppm	8/5/2004	8/11/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	Non-Filtered BOD 60 - Reading 4	9.7	ppm	8/5/2004	8/13/2004		8/4/2004	16:30

LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	Non-Filtered BOD 60 - Reading 5	11.9	ppm	8/5/2004	8/16/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	Non-Filtered BOD 60 - Reading 6	13.6	ppm	8/5/2004	8/20/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	Non-Filtered BOD 60 - Reading 7	15.7	ppm	8/5/2004	8/25/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	Non-Filtered BOD 60 - Reading 8	19.6	ppm	8/5/2004	9/3/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	Non-Filtered BOD 60 - Reading 9	21.6	ppm	8/5/2004	9/14/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	Non-Filtered BOD 60 - Reading 10	22.5	ppm	8/5/2004	9/24/2004		8/4/2004	16:30
LCO1	Lake Concordia	at Bayou Cocodrie	AG21051	Non-Filtered BOD 60 - Final	22.9	ppm	8/5/2004	10/5/2004		8/4/2004	16:30
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21052	TSS	13.0	ppm	8/6/2004	8/9/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21052	TDS	137	ppm	8/5/2004	8/6/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21052	Alkalinity	119	ppm	8/11/2004	8/11/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21052	Turbidity	9.9	NTU	8/5/2004	8/5/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21052	Specific Conductance	226	umhos/cm	8/11/2004	8/11/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21052	True Color	32	PCU	8/5/2004	8/5/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21052	Chloride, Ion Chromatograph	5.7	ppm	8/10/2004	8/10/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21052	Sulfate	ND	ppm	8/10/2004	8/10/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21053	Hardness	105	ppm	9/20/2004	9/20/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21053	Nitrate+Nitrite Nitrogen	ND	ppm	8/16/2004	8/16/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21053	TP	ND	ppm	8/19/2004	8/19/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21053	TKN	2.16	ppm	8/19/2004	8/19/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21053	Ammonia-Nitrogen	ND	ppm	8/12/2004	8/12/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21054	TOC	8.8	ppm	8/11/2004	8/11/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	pH, Ultimate BOD survey	8.0	pH units	10/4/2004	10/4/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	TOC (60 Day BOD)	5.0	ppm	10/6/2004	10/7/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	TKN (60 Day BOD)	0.53	ppm	10/26/2004	10/26/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	NO2NO3 - Initial Reading	ND	ppm	9/2/2004	9/2/2004	8/5/2004	8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	NO2NO3 - Reading 1	ND	ppm	9/2/2004	9/2/2004	8/6/2004	8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	NO2NO3 - Reading 2	ND	ppm	9/2/2004	9/2/2004	8/9/2004	8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	NO2NO3 - Reading 3	0.05	ppm	9/3/2004	9/3/2004	8/11/2004	8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	NO2NO3 - Reading 4	0.06	ppm	9/3/2004	9/3/2004	8/13/2004	8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	NO2NO3 - Reading 5	0.27	ppm	9/9/2004	9/9/2004	8/16/2004	8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	NO2NO3 - Reading 6	0.42	ppm	9/9/2004	9/9/2004	8/20/2004	8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	NO2NO3 - Reading 7	0.48	ppm	9/20/2004	9/20/2004	8/25/2004	8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	NO2NO3 - Reading 8	0.56	ppm	9/20/2004	9/20/2004	9/3/2004	8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	NO2NO3 - Reading 9	0.74	ppm	10/6/2004	10/6/2004	9/14/2004	8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	NO2NO3 - Reading 10	0.78	ppm	10/6/2004	10/6/2004	9/24/2004	8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	NO2NO3 - Final	0.75	ppm	10/11/2004	10/11/2004	10/5/2004	8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	Non-Filtered BOD 60 - Reading 1	1.0	ppm	8/5/2004	8/6/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	Non-Filtered BOD 60 - Reading 2	3.6	ppm	8/5/2004	8/9/2004		8/4/2004	8:15

BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	Non-Filtered BOD 60 - Reading 3	5.4	ppm	8/5/2004	8/11/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	Non-Filtered BOD 60 - Reading 4	6.8	ppm	8/5/2004	8/13/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	Non-Filtered BOD 60 - Reading 5	8.9	ppm	8/5/2004	8/16/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	Non-Filtered BOD 60 - Reading 6	10.6	ppm	8/5/2004	8/20/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	Non-Filtered BOD 60 - Reading 7	12.2	ppm	8/5/2004	8/25/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	Non-Filtered BOD 60 - Reading 8	13.6	ppm	8/5/2004	9/3/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	Non-Filtered BOD 60 - Reading 9	15.0	ppm	8/5/2004	9/14/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	Non-Filtered BOD 60 - Reading 10	16.0	ppm	8/5/2004	9/24/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21055	Non-Filtered BOD 60 - Final	16.4	ppm	8/5/2004	10/5/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21056	Chlorophyll A (raw)	848	ug/L	8/11/2004	8/11/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21056	Volume of sample, Chlorophyll A (raw)	200	ml	8/10/2004	8/10/2004		8/4/2004	8:15
BYCOC1	Bayou Cocodrie	at Fisherman Road	AG21056	Chlorophyll A (calculated)	42.4	ug/L	8/10/2004	8/11/2004		8/4/2004	8:15
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21057	TSS	11.0	ppm	8/6/2004	8/9/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21057	TDS	144	ppm	8/5/2004	8/6/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21057	Alkalinity	120	ppm	8/11/2004	8/11/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21057	Turbidity	8.4	NTU	8/5/2004	8/5/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21057	Specific Conductance	233	umhos/cm	8/11/2004	8/11/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21057	True Color	25	PCU	8/5/2004	8/5/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21057	Chloride, Ion Chromatograph	6.0	ppm	8/10/2004	8/10/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21057	Sulfate	ND	ppm	8/10/2004	8/10/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21058	Hardness	106	ppm	9/20/2004	9/20/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21058	Nitrate+Nitrite Nitrogen	ND	ppm	8/16/2004	8/16/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21058	TP	0.08	ppm	8/19/2004	8/19/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21058	TKN	2.52	ppm	8/19/2004	8/19/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21058	Ammonia-Nitrogen	ND	ppm	8/12/2004	8/12/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21059	TOC	8.7	ppm	8/11/2004	8/11/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	pH, Ultimate BOD survey	7.9	pH units	10/4/2004	10/4/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	TOC (60 Day BOD)	5.2	ppm	10/6/2004	10/7/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	TKN (60 Day BOD)	0.43	ppm	10/26/2004	10/26/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	NO2NO3 - Initial Reading	0.05	ppm	9/2/2004	9/2/2004	8/5/2004	8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	NO2NO3 - Reading 1	0.06	ppm	9/2/2004	9/2/2004	8/6/2004	8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	NO2NO3 - Reading 2	0.06	ppm	9/2/2004	9/2/2004	8/9/2004	8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	NO2NO3 - Reading 3	0.08	ppm	9/3/2004	9/3/2004	8/11/2004	8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	NO2NO3 - Reading 4	0.22	ppm	9/3/2004	9/3/2004	8/13/2004	8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	NO2NO3 - Reading 5	0.40	ppm	9/9/2004	9/9/2004	8/16/2004	8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	NO2NO3 - Reading 6	0.49	ppm	9/9/2004	9/9/2004	8/20/2004	8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	NO2NO3 - Reading 7	0.54	ppm	9/20/2004	9/20/2004	8/25/2004	8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	NO2NO3 - Reading 8	0.64	ppm	9/20/2004	9/20/2004	9/3/2004	8/4/2004	10:40

BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	NO2NO3 - Reading 9	0.82	ppm	10/6/2004	10/6/2004	9/14/2004	8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	NO2NO3 - Reading 10	0.83	ppm	10/6/2004	10/6/2004	9/24/2004	8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	NO2NO3 - Final	0.80	ppm	10/11/2004	10/11/2004	10/5/2004	8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	Non-Filtered BOD 60 - Reading 1	1.1	ppm	8/5/2004	8/6/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	Non-Filtered BOD 60 - Reading 2	3.8	ppm	8/5/2004	8/9/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	Non-Filtered BOD 60 - Reading 3	5.1	ppm	8/5/2004	8/11/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	Non-Filtered BOD 60 - Reading 4	6.5	ppm	8/5/2004	8/13/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	Non-Filtered BOD 60 - Reading 5	8.3	ppm	8/5/2004	8/16/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	Non-Filtered BOD 60 - Reading 6	9.6	ppm	8/5/2004	8/20/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	Non-Filtered BOD 60 - Reading 7	11.1	ppm	8/5/2004	8/25/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	Non-Filtered BOD 60 - Reading 8	12.5	ppm	8/5/2004	9/3/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	Non-Filtered BOD 60 - Reading 9	13.4	ppm	8/5/2004	9/14/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	Non-Filtered BOD 60 - Reading 10	14.2	ppm	8/5/2004	9/24/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21060	Non-Filtered BOD 60 - Final	14.6	ppm	8/5/2004	10/5/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21061	Chlorophyll A (calculated)	40.8	ug/L	8/10/2004	8/11/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21061	Chlorophyll A (raw)	816	ug/L	8/11/2004	8/11/2004		8/4/2004	10:40
BYCOC2	Bayou Cocodrie	at Fisherman Road	AG21061	Volume of sample, Chlorophyll A (raw)	200	ml	8/10/2004	8/10/2004		8/4/2004	10:40
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21062	TSS	6.0	ppm	8/6/2004	8/9/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21062	TDS	137	ppm	8/5/2004	8/6/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21062	Alkalinity	120	ppm	8/11/2004	8/11/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21062	Turbidity	4.6	NTU	8/5/2004	8/5/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21062	Specific Conductance	236	umhos/cm	8/11/2004	8/11/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21062	True Color	23	PCU	8/5/2004	8/5/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21062	Chloride, Ion Chromatograph	6.0	ppm	8/10/2004	8/10/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21062	Sulfate	ND	ppm	8/10/2004	8/10/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21063	Hardness	106	ppm	9/20/2004	9/20/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21063	Nitrate+Nitrite Nitrogen	ND	ppm	8/16/2004	8/16/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21063	TP	0.10	ppm	8/19/2004	8/19/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21063	TKN	2.21	ppm	8/19/2004	8/19/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21063	Ammonia-Nitrogen	0.31	ppm	8/12/2004	8/12/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21064	TOC	8.2	ppm	8/11/2004	8/11/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	pH, Ultimate BOD survey	8.0	pH units	10/4/2004	10/4/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	TOC (60 Day BOD)	5.0	ppm	10/6/2004	10/7/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	TKN (60 Day BOD)	0.49	ppm	10/26/2004	10/26/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	NO2NO3 - Initial Reading	0.06	ppm	9/2/2004	9/2/2004	8/5/2004	8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	NO2NO3 - Reading 1	0.07	ppm	9/2/2004	9/2/2004	8/6/2004	8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	NO2NO3 - Reading 2	0.07	ppm	9/2/2004	9/2/2004	8/9/2004	8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	NO2NO3 - Reading 3	0.07	ppm	9/3/2004	9/3/2004	8/11/2004	8/4/2004	13:45

BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	NO2NO3 - Reading 4	0.14	ppm	9/3/2004	9/3/2004	8/13/2004	8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	NO2NO3 - Reading 5	0.43	ppm	9/9/2004	9/9/2004	8/16/2004	8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	NO2NO3 - Reading 6	0.56	ppm	9/9/2004	9/9/2004	8/20/2004	8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	NO2NO3 - Reading 7	0.60	ppm	9/20/2004	9/20/2004	8/25/2004	8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	NO2NO3 - Reading 8	0.70	ppm	9/20/2004	9/20/2004	9/3/2004	8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	NO2NO3 - Reading 9	0.90	ppm	10/6/2004	10/6/2004	9/14/2004	8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	NO2NO3 - Reading 10	0.91	ppm	10/6/2004	10/6/2004	9/24/2004	8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	NO2NO3 - Final	0.88	ppm	10/11/2004	10/11/2004	10/5/2004	8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	Non-Filtered BOD 60 - Reading 1	0.9	ppm	8/5/2004	8/6/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	Non-Filtered BOD 60 - Reading 2	2.6	ppm	8/5/2004	8/9/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	Non-Filtered BOD 60 - Reading 3	3.4	ppm	8/5/2004	8/11/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	Non-Filtered BOD 60 - Reading 4	4.3	ppm	8/5/2004	8/13/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	Non-Filtered BOD 60 - Reading 5	6.5	ppm	8/5/2004	8/16/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	Non-Filtered BOD 60 - Reading 6	8.0	ppm	8/5/2004	8/20/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	Non-Filtered BOD 60 - Reading 7	9.4	ppm	8/5/2004	8/25/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	Non-Filtered BOD 60 - Reading 8	10.5	ppm	8/5/2004	9/3/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	Non-Filtered BOD 60 - Reading 9	11.5	ppm	8/5/2004	9/14/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	Non-Filtered BOD 60 - Reading 10	12.3	ppm	8/5/2004	9/24/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21065	Non-Filtered BOD 60 - Final	12.6	ppm	8/5/2004	10/5/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21066	Volume of sample, Chlorophyll A (raw)	200	ml	8/10/2004	8/10/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21066	Chlorophyll A (raw)	250	ug/L	8/11/2004	8/11/2004		8/4/2004	13:45
BYCOC3	Bayou Cocodrie	at upstream side of LA Hwy 15	AG21066	Chlorophyll A (calculated)	12.5	ug/L	8/10/2004	8/11/2004		8/4/2004	13:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21067	TSS	6.0	ppm	8/5/2004	8/9/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21067	TDS	301	ppm	8/5/2004	8/6/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21067	Alkalinity	121	ppm	8/11/2004	8/11/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21067	Turbidity	5.5	NTU	8/5/2004	8/5/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21067	Specific Conductance	237	umhos/cm	8/11/2004	8/11/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21067	True Color	25	PCU	8/5/2004	8/5/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21067	Chloride, Ion Chromatograph	6.5	ppm	8/10/2004	8/10/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21067	Sulfate	ND	ppm	8/10/2004	8/10/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21068	Hardness	106	ppm	9/20/2004	9/20/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21068	Nitrate+Nitrite Nitrogen	ND	ppm	8/16/2004	8/16/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21068	TP	0.10	ppm	8/19/2004	8/19/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21068	TKN	2.11	ppm	8/19/2004	8/19/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21068	Ammonia-Nitrogen	0.32	ppm	8/12/2004	8/12/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21069	TOC	8.0	ppm	8/11/2004	8/11/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	pH, Ultimate BOD survey	8.0	pH units	10/4/2004	10/4/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	TOC (60 Day BOD)	5.2	ppm	10/6/2004	10/7/2004		8/4/2004	14:45

BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	TKN (60 Day BOD)	0.41	ppm	10/26/2004	10/26/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	NO2NO3 - Initial Reading	0.08	ppm	9/2/2004	9/2/2004	8/5/2004	8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	NO2NO3 - Reading 1	0.07	ppm	9/2/2004	9/2/2004	8/6/2004	8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	NO2NO3 - Reading 2	0.07	ppm	9/2/2004	9/2/2004	8/9/2004	8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	NO2NO3 - Reading 3	0.07	ppm	9/3/2004	9/3/2004	8/11/2004	8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	NO2NO3 - Reading 4	0.18	ppm	9/3/2004	9/3/2004	8/13/2004	8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	NO2NO3 - Reading 5	0.44	ppm	9/9/2004	9/9/2004	8/16/2004	8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	NO2NO3 - Reading 6	0.56	ppm	9/9/2004	9/9/2004	8/20/2004	8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	NO2NO3 - Reading 7	0.62	ppm	9/20/2004	9/20/2004	8/25/2004	8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	NO2NO3 - Reading 8	0.71	ppm	9/20/2004	9/20/2004	9/3/2004	8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	NO2NO3 - Reading 9	0.90	ppm	10/6/2004	10/6/2004	9/14/2004	8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	NO2NO3 - Reading 10	0.92	ppm	10/6/2004	10/6/2004	9/24/2004	8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	NO2NO3 - Final	0.88	ppm	10/11/2004	10/11/2004	10/5/2004	8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	Non-Filtered BOD 60 - Reading 1	0.9	ppm	8/5/2004	8/6/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	Non-Filtered BOD 60 - Reading 2	2.6	ppm	8/5/2004	8/9/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	Non-Filtered BOD 60 - Reading 3	3.4	ppm	8/5/2004	8/11/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	Non-Filtered BOD 60 - Reading 4	4.4	ppm	8/5/2004	8/13/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	Non-Filtered BOD 60 - Reading 5	6.4	ppm	8/5/2004	8/16/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	Non-Filtered BOD 60 - Reading 6	7.9	ppm	8/5/2004	8/20/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	Non-Filtered BOD 60 - Reading 7	9.3	ppm	8/5/2004	8/25/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	Non-Filtered BOD 60 - Reading 8	10.4	ppm	8/5/2004	9/3/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	Non-Filtered BOD 60 - Reading 9	11.4	ppm	8/5/2004	9/14/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	Non-Filtered BOD 60 - Reading 10	12.2	ppm	8/5/2004	9/24/2004		8/4/2004	14:45
BYCOC4	Bayou Cocodrie	at downstream side of LA Hwy 15	AG21070	Non-Filtered BOD 60 - Final	12.5	ppm	8/5/2004	10/5/2004		8/4/2004	14:45

Bayou Cocodrie 101605 Insitu Data

Site	Date	Time	Depth (ft)	pH (SU)	T (^{o} C)	DO (mg/L)	Cond (uhoms/ cm)	Secchi Disc (in)	Salinity (ppt)	% Sat DO
LCO1	8/4/2004	16:30	1.0	8.75	32.64	9.03	212.1		.1	124.4
BYCOC1	8/4/2004	8:15	1.0	8.52	32.14	5.68	216.5	24	.1	77.6
BYCOC2	8/4/2004	10:40	0.5	8.25	31.75	4.69	221.6	24	.10	63.8
BYCOC3	8/4/2004	13:45	.5	7.75	32.24	1.64	226.7	39	.11	22.5
BYCOC4	8/4/2004	14:45	.5	7.63	32.59	1.56	227.4		.11	21.0

LAB WQ CROSS TAB REPORT

PROJECT: ES2004014

PROJECT NAME: BAYOU COCODRIE 101605

SITE ID NUMBER	Sample Date	Sample Time	Chloride, Ion Chromatograph	Sulfate	Hardness	Alkalinity	Specific Conductance	Sodium	TOC	TP	TDS	TSS	Ammonia-Nitrogen	Nitrate+Nitrite Nitrogen	TKN	Chlorophyll a, ug/L
BYCOC1	08/04/04	8:15:00 AM	5.7	ND	105	119	226	8.43	8.8	ND	137	13	ND	ND	2.16	42.4
BYCOC2	08/04/04	10:40:00 AM	6	ND	106	120	233	9	8.7	0.08	144	11	ND	ND	2.52	40.8
BYCOC3	08/04/04	1:45:00 PM	6	ND	106	120	236	8.94	8.2	0.1	137	6	0.31	ND	2.21	12.5
BYCOC4	08/04/04	2:45:00 PM	6.5	ND	106	121	237	9.44	8	0.1	301	6	0.32	ND	2.11	

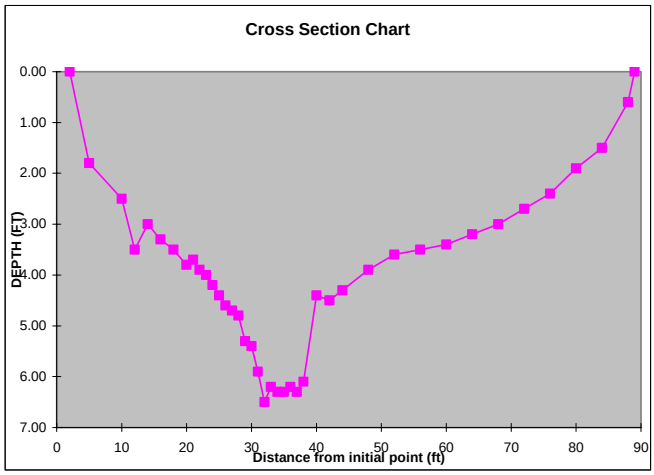
Appendix F2 – Cross Sections and Discharge Measurements

STREAM CROSS-SECTION SPREADSHEET

Site Number: BYCOC1 **Subsegment:** 101606 **Waterbody:** Bayou Cocodrie
Site Description: Bayou Cocodrie at Fisherman Road
Type of Equipment: ☐ Fathometer ☐ Hydrotrac ☑ Manual
Initial Bank: ☑ RDB ☐ LDB
Tapedown:
Guage Height:
Date: 8/4/2004

WIDTH[1] (ft):	87.00
AREA[2] (ft[2]):	294.70
AVG. DEPTH[3] (ft):	3.39

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	1.50	0.00	0.00	0.00%
2	5.0	4.00	1.80	7.20	2.44%
3	10.0	3.50	2.50	8.75	2.97%
4	12.0	2.00	3.50	7.00	2.38%
5	14.0	2.00	3.00	6.00	2.04%
6	16.0	2.00	3.30	6.60	2.24%
7	18.0	2.00	3.50	7.00	2.38%
8	20.0	1.50	3.80	5.70	1.93%
9	21.0	1.00	3.70	3.70	1.26%
10	22.0	1.00	3.90	3.90	1.32%
11	23.0	1.00	4.00	4.00	1.36%
12	24.0	1.00	4.20	4.20	1.43%
13	25.0	1.00	4.40	4.40	1.49%
14	26.0	1.00	4.60	4.60	1.56%
15	27.0	1.00	4.70	4.70	1.59%
16	28.0	1.00	4.80	4.80	1.63%
17	29.0	1.00	5.30	5.30	1.80%
18	30.0	1.00	5.40	5.40	1.83%
19	31.0	1.00	5.90	5.90	2.00%
20	32.0	1.00	6.50	6.50	2.21%
21	33.0	1.00	6.20	6.20	2.10%
22	34.0	1.00	6.30	6.30	2.14%
23	35.0	1.00	6.30	6.30	2.14%
24	36.0	1.00	6.20	6.20	2.10%
25	37.0	1.00	6.30	6.30	2.14%
26	38.0	1.50	6.10	9.15	3.10%
27	40.0	2.00	4.40	8.80	2.99%
28	42.0	2.00	4.50	9.00	3.05%
29	44.0	3.00	4.30	12.90	4.38%
30	48.0	4.00	3.90	15.60	5.29%
31	52.0	4.00	3.60	14.40	4.89%
32	56.0	4.00	3.50	14.00	4.75%
33	60.0	4.00	3.40	13.60	4.61%
34	64.0	4.00	3.20	12.80	4.34%
35	68.0	4.00	3.00	12.00	4.07%
36	72.0	4.00	2.70	10.80	3.66%
37	76.0	4.00	2.40	9.60	3.26%
38	80.0	4.00	1.90	7.60	2.58%
39	84.0	4.00	1.50	6.00	2.04%
40	88.0	2.50	0.60	1.50	0.51%
41	89.0	0.50	0.00	0.00	0.00%
42					
		87.00		294.70	100.00%



Data Collection Crew		Office Data Work	
Measurement made by:	Garner/Dickinson/Hughes	**Data Inputed by / Date:**	Phillippe 07/26/04
Notetaker/Recorder:	Garner/Dickinson/Hughes	**Data Input Checked by / Date:**	
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 FORM

Site Number: BYCOC1
Site Description: Bayou Cocodrie at Fisherman Road
Waterbody: Bayou Cocodrie
Type of Meter: Marsh-McBirney
Tapedown/Ght.:
Weather: Clear
Date: 8/4/2004
Start Time: 8:59 AM **End Time:** 10:53 AM

WIDTH (ft): (Note 1)	87.00
AREA (ft^2): (Note 2)	294.70
AVG. DEPTH (ft): (Note 3)	3.39
DISCHARGE (cfs): (Note 4)	32.67
AVG. VELOCITY (fps): (Note 5)	0.11

Distance from initial point (ft)	Width of element (ft) (Note 6)	Depth of element (ft)	Area of element (ft^2) (Note 7)	Velocity of element (fps) .2D	.6D	.8D	Average (Note 8)	Adjusted Angle	Discharge through element (cfs) (Note 9)	Element discharge at % of total discharge (Note 10)
2	1.50	0.00	0.00		0.00		0.00		0.00	0.00%
5	4.00	1.80	7.20		0.00		0.00		0.00	0.00%
10	3.50	2.50	8.75	0.00		0.00	0.00		0.00	0.00%
12	2.00	3.50	7.00	0.00		0.00	0.00		0.00	0.00%
14	2.00	3.00	6.00	0.00		0.00	0.00		0.00	0.00%
16	2.00	3.30	6.60	0.00		0.00	0.00		0.00	0.00%
18	2.00	3.50	7.00	0.12		0.00	0.06		0.42	1.29%
20	1.50	3.80	5.70	0.14		0.13	0.14		0.77	2.36%
21	1.00	3.70	3.70	0.16		0.18	0.17		0.63	1.93%
22	1.00	3.90	3.90	0.13		0.09	0.11		0.43	1.31%
23	1.00	4.00	4.00	0.11		0.14	0.13		0.50	1.53%
24	1.00	4.20	4.20	0.13		0.09	0.11		0.46	1.41%
25	1.00	4.40	4.40	0.11		0.13	0.12		0.53	1.62%
26	1.00	4.60	4.60	0.11		0.10	0.11		0.48	1.48%
27	1.00	4.70	4.70	0.18		0.11	0.15		0.68	2.09%
28	1.00	4.80	4.80	0.20		0.17	0.19		0.89	2.72%
29	1.00	5.30	5.30	0.15		0.17	0.16		0.85	2.60%
30	1.00	5.40	5.40	0.21		0.12	0.17		0.89	2.73%
31	1.00	5.90	5.90	0.32		0.00	0.16		0.94	2.89%
32	1.00	6.50	6.50	0.22		0.11	0.17		1.07	3.28%
33	1.00	6.20	6.20	0.18		0.09	0.14		0.84	2.56%
34	1.00	6.30	6.30	0.27		0.11	0.19		1.20	3.66%
35	1.00	6.30	6.30	0.36		0.09	0.23		1.42	4.34%
36	1.00	6.20	6.20	0.28		0.17	0.23		1.40	4.27%
37	1.00	6.30	6.30	0.40		0.18	0.29		1.83	5.59%
38	1.50	6.10	9.15	0.45		0.24	0.35		3.16	9.66%
40	2.00	4.40	8.80	0.20		0.11	0.16		1.36	4.18%
42	2.00	4.50	9.00	0.11		0.09	0.10		0.90	2.75%
44	3.00	4.30	12.90	0.10		0.00	0.05		0.65	1.97%
48	4.00	3.90	15.60	0.08		0.09	0.09		1.33	4.06%
52	4.00	3.60	14.40	0.12		0.11	0.12		1.66	5.07%
56	4.00	3.50	14.00	0.14		0.15	0.15		2.03	6.21%
60	4.00	3.40	13.60	0.00		0.10	0.05		0.68	2.08%
64	4.00	3.20	12.80	0.12		0.00	0.06		0.77	2.35%
68	4.00	3.00	12.00	0.12		0.16	0.14		1.68	5.14%
72	4.00	2.70	10.80	0.10		0.12	0.11		1.19	3.64%
76	4.00	2.40	9.60		0.11		0.11		1.06	3.23%
80	4.00	1.90	7.60		0.00		0.00		0.00	0.00%
84	4.00	1.50	6.00		0.00		0.00		0.00	0.00%
88	2.50	0.60	1.50		0.00		0.00		0.00	0.00%
89	0.50	0.00	0.00		0.00		0.00		0.00	0.00%
Total	87.00		294.70						32.67	100.00%

Data Collection Crew		Office Data Work	
Measurement made by:		Data Inputed by / Date:	LeBlanc/2/11/05
Notetaker/Recorder:		Data Input Checked by / Date:	
Other:			

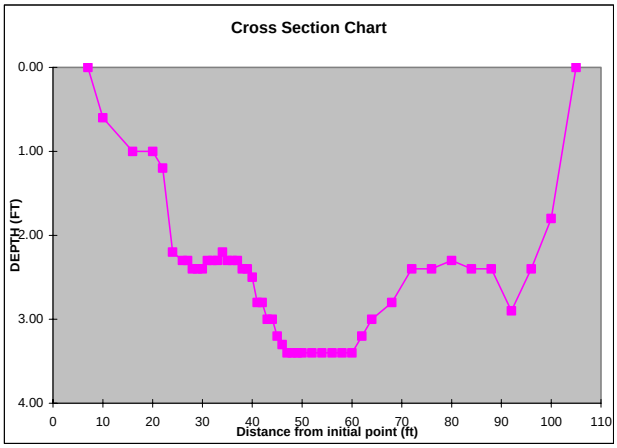
Note 1: WIDTH (ft) = sum of the width column
Note 2: AREA (ft^2) = sum of the area column
Note 3: AVG. DEPTH (ft) = area/width (using the values from this table)
Note 4: DISCHARGE (cfs) = sum of the discharge column
Note 5: AVG. VELOCITY (fps) = discharge/area (using the values from this table)
Note 6: Width of element

STREAM CROSS-SECTION SPREADSHEET

Site Number: BYCOC2 **Subsegment:** 101606 **Waterbody:** Bayou Cocodrie
Site Description: Bayou Cocodrie at HWY 65
Type of Equipment: ☐ Fathometer ☐ Hydrotrac ☑ Manual
Initial Bank: ☑ RDB ☐ LDB
Tapedown:
Guage Height:
Date: 8/4/2004

WIDTH[1] (ft):	98.00
AREA[2] (ft[2]):	224.65
AVG. DEPTH[3](ft):	2.29

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	7.0	1.50	0.00	0.00	0.00%
2	10.0	4.50	0.60	2.70	1.20%
3	16.0	5.00	1.00	5.00	2.23%
4	20.0	3.00	1.00	3.00	1.34%
5	22.0	2.00	1.20	2.40	1.07%
6	24.0	2.00	2.20	4.40	1.96%
7	26.0	1.50	2.30	3.45	1.54%
8	27.0	1.00	2.30	2.30	1.02%
9	28.0	1.00	2.40	2.40	1.07%
10	29.0	1.00	2.40	2.40	1.07%
11	30.0	1.00	2.40	2.40	1.07%
12	31.0	1.00	2.30	2.30	1.02%
13	32.0	1.00	2.30	2.30	1.02%
14	33.0	1.00	2.30	2.30	1.02%
15	34.0	1.00	2.20	2.20	0.98%
16	35.0	1.00	2.30	2.30	1.02%
17	36.0	1.00	2.30	2.30	1.02%
18	37.0	1.00	2.30	2.30	1.02%
19	38.0	1.00	2.40	2.40	1.07%
20	39.0	1.00	2.40	2.40	1.07%
21	40.0	1.00	2.50	2.50	1.11%
22	41.0	1.00	2.80	2.80	1.25%
23	42.0	1.00	2.80	2.80	1.25%
24	43.0	1.00	3.00	3.00	1.34%
25	44.0	1.00	3.00	3.00	1.34%
26	45.0	1.00	3.20	3.20	1.42%
27	46.0	1.00	3.30	3.30	1.47%
28	47.0	1.00	3.40	3.40	1.51%
29	48.0	1.00	3.40	3.40	1.51%
30	49.0	1.00	3.40	3.40	1.51%
31	50.0	1.50	3.40	5.10	2.27%
32	52.0	2.00	3.40	6.80	3.03%
33	54.0	2.00	3.40	6.80	3.03%
34	56.0	2.00	3.40	6.80	3.03%
35	58.0	2.00	3.40	6.80	3.03%
36	60.0	2.00	3.40	6.80	3.03%
37	62.0	2.00	3.20	6.40	2.85%
38	64.0	3.00	3.00	9.00	4.01%
39	68.0	4.00	2.80	11.20	4.99%
40	72.0	4.00	2.40	9.60	4.27%
41	76.0	4.00	2.40	9.60	4.27%
42	80.0	4.00	2.30	9.20	4.10%
43	84.0	4.00	2.40	9.60	4.27%
44	88.0	4.00	2.40	9.60	4.27%
45	92.0	4.00	2.90	11.60	5.16%
46	96.0	4.00	2.40	9.60	4.27%
47	100.0	4.50	1.80	8.10	3.61%
48	105.0	2.50	0.00	0.00	0.00%
49					
50					
51					
		98.00		224.65	100.00%



Data Collection Crew		Office Data Work	
Measurement made by:	Garner/Dickinson/Hughes	Data Inputed by / Date:	Phillippe 07/26/04
Notetaker/Recorder:	Garner/Dickinson/Hughes	Data Input Checked by / Date:	
Other:			

Bayou Cocodrie Watershed TMDL
Subsegment 101605
Originated: March 21, 2005
Revised: December 22, 2005

STREAM DISCHARGE FORM

Site Number: BYCOC2
Site Description: Bayou Cocodrie at at HWY 65
Waterbody: Bayou Cocodrie
Type of Meter: Marsh-McBirney
Tapedown/Ght.:
Weather: Clear
Date: 8/4/2004
Start Time: 12:09 PM **End Time:** 1:50 PM

WIDTH (ft): (Note 1)	98.00
AREA (ft^2): (Note 2)	224.65
AVG. DEPTH (ft): (Note 3)	2.29
DISCHARGE (cfs): (Note 4)	55.86
AVG. VELOCITY (fps): (Note 5)	0.25

Distance from initial point (ft)	Width of element (ft) (Note 6)	Depth of element (ft)	Area of element (ft^2) (Note 7)	Velocity of element (fps) .2D	.6D	.8D	Average (Note 8)	Adjusted Angle	Discharge through element (cfs) (Note 9)	Element discharge at % of total discharge (Note 10)
7	1.50	0.00	0.00		0.00		0.00		0.00	0.00%
10	4.50	0.60	2.70		0.00		0.00		0.00	0.00%
16	5.00	1.00	5.00		0.00		0.00		0.00	0.00%
20	3.00	1.00	3.00		0.00		0.00		0.00	0.00%
22	2.00	1.20	2.40		0.00		0.00		0.00	0.00%
24	2.00	2.20	4.40		0.13		0.13		0.57	1.02%
26	1.50	2.30	3.45		0.00		0.00		0.00	0.00%
27	1.00	2.30	2.30		0.13		0.13		0.30	0.54%
28	1.00	2.40	2.40		0.44		0.44		1.06	1.89%
29	1.00	2.40	2.40		0.38		0.38		0.91	1.63%
30	1.00	2.40	2.40		0.50		0.50		1.20	2.15%
31	1.00	2.30	2.30		0.51		0.51		1.17	2.10%
32	1.00	2.30	2.30		0.57		0.57		1.31	2.35%
33	1.00	2.30	2.30		0.73		0.73		1.68	3.01%
34	1.00	2.20	2.20		0.66		0.66		1.45	2.60%
35	1.00	2.30	2.30		0.62		0.62		1.43	2.55%
36	1.00	2.30	2.30		0.65		0.65		1.50	2.68%
37	1.00	2.30	2.30		0.51		0.51		1.17	2.10%
38	1.00	2.40	2.40		0.58		0.58		1.39	2.49%
39	1.00	2.40	2.40		0.55		0.55		1.32	2.36%
40	1.00	2.50	2.50	0.77		0.53	0.65		1.63	2.91%
41	1.00	2.80	2.80	0.61		0.45	0.53		1.48	2.66%
42	1.00	2.80	2.80	0.66		0.52	0.59		1.65	2.96%
43	1.00	3.00	3.00	0.67		0.49	0.58		1.74	3.11%
44	1.00	3.00	3.00	0.73		0.49	0.61		1.83	3.28%
45	1.00	3.20	3.20	0.74		0.54	0.64		2.05	3.67%
46	1.00	3.30	3.30	0.69		0.54	0.62		2.03	3.63%
47	1.00	3.40	3.40	0.52		0.33	0.43		1.45	2.59%
48	1.00	3.40	3.40	0.64		0.26	0.45		1.53	2.74%
49	1.00	3.40	3.40	0.53		0.37	0.45		1.53	2.74%
50	1.50	3.40	5.10	0.26		0.22	0.24		1.22	2.19%
52	2.00	3.40	6.80	0.29		0.18	0.24		1.60	2.86%
54	2.00	3.40	6.80	0.20		0.15	0.18		1.19	2.13%
56	2.00	3.40	6.80	0.24		0.14	0.19		1.29	2.31%
58	2.00	3.40	6.80	0.16		0.10	0.13		0.88	1.58%
60	2.00	3.40	6.80	0.16		0.19	0.18		1.19	2.13%
62	2.00	3.20	6.40	0.19		0.19	0.19		1.22	2.18%
64	3.00	3.00	9.00	0.07		0.12	0.10		0.86	1.53%
68	4.00	2.80	11.20	0.15		0.14	0.15		1.62	2.91%
72	4.00	2.40	9.60		0.16		0.16		1.54	2.75%
76	4.00	2.40	9.60		0.18		0.18		1.73	3.09%
80	4.00	2.30	9.20		0.19		0.19		1.75	3.13%
84	4.00	2.40	9.60		0.21		0.21		2.02	3.61%
88	4.00	2.40	9.60		0.12		0.12		1.15	2.06%
92	4.00	2.90	11.60	0.17		0.14	0.16		1.80	3.22%
96	4.00	2.40	9.60		0.15		0.15		1.44	2.58%
100	4.50	1.80	8.10		0.00		0.00		0.00	0.00%
105	2.50	0.00	0.00		0.00		0.00		0.00	0.00%
Total	98.00		224.65						55.86	100.00%

STREAM CROSS-SECTION SPREADSHEET

Site Number: BYCOC3 XS **Subsegment:** 101606 **Waterbody:** Bayou Cocodrie
Site Description: Bayou Cocodrie at HWY 15
Type of Equipment: ☐ Fathometer ☐ Hydrotrac ☑ Manual
Initial Bank: ☑ RDB ☐ LDB
Tapedown:
Guage Height:
Date: 8/4/2004

WIDTH[1] (ft):	84.00
AREA[2] (ft^2):	275.10
AVG. DEPTH[3] (ft):	3.28

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	0.0	1.00	0.00	0.00	
2	2.0	2.50	0.90	2.25	0.82%
3	5.0	3.00	1.70	5.10	1.85%
4	8.0	3.50	2.10	7.35	2.67%
5	12.0	4.00	2.40	9.60	3.49%
6	16.0	4.00	3.20	12.80	4.65%
7	20.0	4.00	3.10	12.40	4.51%
8	24.0	4.00	3.50	14.00	5.09%
9	28.0	4.00	3.80	15.20	5.53%
10	32.0	4.00	3.90	15.60	5.67%
11	36.0	4.00	3.90	15.60	5.67%
12	40.0	4.00	4.00	16.00	5.82%
13	44.0	4.00	4.40	17.60	6.40%
14	48.0	4.00	4.70	18.80	6.83%
15	52.0	4.00	4.80	19.20	6.98%
16	56.0	4.00	4.90	19.60	7.12%
17	60.0	4.00	5.50	22.00	8.00%
18	64.0	4.00	4.20	16.80	6.11%
19	68.0	4.00	3.40	13.60	4.94%
20	72.0	4.00	2.90	11.60	4.22%
21	76.0	4.00	1.50	6.00	2.18%
22	80.0	4.00	1.00	4.00	1.45%
23	84.0	2.00	0.00	0.00	0.00%
24					
25					
26					
27					
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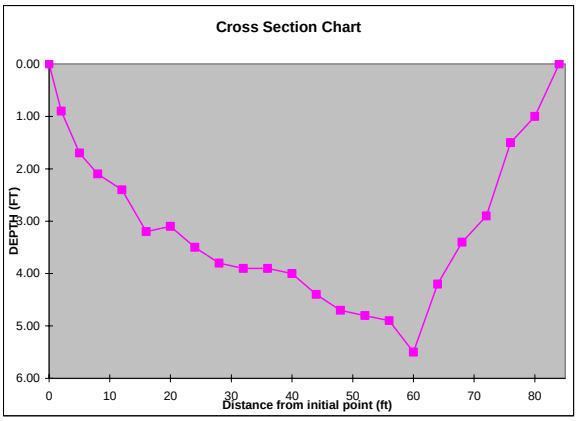
51					
		84.00		275.10	100.00%



Data Collection Crew		Office Data Work	
Measurement made by:	Garner	Data Inputed by / Date:	Garner 080904
Notetaker/Recorder:	Butler	Data Input Checked by / Date:	Butler 080904
Other:			

STREAM DISCHARGE FORM

Site Number: BYCOC3
Site Description: Bayou Cocodrie at at HWY 15
Waterbody: Bayou Cocodrie
Type of Meter: Marsh-McBirney
Tapedown/Ght.:
Weather: Clear
Date: 8/4/2004
Start Time: 2:59 PM **End Time:** 4:12 PM

WIDTH (ft): (Note 1)	37.00
AREA (ft^2): (Note 2)	89.65
AVG. DEPTH (ft): (Note 3)	2.42
DISCHARGE (cfs): (Note 4)	25.27
AVG. VELOCITY (fps): (Note 5)	0.28

Distance from initial point (ft)	Width of element (ft) (Note 6)	Depth of element (ft)	Area of element (ft^2) (Note 7)	Velocity of element (fps) .2D	.6D	.8D	Average (Note 8)	Adjusted Angle	Discharge through element (cfs) (Note 9)	Element discharge at % of total discharge (Note 10)
2	1.00	0.00	0.00		0.00		0.00		0.00	0.00%
4	2.00	0.60	1.20		0.00		0.00		0.00	0.00%
6	2.00	0.90	1.80		0.00		0.00		0.00	0.00%
8	2.00	1.60	3.20		0.00		0.00		0.00	0.00%
10	1.50	2.10	3.15		0.00		0.00		0.00	0.00%
11	1.00	2.30	2.30		0.29		0.29		0.67	2.64%
12	1.00	2.30	2.30		0.36		0.36		0.83	3.28%
13	1.00	2.50	2.50	0.36		0.31	0.34		0.84	3.31%
14	1.00	2.60	2.60	0.28		0.39	0.34		0.87	3.45%
15	1.00	2.90	2.90	0.22		0.18	0.20		0.58	2.30%
16	1.00	2.90	2.90	0.22		0.19	0.21		0.59	2.35%
17	1.00	3.00	3.00	0.28		0.24	0.26		0.78	3.09%
18	1.00	3.20	3.20	0.18		0.25	0.22		0.69	2.72%
19	1.00	3.30	3.30	0.24		0.21	0.23		0.74	2.94%
20	1.00	3.50	3.50	0.27		0.33	0.30		1.05	4.16%
21	1.00	3.70	3.70	0.28		0.38	0.33		1.22	4.83%
22	1.00	3.70	3.70	0.41		0.39	0.40		1.48	5.86%
23	1.00	3.70	3.70	0.44		0.41	0.43		1.57	6.22%
24	1.00	3.90	3.90	0.48		0.35	0.42		1.62	6.41%
25	1.00	3.90	3.90	0.46		0.39	0.43		1.66	6.56%
26	1.00	3.80	3.80	0.50		0.38	0.44		1.67	6.62%
27	1.00	3.70	3.70	0.53		0.43	0.48		1.78	7.03%
28	1.00	3.80	3.80	0.52		0.35	0.44		1.65	6.54%
29	1.00	3.70	3.70	0.53		0.40	0.47		1.72	6.81%
30	1.00	3.60	3.60	0.52		0.41	0.47		1.67	6.63%
31	1.00	3.60	3.60	0.47		0.41	0.44		1.58	6.27%
32	1.50	3.00	4.50	0.00		0.00	0.00		0.00	0.00%
34	2.00	2.10	4.20		0.00		0.00		0.00	0.00%
36	2.50	0.80	2.00		0.00		0.00		0.00	0.00%
39	1.50	0.00	0.00		0.00		0.00		0.00	0.00%
Total	37.00		89.65						25.27	100.00%

Bayou Cocodrie 101605

Field Data Summary -- Discharges and Cross Sections

Site #	Width (ft)	Width (m)	Depth (ft)	Depth (m)	Flow (cfs)	Flow (cms)
BYCOC 1	87	26.5176	3.39	1.033272	32.67	0.9252144
BYCOC 2	98	29.8704	2.29	0.697992	55.86	1.5819552
BYCOC 3	84	25.6032	3.28	0.999744	25.27	0.7156464

Bayou Cocodrie 101605 Flow Input Values		(cms)
Headwater	BYCOC1	0.9252
Incremental Inflow Reach 1	BYCOC2 - BYCOC1	0.6567
Incremental Outflow Reach 2	BYCOC3 - BYCOC2	-0.8663

Site	Flow (cms)
BYCOC1	0.9252
BYCOC2	1.5820
BYCOC3	0.7156

Bayou Cocodrie 101605

Width and Depth Input Values

Reach #	Calculation	Width (m)	Depth (m)
1	Average (BYCOC1, BYCOC2)	28.194	0.866
2	Average (BYCOC2, BYCOC3)	27.737	0.849

Site #	Width (m)	Depth (m)
BYCOC 1	26.518	1.033
BYCOC 2	29.870	0.698
BYCOC 3	25.603	1.000

Appendix F3 – Field Notes

Upper and Lower Bayou Cocodrie

Survey Report

Upper Bayou Cocodrie (subsegment 101605) is located in Concordia Parish in Ferriday, LA. It is part of the Red River basin and is approximately 2.9 RKM long. This subsegment begins at Lake Concordia and extends to LA Hwy 15. The majority of the land use along the upper portion of Bayou Cocodrie is municipal in nature and is situated in a primarily residential area.

Lower Bayou Cocodrie (subsegment 101606) is also located in Concordia Parish and is part of the Red River basin. This subsegment is approximately 36 RKM long and begins at Wild Cow Bayou and extends to the Red River. The majority of the land surrounding the lower end of Bayou Cocodrie is predominately agriculture and forestry. The agriculture in the area consists mostly of cotton, soybeans, corn, and rice crops and the forest is dominated by hardwood timber.

This survey was conducted August 3, 2004 through August 5, 2004. The Watershed Survey Group took water quality samples throughout the length of both the upper and lower subsegments of Bayou Cocodrie along with In-Situ readings on August 4, 2004. Flow measurements were taken manually with boat boards and wading rods in Bayou Cocodrie and all significant tributaries flowing into Bayou Cocodrie. The flow measurement in the Red River was recorded by Acoustic Doppler. There were a total of nine continuous monitors deployed. Four monitors were deployed in the upper subsegment and five were deployed in the lower subsegment. All monitors were deployed for three days beginning on August 3, 2004 and ending on August 5, 2004. GPS coordinates, cross sections, and weather data along with field observations, lab, and monitor data are included in this report.

Site Information

Site #: LC-01 Subsegment: 101605 Date: 8/4/04 Time: 1630hrs
Waterbody: Lake Concordia Tapedown 1: ____ Staff Gauge 1: ____
Gauge Height 1: ____ Tapedown 2: ____ Staff Gauge 2: ____ Gauge Height 2: ____
Site Location: Above mouth of Bayou Cocodrie
Personnel: Garner, Butler

Type of Work: Recon ☐ Data Collection ☒

Weather Conditions:
- Clear ☒
- Drizzle/Light Rain ☐
- Showers ☐

Cloud Cover:
- 0 – 10% ☒
- 11 – 40% ☐
- 41 – 70% ☐
- 71 – 100% ☐

Temperature (°F):
- Hot >85° ☒
- Warm > 75° ☐
- Mild > 65° ☐
- Cool > 60° ☐
- Cold < 60° ☐

Wind (mph):
- <1 ☐
- 1-5 ☒
- 6-10 ☐
- 11-15 ☐
- >16 ☐

Wind Direction:
NW ☐ N ☐ NE ☐
SW ☒ S ☐ SE ☐
E ☐ W ☐
Variable ☐

Stream Characteristics: Flowing: ☐ Measurable Flow: ☐
Flow Direction Upstream ☐ Downstream ☐ Tidally Influenced: ☐
Wind Influence: ☐ Wind Influence Direction: Upstream ☐ Downstream ☐
Algae Present ☐ Sedimentation/Turbidity Present in Water Column ☐
Floating/Aquatic Vegetation % Surface Coverage: <1 ☒ 1-25% ☐ 26-50% ☐ 51-75% ☐ 76-100% ☐

Water Quality Samples Taken: ☒ **Water Quality Field Parameters:** ☒ Profiling: ☐
Continuous Monitor Deployed: ☐ Continuous Monitor S/N: ____
Continuous Monitor Retrieved: ☐ Continuous Monitor Deployment Depth (m): ____
Continuous Monitor Location: ____

Water Quality Field Parameters

Time: 1630 **Temp.(°C):** 32.14 **pH:** 8.75 **Spcond(µhmos/cm):** 212.1
D.O.: ~~[illegible]~~ 9.03 **D.O. %:** 124.4 **Salinity:** .10 **Depth (m):** 1m **Secchi (in):** ~

I BV - 7.7
I Ba - 13.6

Flow Measurement: ☐ Measurement Location: ____
Type of Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐
AquaCalc File Name: ____

Flow Estimated: ☐ Measurement Location: ____
Using Discharge Equipment: ☐ Type: Wading ☐ Bridge Board ☐ Boat Board ☐
Drogue Estimate: ☐ Dye Estimate: ☐
Right Descending Bank: Distance (ft): ____ Time (s): ____
Mid Stream: Distance (ft): ____ Time (s): ____
Left Descending Bank: Distance (ft): ____ Time (s): ____

Cross Section Measurement: ☐ Measurement Location: ____
Type of Measurement Manual: ☐ Fathometer ☐ Cross Section File Name: ____

GPS Measurement: ☐ GPS SSF File Name: ____
Site GPS: ☐ Cross Section GPS: ☐

Comments: ____

Photos Taken: ☐ Picture File #s: _____

Tapedown Established: ☐ Tapedown Location: _____

Benchmark Established: ☐ Benchmark Location: _____

Survey Equipment Used: ☐

Time of Travel Measurement: ☐ Type of Site: Injection ☐ Collection ☐

Amount of Dye Injected (ml): _____

Physical Site Characteristics: Natural Waterbody: ☐ Man Altered Waterbody: ☑ Man-Made Waterbody: ☐

Stream Dry/Intermittent: ☐

Stream Bottom: Sandy ☐ Clay ☐ Gravel ☐ Hard Clay ☐ Soft Silt ☐ Sand/Silt ☑ Rock/Gravel/Silt ☐

Control Structure Present: ☑ Location: upstream About 50 yds.

Type: Man Made Dam ☐ Flow Regulation Device ☑ Beaver Dam ☐ Log Jam ☐

Land Use: Agriculture ☐ Forestry ☑ Municipal ☐ Industrial ☐ Field/Pasture ☐ Wetland ☐

Percent Tree Canopy Cover 0-25% ☐ 26-50% ☑ 51-75% ☐ 76-100% ☐

Recon Information:

Discharge Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

Measurement Location: _____

Cross Section Location: _____

Continuous Monitor Deployment: _____

Continuous Monitor Location: _____

Boat Accessible: ☐ Nearest Launch: _____

Bridge ☐ Bridge Safe: ☐ Bridge Width: _____ Bridge Height: _____

Profiling Measurements:

Time:		Temp.(°C):		pH:		Spcond(µhmos/cm):	
D.O.:		D.O. %:		Salinity:		Depth (m):	
Time:		Temp.(°C):		pH:		Spcond(µhmos/cm):	
D.O.:		D.O. %:		Salinity:		Depth (m):	
Time:		Temp.(°C):		pH:		Spcond(µhmos/cm):	
D.O.:		D.O. %:		Salinity:		Depth (m):	

Equipment Used:

In Situ Probe S/N: 400006 Surveyor 4a S/N: _____ GPS Unit _____

AquaCalc S/N _____ Fathometer: _____ Laser Gun _____

Camera S/N: _____

References

Convert Feet to Meters

0.5 ft ≅ 0.15 m

1.0 ft ≅ 0.30 m

1.5 ft ≅ 0.45 m

2.0 ft ≅ 0.60 m

2.5 ft ≅ 0.75 m

Photos Taken: ☐ Picture File #s: _____

Tapedown Established: ☐ Tapedown Location: _____

Benchmark Established: ☐ Benchmark Location: _____

Survey Equipment Used: ☐

Time of Travel Measurement: ☐ Type of Site: Injection ☐ Collection ☐

Amount of Dye Injected (ml): _____

Physical Site Characteristics: Natural Waterbody: ☒ Man Altered Waterbody: ☐ Man-Made Waterbody: ☐

Stream Dry/Intermittent: ☐

Stream Bottom: Sandy ☐ Clay ☒ Gravel ☐ Hard Clay ☐ Soft Silt ☒ Sand/Silt ☐ Rock/Gravel/Silt ☐

Control Structure Present: ☒ Location: D & At Mouth of Cocodrie

Type: Man Made Dam ☐ Flow Regulation Device ☒ Beaver Dam ☐ Log Jam ☐

Land Use: Agriculture ☒ Forestry ☒ GL Municipal ☒ Industrial ☐ Field/Pasture ☐ Wetland ☐

Percent Tree Canopy Cover 0-25% ☒ 26-50% ☐ 51-75% ☐ 76-100% ☐

Recon Information:

Discharge Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

Measurement Location: _____

Cross Section Location: _____

Continuous Monitor Deployment: _____

Continuous Monitor Location: _____

Boat Accessible: ☐ Nearest Launch: _____

Bridge ☐ **Bridge Safe:** ☐ Bridge Width: _____ Bridge Height: _____

Profiling Measurements:

Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	

Equipment Used:

In Situ Probe S/N: 39001 Surveyor 4a S/N: _____ GPS Unit _____

AquaCalc S/N _____ Fathometer: _____ Laser Gun _____

Camera S/N: _____

References

Convert Feet to Meters

0.5 ft ≅ 0.15 m

1.0 ft ≅ 0.30 m

1.5 ft ≅ 0.45 m

2.0 ft ≅ 0.60 m

2.5 ft ≅ 0.75 m

Site Information

Site #: BYCOC 1 Subsegment: 101605 Date: 8 3 04 Time: 1100 hrs.

Waterbody: Bayou Cocodrie Tapedown 1: Staff Gauge 1:

Gauge Height 1: Tapedown 2: Staff Gauge 2: Gauge Height 2:

Site Location: 150 yds downstream Lake Concordia @ Fisherman Rd.

Personnel: Butler, Carrier

Type of Work: Recon ☐ Data Collection ☒

Weather Conditions:
- Clear ☑
- Drizzle/Light Rain ☐
- Showers ☐

Cloud Cover:
- 0 –10% ☑
- 11 – 40% ☐
- 41 – 70% ☐
- 71 – 100% ☐

Temperature (°F):
- Hot >85° ☑
- Warm > 75° ☐
- Mild > 65° ☐
- Cool > 60° ☐
- Cold < 60° ☐

Wind (mph):
- <1 ☑
- 1-5 ☐
- 6-10 ☐
- 11-15 ☐
- >16 ☐

Wind Direction:
NW ☐ N ☐ NE ☐
SW ☐ S ☐ SE ☐
E ☐ W ☐
Variable ☐

Stream Characteristics: Flowing: ☑ Measurable Flow: ☐

Flow Direction Upstream ☐ Downstream ☑ Tidally Influenced: ☐

Wind Influence: ☐ Wind Influence Direction: Upstream ☐ Downstream ☐

Algae Present ☐ Sedimentation/Turbidity Present in Water Column ☐

Floating/Aquatic Vegetation % Surface Coverage: <1 ☑ 1-25% ☐ 26-50% ☐ 51-75% ☐ 76-100% ☐

Water Quality Samples Taken: ☐ **Water Quality Field Parameters:** ☐ Profiling: ☐

Continuous Monitor Deployed: ☑ 1100 hrs Continuous Monitor S/N: 37787

Continuous Monitor Retrieved: ☐ Continuous Monitor Deployment Depth (m): 1/2 M

Continuous Monitor Location: 150 yds down from levee

Water Quality Field Parameters

Time: **Temp.(°C):** **pH:** **Spcond(µhmos/cm):**

D.O.: **D.O. %:** **Salinity:** **Depth (m):** **Secchi (in):**

Flow Measurement: ☐ Measurement Location:

Type of Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

AquaCalc File Name:

Flow Estimated: ☐ Measurement Location:

Using Discharge Equipment: ☐ Type: Wading ☐ Bridge Board ☐ Boat Board ☐

Drogue Estimate: ☐ Dye Estimate: ☐

Right Descending Bank: Distance (ft): Time (s):

Mid Stream: Distance (ft): Time (s):

Left Descending Bank: Distance (ft): Time (s):

Cross Section Measurement: ☐ Measurement Location:

Type of Measurement Manual: ☐ Fathometer ☐ Cross Section File Name:

GPS Measurement: ☐ GPS SSF File Name:

Site GPS: ☐ Cross Section GPS: ☐

Comments:

Photos Taken: ☐ Picture File #s: _____

Tapedown Established: ☐ Tapedown Location: _____

Benchmark Established: ☐ Benchmark Location: _____

Survey Equipment Used: ☐

Time of Travel Measurement: ☐ Type of Site: Injection ☐ Collection ☐

Amount of Dye Injected (ml): _____

Physical Site Characteristics: Natural Waterbody: ☐ Man Altered Waterbody: ☑ Man-Made Waterbody: ☐

Stream Dry/Intermittent: ☐

Stream Bottom: Sandy ☐ Clay ☑ Gravel ☐ Hard Clay ☐ Soft Silt ☑ Sand/Silt ☐ Rock/Gravel/Silt ☐

Control Structure Present: ☑ Location: upstream

Type: Man Made Dam ☐ Flow Regulation Device ☒ Beaver Dam ☐ Log Jam ☐

Land Use: Agriculture ☐ Forestry ☐ Municipal ☑ Industrial ☐ Field/Pasture ☐ Wetland ☐

Percent Tree Canopy Cover 0-25% ☑ 26-50% ☐ 51-75% ☐ 76-100% ☐

Recon Information:

Discharge Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

Measurement Location: _____

Cross Section Location: _____

Continuous Monitor Deployment: _____

Continuous Monitor Location: _____

Boat Accessible: ☐ Nearest Launch: _____

Bridge ☐ **Bridge Safe:** ☐ Bridge Width: _____ Bridge Height: _____

Profiling Measurements:

Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	

Equipment Used:

In Situ Probe S/N: _____ Surveyor 4a S/N: _____ GPS Unit _____

AquaCalc S/N _____ Fathometer: _____ Laser Gun _____

Camera S/N: _____

References

Convert Feet to Meters

0.5 ft ≅ 0.15 m

1.0 ft ≅ 0.30 m

1.5 ft ≅ 0.45 m

2.0 ft ≅ 0.60 m

2.5 ft ≅ 0.75 m

Field Site Survey.doc
Revision 2.0
Revised 3/25/03

Site Information

Site #: BYCOC 1 Subsegment: 101605 Date: 8/4/04 Time: 0815 hrs.

Waterbody: Bayou Cocodrie Tapedown 1: Staff Gauge 1:

Gauge Height 1: Tapedown 2: Staff Gauge 2: Gauge Height 2:

Site Location: Fisherman Rd. Bayou Cocodrie

Personnel: Butler, Garner

Type of Work: Recon ☐ Data Collection ☑

Weather Conditions:	**Temperature (°F):**	**Wind (mph):**	**Wind Direction:**
Clear ☑	Hot >85° ☐	<1 ☑	NW ☐ N ☐ NE ☐
Drizzle/Light Rain ☐	Warm > 75° ☑	1-5 ☐	SW ☐ S ☐ SE ☐
Showers ☐	Mild > 65° ☐	6-10 ☐	E ☐ W ☐
Cloud Cover:	Cool > 60° ☐	11-15 ☐	Variable ☐
0 –10% ☑	Cold < 60° ☐	>16 ☐	
11 – 40% ☐			
41 – 70% ☐			
71 – 100% ☐			

Stream Characteristics: Flowing: ☑ Measurable Flow: ☑

Flow Direction Upstream ☐ Downstream ☑ Tidally Influenced: ☐

Wind Influence: ☐ Wind Influence Direction: Upstream ☐ Downstream ☐

Algae Present ☐ Sedimentation/Turbidity Present in Water Column ☐

Floating/Aquatic Vegetation % Surface Coverage: <1 ☑ 1-25% ☐ 26-50% ☐ 51-75% ☐ 76-100% ☐

Water Quality Samples Taken: ☑ **Water Quality Field Parameters:** ☑ Profiling: ☐

Continuous Monitor Deployed: ☐ Continuous Monitor S/N:

Continuous Monitor Retrieved: ☐ Continuous Monitor Deployment Depth (m):

Continuous Monitor Location:

Water Quality Field Parameters

Time: 0815 **Temp.(°C):** 32.14 **pH:** 8.62 **Spcond(µhmos/cm):** 216.5

D.O.: 5.68 **D.O. %:** 77.6 **Salinity:** .1 **Depth (m):** 1m **Secchi (in):** 2ft.

Flow Measurement: ☑ Measurement Location: 50 yds downstream Fisherman Drive

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

AquaCalc File Name: BYCIC 1 080404

Flow Estimated: ☐ Measurement Location:

Using Discharge Equipment: ☐ Type: Wading ☐ Bridge Board ☐ Boat Board ☐

Drogue Estimate: ☐ Dye Estimate: ☐

Right Descending Bank: Distance (ft): Time (s):

Mid Stream: Distance (ft): Time (s):

Left Descending Bank: Distance (ft): Time (s):

Cross Section Measurement: ☐ Measurement Location:

Type of Measurement Manual: ☐ Fathometer ☐ Cross Section File Name:

GPS Measurement: ☐ GPS SSF File Name:

Site GPS: ☐ Cross Section GPS: ☐

Comments: Flow is representative of cross section

Photos Taken: ☐ Picture File #s: _____

Tapedown Established: ☐ Tapedown Location: _____

Benchmark Established: ☐ Benchmark Location: _____

Survey Equipment Used: ☐

Time of Travel Measurement: ☐ Type of Site: Injection ☐ Collection ☐

Amount of Dye Injected (ml): _____

Physical Site Characteristics: Natural Waterbody: ☐ Man Altered Waterbody: ☐ Man-Made Waterbody: ☐

Stream Dry/Intermittent: ☐

Stream Bottom: Sandy ☐ Clay ☐ Gravel ☐ Hard Clay ☐ Soft Silt ☐ Sand/Silt ☐ Rock/Gravel/Silt ☐

Control Structure Present: ☐ Location: _____

Type: Man Made Dam ☐ Flow Regulation Device ☐ Beaver Dam ☐ Log Jam ☐

Land Use: Agriculture ☐ Forestry ☐ Municipal ☐ Industrial ☐ Field/Pasture ☐ Wetland ☐

Percent Tree Canopy Cover 0-25% ☐ 26-50% ☐ 51-75% ☐ 76-100% ☐

Recon Information:

Discharge Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

Measurement Location: _____

Cross Section Location: _____

Continuous Monitor Deployment: _____

Continuous Monitor Location: _____

Boat Accessible: ☐ Nearest Launch: _____

Bridge ☐ **Bridge Safe:** ☐ Bridge Width: _____ Bridge Height: _____

Profiling Measurements:

Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	

Equipment Used:

In Situ Probe S/N: _____ Surveyor 4a S/N: _____ GPS Unit _____

AquaCalc S/N _____ Fathometer: _____ Laser Gun _____

Camera S/N: _____

References

Convert Feet to Meters

0.5 ft ≅ 0.15 m

1.0 ft ≅ 0.30 m

1.5 ft ≅ 0.45 m

2.0 ft ≅ 0.60 m

2.5 ft ≅ 0.75 m

Site Information

Site #: BYCOC1 Subsegment: 101605 Date: 8/5/04 Time: 1030hrs

Waterbody: Bayou Cocodrie Tapedown 1: _____ Staff Gauge 1: _____

Gauge Height 1: _____ Tapedown 2: _____ Staff Gauge 2: _____ Gauge Height 2: _____

Site Location: Fisherman Rd

Personnel: Cramer, Butler

Type of Work: Recon ☐ Data Collection ☑

Weather Conditions:	**Temperature (°F):**	**Wind (mph):**	**Wind Direction:**
Clear ☐	Hot >85° ☐	<1 ☐	NW ☐ N ☐ NE ☐
Drizzle/Light Rain ☐	Warm > 75° ☐	1-5 ☐	SW ☐ S ☐ SE ☐
Showers ☐	Mild > 65° ☐	6-10 ☐	E ☐ W ☐
Cloud Cover:	Cool > 60° ☐	11-15 ☐	Variable ☐
0 –10% ☐	Cold < 60° ☐	>16 ☐	
11 – 40% ☐			
41 – 70% ☐			
71 – 100% ☐			

Stream Characteristics: Flowing: ☐ Measurable Flow: ☐

Flow Direction Upstream ☐ Downstream ☐ Tidally Influenced: ☐

Wind Influence: ☐ Wind Influence Direction: Upstream ☐ Downstream ☐

Algae Present ☐ Sedimentation/Turbidity Present in Water Column ☐

Floating/Aquatic Vegetation % Surface Coverage: <1 ☐ 1-25% ☐ 26-50% ☐ 51-75% ☐ 76-100% ☐

Water Quality Samples Taken: ☐ **Water Quality Field Parameters:** ☐ Profiling: ☐

Continuous Monitor Deployed: ☐ Continuous Monitor S/N: 37761 @1030hrs

Continuous Monitor Retrieved: ☒ Continuous Monitor Deployment Depth (m): Na

Continuous Monitor Location: Appox 150 yds downstream of Fisherman Rd

Water Quality Field Parameters

Time: _____ **Temp.(°C):** _____ **pH:** _____ **Spcond(µhmos/cm):** _____

D.O.: _____ **D.O. %:** _____ **Salinity:** _____ **Depth (m):** _____ **Secchi (in):** _____

Flow Measurement: ☐ Measurement Location: _____

Type of Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

AquaCalc File Name: _____

Flow Estimated: ☐ Measurement Location: _____

Using Discharge Equipment: ☐ Type: Wading ☐ Bridge Board ☐ Boat Board ☐

Drogue Estimate: ☐ Dye Estimate: ☐

Right Descending Bank: Distance (ft): _____ Time (s): _____

Mid Stream: Distance (ft): _____ Time (s): _____

Left Descending Bank: Distance (ft): _____ Time (s): _____

Cross Section Measurement: ☐ Measurement Location: _____

Type of Measurement Manual: ☐ Fathometer ☐ Cross Section File Name: _____

GPS Measurement: ☐ GPS SSF File Name: _____

Site GPS: ☐ Cross Section GPS: ☐

Comments: _____

Photos Taken: ☐ Picture File #s: _____

Tapedown Established: ☐ Tapedown Location: _____

Benchmark Established: ☐ Benchmark Location: _____

Survey Equipment Used: ☐

Time of Travel Measurement: ☐ Type of Site: Injection ☐ Collection ☐

Amount of Dye Injected (ml): _____

Physical Site Characteristics: Natural Waterbody: ☐ Man Altered Waterbody: ☐ Man-Made Waterbody: ☐

Stream Dry/Intermittent: ☐

Stream Bottom: Sandy ☐ Clay ☐ Gravel ☐ Hard Clay ☐ Soft Silt ☐ Sand/Silt ☐ Rock/Gravel/Silt ☐

Control Structure Present: ☐ Location: _____

Type: Man Made Dam ☐ Flow Regulation Device ☐ Beaver Dam ☐ Log Jam ☐

Land Use: Agriculture ☐ Forestry ☐ Municipal ☐ Industrial ☐ Field/Pasture ☐ Wetland ☐

Percent Tree Canopy Cover 0-25% ☐ 26-50% ☐ 51-75% ☐ 76-100% ☐

Recon Information:

Discharge Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

Measurement Location: _____

Cross Section Location: _____

Continuous Monitor Deployment: _____

Continuous Monitor Location: _____

Boat Accessible: ☐ Nearest Launch: _____

Bridge ☐ **Bridge Safe:** ☐ Bridge Width: _____ Bridge Height: _____

Profiling Measurements:

Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	

Equipment Used:

In Situ Probe S/N: _____ Surveyor 4a S/N: _____ GPS Unit _____

AquaCalc S/N _____ Fathometer: _____ Laser Gun _____

Camera S/N: _____

References

Convert Feet to Meters

0.5 ft ≅ 0.15 m

1.0 ft ≅ 0.30 m

1.5 ft ≅ 0.45 m

2.0 ft ≅ 0.60 m

2.5 ft ≅ 0.75 m

Site Information

Site #: BYCOC2 Subsegment: 101605 Date: 8/3/04 Time: 1150 hrs.

Waterbody: Bayou Cocodrie Tapedown 1: _____ Staff Gauge 1: _____

Gauge Height 1: _____ Tapedown 2: _____ Staff Gauge 2: _____ Gauge Height 2: _____

Site Location: Downstream of Hwy 65

Personnel: Butler, Carver

Type of Work: Recon ☐ Data Collection ☒

Weather Conditions:
- Clear ☑
- Drizzle/Light Rain ☐
- Showers ☐

Cloud Cover:
- 0 –10% ☑
- 11 – 40% ☐
- 41 – 70% ☐
- 71 – 100% ☐

Temperature (°F):
- Hot >85° ☑
- Warm > 75° ☐
- Mild > 65° ☐
- Cool > 60° ☐
- Cold < 60° ☐

Wind (mph):
- <1 ☐
- 1-5 ☑
- 6-10 ☐
- 11-15 ☐
- >16 ☐

Wind Direction:
NW ☐ N ☐ NE ☐
SW ☐ S ☐ SE ☑
E ☐ W ☐
Variable ☐

Stream Characteristics: Flowing: ☑ Measurable Flow: ☐
Flow Direction Upstream ☐ Downstream ☑ Tidally Influenced: ☐
Wind Influence: ☐ Wind Influence Direction: Upstream ☐ Downstream ☐
Algae Present ☐ Sedimentation/Turbidity Present in Water Column ☐
Floating/Aquatic Vegetation % Surface Coverage: <1 ☐ 1-25% ☐ 26-50% ☑ 51-75% ☐ 76-100% ☐

Water Quality Samples Taken: ☐ **Water Quality Field Parameters:** ☐ **Profiling:** ☐
Continuous Monitor Deployed: ☑ 1150hrs Continuous Monitor S/N: 40807
Continuous Monitor Retrieved: ☐ Continuous Monitor Deployment Depth (m): 1M
Continuous Monitor Location: 200 yds down from Hwy 65

Water Quality Field Parameters

Time: _____ **Temp.(°C):** _____ **pH:** _____ **Spcond(µhmos/cm):** _____
D.O.: _____ **D.O. %:** _____ **Salinity:** _____ **Depth (m):** _____ **Secchi (in):** _____

Flow Measurement: ☐ Measurement Location: _____
Type of Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐
AquaCalc File Name: _____

Flow Estimated: ☐ Measurement Location: _____
Using Discharge Equipment: ☐ Type: Wading ☐ Bridge Board ☐ Boat Board ☐
Drogue Estimate: ☐ Dye Estimate: ☐
Right Descending Bank: Distance (ft): _____ Time (s): _____
Mid Stream: Distance (ft): _____ Time (s): _____
Left Descending Bank: Distance (ft): _____ Time (s): _____

Cross Section Measurement: ☐ Measurement Location: _____
Type of Measurement Manual: ☐ Fathometer ☐ Cross Section File Name: _____

GPS Measurement: ☐ GPS SSF File Name: _____
Site GPS: ☐ Cross Section GPS: ☐

Comments: _____

Photos Taken: ☐ Picture File #s: _____

Tapedown Established: ☐ Tapedown Location: _____

Benchmark Established: ☐ Benchmark Location: _____

Survey Equipment Used: ☐

Time of Travel Measurement: ☐ Type of Site: Injection ☐ Collection ☐

Amount of Dye Injected (ml): _____

Physical Site Characteristics: Natural Waterbody: ☑ Man Altered Waterbody: ☑ Man-Made Waterbody: ☐

Stream Dry/Intermittent: ☐

Stream Bottom: Sandy ☐ Clay ☐ Gravel ☐ Hard Clay ☐ Soft Silt ☑ Sand/Silt ☐ Rock/Gravel/Silt ☐

Control Structure Present: ☐ Location: _____

Type: Man Made Dam ☐ Flow Regulation Device ☐ Beaver Dam ☐ Log Jam ☐

Land Use: Agriculture ☐ Forestry ☐ Municipal ☑ Industrial ☑ Field/Pasture ☐ Wetland ☐

Percent Tree Canopy Cover 0-25% ☑ 26-50% ☐ 51-75% ☐ 76-100% ☐

Recon Information:

Discharge Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

Measurement Location: _____

Cross Section Location: _____

Continuous Monitor Deployment: _____

Continuous Monitor Location: _____

Boat Accessible: ☐ Nearest Launch: _____

Bridge ☐ **Bridge Safe:** ☐ Bridge Width: _____ Bridge Height: _____

Profiling Measurements:

Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	

Equipment Used:

In Situ Probe S/N: _____ Surveyor 4a S/N: _____ GPS Unit _____

AquaCalc S/N _____ Fathometer: _____ Laser Gun _____

Camera S/N: _____

References

Convert Feet to Meters

0.5 ft ≅ 0.15 m

1.0 ft ≅ 0.30 m

1.5 ft ≅ 0.45 m

2.0 ft ≅ 0.60 m

2.5 ft ≅ 0.75 m

Site Information

Site #: BYCOC2 Subsegment: 101605 Date: 8/4/04 Time: 1040 hrs
Waterbody: Bayou Cocodrie Tapedown 1: Staff Gauge 1:
Gauge Height 1: Tapedown 2: Staff Gauge 2: Gauge Height 2:
Site Location: Just downstream of Hwy 65
Personnel: Garner, Butler

Type of Work: Recon ☐ Data Collection ☒

Weather Conditions:	**Temperature (°F):**	**Wind (mph):**	**Wind Direction:**
Clear ☒	Hot >85° ☒	<1 ☒	NW ☐ N ☐ NE ☐
Drizzle/Light Rain ☐	Warm > 75° ☐	1-5 ☐	SW ☐ S ☐ SE ☐
Showers ☐	Mild > 65° ☐	6-10 ☐	E ☐ W ☐
Cloud Cover:	Cool > 60° ☐	11-15 ☐	Variable ☐
0 –10% ☒	Cold < 60° ☐	>16 ☐	
11 – 40% ☐			
41 – 70% ☐			
71 – 100% ☐			

Stream Characteristics: Flowing: ☒ Measurable Flow: ☒
Flow Direction Upstream ☐ Downstream ☒ Tidally Influenced: ☐
Wind Influence: ☐ Wind Influence Direction: Upstream ☐ Downstream ☐
Algae Present ☐ Sedimentation/Turbidity Present in Water Column ☐
Floating/Aquatic Vegetation % Surface Coverage: <1 ☐ 1-25% ☒ 26-50% ☐ 51-75% ☐ 76-100% ☐

Water Quality Samples Taken: ☒ **Water Quality Field Parameters:** ☒ Profiling: ☐
Continuous Monitor Deployed: ☐ Continuous Monitor S/N:
Continuous Monitor Retrieved: ☐ Continuous Monitor Deployment Depth (m):
Continuous Monitor Location:

Water Quality Field Parameters

Time: 1040 hrs **Temp.(°C):** 31.75 **pH:** 8.25 **Spcond(µhmos/cm):** 221.6
D.O.: 4.69 **D.O. %:** 63.8 **Salinity:** .10 **Depth (m):** .5 m **Secchi (in):** 24 in

Flow Measurement: ☒ Measurement Location: Approx 50 yds down stream of 65
Type of Measurement: Wading ☐ Bridge Board ☐ Boat Board ☒
AquaCalc File Name: BYCOC2
Flow Estimated: ☐ Measurement Location:
Using Discharge Equipment: ☐ Type: Wading ☐ Bridge Board ☐ Boat Board ☐
Drogue Estimate: ☐ Dye Estimate: ☐
Right Descending Bank: Distance (ft): Time (s):
Mid Stream: Distance (ft): Time (s):
Left Descending Bank: Distance (ft): Time (s):
Cross Section Measurement: ☐ Measurement Location:
Type of Measurement Manual: ☐ Fathometer ☐ Cross Section File Name:
GPS Measurement: ☐ GPS SSF File Name:
Site GPS: ☐ Cross Section GPS: ☐
Comments: Flow location is representative XS

Photos Taken: ☐ Picture File #s: _____

Tapedown Established: ☐ Tapedown Location: _____

Benchmark Established: ☐ Benchmark Location: _____

Survey Equipment Used: ☐

Time of Travel Measurement: ☐ Type of Site: Injection ☐ Collection ☐

Amount of Dye Injected (ml): _____

Physical Site Characteristics: Natural Waterbody: ☒ Man Altered Waterbody: ☐ Man-Made Waterbody: ☐

Stream Dry/Intermittent: ☐

Stream Bottom: Sandy ☐ Clay ☐ Gravel ☐ Hard Clay ☐ Soft Silt ☒ Sand/Silt ☐ Rock/Gravel/Silt ☐

Control Structure Present: ☐ Location: _____

Type: Man Made Dam ☐ Flow Regulation Device ☐ Beaver Dam ☐ Log Jam ☐

Land Use: Agriculture ☐ Forestry ☒ Municipal ☒ Industrial ☒ Field/Pasture ☐ Wetland ☐

Percent Tree Canopy Cover 0-25% ☒ 26-50% ☐ 51-75% ☐ 76-100% ☐

Recon Information:

Discharge Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

Measurement Location: _____

Cross Section Location: _____

Continuous Monitor Deployment: _____

Continuous Monitor Location: _____

Boat Accessible: ☐ Nearest Launch: _____

Bridge ☐ **Bridge Safe:** ☐ Bridge Width: _____ Bridge Height: _____

Profiling Measurements:

Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	

Equipment Used:

In Situ Probe S/N: 39001 Surveyor 4a S/N: _____ GPS Unit _____

AquaCalc S/N _____ Fathometer: _____ Laser Gun _____

Camera S/N: _____

References

Convert Feet to Meters

0.5 ft ≅ 0.15 m

1.0 ft ≅ 0.30 m

1.5 ft ≅ 0.45 m

2.0 ft ≅ 0.60 m

2.5 ft ≅ 0.75 m

Site Information

Site #: BYLOC2 Subsegment: 101605 Date: 8/5/04 Time: 1150 hrs

Waterbody: Bayou Cocodrie Tapedown 1: _____ Staff Gauge 1: _____

Gauge Height 1: _____ Tapedown 2: _____ Staff Gauge 2: _____ Gauge Height 2: _____

Site Location: Hwy 65

Personnel: Garner, Butler

Type of Work: Recon ☐ Data Collection ☑

Weather Conditions:	**Temperature (°F):**	**Wind (mph):**	**Wind Direction:**
Clear ☐	Hot >85° ☐	<1 ☐	NW ☐ N ☐ NE ☐
Drizzle/Light Rain ☐	Warm > 75° ☐	1-5 ☐	SW ☐ S ☐ SE ☐
Showers ☐	Mild > 65° ☐	6-10 ☐	E ☐ W ☐
Cloud Cover:	Cool > 60° ☐	11-15 ☐	Variable ☐
0 –10% ☐	Cold < 60° ☐	>16 ☐	
11 – 40% ☐			
41 – 70% ☐			
71 – 100% ☐			

Stream Characteristics: Flowing: ☐ Measurable Flow: ☐

Flow Direction Upstream ☐ Downstream ☐ Tidally Influenced: ☐

Wind Influence: ☐ Wind Influence Direction: Upstream ☐ Downstream ☐

Algae Present ☐ Sedimentation/Turbidity Present in Water Column ☐

Floating/Aquatic Vegetation % Surface Coverage: <1 ☐ 1-25% ☐ 26-50% ☐ 51-75% ☐ 76-100% ☐

Water Quality Samples Taken: ☐ **Water Quality Field Parameters:** ☐ Profiling: ☐

Continuous Monitor Deployed: ☐ Continuous Monitor S/N: 40807

Continuous Monitor Retrieved: ☑ Continuous Monitor Deployment Depth (m): 1m

Continuous Monitor Location: Approx 200 yds downstream of 65

Water Quality Field Parameters

Time: _____ **Temp.(°C):** _____ **pH:** _____ **Spcond(µhmos/cm):** _____

D.O.: _____ **D.O. %:** _____ **Salinity:** _____ **Depth (m):** _____ **Secchi (in):** _____

Flow Measurement: ☐ Measurement Location: _____

Type of Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

AquaCalc File Name: _____

Flow Estimated: ☐ Measurement Location: _____

Using Discharge Equipment: ☐ Type: Wading ☐ Bridge Board ☐ Boat Board ☐

Drogue Estimate: ☐ Dye Estimate: ☐

Right Descending Bank: Distance (ft): _____ Time (s): _____

Mid Stream: Distance (ft): _____ Time (s): _____

Left Descending Bank: Distance (ft): _____ Time (s): _____

Cross Section Measurement: ☐ Measurement Location: _____

Type of Measurement Manual: ☐ Fathometer ☐ Cross Section File Name: _____

GPS Measurement: ☐ GPS SSF File Name: _____

Site GPS: ☐ Cross Section GPS: ☐

Comments: _____

Photos Taken: ☐ Picture File #s: _____

Tapedown Established: ☐ Tapedown Location: _____

Benchmark Established: ☐ Benchmark Location: _____

Survey Equipment Used: ☐

Time of Travel Measurement: ☐ Type of Site: Injection ☐ Collection ☐

Amount of Dye Injected (ml): _____

Physical Site Characteristics: Natural Waterbody: ☐ Man Altered Waterbody: ☐ Man-Made Waterbody: ☐

Stream Dry/Intermittent: ☐

Stream Bottom: Sandy ☐ Clay ☐ Gravel ☐ Hard Clay ☐ Soft Silt ☐ Sand/Silt ☐ Rock/Gravel/Silt ☐

Control Structure Present: ☐ Location: _____

Type: Man Made Dam ☐ Flow Regulation Device ☐ Beaver Dam ☐ Log Jam ☐

Land Use: Agriculture ☐ Forestry ☐ Municipal ☐ Industrial ☐ Field/Pasture ☐ Wetland ☐

Percent Tree Canopy Cover 0-25% ☐ 26-50% ☐ 51-75% ☐ 76-100% ☐

Recon Information:

Discharge Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

Measurement Location: _____

Cross Section Location: _____

Continuous Monitor Deployment: _____

Continuous Monitor Location: _____

Boat Accessible: ☐ Nearest Launch: _____

Bridge ☐ **Bridge Safe:** ☐ Bridge Width: _____ Bridge Height: _____

Profiling Measurements:

Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	

Equipment Used:

In Situ Probe S/N: _____ Surveyor 4a S/N: _____ GPS Unit _____

AquaCalc S/N _____ Fathometer: _____ Laser Gun _____

Camera S/N: _____

References

Convert Feet to Meters

0.5 ft ≅ 0.15 m

1.0 ft ≅ 0.30 m

1.5 ft ≅ 0.45 m

2.0 ft ≅ 0.60 m

2.5 ft ≅ 0.75 m

Site Information

Site #: BYCOC3 Subsegment: 101605 Date: 813104 Time: 1250 hrs.

Waterbody: Bayou Cocodrie Tapedown 1: _____ Staff Gauge 1: _____

Gauge Height 1: _____ Tapedown 2: _____ Staff Gauge 2: _____ Gauge Height 2: _____

Site Location: Upstream of LA 15

Personnel: Garner, Butler

Type of Work: Recon ☐ Data Collection ☒

Weather Conditions:	**Temperature (°F):**	**Wind (mph):**	**Wind Direction:**
Clear ☑	Hot >85° ☑	<1 ☐	NW ☐ N ☐ NE ☐
Drizzle/Light Rain ☐	Warm > 75° ☐	1-5 ☑	SW ☐ S ☐ SE ☑
Showers ☐	Mild > 65° ☐	6-10 ☐	E ☐ W ☐
Cloud Cover:	Cool > 60° ☐	11-15 ☐	Variable ☐
0 –10% ☑	Cold < 60° ☐	>16 ☐	
11 – 40% ☐			
41 – 70% ☐			
71 – 100% ☐			

Stream Characteristics: Flowing: ☑ Measurable Flow: ☐

Flow Direction Upstream ☐ Downstream ☑ Tidally Influenced: ☐

Wind Influence: ☐ Wind Influence Direction: Upstream ☐ Downstream ☐

Algae Present ☐ Sedimentation/Turbidity Present in Water Column ☐

Floating/Aquatic Vegetation % Surface Coverage: <1 ☑ 1-25% ☐ 26-50% ☐ 51-75% ☐ 76-100% ☐

Water Quality Samples Taken: ☐ **Water Quality Field Parameters:** ☐ Profiling: ☐

Continuous Monitor Deployed: ☑ Continuous Monitor S/N: 40806

Continuous Monitor Retrieved: ☐ Continuous Monitor Deployment Depth (m): 1/2 m

Continuous Monitor Location: 30 yds upstream of LA 15

Water Quality Field Parameters

Time: _____ **Temp.(°C):** _____ **pH:** _____ **Spcond(µhmos/cm):** _____

D.O.: _____ **D.O. %:** _____ **Salinity:** _____ **Depth (m):** _____ **Secchi (in):** _____

Flow Measurement: ☐ Measurement Location: _____

Type of Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

AquaCalc File Name: _____

Flow Estimated: ☐ Measurement Location: _____

Using Discharge Equipment: ☐ Type: Wading ☐ Bridge Board ☐ Boat Board ☐

Drogue Estimate: ☐ Dye Estimate: ☐

Right Descending Bank: Distance (ft): _____ Time (s): _____

Mid Stream: Distance (ft): _____ Time (s): _____

Left Descending Bank: Distance (ft): _____ Time (s): _____

Cross Section Measurement: ☒ Measurement Location: Approx 100 yds upstream of LA 15

Type of Measurement Manual: ☒ Fathometer ☐ Cross Section File Name: BYCOC3XS

GPS Measurement: ☒ GPS SSF File Name: Cocodrie Sites

Site GPS: ☒ Cross Section GPS: ☐

Comments:

Monitor Deployment

Photos Taken: ☐ Picture File #s: _____

Tapedown Established: ☐ Tapedown Location: _____

Benchmark Established: ☐ Benchmark Location: _____

Survey Equipment Used: ☐

Time of Travel Measurement: ☐ Type of Site: Injection ☐ Collection ☐

Amount of Dye Injected (ml): _____

Physical Site Characteristics: Natural Waterbody: ☒ Man Altered Waterbody: ☐ Man-Made Waterbody: ☐

Stream Dry/Intermittent: ☐

Stream Bottom: Sandy ☐ Clay ☒ Gravel ☐ Hard Clay ☐ Soft Silt ☒ Sand/Silt ☐ Rock/Gravel/Silt ☐

Control Structure Present: ☐ Location: _____

Type: Man Made Dam ☐ Flow Regulation Device ☐ Beaver Dam ☐ Log Jam ☐

Land Use: Agriculture ☒ Forestry ☒ Municipal ☐ Industrial ☐ Field/Pasture ☒ Wetland ☐

Percent Tree Canopy Cover 0-25% ☐ 26-50% ☐ 51-75% ☒ 76-100% ☐

Recon Information:

Discharge Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

Measurement Location: _____

Cross Section Location: _____

Continuous Monitor Deployment: _____

Continuous Monitor Location: _____

Boat Accessible: ☐ Nearest Launch: _____

Bridge ☐ **Bridge Safe:** ☐ Bridge Width: _____ Bridge Height: _____

Profiling Measurements:

Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	

Equipment Used:

In Situ Probe S/N: _____ Surveyor 4a S/N: _____ GPS Unit _____

AquaCalc S/N _____ Fathometer: _____ Laser Gun _____

Camera S/N: _____

References

Convert Feet to Meters

0.5 ft ≅ 0.15 m

1.0 ft ≅ 0.30 m

1.5 ft ≅ 0.45 m

2.0 ft ≅ 0.60 m

2.5 ft ≅ 0.75 m

Site Information

Site #: BYCOC 3 Subsegment: 101605 Date: 8/4/04 Time: 1345

Waterbody: Bayou Cocodrie Tapedown 1: _____ Staff Gauge 1: _____

Gauge Height 1: _____ Tapedown 2: _____ Staff Gauge 2: _____ Gauge Height 2: _____

Site Location: Upstream of LA 15

Personnel: Garner, Butler

Type of Work: Recon ☐ Data Collection ☐

Weather Conditions:	**Temperature (°F):**	**Wind (mph):**	**Wind Direction:**
Clear ☒	Hot >85° ☒	<1 ☐	NW ☐ N ☐ NE ☐
Drizzle/Light Rain ☐	Warm > 75° ☐	1-5 ☒	SW ☒ S ☐ SE ☐
Showers ☐	Mild > 65° ☐	6-10 ☐	E ☐ W ☐
Cloud Cover:	Cool > 60° ☐	11-15 ☐	Variable ☐
0 –10% ☒	Cold < 60° ☐	>16 ☐	
11 – 40% ☐			
41 – 70% ☐			
71 – 100% ☐			

Stream Characteristics: Flowing: ☒ Measurable Flow: ☒

Flow Direction Upstream ☐ Downstream ☒ Tidally Influenced: ☐

Wind Influence: ☐ Wind Influence Direction: Upstream ☐ Downstream ☐

Algae Present ☐ Sedimentation/Turbidity Present in Water Column ☐

Floating/Aquatic Vegetation % Surface Coverage: <1 ☒ 1-25% ☐ 26-50% ☐ 51-75% ☐ 76-100% ☐

Water Quality Samples Taken: ☒ **Water Quality Field Parameters:** ☒ Profiling: ☐

Continuous Monitor Deployed: ☐ Continuous Monitor S/N: _____

Continuous Monitor Retrieved: ☐ Continuous Monitor Deployment Depth (m): _____

Continuous Monitor Location: _____

Water Quality Field Parameters

Time: 1345 **Temp.(°C):** 32.24 **pH:** 7.75 **Spcond(µhmos/cm):** 226.7 **D.O.:** 1.64 **D.O. %:** 22.5 **Salinity:** .11 **Depth (m):** .5m **Secchi (in):** 39 in (bottom)

IBV – 7.7
IBa – 13.5

Flow Measurement: ☒ Measurement Location: Just upstream of Culvert

Type of Measurement: Wading ☐ Bridge Board ☐ Boat Board ☒

AquaCalc File Name: BYCOC 3 080404

Flow Estimated: ☐ Measurement Location: _____

Using Discharge Equipment: ☐ Type: Wading ☐ Bridge Board ☐ Boat Board ☐

Drogue Estimate: ☐ Dye Estimate: ☐

Right Descending Bank: Distance (ft): _____ Time (s): _____

Mid Stream: Distance (ft): _____ Time (s): _____

Left Descending Bank: Distance (ft): _____ Time (s): _____

Cross Section Measurement: ☐ Measurement Location: _____

Type of Measurement Manual: ☐ Fathometer ☐ Cross Section File Name: _____

GPS Measurement: ☐ GPS SSF File Name: _____

Site GPS: ☐ Cross Section GPS: ☐

Comments: _____

Photos Taken: ☐ Picture File #s: _____

Tapedown Established: ☐ Tapedown Location: _____

Benchmark Established: ☐ Benchmark Location: _____

Survey Equipment Used: ☐

Time of Travel Measurement: ☐ Type of Site: Injection ☐ Collection ☐

Amount of Dye Injected (ml): _____

Physical Site Characteristics: Natural Waterbody: ☒ Man Altered Waterbody: ☐ Man-Made Waterbody: ☐

Stream Dry/Intermittent: ☐

Stream Bottom: Sandy ☐ Clay ☒ Gravel ☐ Hard Clay ☐ Soft Silt ☒ Sand/Silt ☒ Rock/Gravel/Silt ☐

Control Structure Present: ☐ Location: _____

Type: Man Made Dam ☐ Flow Regulation Device ☐ Beaver Dam ☐ Log Jam ☐

Land Use: Agriculture ☒ Forestry ☒ Municipal ☐ Industrial ☐ Field/Pasture ☒ Wetland ☐

Percent Tree Canopy Cover 0-25% ☐ 26-50% ☐ 51-75% ☒ 76-100% ☐

Recon Information:

Discharge Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

Measurement Location: _____

Cross Section Location: _____

Continuous Monitor Deployment: _____

Continuous Monitor Location: _____

Boat Accessible: ☐ Nearest Launch: _____

Bridge ☐ **Bridge Safe:** ☐ Bridge Width: _____ Bridge Height: _____

Profiling Measurements:

Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	

Equipment Used:

In Situ Probe S/N: 39001 Surveyor 4a S/N: _____ GPS Unit _____

AquaCalc S/N _____ Fathometer: _____ Laser Gun _____

Camera S/N: _____

References

Convert Feet to Meters

0.5 ft ≅ 0.15 m

1.0 ft ≅ 0.30 m

1.5 ft ≅ 0.45 m

2.0 ft ≅ 0.60 m

2.5 ft ≅ 0.75 m

Field Site Survey.doc
Revision 2.0

Site Information

Site #: BYCOC 3 Subsegment: 101605 Date: 08/05/04 Time: 1530hrs.

Waterbody: Bayou Cocodrie Tapedown 1: Staff Gauge 1:

Gauge Height 1: Tapedown 2: Staff Gauge 2: Gauge Height 2:

Site Location: upstream HWY 15

Personnel: Savant, Hughes

Type of Work: Recon ☐ Data Collection ☑

Weather Conditions:	Temperature (°F):	Wind (mph):	Wind Direction:
Clear ☐	Hot >85° ☑	<1 ☐	NW ☐ N ☐ NE ☐
Drizzle/Light Rain ☐	Warm > 75° ☐	1-5 ☑	SW ☑ S ☐ SE ☐
Showers ☐	Mild > 65° ☐	6-10 ☐	E ☐ W ☐
Cloud Cover:	Cool > 60° ☐	11-15 ☐	Variable ☐
0 – 10% ☐	Cold < 60° ☐	>16 ☐	
11 – 40% ☐			
41 – 70% ☑			
71 – 100% ☐			

Stream Characteristics: Flowing: ☑ Measurable Flow: ☑

Flow Direction Upstream ☐ Downstream ☑ Tidally Influenced: ☐

Wind Influence: ☐ Wind Influence Direction: Upstream ☐ Downstream ☐

Algae Present ☐ Sedimentation/Turbidity Present in Water Column ☐

Floating/Aquatic Vegetation % Surface Coverage: <1 ☐ 1-25% ☐ 26-50% ☑ 51-75% ☐ 76-100% ☐

Water Quality Samples Taken: ☐ Water Quality Field Parameters: ☐ Profiling: ☐

Continuous Monitor Deployed: ☐ Continuous Monitor S/N: 408016

Continuous Monitor Retrieved: ☑ Continuous Monitor Deployment Depth (m):

Continuous Monitor Location:

Water Quality Field Parameters

Time: Temp.(°C): pH: Spcond(µhmos/cm):

D.O.: D.O. %: Salinity: Depth (m): Secchi (in):

Flow Measurement: ☐ Measurement Location:

Type of Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

AquaCalc File Name:

Flow Estimated: ☐ Measurement Location:

Using Discharge Equipment: ☐ Type: Wading ☐ Bridge Board ☐ Boat Board ☐

Drogue Estimate: ☐ Dye Estimate: ☐

Right Descending Bank: Distance (ft): Time (s):

Mid Stream: Distance (ft): Time (s):

Left Descending Bank: Distance (ft): Time (s):

Cross Section Measurement: ☐ Measurement Location:

Type of Measurement Manual: ☐ Fathometer ☐ Cross Section File Name:

GPS Measurement: ☐ GPS SSF File Name:

Site GPS: ☐ Cross Section GPS: ☐

Comments:

Photos Taken: ☐ Picture File #s: _____

Tapedown Established: ☐ Tapedown Location: _____

Benchmark Established: ☐ Benchmark Location: _____

Survey Equipment Used: ☐

Time of Travel Measurement: ☐ Type of Site: Injection ☐ Collection ☐

Amount of Dye Injected (ml): _____

Physical Site Characteristics: Natural Waterbody: ☐ Man Altered Waterbody: ☐ Man-Made Waterbody: ☐

Stream Dry/Intermittent: ☐

Stream Bottom: Sandy ☐ Clay ☐ Gravel ☐ Hard Clay ☐ Soft Silt ☐ Sand/Silt ☐ Rock/Gravel/Silt ☐

Control Structure Present: ☐ Location: _____

Type: Man Made Dam ☐ Flow Regulation Device ☐ Beaver Dam ☐ Log Jam ☐

Land Use: Agriculture ☐ Forestry ☐ Municipal ☐ Industrial ☐ Field/Pasture ☐ Wetland ☐

Percent Tree Canopy Cover 0-25% ☐ 26-50% ☐ 51-75% ☐ 76-100% ☐

Recon Information:

Discharge Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

Measurement Location: _____

Cross Section Location: _____

Continuous Monitor Deployment: _____

Continuous Monitor Location: _____

Boat Accessible: ☐ Nearest Launch: _____

Bridge ☐ Bridge Safe: ☐ Bridge Width: _____ Bridge Height: _____

Profiling Measurements:

Time:		Temp.(°C):		pH:		Spcond(µhmos/cm):	
D.O.:		D.O. %:		Salinity:		Depth (m):	
Time:		Temp.(°C):		pH:		Spcond(µhmos/cm):	
D.O.:		D.O. %:		Salinity:		Depth (m):	
Time:		Temp.(°C):		pH:		Spcond(µhmos/cm):	
D.O.:		D.O. %:		Salinity:		Depth (m):	

Equipment Used:

In Situ Probe S/N: _____ Surveyor 4a S/N: _____ GPS Unit _____

AquaCalc S/N _____ Fathometer: _____ Laser Gun _____

Camera S/N: _____

References

Convert Feet to Meters

0.5 ft ≅ 0.15 m

1.0 ft ≅ 0.30 m

1.5 ft ≅ 0.45 m

2.0 ft ≅ 0.60 m

2.5 ft ≅ 0.75 m

Field Site Survey.doc
Revision 2.0

Site Information

Site #: BYCOC4 Subsegment: 101605 Date: 8/4/04 Time: 1445hrs

Waterbody: Bayou Cocodrie Tapedown 1: Staff Gauge 1:

Gauge Height 1: Tapedown 2: Staff Gauge 2: Gauge Height 2:

Site Location: downstream side of LA Hwy 15

Personnel: Butler, Garner

Type of Work: Recon ☐ Data Collection ☒

Weather Conditions:	**Temperature (°F):**	**Wind (mph):**	**Wind Direction:**
Clear ☒	Hot >85° ☒	<1 ☒	NW ☐ N ☐ NE ☐
Drizzle/Light Rain ☐	Warm > 75° ☐	1-5 ☐	SW ☐ S ☐ SE ☐
Showers ☐	Mild > 65° ☐	6-10 ☐	E ☐ W ☐
Cloud Cover:	Cool > 60° ☐	11-15 ☐	Variable ☐
0 –10% ☒	Cold < 60° ☐	>16 ☐	
11 – 40% ☐			
41 – 70% ☐			
71 – 100% ☐			

Stream Characteristics: Flowing: ☒ Measurable Flow: ☐

Flow Direction Upstream ☐ Downstream ☐ Tidally Influenced: ☐

Wind Influence: ☐ Wind Influence Direction: Upstream ☐ Downstream ☐

Algae Present ☐ Sedimentation/Turbidity Present in Water Column ☐

Floating/Aquatic Vegetation % Surface Coverage: <1 ☐ 1-25% ☒ 26-50% ☐ 51-75% ☐ 76-100% ☐

Water Quality Samples Taken: ☒ **Water Quality Field Parameters:** ☒ Profiling: ☐

Continuous Monitor Deployed: ☐ Continuous Monitor S/N:

Continuous Monitor Retrieved: ☐ Continuous Monitor Deployment Depth (m):

Continuous Monitor Location:

TBa 136
TBU 7.7

Water Quality Field Parameters

Time: 1445 **Temp.(°C):** 32.54 **pH:** 7.63 **Spcond(µhmos/cm):** 227.4

D.O.: 1.56 **D.O. %:** 21.0 **Salinity:** .11 **Depth (m):** .5 **Secchi (in):**

Flow Measurement: ☐ Measurement Location:

Type of Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

AquaCalc File Name:

Flow Estimated: ☐ Measurement Location:

Using Discharge Equipment: ☐ Type: Wading ☐ Bridge Board ☐ Boat Board ☐

Drogue Estimate: ☐ Dye Estimate: ☐

Right Descending Bank: Distance (ft): Time (s):

Mid Stream: Distance (ft): Time (s):

Left Descending Bank: Distance (ft): Time (s):

Cross Section Measurement: ☐ Measurement Location:

Type of Measurement Manual: ☐ Fathometer ☐ Cross Section File Name:

GPS Measurement: ☐ GPS SSF File Name:

Site GPS: ☐ Cross Section GPS: ☐

Comments:

Photos Taken: ☐ Picture File #s: _____

Tapedown Established: ☐ Tapedown Location: _____

Benchmark Established: ☐ Benchmark Location: _____

Survey Equipment Used: ☐

Time of Travel Measurement: ☐ Type of Site: Injection ☐ Collection ☐

Amount of Dye Injected (ml): _____

Physical Site Characteristics: Natural Waterbody: ☒ Man Altered Waterbody: ☐ Man-Made Waterbody: ☐

Stream Dry/Intermittent: ☐

Stream Bottom: Sandy ☐ Clay ☒ Gravel ☐ Hard Clay ☐ Soft Silt ☒ Sand/Silt ☐ Rock/Gravel/Silt ☐

Control Structure Present: ☐ Location: _____

Type: Man Made Dam ☐ Flow Regulation Device ☐ Beaver Dam ☐ Log Jam ☐

Land Use: Agriculture ☒ Forestry ☒ Municipal ☐ Industrial ☐ Field/Pasture ☐ Wetland ☐

Percent Tree Canopy Cover 0-25% ☐ 26-50% ☐ 51-75% ☒ 76-100% ☐

Recon Information:

Discharge Measurement: Wading ☐ Bridge Board ☐ Boat Board ☐

Measurement Location: _____

Cross Section Location: _____

Continuous Monitor Deployment: _____

Continuous Monitor Location: _____

Boat Accessible: ☐ Nearest Launch: _____

Bridge ☐ **Bridge Safe:** ☐ Bridge Width: _____ Bridge Height: _____

Profiling Measurements:

Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	
Time:		**Temp.(°C):**		**pH:**		**Spcond(µhmos/cm):**	
D.O.:		**D.O. %:**		**Salinity:**		**Depth (m):**	

Equipment Used:

In Situ Probe S/N: 39001 Surveyor 4a S/N: _____ GPS Unit _____

AquaCalc S/N _____ Fathometer: _____ Laser Gun _____

Camera S/N: _____

References

Convert Feet to Meters

0.5 ft ≅ 0.15 m

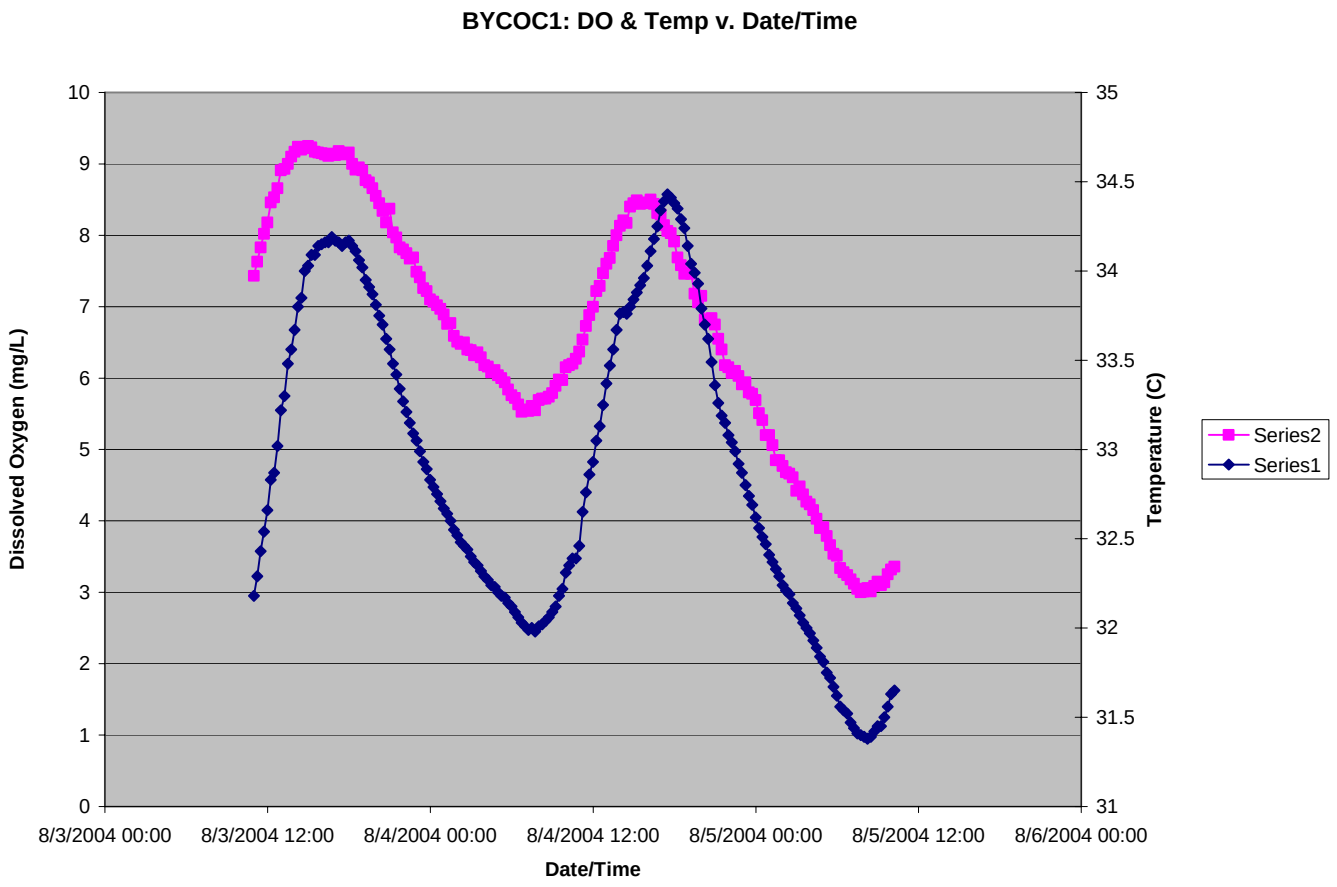
1.0 ft ≅ 0.30 m

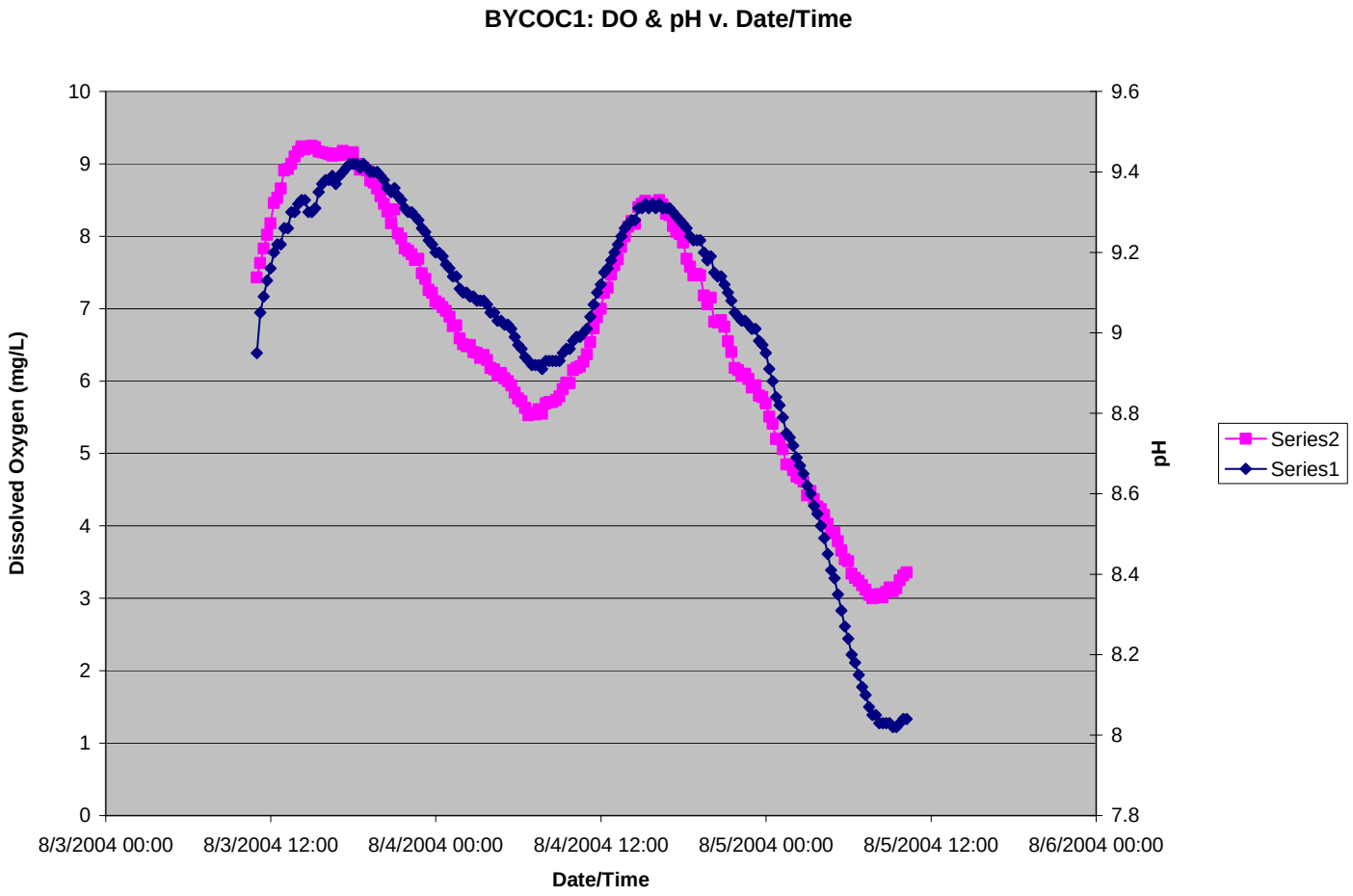
1.5 ft ≅ 0.45 m

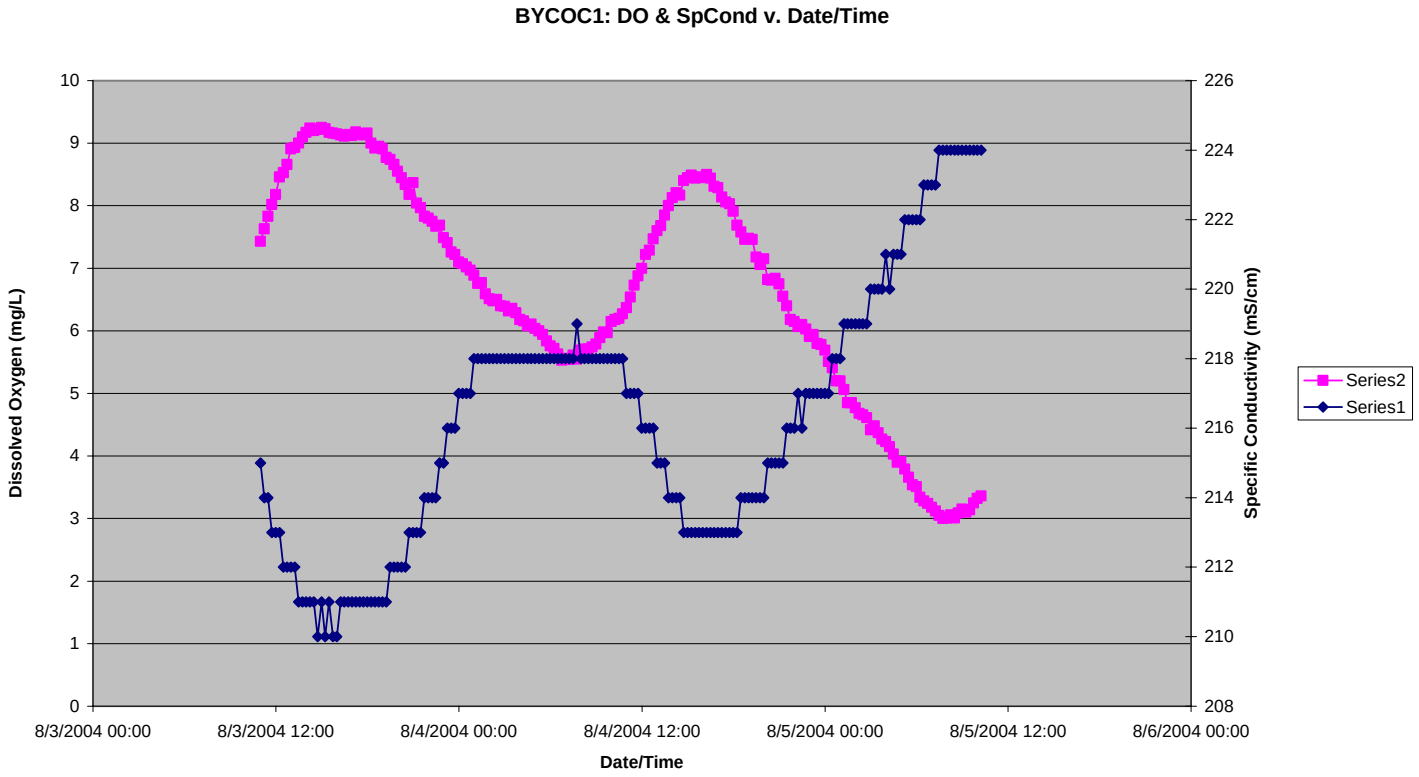
2.0 ft ≅ 0.60 m

2.5 ft ≅ 0.75 m

Appendix F4 – Continuous Monitor


BYCOC1: DO & Temp v. Date/Time
Dissolved Oxygen (mg/L)
Temperature (C)
Date/Time
10
9
8
7
6
5
4
3
2
1
0
35
34.5
34
33.5
33
32.5
32
31.5
31
8/3/2004 00:00
8/3/2004 12:00
8/4/2004 00:00
8/4/2004 12:00
8/5/2004 00:00
8/5/2004 12:00
8/6/2004 00:00
Series2
Series1


BYCOC1: DO & pH v. Date/Time
Dissolved Oxygen (mg/L)
pH
Date/Time
10
9
8
7
6
5
4
3
2
1
0
9.6
9.4
9.2
9
8.8
8.6
8.4
8.2
8
7.8
8/3/2004 00:00
8/3/2004 12:00
8/4/2004 00:00
8/4/2004 12:00
8/5/2004 00:00
8/5/2004 12:00
8/6/2004 00:00
Series2
Series1


BYCOC1: DO & SpCond v. Date/Time
Dissolved Oxygen (mg/L)
Specific Conductivity (mS/cm)
Date/Time
10
9
8
7
6
5
4
3
2
1
0
226
224
222
220
218
216
214
212
210
208
8/3/2004 00:00
8/3/2004 12:00
8/4/2004 00:00
8/4/2004 12:00
8/5/2004 00:00
8/5/2004 12:00
8/6/2004 00:00
Series2
Series1

Bayou Cocodrie 101605 Site
BYCOC1
Continuous
Monitoring Data

Date+Time	Temp	pH	SpCond	DO%	DO	SALINITY
MMDDYYYY HHMM	øC	Units	æS/cm	Sat	mg/L	ppt
8/2/2004 23:59	26.1	7.44	0	103.1	8.35	-0.01
8/3/2004 00:14	26.08	7.46	0	102.3	8.28	-0.01
8/3/2004 00:29	26.01	7.46	0	101.8	8.26	-0.01
8/3/2004 00:44	26.03	7.46	0	101.7	8.25	-0.01
8/3/2004 00:59	26.02	7.49	0	101.5	8.23	-0.01
8/3/2004 01:14	25.99	7.49	0	101.4	8.23	-0.01
8/3/2004 01:29	26	7.47	0	101.3	8.22	-0.01
8/3/2004 01:44	26.07	7.49	0	101.3	8.21	-0.01
8/3/2004 01:59	26	7.49	0	101.1	8.2	-0.01
8/3/2004 02:14	25.97	7.49	0	101	8.2	-0.01
8/3/2004 02:29	25.99	7.51	0	101.1	8.2	-0.01
8/3/2004 02:44	25.93	7.53	0	100.9	8.2	-0.01
8/3/2004 02:59	25.92	7.55	0	100.9	8.2	-0.01
8/3/2004 03:14	25.95	7.54	0	100.9	8.19	-0.01
8/3/2004 03:29	25.91	7.56	0	100.8	8.19	-0.01
8/3/2004 03:44	25.87	7.58	0	100.6	8.18	-0.01
8/3/2004 03:59	25.9	7.62	0	100.6	8.18	-0.01
8/3/2004 04:14	25.84	7.63	0	100.6	8.19	-0.01
8/3/2004 04:29	25.79	7.64	0	100.5	8.19	-0.01
8/3/2004 04:44	25.83	7.65	0	100.5	8.18	-0.01
8/3/2004 04:59	25.82	7.65	0	100.5	8.18	-0.01
8/3/2004 05:14	25.74	7.66	0	100.3	8.18	-0.01
8/3/2004 05:29	25.74	7.7	0	100.3	8.18	-0.01
8/3/2004 05:44	25.73	7.7	0	100.4	8.18	-0.01
8/3/2004 05:59	25.67	7.53	0	99.9	8.15	-0.01
8/3/2004 06:14	24.96	7.45	0	99.8	8.26	-0.01
8/3/2004 06:29	24.36	7.34	0	99.9	8.36	-0.01
8/3/2004 06:44	24.21	7.41	0	99.9	8.38	-0.01
8/3/2004 06:59	24.31	7.46	0	99.8	8.35	-0.01
8/3/2004 07:14	24.6	7.49	0	99.7	8.3	-0.01
8/3/2004 07:29	25.06	7.53	0	99.4	8.2	-0.01
8/3/2004 07:44	24.98	7.4	0	99.6	8.23	-0.01
8/3/2004 07:59	24.64	7.28	0	99.5	8.28	-0.01
8/3/2004 08:14	24.22	7.45	0	99.4	8.33	-0.01
8/3/2004 08:29	23.87	7.43	0	99.4	8.39	-0.01
8/3/2004 08:44	23.68	7.49	0	99.4	8.42	-0.01
8/3/2004 08:59	23.66	7.47	0	99	8.39	-0.01
8/3/2004 09:14	23.95	7.65	0	99.3	8.37	-0.01
8/3/2004 09:29	23.72	7.25	0	98.9	8.37	-0.01
8/3/2004 09:44	23.3	7.19	0	99	8.44	-0.01
8/3/2004 09:59	22.72	7.26	0	98.7	8.51	-0.01
8/3/2004 10:14	22.43	7.61	0	98.6	8.55	-0.01
8/3/2004 10:29	22.37	7.3	0	98.6	8.56	-0.01
8/3/2004 10:44	26.22	8.22	0	99.7	8.06	-0.01

8/3/2004 10:59	32.18	8.95	215	102.1	7.43	0.1	**Monitor Deployed**
8/3/2004 11:14	32.29	9.05	214	105	7.63	0.1	
8/3/2004 11:29	32.43	9.09	214	108.1	7.83	0.1	
8/3/2004 11:44	32.54	9.13	213	110.9	8.02	0.1	
8/3/2004 11:59	32.66	9.16	213	113.3	8.18	0.1	
8/3/2004 12:14	32.83	9.2	213	117.5	8.46	0.1	
8/3/2004 12:29	32.87	9.22	212	118.6	8.53	0.1	
8/3/2004 12:44	33.02	9.22	212	120.8	8.66	0.1	
8/3/2004 12:59	33.22	9.26	212	124.6	8.91	0.1	
8/3/2004 13:14	33.3	9.26	212	125	8.93	0.1	
8/3/2004 13:29	33.48	9.3	211	126.4	9	0.1	
8/3/2004 13:44	33.56	9.3	211	128	9.1	0.1	
8/3/2004 13:59	33.67	9.32	211	129.2	9.17	0.1	
8/3/2004 14:14	33.8	9.33	211	130.5	9.24	0.1	
8/3/2004 14:29	33.85	9.33	211	130	9.2	0.1	
8/3/2004 14:44	34	9.3	210	130.7	9.22	0.1	
8/3/2004 14:59	34.03	9.3	211	131.1	9.25	0.1	
8/3/2004 15:14	34.09	9.31	210	131	9.23	0.1	
8/3/2004 15:29	34.09	9.35	211	130	9.17	0.1	
8/3/2004 15:44	34.14	9.37	210	130	9.16	0.1	
8/3/2004 15:59	34.15	9.38	210	130	9.15	0.1	
8/3/2004 16:14	34.16	9.38	211	129.6	9.13	0.1	
8/3/2004 16:29	34.16	9.39	211	129.3	9.11	0.1	
8/3/2004 16:44	34.19	9.37	211	129.9	9.14	0.1	
8/3/2004 16:59	34.17	9.39	211	129.6	9.12	0.1	
8/3/2004 17:14	34.16	9.4	211	130.3	9.18	0.1	
8/3/2004 17:29	34.14	9.41	211	129.9	9.15	0.1	
8/3/2004 17:44	34.16	9.42	211	129.6	9.13	0.1	
8/3/2004 17:59	34.17	9.42	211	130.2	9.16	0.1	
8/3/2004 18:14	34.14	9.42	211	127.9	9	0.1	
8/3/2004 18:29	34.11	9.41	211	126.7	8.92	0.1	
8/3/2004 18:44	34.06	9.42	211	127	8.95	0.1	
8/3/2004 18:59	34.02	9.41	211	126.2	8.91	0.1	
8/3/2004 19:14	33.95	9.4	211	124.1	8.77	0.1	
8/3/2004 19:29	33.91	9.4	212	123.7	8.74	0.1	
8/3/2004 19:44	33.87	9.4	212	122.5	8.66	0.1	
8/3/2004 19:59	33.81	9.39	212	120.7	8.55	0.1	
8/3/2004 20:14	33.75	9.38	212	119.3	8.45	0.1	
8/3/2004 20:29	33.7	9.36	212	117.5	8.34	0.1	
8/3/2004 20:44	33.62	9.35	213	115.1	8.18	0.1	
8/3/2004 20:59	33.56	9.36	213	117.7	8.37	0.1	
8/3/2004 21:14	33.48	9.34	213	112.9	8.04	0.1	
8/3/2004 21:29	33.42	9.33	213	111.9	7.97	0.1	
8/3/2004 21:44	33.34	9.31	214	109.7	7.83	0.1	
8/3/2004 21:59	33.27	9.3	214	109.1	7.8	0.1	
8/3/2004 22:14	33.21	9.3	214	108.3	7.75	0.1	
8/3/2004 22:29	33.15	9.29	214	107.2	7.67	0.1	
8/3/2004 22:44	33.09	9.28	215	107.3	7.69	0.1	
8/3/2004 22:59	33.05	9.26	215	104.5	7.49	0.1	
8/3/2004 23:14	32.99	9.25	216	103.2	7.41	0.1	
8/3/2004 23:29	32.93	9.23	216	101.1	7.26	0.1	
8/3/2004 23:44	32.89	9.22	216	100.4	7.22	0.1	
8/3/2004 23:59	32.83	9.2	217	98.7	7.1	0.1	

8/4/2004 00:14	32.79	9.2	217	98.1	7.07	0.1
8/4/2004 00:29	32.75	9.19	217	97.4	7.02	0.1
8/4/2004 00:44	32.71	9.17	217	96.6	6.97	0.1
8/4/2004 00:59	32.67	9.16	218	95.5	6.89	0.1
8/4/2004 01:14	32.64	9.14	218	93.6	6.76	0.1
8/4/2004 01:29	32.6	9.14	218	93.7	6.77	0.1
8/4/2004 01:44	32.55	9.11	218	91.1	6.59	0.1
8/4/2004 01:59	32.52	9.1	218	90	6.51	0.1
8/4/2004 02:14	32.48	9.1	218	89.5	6.48	0.1
8/4/2004 02:29	32.46	9.09	218	89.8	6.5	0.1
8/4/2004 02:44	32.44	9.09	218	88.3	6.4	0.1
8/4/2004 02:59	32.4	9.08	218	88.1	6.39	0.1
8/4/2004 03:14	32.37	9.08	218	87.2	6.32	0.1
8/4/2004 03:29	32.35	9.08	218	87.7	6.36	0.1
8/4/2004 03:44	32.32	9.07	218	86.7	6.29	0.1
8/4/2004 03:59	32.29	9.05	218	85.1	6.18	0.1
8/4/2004 04:14	32.27	9.05	218	84.8	6.16	0.1
8/4/2004 04:29	32.24	9.03	218	83.7	6.08	0.1
8/4/2004 04:44	32.23	9.03	218	84	6.11	0.1
8/4/2004 04:59	32.2	9.02	218	83.1	6.04	0.1
8/4/2004 05:14	32.18	9.02	218	82.4	6	0.1
8/4/2004 05:29	32.17	9.01	218	81.7	5.94	0.1
8/4/2004 05:44	32.14	8.99	218	80.2	5.84	0.1
8/4/2004 05:59	32.12	8.97	218	79.1	5.76	0.1
8/4/2004 06:14	32.09	8.96	218	78.5	5.72	0.1
8/4/2004 06:29	32.06	8.94	218	77.2	5.63	0.1
8/4/2004 06:44	32.03	8.93	218	75.8	5.53	0.1
8/4/2004 06:59	32.01	8.92	218	76.2	5.56	0.1
8/4/2004 07:14	31.99	8.92	218	75.9	5.54	0.1
8/4/2004 07:29	32	8.92	218	76.8	5.61	0.1
8/4/2004 07:44	31.98	8.91	219	76	5.55	0.1
8/4/2004 07:59	32.01	8.93	218	77.9	5.69	0.1
8/4/2004 08:14	32.02	8.93	218	78.2	5.71	0.1
8/4/2004 08:29	32.04	8.93	218	78.2	5.71	0.1
8/4/2004 08:44	32.06	8.93	218	78.7	5.74	0.1
8/4/2004 08:59	32.09	8.93	218	79.5	5.79	0.1
8/4/2004 09:14	32.12	8.95	218	80.8	5.89	0.1
8/4/2004 09:29	32.18	8.96	218	82.2	5.98	0.1
8/4/2004 09:44	32.22	8.96	218	82.1	5.97	0.1
8/4/2004 09:59	32.31	8.98	218	84.7	6.15	0.1
8/4/2004 10:14	32.35	8.99	218	85.2	6.18	0.1
8/4/2004 10:29	32.39	8.99	218	85.5	6.2	0.1
8/4/2004 10:44	32.39	9	218	86.4	6.27	0.1
8/4/2004 10:59	32.46	9.01	217	88	6.37	0.1
8/4/2004 11:14	32.65	9.04	217	90.6	6.54	0.1
8/4/2004 11:29	32.76	9.07	217	93.4	6.73	0.1
8/4/2004 11:44	32.86	9.1	217	95.7	6.88	0.1
8/4/2004 11:59	32.93	9.12	216	97.5	7	0.1
8/4/2004 12:14	33.05	9.15	216	100.7	7.22	0.1
8/4/2004 12:29	33.13	9.16	216	101.7	7.29	0.1
8/4/2004 12:44	33.25	9.18	216	104.5	7.47	0.1
8/4/2004 12:59	33.37	9.2	215	106.6	7.6	0.1
8/4/2004 13:14	33.47	9.22	215	107.8	7.68	0.1

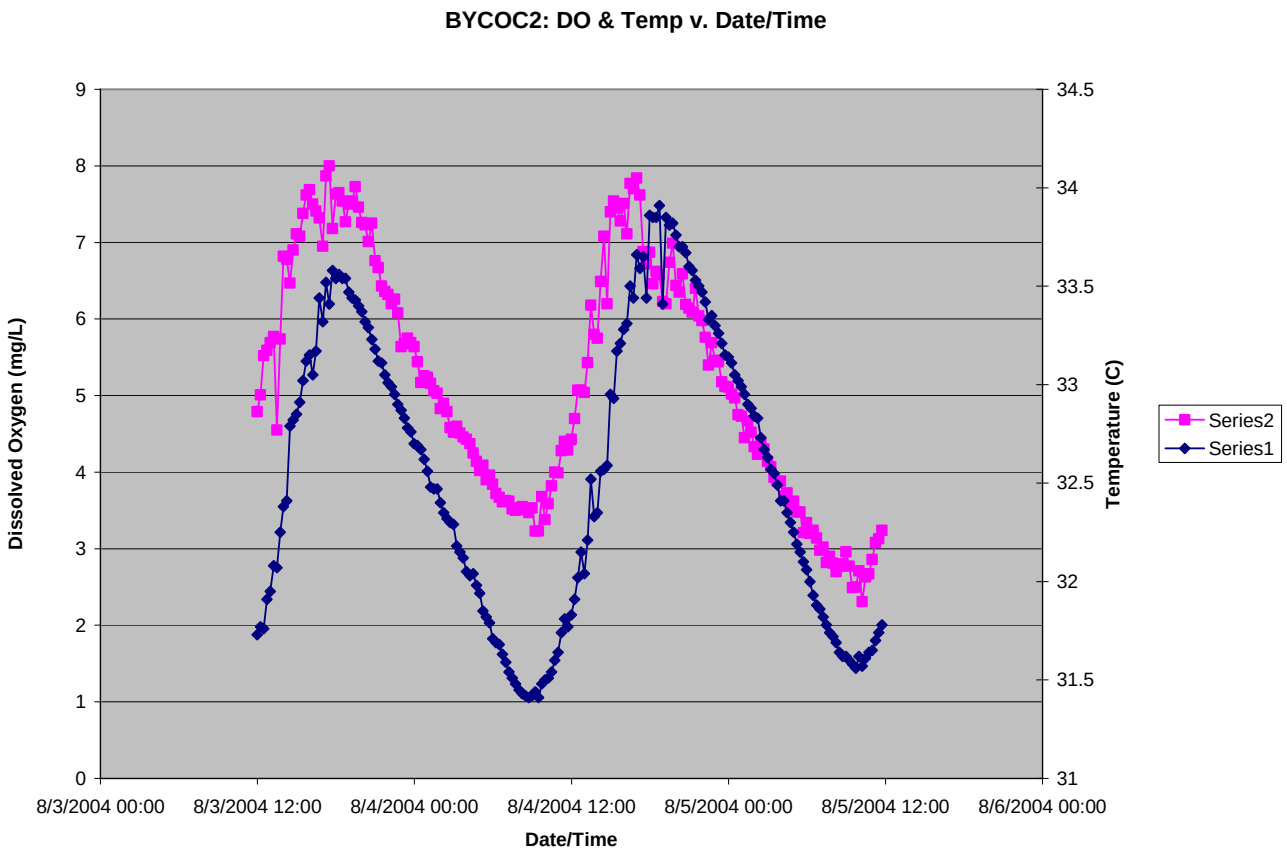
8/4/2004 13:29	33.56	9.24	215	110.4	7.85	0.1
8/4/2004 13:44	33.67	9.26	214	112.7	8	0.1
8/4/2004 13:59	33.76	9.27	214	114.6	8.13	0.1
8/4/2004 14:14	33.77	9.28	214	115.8	8.21	0.1
8/4/2004 14:29	33.76	9.28	214	115.2	8.17	0.1
8/4/2004 14:44	33.8	9.31	213	118.6	8.4	0.1
8/4/2004 14:59	33.84	9.31	213	119.3	8.45	0.1
8/4/2004 15:14	33.88	9.32	213	120	8.49	0.1
8/4/2004 15:29	33.92	9.31	213	119.4	8.44	0.1
8/4/2004 15:44	33.96	9.32	213	119.8	8.46	0.1
8/4/2004 15:59	34.03	9.31	213	119.7	8.45	0.1
8/4/2004 16:14	34.11	9.32	213	120.7	8.5	0.1
8/4/2004 16:29	34.18	9.31	213	119.9	8.44	0.1
8/4/2004 16:44	34.25	9.31	213	118.2	8.31	0.1
8/4/2004 16:59	34.34	9.31	213	118.1	8.29	0.1
8/4/2004 17:14	34.39	9.3	213	116.1	8.14	0.1
8/4/2004 17:29	34.43	9.29	213	114.9	8.06	0.1
8/4/2004 17:44	34.41	9.28	213	114.5	8.03	0.1
8/4/2004 17:59	34.38	9.27	213	112.8	7.91	0.1
8/4/2004 18:14	34.35	9.26	213	109.5	7.69	0.1
8/4/2004 18:29	34.29	9.24	214	107.9	7.58	0.1
8/4/2004 18:44	34.24	9.23	214	106.1	7.46	0.1
8/4/2004 18:59	34.14	9.23	214	106.2	7.48	0.1
8/4/2004 19:14	34.04	9.23	214	105.8	7.46	0.1
8/4/2004 19:29	33.99	9.2	214	101.7	7.18	0.1
8/4/2004 19:44	33.93	9.18	214	99.9	7.06	0.1
8/4/2004 19:59	33.79	9.19	214	101	7.15	0.1
8/4/2004 20:14	33.7	9.15	215	96.1	6.82	0.1
8/4/2004 20:29	33.62	9.14	215	95.9	6.81	0.1
8/4/2004 20:44	33.49	9.14	215	96.1	6.84	0.1
8/4/2004 20:59	33.36	9.12	215	94.7	6.75	0.1
8/4/2004 21:14	33.26	9.1	215	91.6	6.55	0.1
8/4/2004 21:29	33.19	9.08	216	89.4	6.4	0.1
8/4/2004 21:44	33.15	9.05	216	86.3	6.18	0.1
8/4/2004 21:59	33.08	9.04	216	85.8	6.15	0.1
8/4/2004 22:14	33.04	9.03	217	84.6	6.07	0.1
8/4/2004 22:29	32.99	9.03	216	84.9	6.1	0.1
8/4/2004 22:44	32.92	9.02	217	83.9	6.03	0.1
8/4/2004 22:59	32.87	9.01	217	82.2	5.91	0.1
8/4/2004 23:14	32.8	9.01	217	82.5	5.94	0.1
8/4/2004 23:29	32.74	8.98	217	80.4	5.8	0.1
8/4/2004 23:44	32.69	8.97	217	80.1	5.78	0.1
8/4/2004 23:59	32.62	8.95	217	78.8	5.69	0.1
8/5/2004 00:14	32.56	8.91	217	76.2	5.51	0.1
8/5/2004 00:29	32.51	8.88	218	74.8	5.41	0.1
8/5/2004 00:44	32.47	8.84	218	71.8	5.2	0.1
8/5/2004 00:59	32.41	8.82	218	71.7	5.2	0.1
8/5/2004 01:14	32.37	8.79	219	69.7	5.06	0.1
8/5/2004 01:29	32.33	8.75	219	66.9	4.85	0.1
8/5/2004 01:44	32.29	8.74	219	66.8	4.85	0.1
8/5/2004 01:59	32.24	8.72	219	65.6	4.77	0.1
8/5/2004 02:14	32.21	8.69	219	64.3	4.68	0.1
8/5/2004 02:29	32.19	8.67	219	64.1	4.66	0.1

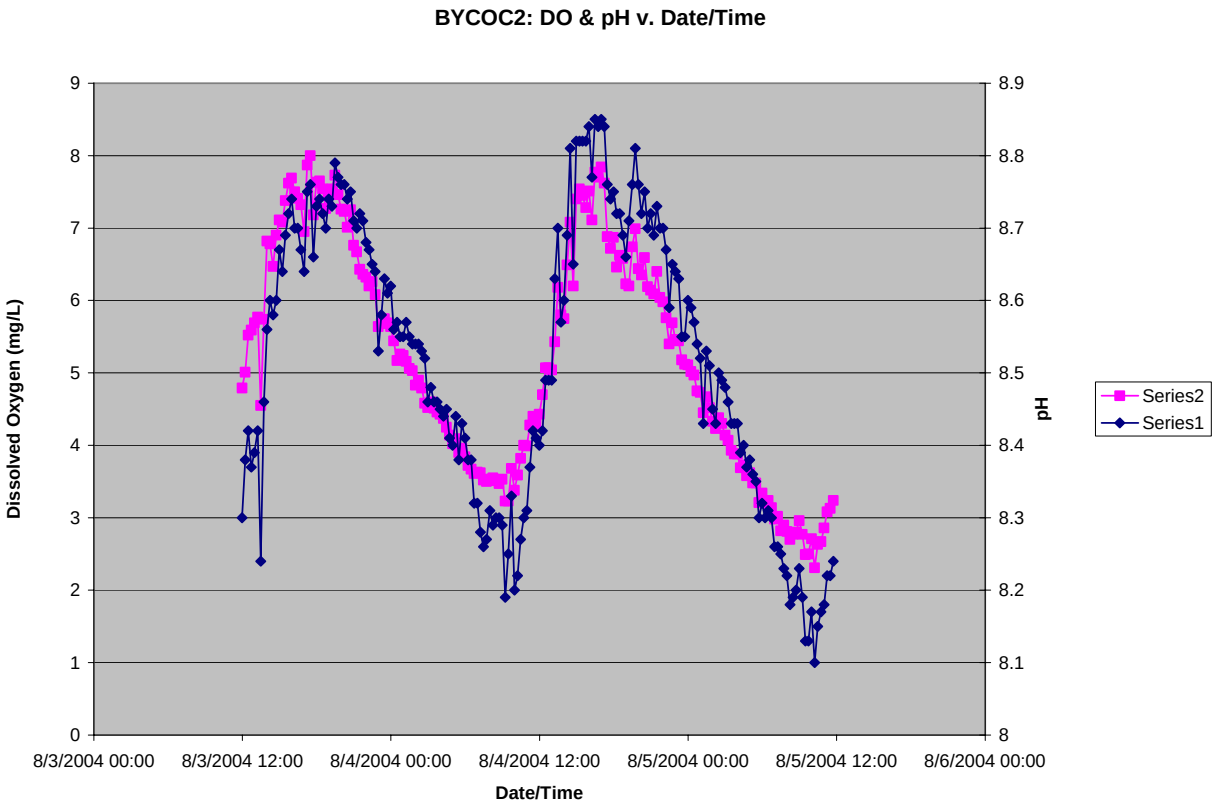
8/5/2004 02:44	32.14	8.65	219	63.3	4.61	0.1	
8/5/2004 02:59	32.11	8.62	220	60.7	4.42	0.1	
8/5/2004 03:14	32.07	8.6	220	61.4	4.48	0.1	
8/5/2004 03:29	32.03	8.57	220	59.9	4.37	0.1	
8/5/2004 03:44	32	8.55	220	58.5	4.27	0.1	
8/5/2004 03:59	31.97	8.52	221	58	4.23	0.1	
8/5/2004 04:14	31.93	8.49	220	56.8	4.15	0.1	
8/5/2004 04:29	31.89	8.45	221	55.2	4.03	0.1	
8/5/2004 04:44	31.84	8.41	221	53.3	3.9	0.1	
8/5/2004 04:59	31.81	8.39	221	53.4	3.91	0.1	
8/5/2004 05:14	31.75	8.35	222	51.8	3.79	0.1	
8/5/2004 05:29	31.72	8.31	222	49.9	3.66	0.1	
8/5/2004 05:44	31.67	8.27	222	48.3	3.54	0.1	
8/5/2004 05:59	31.62	8.24	222	47.8	3.51	0.1	
8/5/2004 06:14	31.56	8.2	222	45.5	3.34	0.1	
8/5/2004 06:29	31.54	8.18	223	44.5	3.28	0.1	
8/5/2004 06:44	31.52	8.15	223	44.1	3.24	0.1	
8/5/2004 06:59	31.47	8.12	223	43.2	3.18	0.1	
8/5/2004 07:14	31.44	8.1	223	42.4	3.12	0.1	
8/5/2004 07:29	31.41	8.07	224	41.4	3.05	0.1	
8/5/2004 07:44	31.4	8.05	224	40.7	3	0.1	
8/5/2004 07:59	31.39	8.05	224	40.8	3.01	0.1	
8/5/2004 08:14	31.38	8.03	224	41.5	3.06	0.1	
8/5/2004 08:29	31.39	8.03	224	40.8	3.01	0.1	
8/5/2004 08:44	31.42	8.03	224	42	3.09	0.1	
8/5/2004 08:59	31.45	8.03	224	42.7	3.15	0.1	
8/5/2004 09:14	31.45	8.02	224	42.1	3.1	0.1	
8/5/2004 09:29	31.5	8.02	224	42.7	3.14	0.1	
8/5/2004 09:44	31.56	8.03	224	44.2	3.25	0.1	
8/5/2004 09:59	31.63	8.04	224	45.2	3.32	0.1	
8/5/2004 10:14	31.65	8.04	224	45.8	3.36	0.1	
8/5/2004 10:29	30.6	8.26	0	96.1	7.19	-0.01	**Monitor Retrieved**
8/5/2004 10:44	30.1	8.47	0	98.3	7.42	-0.01	
8/5/2004 10:59	29.84	8.48	0	97	7.35	-0.01	
8/5/2004 11:14	29.59	8.44	0	96.3	7.33	-0.01	
8/5/2004 11:29	29.79	8.46	0	96.5	7.32	-0.01	
8/5/2004 11:44	30.2	8.42	0	95.8	7.22	-0.01	
8/5/2004 11:59	31.58	8.31	0	96.6	7.11	-0.01	
8/5/2004 12:14	31.24	8.24	0	96.4	7.14	-0.01	
8/5/2004 12:29	30.55	8.24	0	96.6	7.23	-0.01	
8/5/2004 12:44	29.99	8.27	0	96.6	7.3	-0.01	
8/5/2004 12:59	29.45	8.27	0	96.6	7.37	-0.01	
8/5/2004 13:14	29.05	8.26	0	96.6	7.42	-0.01	
8/5/2004 13:29	28.48	8.31	0	96.6	7.5	-0.01	
8/5/2004 13:44	27.83	8.29	0	96.5	7.57	-0.01	
8/5/2004 13:59	27.33	8.24	0	96.4	7.63	-0.01	
8/5/2004 14:14	27.68	8.25	0	97.1	7.64	-0.01	
8/5/2004 14:29	28.66	8.19	0	96.9	7.49	-0.01	
8/5/2004 14:44	29.49	8.1	0	96.8	7.38	-0.01	
8/5/2004 14:59	30.17	8.1	0	96.8	7.29	-0.01	
8/5/2004 15:14	30.71	8.15	0	96.7	7.22	-0.01	
8/5/2004 15:29	31.16	8.09	0	96.8	7.18	-0.01	
8/5/2004 15:44	31.5	8.1	0	97	7.15	-0.01	

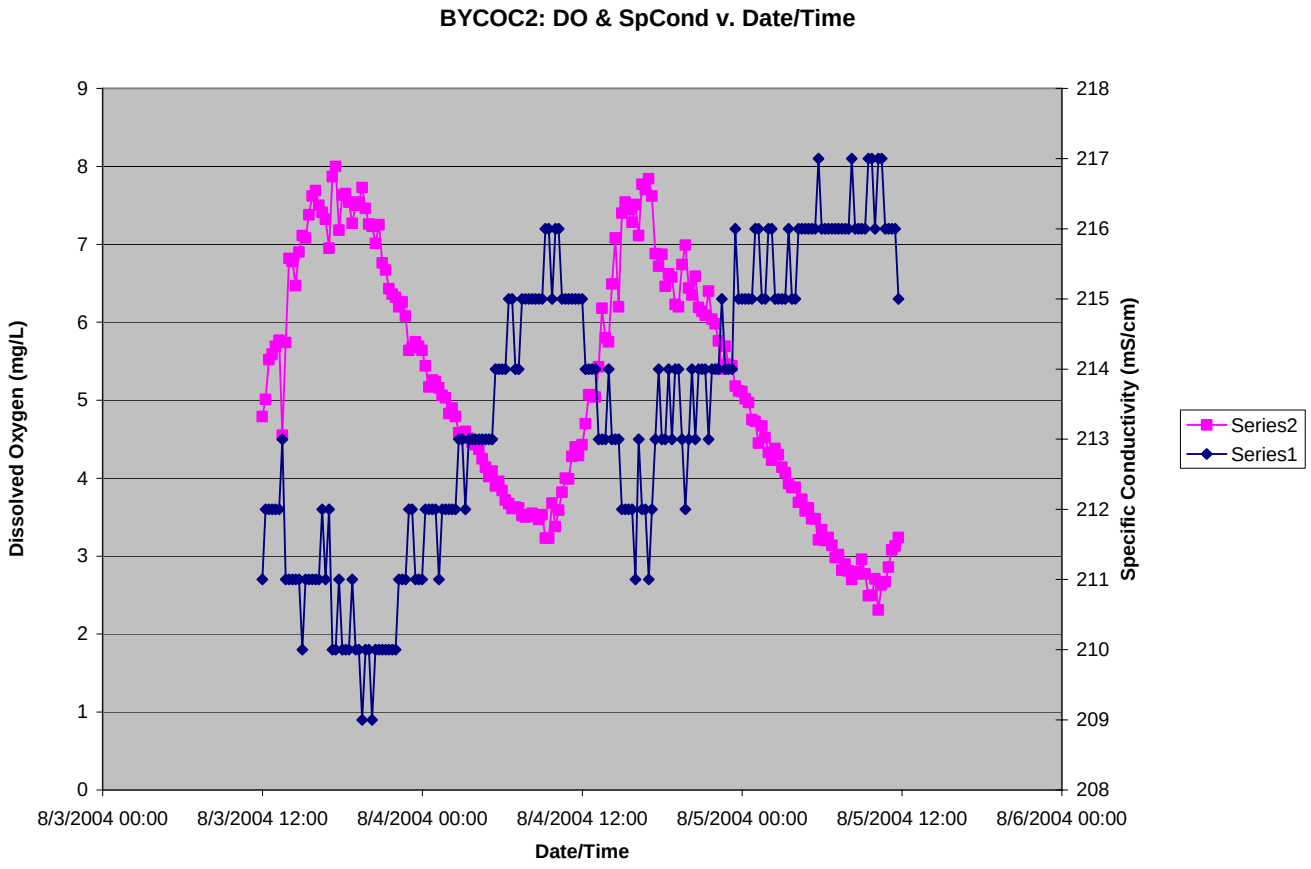
8/5/2004 15:59	31.82	8.1	0	97.1	7.11	-0.01
8/5/2004 16:14	32.04	8.09	0	97.3	7.1	-0.01
8/5/2004 16:29	32.24	8.07	0	97.4	7.09	-0.01
8/5/2004 16:44	32.42	8.05	0	97.5	7.07	-0.01
8/5/2004 16:59	32.56	8.03	0	97.5	7.06	-0.01
8/5/2004 17:14	32.68	8.05	0	97.6	7.05	-0.01
8/5/2004 17:29	32.78	8.03	0	97.6	7.03	-0.01
8/5/2004 17:44	32.83	8	0	97.6	7.03	-0.01
8/5/2004 17:59	32.88	8	0	97.5	7.02	-0.01
8/5/2004 18:14	32.88	7.99	0	97.5	7.02	-0.01
8/5/2004 18:29	32.87	8	0	97.4	7.01	-0.01
8/5/2004 18:44	32.84	7.98	0	97.4	7.02	-0.01
8/5/2004 18:59	32.8	8.02	0	97.4	7.02	-0.01
8/5/2004 19:14	32.72	7.98	0	97.3	7.02	-0.01
8/5/2004 19:29	32.62	8	0	97.3	7.03	-0.01
8/5/2004 19:44	32.53	7.98	0	97.2	7.04	-0.01
8/5/2004 19:59	32.41	8.02	0	97.1	7.05	-0.01
8/5/2004 20:14	32.28	8	0	97.1	7.06	-0.01
8/5/2004 20:29	32.16	7.99	0	97	7.06	-0.01
8/5/2004 20:44	32.04	7.97	0	96.8	7.07	-0.01
8/5/2004 20:59	31.92	7.99	0	96.7	7.07	-0.01
8/5/2004 21:14	31.81	8	0	96.6	7.08	-0.01
8/5/2004 21:29	31.7	8	0	96.5	7.09	-0.01
8/5/2004 21:44	31.59	7.99	0	96.4	7.09	-0.01
8/5/2004 21:59	31.48	7.99	0	96.3	7.1	-0.01
8/5/2004 22:14	31.38	7.99	0	96.2	7.1	-0.01
8/5/2004 22:29	31.29	7.97	0	96.1	7.1	-0.01
8/5/2004 22:44	31.19	7.98	0	95.9	7.1	-0.01
8/5/2004 22:59	31.11	7.98	0	95.9	7.11	-0.01
8/5/2004 23:14	31.02	7.99	0	95.7	7.11	-0.01
8/5/2004 23:29	30.94	7.97	0	95.7	7.12	-0.01
8/5/2004 23:44	30.86	7.98	0	95.5	7.12	-0.01
8/5/2004 23:59	30.79	7.99	0	95.4	7.12	-0.01
8/6/2004 00:14	30.72	7.98	0	95.3	7.12	-0.01
8/6/2004 00:29	30.65	7.98	0	95.2	7.12	-0.01
8/6/2004 00:44	30.59	7.96	0	95.1	7.11	-0.01
8/6/2004 00:59	30.52	7.95	0	94.9	7.11	-0.01
8/6/2004 01:14	30.46	7.97	0	94.9	7.12	-0.01
8/6/2004 01:29	30.4	7.97	0	94.8	7.11	-0.01
8/6/2004 01:44	30.33	7.96	0	94.6	7.11	-0.01
8/6/2004 01:59	30.26	7.95	0	94.5	7.11	-0.01
8/6/2004 02:14	30.19	7.94	0	94.4	7.11	-0.01
8/6/2004 02:29	30.13	7.94	0	94.3	7.11	-0.01
8/6/2004 02:44	30.07	7.92	0	94.2	7.11	-0.01
8/6/2004 02:59	30.01	7.93	0	94.1	7.11	-0.01
8/6/2004 03:14	29.96	7.93	0	94	7.11	-0.01
8/6/2004 03:29	29.9	7.94	0	93.9	7.11	-0.01
8/6/2004 03:44	29.84	7.94	0	93.8	7.11	-0.01
8/6/2004 03:59	29.79	7.95	0	93.7	7.11	-0.01
8/6/2004 04:14	29.74	7.93	0	93.6	7.1	-0.01
8/6/2004 04:29	29.7	7.93	0	93.5	7.1	-0.01
8/6/2004 04:44	29.65	7.93	0	93.4	7.1	-0.01
8/6/2004 04:59	29.61	7.93	0	93.3	7.1	-0.01

8/6/2004 05:14	29.57	7.92	0	93.2	7.09	-0.01
8/6/2004 05:29	29.53	7.92	0	93.1	7.09	-0.01
8/6/2004 05:44	29.5	7.78	0	92.5	7.05	-0.01
8/6/2004 05:59	28.2	7.66	0	91.2	7.12	-0.01
8/6/2004 06:14	26.21	7.65	0	91.5	7.4	-0.01
8/6/2004 06:29	24.91	7.7	0	91.2	7.55	-0.01
8/6/2004 06:44	23.85	7.71	0	90.5	7.64	-0.01
8/6/2004 06:59	22.97	7.71	0	90.1	7.73	-0.01
8/6/2004 07:14	22.37	7.69	0	89.9	7.81	-0.01
8/6/2004 07:29	21.92	7.71	0	89.5	7.84	-0.01
8/6/2004 07:44	21.55	7.67	0	89.1	7.86	-0.01
8/6/2004 07:59	21.28	7.67	0	88.7	7.87	-0.01
8/6/2004 08:14	21.16	7.71	0	88.2	7.84	-0.01
8/6/2004 08:29	21.05	7.71	0	87.8	7.82	-0.01
8/6/2004 08:44	20.94	7.72	0	87.4	7.8	-0.01
8/6/2004 08:59	20.86	7.68	0	85.8	7.67	-0.01
8/6/2004 09:14	20.61	7.68	0	87.8	7.89	-0.01
8/6/2004 09:29	20.54	7.79	0	93.1	8.37	-0.01
8/6/2004 09:44	20.7	4.69	0	96.5	8.66	-0.01
8/6/2004 09:59	20.66	4.91	0	98.8	8.86	-0.01

BYCOC1 Averages during deployment	**32.89**	**9.01**	**216.25**	**92.77**	**6.65**	**0.1**
	Temp	**pH**	**Cond**	**DO%**	**DO**	**Sal**


BYCOC2: DO & Temp v. Date/Time
Dissolved Oxygen (mg/L)
Temperature (C)
Date/Time
9
8
7
6
5
4
3
2
1
0
34.5
34
33.5
33
32.5
32
31.5
31
8/3/2004 00:00
8/3/2004 12:00
8/4/2004 00:00
8/4/2004 12:00
8/5/2004 00:00
8/5/2004 12:00
8/6/2004 00:00
Series2
Series1


BYCOC2: DO & pH v. Date/Time
Dissolved Oxygen (mg/L)
pH
Date/Time
9
8
7
6
5
4
3
2
1
0
8.9
8.8
8.7
8.6
8.5
8.4
8.3
8.2
8.1
8
8/3/2004 00:00
8/3/2004 12:00
8/4/2004 00:00
8/4/2004 12:00
8/5/2004 00:00
8/5/2004 12:00
8/6/2004 00:00
Series2
Series1


BYCOC2: DO & SpCond v. Date/Time
Dissolved Oxygen (mg/L)
Specific Conductivity (mS/cm)
Date/Time
0
1
2
3
4
5
6
7
8
9
208
209
210
211
212
213
214
215
216
217
218
8/3/2004 00:00
8/3/2004 12:00
8/4/2004 00:00
8/4/2004 12:00
8/5/2004 00:00
8/5/2004 12:00
8/6/2004 00:00
Series2
Series1

Bayou Cocodrie 101605 Site
BYCOC2
Continuous
Monitoring Data

Date+Time	Temp	pH	SpCond	DO%	DO	SALINITY
MMDDYYYY HHMM	øC	Units	æS/cm	Sat	mg/L	ppt
8/2/2004 23:59	25.15	5.36	0	99.9	8.24	-0.01
8/3/2004 00:14	25.17	5.36	0	99.6	8.2	-0.01
8/3/2004 00:29	25.19	5.37	0	99.4	8.19	-0.01
8/3/2004 00:44	25.12	5.37	0	99.3	8.19	-0.01
8/3/2004 00:59	25.12	5.38	0	99.4	8.2	-0.01
8/3/2004 01:14	25.15	5.39	0	99.3	8.18	-0.01
8/3/2004 01:29	25.13	5.4	0	99.1	8.17	-0.01
8/3/2004 01:44	25.13	5.4	0	98.9	8.15	-0.01
8/3/2004 01:59	25.19	5.42	0	99	8.15	-0.01
8/3/2004 02:14	25.12	5.44	0	98.8	8.15	-0.01
8/3/2004 02:29	25.09	5.46	0	98.8	8.15	-0.01
8/3/2004 02:44	25.1	5.47	0	99.1	8.17	-0.01
8/3/2004 02:59	25.06	5.48	0	98.6	8.14	-0.01
8/3/2004 03:14	25.02	5.49	0	98.9	8.17	-0.01
8/3/2004 03:29	25.03	5.5	0	98.7	8.15	-0.01
8/3/2004 03:44	25.04	5.51	0	98.7	8.15	-0.01
8/3/2004 03:59	24.99	5.52	0	98.5	8.14	-0.01
8/3/2004 04:14	24.97	5.53	0	98.6	8.15	-0.01
8/3/2004 04:29	24.94	5.54	0	98.7	8.16	-0.01
8/3/2004 04:44	24.91	5.55	0	98.3	8.14	-0.01
8/3/2004 04:59	24.92	5.56	0	98.5	8.15	-0.01
8/3/2004 05:14	24.93	5.57	0	98.2	8.12	-0.01
8/3/2004 05:29	24.87	5.58	0	98.4	8.15	-0.01
8/3/2004 05:44	24.84	5.59	0	98.2	8.14	-0.01
8/3/2004 05:59	24.86	5.6	0	98.2	8.14	-0.01
8/3/2004 06:14	24.81	6.78	0	94.6	7.84	-0.01
8/3/2004 06:29	24.22	6.81	0	94.2	7.9	-0.01
8/3/2004 06:44	23.97	6.8	0	94.4	7.95	-0.01
8/3/2004 06:59	24.02	6.79	0	94.3	7.94	-0.01
8/3/2004 07:14	24.23	6.8	0	94.2	7.89	-0.01
8/3/2004 07:29	24.62	6.81	0	94.3	7.85	-0.01
8/3/2004 07:44	25.05	6.81	0	93.1	7.68	-0.01
8/3/2004 07:59	25.04	6.81	0	93.2	7.7	-0.01
8/3/2004 08:14	24.73	6.79	0	93.1	7.73	-0.01
8/3/2004 08:29	24.44	6.78	0	93.1	7.78	-0.01
8/3/2004 08:44	24.17	6.79	0	92.9	7.79	-0.01
8/3/2004 08:59	24.17	6.8	0	92.9	7.8	-0.01
8/3/2004 09:14	24.09	7.18	0	94.1	7.91	-0.01
8/3/2004 09:29	24.78	7.34	0	99.6	8.26	-0.01
8/3/2004 09:44	24.57	7.33	0	99	8.25	-0.01
8/3/2004 09:59	24.14	7.32	0	98.6	8.28	-0.01
8/3/2004 10:14	23.68	7.31	0	98.2	8.32	-0.01
8/3/2004 10:29	23.61	7.3	0	97.5	8.27	-0.01
8/3/2004 10:44	23.65	7.29	0	97.3	8.24	-0.01

8/3/2004 10:59	24.5	7.3	0	97.9	8.16	-0.01	
8/3/2004 11:14	26.32	7.31	0	97.9	7.89	-0.01	
8/3/2004 11:29	28.49	7.32	0	97.5	7.57	-0.01	
8/3/2004 11:44	31.49	7.33	0	99.1	7.3	-0.01	
8/3/2004 11:59	31.73	8.3	211	65.3	4.79	0.1	**Monitor Deployed**
8/3/2004 12:14	31.77	8.38	212	68.3	5.01	0.1	
8/3/2004 12:29	31.76	8.42	212	75.4	5.52	0.1	
8/3/2004 12:44	31.91	8.37	212	76.5	5.59	0.1	
8/3/2004 12:59	31.95	8.39	212	77.9	5.69	0.1	
8/3/2004 13:14	32.08	8.42	212	79.2	5.77	0.1	
8/3/2004 13:29	32.07	8.24	213	62.4	4.55	0.1	
8/3/2004 13:44	32.25	8.46	211	78.9	5.74	0.1	
8/3/2004 13:59	32.38	8.56	211	94	6.82	0.1	
8/3/2004 14:14	32.41	8.6	211	93.5	6.78	0.1	
8/3/2004 14:29	32.79	8.58	211	89.8	6.47	0.1	
8/3/2004 14:44	32.82	8.6	211	95.9	6.9	0.1	
8/3/2004 14:59	32.85	8.67	210	98.8	7.11	0.1	
8/3/2004 15:14	32.91	8.64	211	98.5	7.08	0.1	
8/3/2004 15:29	33.02	8.69	211	102.9	7.38	0.1	
8/3/2004 15:44	33.12	8.72	211	106.4	7.62	0.1	
8/3/2004 15:59	33.15	8.74	211	107.4	7.69	0.1	
8/3/2004 16:14	33.05	8.7	211	104.6	7.5	0.1	
8/3/2004 16:29	33.17	8.7	212	103.5	7.41	0.1	
8/3/2004 16:44	33.44	8.67	211	102.7	7.32	0.1	
8/3/2004 16:59	33.32	8.64	212	97.4	6.95	0.1	
8/3/2004 17:14	33.52	8.75	210	110.7	7.87	0.1	
8/3/2004 17:29	33.41	8.76	210	112.2	8	0.1	
8/3/2004 17:44	33.58	8.66	211	100.9	7.18	0.1	
8/3/2004 17:59	33.54	8.73	210	107.3	7.63	0.1	
8/3/2004 18:14	33.56	8.74	210	107.6	7.65	0.1	
8/3/2004 18:29	33.54	8.72	210	106	7.54	0.1	
8/3/2004 18:44	33.54	8.7	211	102.2	7.27	0.1	
8/3/2004 18:59	33.47	8.74	210	105.4	7.5	0.1	
8/3/2004 19:14	33.44	8.73	210	105.9	7.54	0.1	
8/3/2004 19:29	33.43	8.79	209	108.5	7.73	0.1	
8/3/2004 19:44	33.4	8.77	210	104.6	7.46	0.1	
8/3/2004 19:59	33.37	8.76	210	101.7	7.26	0.1	
8/3/2004 20:14	33.32	8.76	209	101.3	7.23	0.1	
8/3/2004 20:29	33.29	8.74	210	98.2	7.01	0.1	
8/3/2004 20:44	33.23	8.75	210	101.4	7.25	0.1	
8/3/2004 20:59	33.18	8.71	210	94.4	6.76	0.1	
8/3/2004 21:14	33.12	8.7	210	93.1	6.67	0.1	
8/3/2004 21:29	33.11	8.72	210	89.7	6.43	0.1	
8/3/2004 21:44	33.05	8.71	210	88.6	6.36	0.1	
8/3/2004 21:59	33.01	8.68	210	88.1	6.32	0.1	
8/3/2004 22:14	32.99	8.67	211	86.4	6.2	0.1	
8/3/2004 22:29	32.95	8.65	211	87.2	6.26	0.1	
8/3/2004 22:44	32.9	8.64	211	84.5	6.08	0.1	
8/3/2004 22:59	32.87	8.53	212	78.4	5.64	0.1	
8/3/2004 23:14	32.83	8.58	212	79	5.68	0.1	
8/3/2004 23:29	32.78	8.63	211	79.8	5.75	0.1	
8/3/2004 23:44	32.76	8.61	211	79	5.69	0.1	
8/3/2004 23:59	32.7	8.62	211	78.1	5.64	0.1	

8/4/2004 00:14	32.69	8.56	212	75.5	5.44	0.1
8/4/2004 00:29	32.67	8.57	212	71.7	5.17	0.1
8/4/2004 00:44	32.62	8.55	212	72.8	5.26	0.1
8/4/2004 00:59	32.56	8.55	212	72.4	5.24	0.1
8/4/2004 01:14	32.48	8.57	211	71.2	5.16	0.1
8/4/2004 01:29	32.47	8.55	212	69.9	5.06	0.1
8/4/2004 01:44	32.47	8.54	212	69.4	5.03	0.1
8/4/2004 01:59	32.4	8.54	212	66.6	4.83	0.1
8/4/2004 02:14	32.35	8.54	212	67.5	4.9	0.1
8/4/2004 02:29	32.32	8.53	212	65.9	4.79	0.1
8/4/2004 02:44	32.3	8.52	213	63.1	4.58	0.1
8/4/2004 02:59	32.29	8.46	213	62.2	4.52	0.1
8/4/2004 03:14	32.18	8.48	212	63.2	4.6	0.1
8/4/2004 03:29	32.15	8.46	213	62	4.51	0.1
8/4/2004 03:44	32.12	8.46	213	61.2	4.46	0.1
8/4/2004 03:59	32.05	8.45	213	60.7	4.43	0.1
8/4/2004 04:14	32.03	8.44	213	59.9	4.37	0.1
8/4/2004 04:29	32.04	8.45	213	58.2	4.25	0.1
8/4/2004 04:44	31.98	8.41	213	56.7	4.14	0.1
8/4/2004 04:59	31.94	8.4	213	55	4.02	0.1
8/4/2004 05:14	31.85	8.44	213	55.8	4.09	0.1
8/4/2004 05:29	31.82	8.38	214	53.2	3.9	0.1
8/4/2004 05:44	31.79	8.43	214	54.1	3.96	0.1
8/4/2004 05:59	31.71	8.41	214	52.4	3.84	0.1
8/4/2004 06:14	31.69	8.38	214	50.8	3.72	0.1
8/4/2004 06:29	31.68	8.38	215	50	3.67	0.1
8/4/2004 06:44	31.63	8.32	215	49.1	3.61	0.1
8/4/2004 06:59	31.59	8.32	214	49.5	3.63	0.1
8/4/2004 07:14	31.54	8.28	214	49.2	3.62	0.1
8/4/2004 07:29	31.51	8.26	215	47.9	3.52	0.1
8/4/2004 07:44	31.48	8.27	215	47.6	3.5	0.1
8/4/2004 07:59	31.45	8.31	215	47.9	3.53	0.1
8/4/2004 08:14	31.43	8.29	215	48.1	3.55	0.1
8/4/2004 08:29	31.42	8.3	215	47.6	3.51	0.1
8/4/2004 08:44	31.41	8.3	215	47.1	3.47	0.1
8/4/2004 08:59	31.42	8.29	215	47.9	3.53	0.1
8/4/2004 09:14	31.44	8.19	216	43.8	3.23	0.1
8/4/2004 09:29	31.41	8.25	216	43.8	3.23	0.1
8/4/2004 09:44	31.48	8.33	215	50	3.68	0.1
8/4/2004 09:59	31.5	8.2	216	45.9	3.38	0.1
8/4/2004 10:14	31.51	8.22	216	48.8	3.59	0.1
8/4/2004 10:29	31.54	8.27	215	51.9	3.82	0.1
8/4/2004 10:44	31.6	8.3	215	54.4	4	0.1
8/4/2004 10:59	31.64	8.31	215	54.3	3.99	0.1
8/4/2004 11:14	31.74	8.37	215	58.4	4.28	0.1
8/4/2004 11:29	31.81	8.42	215	60.1	4.4	0.1
8/4/2004 11:44	31.77	8.41	215	58.6	4.29	0.1
8/4/2004 11:59	31.83	8.4	215	60.6	4.43	0.1
8/4/2004 12:14	31.91	8.42	214	64.3	4.7	0.1
8/4/2004 12:29	32.02	8.49	214	69.5	5.07	0.1
8/4/2004 12:44	32.15	8.49	214	69.6	5.07	0.1
8/4/2004 12:59	32.04	8.49	214	69.1	5.04	0.1
8/4/2004 13:14	32.21	8.63	213	74.6	5.43	0.1

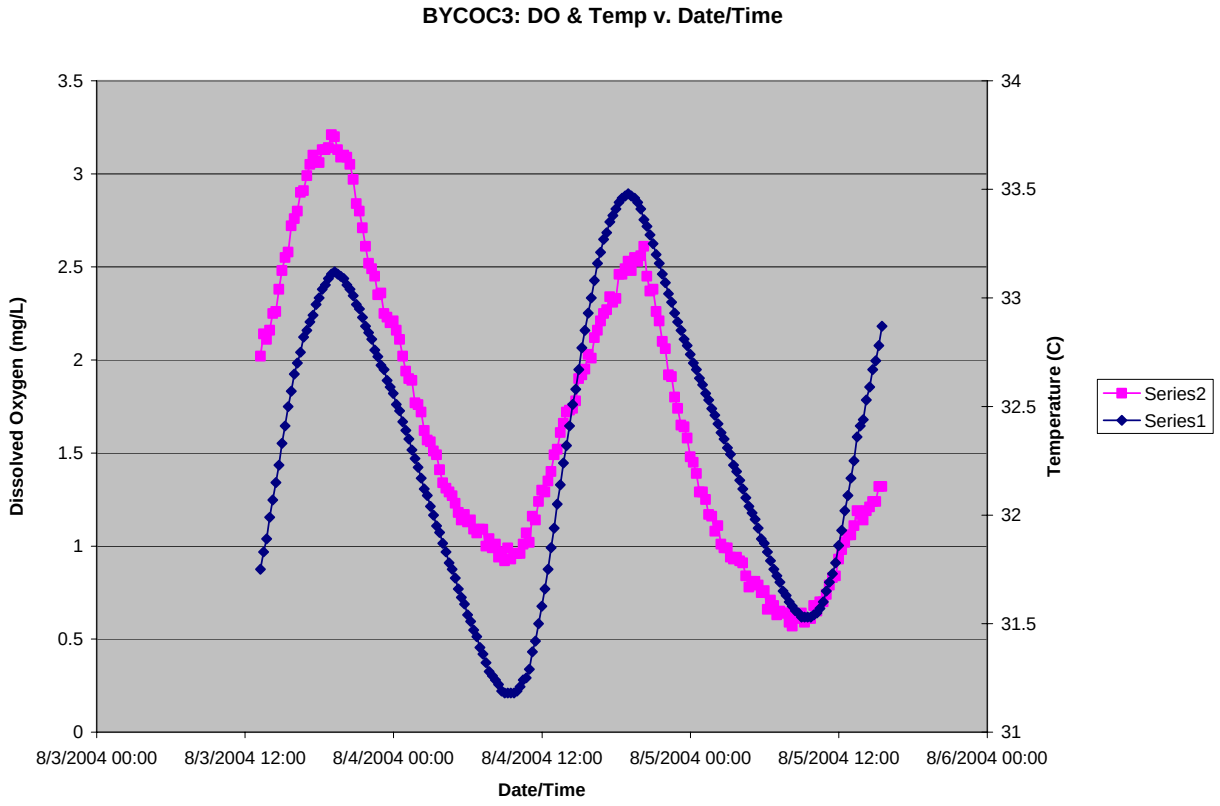
8/4/2004 13:29	32.52	8.7	213	85.4	6.18	0.1
8/4/2004 13:44	32.33	8.57	213	80	5.8	0.1
8/4/2004 13:59	32.35	8.6	214	79.3	5.75	0.1
8/4/2004 14:14	32.56	8.69	213	89.8	6.49	0.1
8/4/2004 14:29	32.57	8.81	213	98	7.08	0.1
8/4/2004 14:44	32.59	8.65	213	85.8	6.2	0.1
8/4/2004 14:59	32.95	8.82	212	103.1	7.4	0.1
8/4/2004 15:14	32.93	8.82	212	105	7.54	0.1
8/4/2004 15:29	33.17	8.82	212	104.1	7.45	0.1
8/4/2004 15:44	33.21	8.82	212	101.9	7.28	0.1
8/4/2004 15:59	33.28	8.84	211	105.1	7.51	0.1
8/4/2004 16:14	33.31	8.77	213	99.5	7.11	0.1
8/4/2004 16:29	33.5	8.85	212	109.2	7.77	0.1
8/4/2004 16:44	33.44	8.84	212	108.1	7.7	0.1
8/4/2004 16:59	33.66	8.85	211	110.5	7.84	0.1
8/4/2004 17:14	33.59	8.84	212	107.2	7.62	0.1
8/4/2004 17:29	33.65	8.76	213	97	6.88	0.1
8/4/2004 17:44	33.44	8.74	214	94.2	6.72	0.1
8/4/2004 17:59	33.86	8.75	213	97.1	6.87	0.1
8/4/2004 18:14	33.85	8.72	213	91.2	6.46	0.1
8/4/2004 18:29	33.85	8.72	214	93.5	6.62	0.1
8/4/2004 18:44	33.91	8.69	213	93	6.58	0.1
8/4/2004 18:59	33.41	8.66	214	87.4	6.23	0.1
8/4/2004 19:14	33.85	8.71	214	87.7	6.2	0.1
8/4/2004 19:29	33.81	8.76	213	95.1	6.74	0.1
8/4/2004 19:44	33.82	8.81	212	98.7	6.99	0.1
8/4/2004 19:59	33.76	8.76	213	90.9	6.44	0.1
8/4/2004 20:14	33.7	8.72	214	89.5	6.35	0.1
8/4/2004 20:29	33.7	8.75	213	93	6.59	0.1
8/4/2004 20:44	33.67	8.7	214	87.1	6.19	0.1
8/4/2004 20:59	33.6	8.72	214	86.3	6.14	0.1
8/4/2004 21:14	33.58	8.69	214	85.6	6.09	0.1
8/4/2004 21:29	33.53	8.73	213	90	6.4	0.1
8/4/2004 21:44	33.5	8.7	214	84.9	6.04	0.1
8/4/2004 21:59	33.47	8.7	214	84	5.98	0.1
8/4/2004 22:14	33.42	8.67	214	80.8	5.76	0.1
8/4/2004 22:29	33.33	8.59	215	75.7	5.4	0.1
8/4/2004 22:44	33.35	8.65	214	79.7	5.69	0.1
8/4/2004 22:59	33.3	8.64	214	76.4	5.46	0.1
8/4/2004 23:14	33.26	8.63	214	76.1	5.44	0.1
8/4/2004 23:29	33.21	8.55	216	72.4	5.18	0.1
8/4/2004 23:44	33.15	8.55	215	71.5	5.12	0.1
8/4/2004 23:59	33.14	8.6	215	71.4	5.11	0.1
8/5/2004 00:14	33.11	8.59	215	70.1	5.02	0.1
8/5/2004 00:29	33.05	8.57	215	69.3	4.97	0.1
8/5/2004 00:44	33.02	8.54	215	66.2	4.75	0.1
8/5/2004 00:59	32.99	8.52	216	65.9	4.73	0.1
8/5/2004 01:14	32.95	8.43	216	62	4.45	0.1
8/5/2004 01:29	32.9	8.53	215	65	4.67	0.1
8/5/2004 01:44	32.88	8.51	215	62.9	4.52	0.1
8/5/2004 01:59	32.84	8.45	216	60.2	4.33	0.1
8/5/2004 02:14	32.83	8.43	216	58.8	4.23	0.1
8/5/2004 02:29	32.73	8.5	215	60.7	4.38	0.1

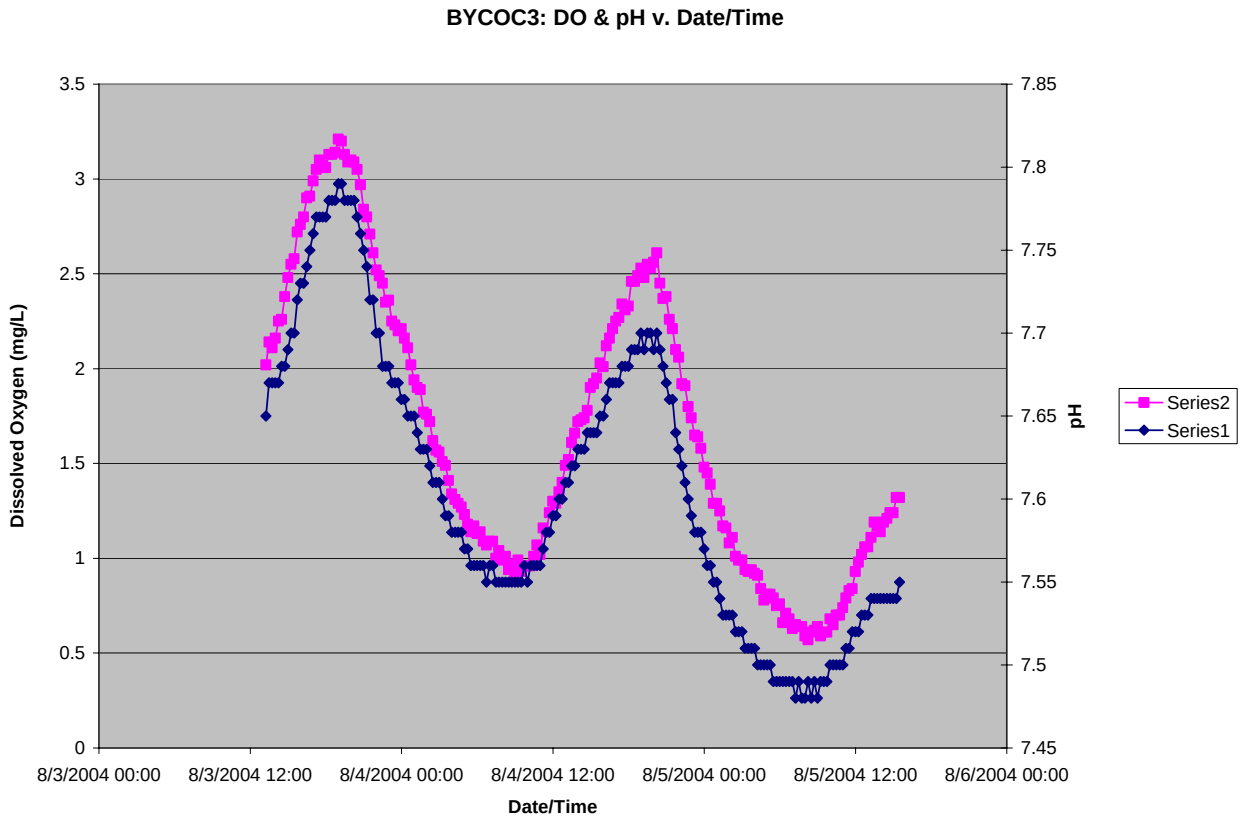
8/5/2004 02:44	32.67	8.49	215	59.6	4.3	0.1	
8/5/2004 02:59	32.63	8.48	215	57.3	4.14	0.1	
8/5/2004 03:14	32.57	8.46	215	56.4	4.07	0.1	
8/5/2004 03:29	32.55	8.43	216	54.4	3.93	0.1	
8/5/2004 03:44	32.49	8.43	215	53.6	3.88	0.1	
8/5/2004 03:59	32.41	8.43	215	53.6	3.88	0.1	
8/5/2004 04:14	32.41	8.39	216	51	3.69	0.1	
8/5/2004 04:29	32.35	8.4	216	51.3	3.73	0.1	
8/5/2004 04:44	32.3	8.37	216	49.2	3.58	0.1	
8/5/2004 04:59	32.25	8.38	216	49.7	3.62	0.1	
8/5/2004 05:14	32.19	8.36	216	47.8	3.48	0.1	
8/5/2004 05:29	32.15	8.35	216	47.8	3.48	0.1	
8/5/2004 05:44	32.1	8.3	217	44.1	3.21	0.1	
8/5/2004 05:59	32.06	8.32	216	45.7	3.34	0.1	
8/5/2004 06:14	32	8.3	216	43.9	3.2	0.1	
8/5/2004 06:29	31.93	8.31	216	44.4	3.24	0.1	
8/5/2004 06:44	31.88	8.3	216	42.9	3.14	0.1	
8/5/2004 06:59	31.86	8.26	216	40.7	2.98	0.1	
8/5/2004 07:14	31.82	8.26	216	41.2	3.02	0.1	
8/5/2004 07:29	31.78	8.25	216	38.6	2.82	0.1	
8/5/2004 07:44	31.74	8.23	216	39.5	2.9	0.1	
8/5/2004 07:59	31.72	8.22	216	38.3	2.81	0.1	
8/5/2004 08:14	31.69	8.18	217	36.7	2.7	0.1	
8/5/2004 08:29	31.64	8.19	216	37.8	2.77	0.1	
8/5/2004 08:44	31.62	8.2	216	38.1	2.8	0.1	
8/5/2004 08:59	31.62	8.23	216	40.2	2.96	0.1	
8/5/2004 09:14	31.6	8.19	216	37.7	2.77	0.1	
8/5/2004 09:29	31.58	8.13	217	33.8	2.49	0.1	
8/5/2004 09:44	31.56	8.13	217	34.1	2.5	0.1	
8/5/2004 09:59	31.62	8.17	216	36.9	2.71	0.1	
8/5/2004 10:14	31.57	8.1	217	31.4	2.31	0.1	
8/5/2004 10:29	31.61	8.15	217	35.8	2.63	0.1	
8/5/2004 10:44	31.64	8.17	216	36.3	2.67	0.1	
8/5/2004 10:59	31.65	8.18	216	39	2.86	0.1	
8/5/2004 11:14	31.7	8.22	216	42	3.08	0.1	
8/5/2004 11:29	31.74	8.22	216	42.7	3.13	0.1	
8/5/2004 11:44	31.78	8.24	215	44.2	3.24	0.1	**Monitor Retrieved**
8/5/2004 11:59	31.64	8.13	0	100.9	7.41	-0.01	
8/5/2004 12:14	31.57	7.89	0	96.8	7.12	-0.01	
8/5/2004 12:29	30.87	7.88	0	96.8	7.21	-0.01	
8/5/2004 12:44	30.05	7.92	0	97	7.33	-0.01	
8/5/2004 12:59	29.35	7.88	0	96.7	7.39	-0.01	
8/5/2004 13:14	28.74	7.92	0	95.9	7.41	-0.01	
8/5/2004 13:29	28.28	7.85	0	95.9	7.47	-0.01	
8/5/2004 13:44	27.71	7.85	0	95.8	7.53	-0.01	
8/5/2004 13:59	27.09	7.86	0	94.9	7.55	-0.01	
8/5/2004 14:14	26.64	7.84	0	95.2	7.64	-0.01	
8/5/2004 14:29	27.32	7.81	0	93.8	7.43	-0.01	
8/5/2004 14:44	28.33	7.78	0	92.5	7.2	-0.01	
8/5/2004 14:59	29.17	7.77	0	91.2	7	-0.01	
8/5/2004 15:14	29.87	7.75	0	90.9	6.89	-0.01	
8/5/2004 15:29	30.44	7.72	0	90.4	6.78	-0.01	
8/5/2004 15:44	30.9	7.74	0	90.3	6.72	-0.01	

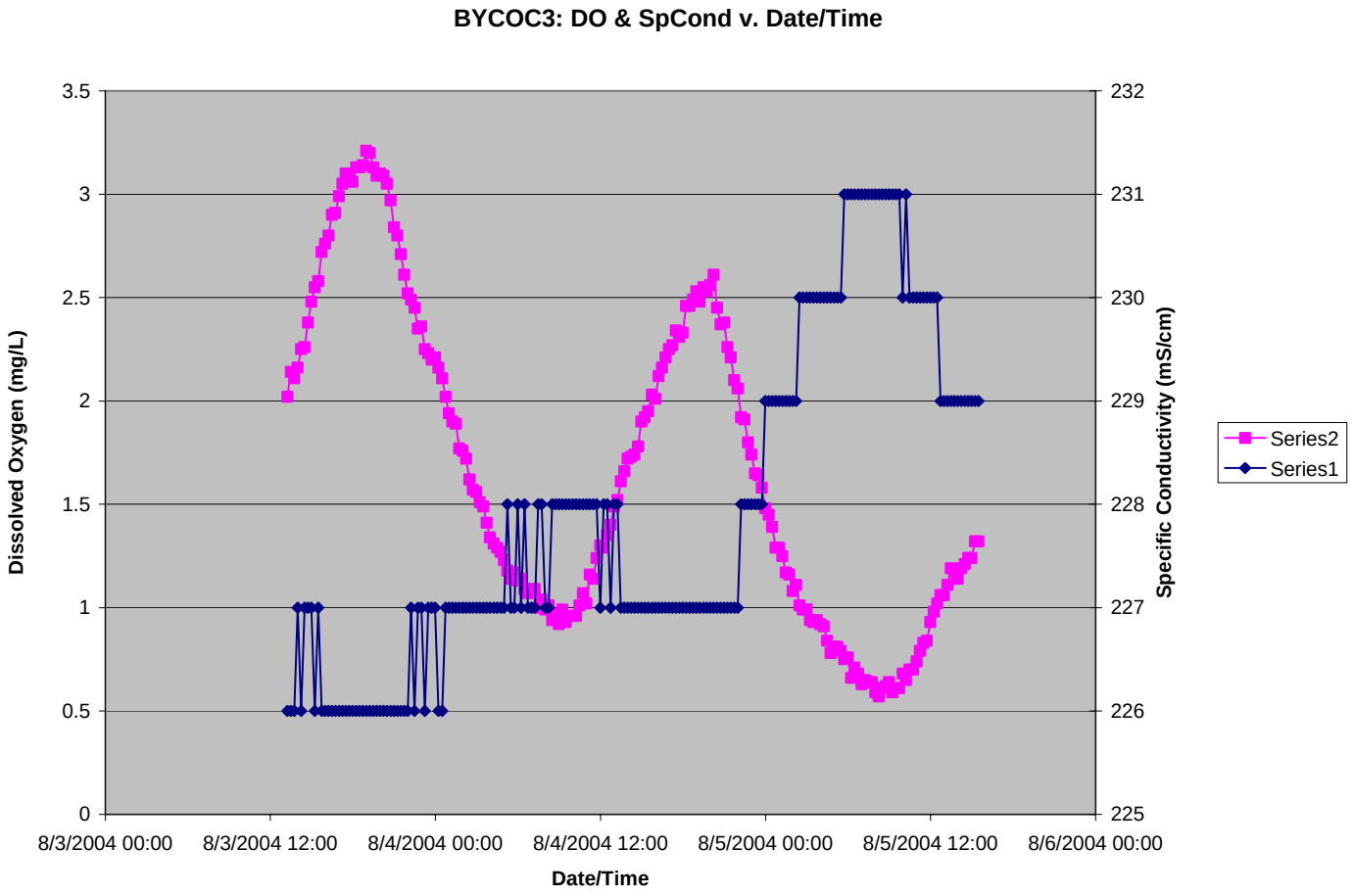
8/5/2004 15:59	31.28	7.7	0	90.3	6.68	-0.01
8/5/2004 16:14	31.59	7.68	0	90.2	6.63	-0.01
8/5/2004 16:29	31.85	7.7	0	90	6.59	-0.01
8/5/2004 16:44	32.05	7.7	0	90	6.57	-0.01
8/5/2004 16:59	32.22	7.67	0	89.9	6.54	-0.01
8/5/2004 17:14	32.37	7.67	0	89.9	6.53	-0.01
8/5/2004 17:29	32.48	7.67	0	89.8	6.5	-0.01
8/5/2004 17:44	32.57	7.66	0	89.8	6.49	-0.01
8/5/2004 17:59	32.63	7.65	0	89.5	6.47	-0.01
8/5/2004 18:14	32.67	7.65	0	89.5	6.46	-0.01
8/5/2004 18:29	32.68	7.64	0	89.5	6.46	-0.01
8/5/2004 18:44	32.68	7.63	0	89.4	6.46	-0.01
8/5/2004 18:59	32.67	7.62	0	89.3	6.45	-0.01
8/5/2004 19:14	32.63	7.61	0	89.1	6.44	-0.01
8/5/2004 19:29	32.57	7.61	0	88.6	6.41	-0.01
8/5/2004 19:44	32.5	7.61	0	88.9	6.44	-0.01
8/5/2004 19:59	32.41	7.61	0	88.5	6.42	-0.01
8/5/2004 20:14	32.31	7.59	0	88.5	6.43	-0.01
8/5/2004 20:29	32.19	7.61	0	88.2	6.42	-0.01
8/5/2004 20:44	32.07	7.6	0	88	6.42	-0.01
8/5/2004 20:59	31.96	7.6	0	87.9	6.43	-0.01
8/5/2004 21:14	31.84	7.58	0	87.9	6.44	-0.01
8/5/2004 21:29	31.73	7.58	0	87.6	6.43	-0.01
8/5/2004 21:44	31.63	7.59	0	87.4	6.43	-0.01
8/5/2004 21:59	31.53	7.58	0	87.4	6.43	-0.01
8/5/2004 22:14	31.42	7.57	0	87.1	6.42	-0.01
8/5/2004 22:29	31.33	7.57	0	86.9	6.42	-0.01
8/5/2004 22:44	31.24	7.56	0	86.6	6.41	-0.01
8/5/2004 22:59	31.16	7.56	0	86.5	6.41	-0.01
8/5/2004 23:14	31.08	7.54	0	86.3	6.4	-0.01
8/5/2004 23:29	30.99	7.54	0	86.1	6.39	-0.01
8/5/2004 23:44	30.92	7.53	0	85.9	6.39	-0.01
8/5/2004 23:59	30.84	7.55	0	85.8	6.39	-0.01
8/6/2004 00:14	30.77	7.59	0	85.6	6.38	-0.01
8/6/2004 00:29	30.7	7.57	0	85.3	6.37	-0.01
8/6/2004 00:44	30.64	7.54	0	85.3	6.38	-0.01
8/6/2004 00:59	30.57	7.56	0	84.9	6.36	-0.01
8/6/2004 01:14	30.51	7.56	0	84.7	6.35	-0.01
8/6/2004 01:29	30.45	7.53	0	84.7	6.35	-0.01
8/6/2004 01:44	30.39	7.52	0	84.4	6.34	-0.01
8/6/2004 01:59	30.32	7.53	0	84.2	6.33	-0.01
8/6/2004 02:14	30.26	7.53	0	84.1	6.33	-0.01
8/6/2004 02:29	30.2	7.52	0	83.9	6.32	-0.01
8/6/2004 02:44	30.14	7.53	0	83.7	6.31	-0.01
8/6/2004 02:59	30.08	7.53	0	83.6	6.31	-0.01
8/6/2004 03:14	30.02	7.53	0	83.4	6.3	-0.01
8/6/2004 03:29	29.97	7.52	0	83	6.28	-0.01
8/6/2004 03:44	29.92	7.53	0	83.1	6.29	-0.01
8/6/2004 03:59	29.86	7.52	0	82.6	6.26	-0.01
8/6/2004 04:14	29.81	7.53	0	82.4	6.25	-0.01
8/6/2004 04:29	29.76	7.52	0	82.5	6.26	-0.01
8/6/2004 04:44	29.72	7.52	0	82.4	6.26	-0.01
8/6/2004 04:59	29.67	7.52	0	82.5	6.27	-0.01

8/6/2004 05:14	29.63	7.51	0	82.3	6.26	-0.01
8/6/2004 05:29	29.58	7.5	0	81.9	6.24	-0.01
8/6/2004 05:44	29.54	7.5	0	81.8	6.23	-0.01
8/6/2004 05:59	29.36	7.44	0	82.8	6.33	-0.01
8/6/2004 06:14	27.94	7.37	0	82.8	6.49	-0.01
8/6/2004 06:29	26.53	7.37	0	83.5	6.71	-0.01
8/6/2004 06:44	25.33	7.38	0	83.4	6.85	-0.01
8/6/2004 06:59	24.32	7.38	0	83	6.95	-0.01
8/6/2004 07:14	23.43	7.39	0	83.1	7.07	-0.01
8/6/2004 07:29	22.77	7.39	0	83	7.15	-0.01
8/6/2004 07:44	22.29	7.39	0	82.6	7.18	-0.01
8/6/2004 07:59	21.93	7.4	0	81.7	7.16	-0.01
8/6/2004 08:14	21.57	7.41	0	81.7	7.2	-0.01
8/6/2004 08:29	21.34	7.4	0	81.2	7.19	-0.01
8/6/2004 08:44	21.15	7.4	0	81	7.2	-0.01
8/6/2004 08:59	21.02	7.41	0	80.6	7.18	-0.01
8/6/2004 09:14	21.14	7.31	0	79	7.02	-0.01
8/6/2004 09:29	20.64	7.79	0	98.9	8.88	-0.01
8/6/2004 09:44	20.66	4.04	0	101	9.07	-0.01
8/6/2004 09:59	20.73	4.06	0	101.3	9.08	-0.01
8/6/2004 10:14	20.6	4.08	0	100.4	9.02	-0.01

BYCOC2 Averages during deployment	**32.56**	**8.52**	**213.43**	**71.88**	**5.18**	**0.1**
	Temp	**pH**	**Cond**	**DO%**	**DO**	**Sal**


BYCOC3: DO & Temp v. Date/Time
Dissolved Oxygen (mg/L)
Temperature (C)
Date/Time
3.5
3
2.5
2
1.5
1
0.5
0
34
33.5
33
32.5
32
31.5
31
8/3/2004 00:00
8/3/2004 12:00
8/4/2004 00:00
8/4/2004 12:00
8/5/2004 00:00
8/5/2004 12:00
8/6/2004 00:00
Series2
Series1


BYCOC3: DO & pH v. Date/Time
Dissolved Oxygen (mg/L)
3.5
3
2.5
2
1.5
1
0.5
0
pH
7.85
7.8
7.75
7.7
7.65
7.6
7.55
7.5
7.45
8/3/2004 00:00
8/3/2004 12:00
8/4/2004 00:00
8/4/2004 12:00
8/5/2004 00:00
8/5/2004 12:00
8/6/2004 00:00
Date/Time
Series2
Series1


BYCOC3: DO & SpCond v. Date/Time
Dissolved Oxygen (mg/L)
Specific Conductivity (mS/cm)
Date/Time
3.5
3
2.5
2
1.5
1
0.5
0
232
231
230
229
228
227
226
225
8/3/2004 00:00
8/3/2004 12:00
8/4/2004 00:00
8/4/2004 12:00
8/5/2004 00:00
8/5/2004 12:00
8/6/2004 00:00
Series2
Series1

Bayou Cocodrie 101605 BYCOC3 Continuous Monitoring Data

Date+Time	Temp	pH	SpCond	DO%	DO	iBatt	SALINITY
MMDDYYYY HHMM	øC	Units	æS/cm	Sat	mg/L	Volts	ppt
8/2/2004 23:59	24.05	6.99	0	100.8	8.48	10.6	-0.01
8/3/2004 00:14	24.12	7.02	0	98.8	8.3	10.7	-0.01
8/3/2004 00:29	24.05	7.05	0	98.7	8.3	10.8	-0.01
8/3/2004 00:44	24.02	7.08	0	98.7	8.3	10.6	-0.01
8/3/2004 00:59	24.07	7.12	0	98.1	8.24	10.8	-0.01
8/3/2004 01:14	24.04	7.14	0	98.6	8.29	10.7	-0.01
8/3/2004 01:29	24.03	7.17	0	98.6	8.3	10.8	-0.01
8/3/2004 01:44	24.06	7.2	0	98	8.24	10.7	-0.01
8/3/2004 01:59	24.03	7.22	0	98.3	8.27	10.7	-0.01
8/3/2004 02:14	23.99	7.25	0	97.4	8.2	10.7	-0.01
8/3/2004 02:29	24.04	7.28	0	98	8.24	10.7	-0.01
8/3/2004 02:44	24.01	7.3	0	97.3	8.19	10.5	-0.01
8/3/2004 02:59	23.93	7.33	0	97.3	8.2	10.6	-0.01
8/3/2004 03:14	23.94	7.35	0	97.6	8.23	10.7	-0.01
8/3/2004 03:29	23.97	7.38	0	97.7	8.23	10.7	-0.01
8/3/2004 03:44	23.89	7.4	0	97.4	8.22	10.6	-0.01
8/3/2004 03:59	23.86	7.41	0	97.6	8.24	10.7	-0.01
8/3/2004 04:14	23.83	7.44	0	97.8	8.26	10.5	-0.01
8/3/2004 04:29	23.75	7.46	0	97.8	8.27	10.6	-0.01
8/3/2004 04:44	23.78	7.47	0	97.8	8.27	10.6	-0.01
8/3/2004 04:59	23.81	7.49	0	97.1	8.2	10.6	-0.01
8/3/2004 05:14	23.76	7.51	0	97	8.2	10.6	-0.01
8/3/2004 05:29	23.72	7.52	0	97	8.21	10.5	-0.01
8/3/2004 05:44	23.78	7.54	0	97.9	8.28	10.5	-0.01
8/3/2004 05:59	23.75	7.55	0	98	8.28	10.5	-0.01
8/3/2004 06:14	23.87	7.21	0	95.5	8.06	10.6	-0.01
8/3/2004 06:29	23.65	7.28	0	95.7	8.11	10.5	-0.01
8/3/2004 06:44	23.45	7.28	0	96.1	8.17	10.5	-0.01
8/3/2004 06:59	23.56	7.3	0	96.5	8.19	10.5	-0.01
8/3/2004 07:14	23.85	7.3	0	96.3	8.13	10.6	-0.01
8/3/2004 07:29	24.29	7.31	0	96.4	8.07	10.6	-0.01
8/3/2004 07:44	24.9	7.32	0	95.4	7.9	10.6	-0.01
8/3/2004 07:59	25.16	7.34	0	95.1	7.83	10.6	-0.01
8/3/2004 08:14	25.01	7.35	0	96.5	7.97	10.5	-0.01
8/3/2004 08:29	24.7	7.37	0	95.8	7.96	10.5	-0.01
8/3/2004 08:44	24.38	7.37	0	96.7	8.08	10.5	-0.01
8/3/2004 08:59	24.19	7.38	0	96.9	8.13	10.5	-0.01
8/3/2004 09:14	24.21	7.33	0	93.6	7.85	10.6	-0.01
8/3/2004 09:29	24.07	7.55	0	93.8	7.89	10.5	-0.01
8/3/2004 09:44	28.13	7.35	0	94.8	7.4	10.5	-0.01
8/3/2004 09:59	26.36	7.34	0	94	7.58	10.5	-0.01
8/3/2004 10:14	25.13	7.33	0	93.8	7.73	10.5	-0.01
8/3/2004 10:29	24.44	7.32	0	94	7.85	10.4	-0.01
8/3/2004 10:44	24	7.33	0	93.1	7.84	10.6	-0.01
8/3/2004 10:59	24.44	7.35	0	93.2	7.78	10.4	-0.01
8/3/2004 11:14	26.03	7.37	0	92.2	7.48	10.5	-0.01
8/3/2004 11:29	28.05	7.39	0	90.2	7.05	10.6	-0.01
8/3/2004 11:44	29.8	7.41	0	90.7	6.88	10.5	-0.01

8/3/2004 11:59	31.8	7.42	0	91.6	6.71	10.5	-0.01	
8/3/2004 12:14	34.5	7.43	0	90.9	6.37	10.5	-0.01	
8/3/2004 12:29	36.88	7.46	0	91.9	6.2	10.5	-0.01	
8/3/2004 12:44	37.24	7.42	0	92.8	6.22	10.6	-0.01	
8/3/2004 12:59	35.21	7.36	0	97.2	6.73	10.6	-0.01	
8/3/2004 13:14	31.75	7.65	226	27.5	2.02	10.4	0.11	**Monitor Deployed**
8/3/2004 13:29	31.83	7.67	226	29.3	2.14	10.4	0.11	
8/3/2004 13:44	31.89	7.67	226	28.9	2.11	10.6	0.11	
8/3/2004 13:59	31.99	7.67	227	29.6	2.16	10.6	0.11	
8/3/2004 14:14	32.07	7.67	226	30.9	2.25	10.4	0.11	
8/3/2004 14:29	32.15	7.68	227	31.1	2.26	10.5	0.11	
8/3/2004 14:44	32.23	7.68	227	32.8	2.38	10.6	0.11	
8/3/2004 14:59	32.33	7.69	227	34.1	2.48	10.5	0.11	
8/3/2004 15:14	32.41	7.7	226	35.2	2.55	10.5	0.11	
8/3/2004 15:29	32.5	7.7	227	35.7	2.58	10.4	0.11	
8/3/2004 15:44	32.57	7.72	226	37.6	2.72	10.5	0.11	
8/3/2004 15:59	32.65	7.73	226	38.2	2.76	10.4	0.11	
8/3/2004 16:14	32.7	7.73	226	38.8	2.8	10.4	0.11	
8/3/2004 16:29	32.75	7.74	226	40.2	2.9	10.4	0.11	
8/3/2004 16:44	32.82	7.75	226	40.4	2.91	10.4	0.11	
8/3/2004 16:59	32.85	7.76	226	41.5	2.99	10.4	0.11	
8/3/2004 17:14	32.89	7.77	226	42.4	3.05	10.5	0.11	
8/3/2004 17:29	32.92	7.77	226	43.1	3.1	10.4	0.11	
8/3/2004 17:44	32.97	7.77	226	42.7	3.07	10.5	0.11	
8/3/2004 17:59	33	7.77	226	42.6	3.06	10.5	0.11	
8/3/2004 18:14	33.04	7.78	226	43.7	3.13	10.4	0.11	
8/3/2004 18:29	33.06	7.78	226	43.7	3.13	10.5	0.11	
8/3/2004 18:44	33.09	7.78	226	43.9	3.14	10.4	0.11	
8/3/2004 18:59	33.11	7.79	226	44.8	3.21	10.4	0.11	
8/3/2004 19:14	33.12	7.79	226	44.7	3.2	10.6	0.11	
8/3/2004 19:29	33.11	7.78	226	43.7	3.13	10.4	0.11	
8/3/2004 19:44	33.1	7.78	226	43.1	3.09	10.4	0.11	
8/3/2004 19:59	33.09	7.78	226	43.2	3.1	10.5	0.11	
8/3/2004 20:14	33.06	7.78	226	43.1	3.09	10.4	0.11	
8/3/2004 20:29	33.04	7.77	226	42.5	3.05	10.4	0.11	
8/3/2004 20:44	33.01	7.76	226	41.4	2.97	10.4	0.11	
8/3/2004 20:59	32.97	7.75	226	39.6	2.84	10.4	0.11	
8/3/2004 21:14	32.95	7.74	226	39	2.8	10.4	0.11	
8/3/2004 21:29	32.91	7.72	226	37.8	2.71	10.4	0.11	
8/3/2004 21:44	32.87	7.72	226	36.4	2.61	10.4	0.11	
8/3/2004 21:59	32.84	7.7	226	35	2.52	10.4	0.11	
8/3/2004 22:14	32.81	7.7	227	34.5	2.49	10.5	0.11	
8/3/2004 22:29	32.76	7.68	226	34	2.45	10.4	0.11	
8/3/2004 22:44	32.73	7.68	227	32.6	2.35	10.4	0.11	
8/3/2004 22:59	32.69	7.68	227	32.7	2.36	10.4	0.11	
8/3/2004 23:14	32.67	7.67	226	31.2	2.25	10.5	0.11	
8/3/2004 23:29	32.62	7.67	227	30.9	2.23	10.4	0.11	
8/3/2004 23:44	32.59	7.67	227	30.5	2.2	10.5	0.11	
8/3/2004 23:59	32.56	7.66	227	30.6	2.21	10.4	0.11	
8/4/2004 00:14	32.51	7.66	226	29.9	2.16	10.5	0.11	
8/4/2004 00:29	32.48	7.65	226	29.2	2.11	10.5	0.11	
8/4/2004 00:44	32.43	7.65	227	27.9	2.02	10.5	0.11	
8/4/2004 00:59	32.39	7.65	227	26.7	1.94	10.5	0.11	

8/4/2004 01:14	32.35	7.64	227	26.1	1.9	10.5	0.11
8/4/2004 01:29	32.3	7.63	227	26	1.89	10.4	0.11
8/4/2004 01:44	32.26	7.63	227	24.4	1.77	10.5	0.11
8/4/2004 01:59	32.22	7.63	227	24.2	1.76	10.4	0.11
8/4/2004 02:14	32.17	7.62	227	23.7	1.72	10.5	0.11
8/4/2004 02:29	32.12	7.61	227	22.3	1.62	10.5	0.11
8/4/2004 02:44	32.09	7.61	227	21.6	1.57	10.4	0.11
8/4/2004 02:59	32.04	7.61	227	21.3	1.56	10.4	0.11
8/4/2004 03:14	32	7.6	227	20.7	1.51	10.4	0.11
8/4/2004 03:29	31.95	7.59	227	20.4	1.49	10.4	0.11
8/4/2004 03:44	31.92	7.59	227	19.3	1.41	10.4	0.11
8/4/2004 03:59	31.87	7.58	227	18.4	1.34	10.4	0.11
8/4/2004 04:14	31.83	7.58	227	18	1.31	10.5	0.11
8/4/2004 04:29	31.78	7.58	227	17.6	1.29	10.4	0.11
8/4/2004 04:44	31.75	7.58	227	17.4	1.27	10.5	0.11
8/4/2004 04:59	31.71	7.57	227	16.7	1.23	10.4	0.11
8/4/2004 05:14	31.66	7.57	228	16.1	1.18	10.4	0.11
8/4/2004 05:29	31.62	7.56	227	15.6	1.14	10.4	0.11
8/4/2004 05:44	31.59	7.56	227	15.9	1.17	10.4	0.11
8/4/2004 05:59	31.54	7.56	228	15.4	1.13	10.4	0.11
8/4/2004 06:14	31.51	7.56	227	15.5	1.14	10.4	0.11
8/4/2004 06:29	31.47	7.56	228	14.8	1.09	10.4	0.11
8/4/2004 06:44	31.44	7.55	227	14.6	1.07	10.4	0.11
8/4/2004 06:59	31.39	7.56	227	14.8	1.09	10.4	0.11
8/4/2004 07:14	31.36	7.56	227	14.8	1.09	10.4	0.11
8/4/2004 07:29	31.32	7.55	228	13.6	1	10.4	0.11
8/4/2004 07:44	31.28	7.55	228	14.1	1.04	10.4	0.11
8/4/2004 07:59	31.26	7.55	227	13.4	0.99	10.4	0.11
8/4/2004 08:14	31.24	7.55	227	13.6	1.01	10.4	0.11
8/4/2004 08:29	31.22	7.55	228	12.8	0.94	10.4	0.11
8/4/2004 08:44	31.19	7.55	228	13.1	0.97	10.4	0.11
8/4/2004 08:59	31.18	7.55	228	12.4	0.92	10.4	0.11
8/4/2004 09:14	31.18	7.55	228	13.4	0.99	10.4	0.11
8/4/2004 09:29	31.18	7.55	228	12.5	0.93	10.4	0.11
8/4/2004 09:44	31.18	7.56	228	13	0.96	10.4	0.11
8/4/2004 09:59	31.19	7.55	228	13	0.96	10.4	0.11
8/4/2004 10:14	31.21	7.56	228	12.9	0.96	10.4	0.11
8/4/2004 10:29	31.24	7.56	228	13.6	1.01	10.4	0.11
8/4/2004 10:44	31.25	7.56	228	14.4	1.07	10.4	0.11
8/4/2004 10:59	31.29	7.56	228	13.8	1.02	10.4	0.11
8/4/2004 11:14	31.37	7.57	228	15.7	1.16	10.4	0.11
8/4/2004 11:29	31.42	7.58	228	15.5	1.14	10.4	0.11
8/4/2004 11:44	31.5	7.58	228	16.8	1.24	10.4	0.11
8/4/2004 11:59	31.58	7.59	227	17.7	1.3	10.4	0.11
8/4/2004 12:14	31.66	7.59	228	17.6	1.29	10.4	0.11
8/4/2004 12:29	31.75	7.6	228	18.5	1.35	10.4	0.11
8/4/2004 12:44	31.85	7.6	227	19.1	1.4	10.4	0.11
8/4/2004 12:59	31.94	7.61	228	20.4	1.49	10.4	0.11
8/4/2004 13:14	32.05	7.61	228	20.8	1.52	10.4	0.11
8/4/2004 13:29	32.14	7.62	227	22.1	1.61	10.4	0.11
8/4/2004 13:44	32.24	7.62	227	22.8	1.66	10.4	0.11
8/4/2004 13:59	32.32	7.63	227	23.7	1.72	10.4	0.11
8/4/2004 14:14	32.41	7.63	227	23.8	1.73	10.4	0.11

8/4/2004 14:29	32.51	7.63	227	24.1	1.74	10.4	0.11
8/4/2004 14:44	32.58	7.64	227	24.6	1.78	10.4	0.11
8/4/2004 14:59	32.67	7.64	227	26.3	1.9	10.4	0.11
8/4/2004 15:14	32.77	7.64	227	26.6	1.92	10.4	0.11
8/4/2004 15:29	32.85	7.64	227	27.1	1.95	10.4	0.11
8/4/2004 15:44	32.93	7.65	227	28.2	2.03	10.4	0.11
8/4/2004 15:59	33	7.65	227	27.9	2.01	10.4	0.11
8/4/2004 16:14	33.08	7.66	227	29.6	2.12	10.4	0.11
8/4/2004 16:29	33.16	7.67	227	30.2	2.16	10.4	0.11
8/4/2004 16:44	33.21	7.67	227	30.8	2.21	10.4	0.11
8/4/2004 16:59	33.27	7.67	227	31.5	2.25	10.4	0.11
8/4/2004 17:14	33.3	7.67	227	31.7	2.27	10.4	0.11
8/4/2004 17:29	33.35	7.68	227	32.7	2.34	10.4	0.11
8/4/2004 17:44	33.38	7.68	227	32.4	2.31	10.4	0.11
8/4/2004 17:59	33.41	7.68	227	32.7	2.33	10.4	0.11
8/4/2004 18:14	33.44	7.69	227	34.6	2.46	10.4	0.11
8/4/2004 18:29	33.46	7.69	227	34.6	2.46	10.4	0.11
8/4/2004 18:44	33.47	7.69	227	35	2.49	10.4	0.11
8/4/2004 18:59	33.48	7.7	227	35.5	2.53	10.4	0.11
8/4/2004 19:14	33.47	7.69	227	34.9	2.48	10.4	0.11
8/4/2004 19:29	33.46	7.7	227	35.9	2.55	10.4	0.11
8/4/2004 19:44	33.44	7.7	227	35.5	2.53	10.4	0.11
8/4/2004 19:59	33.41	7.69	227	36	2.56	10.4	0.11
8/4/2004 20:14	33.36	7.7	227	36.5	2.61	10.4	0.11
8/4/2004 20:29	33.33	7.69	227	34.3	2.45	10.4	0.11
8/4/2004 20:44	33.29	7.68	227	33.2	2.37	10.4	0.11
8/4/2004 20:59	33.25	7.67	227	33.3	2.38	10.4	0.11
8/4/2004 21:14	33.2	7.66	227	31.6	2.26	10.4	0.11
8/4/2004 21:29	33.16	7.66	227	30.8	2.21	10.4	0.11
8/4/2004 21:44	33.11	7.64	227	29.3	2.1	10.3	0.11
8/4/2004 21:59	33.07	7.63	227	28.7	2.06	10.4	0.11
8/4/2004 22:14	33.02	7.62	228	26.7	1.92	10.4	0.11
8/4/2004 22:29	32.98	7.61	228	26.6	1.91	10.4	0.11
8/4/2004 22:44	32.93	7.6	228	25.1	1.8	10.4	0.11
8/4/2004 22:59	32.89	7.59	228	24.2	1.74	10.3	0.11
8/4/2004 23:14	32.85	7.58	228	22.9	1.65	10.4	0.11
8/4/2004 23:29	32.81	7.58	228	22.8	1.64	10.4	0.11
8/4/2004 23:44	32.78	7.58	228	21.9	1.58	10.4	0.11
8/4/2004 23:59	32.74	7.57	229	20.5	1.48	10.4	0.11
8/5/2004 00:14	32.7	7.56	229	20.1	1.45	10.4	0.11
8/5/2004 00:29	32.67	7.56	229	19.2	1.39	10.4	0.11
8/5/2004 00:44	32.63	7.55	229	17.9	1.29	10.4	0.11
8/5/2004 00:59	32.6	7.55	229	17.8	1.29	10.4	0.11
8/5/2004 01:14	32.56	7.54	229	17.2	1.25	10.4	0.11
8/5/2004 01:29	32.53	7.53	229	16.2	1.17	10.4	0.11
8/5/2004 01:44	32.49	7.53	229	16.1	1.16	10.3	0.11
8/5/2004 01:59	32.46	7.53	229	14.9	1.08	10.4	0.11
8/5/2004 02:14	32.42	7.53	229	15.3	1.11	10.4	0.11
8/5/2004 02:29	32.38	7.52	230	13.9	1.01	10.3	0.11
8/5/2004 02:44	32.35	7.52	230	13.7	0.99	10.3	0.11
8/5/2004 02:59	32.31	7.52	230	13.6	0.99	10.4	0.11
8/5/2004 03:14	32.28	7.51	230	12.9	0.94	10.3	0.11
8/5/2004 03:29	32.23	7.51	230	12.9	0.93	10.3	0.11

8/5/2004 03:44	32.2	7.51	230	12.9	0.94	10.4	0.11	
8/5/2004 03:59	32.16	7.51	230	12.6	0.92	10.4	0.11	
8/5/2004 04:14	32.12	7.5	230	12.4	0.91	10.4	0.11	
8/5/2004 04:29	32.08	7.5	230	11.5	0.84	10.3	0.11	
8/5/2004 04:44	32.04	7.5	230	10.7	0.78	10.4	0.11	
8/5/2004 04:59	32.01	7.5	230	11.1	0.81	10.3	0.11	
8/5/2004 05:14	31.98	7.5	230	11.1	0.81	10.3	0.11	
8/5/2004 05:29	31.94	7.49	230	10.8	0.79	10.4	0.11	
8/5/2004 05:44	31.89	7.49	231	10.3	0.75	10.3	0.11	
8/5/2004 05:59	31.87	7.49	231	10.4	0.76	10.3	0.11	
8/5/2004 06:14	31.83	7.49	231	9	0.66	10.4	0.11	
8/5/2004 06:29	31.79	7.49	231	9.7	0.71	10.3	0.11	
8/5/2004 06:44	31.75	7.49	231	9.2	0.68	10.3	0.11	
8/5/2004 06:59	31.72	7.49	231	8.6	0.63	10.3	0.11	
8/5/2004 07:14	31.69	7.48	231	8.8	0.65	10.4	0.11	
8/5/2004 07:29	31.65	7.49	231	8.7	0.64	10.3	0.11	
8/5/2004 07:44	31.63	7.48	231	8.7	0.64	10.3	0.11	
8/5/2004 07:59	31.6	7.48	231	8.1	0.59	10.4	0.11	
8/5/2004 08:14	31.58	7.49	231	7.7	0.57	10.4	0.11	
8/5/2004 08:29	31.56	7.48	231	8.2	0.61	10.3	0.11	
8/5/2004 08:44	31.55	7.49	231	8.5	0.62	10.3	0.11	
8/5/2004 08:59	31.53	7.48	231	8.7	0.64	10.3	0.11	
8/5/2004 09:14	31.53	7.49	231	8	0.59	10.4	0.11	
8/5/2004 09:29	31.53	7.49	231	8.3	0.61	10.4	0.11	
8/5/2004 09:44	31.53	7.49	231	8.2	0.61	10.4	0.11	
8/5/2004 09:59	31.54	7.5	230	9.3	0.68	10.4	0.11	
8/5/2004 10:14	31.55	7.5	231	8.8	0.65	10.4	0.11	
8/5/2004 10:29	31.57	7.5	230	9.6	0.7	10.4	0.11	
8/5/2004 10:44	31.6	7.5	230	9.5	0.7	10.3	0.11	
8/5/2004 10:59	31.65	7.5	230	10.1	0.74	10.4	0.11	
8/5/2004 11:14	31.69	7.51	230	10.7	0.79	10.3	0.11	
8/5/2004 11:29	31.73	7.51	230	11.3	0.83	10.4	0.11	
8/5/2004 11:44	31.78	7.52	230	11.5	0.84	10.4	0.11	
8/5/2004 11:59	31.86	7.52	230	12.7	0.93	10.3	0.11	
8/5/2004 12:14	31.93	7.52	230	13.3	0.98	10.4	0.11	
8/5/2004 12:29	32.02	7.53	230	13.9	1.02	10.3	0.11	
8/5/2004 12:44	32.09	7.53	229	14.6	1.06	10.3	0.11	
8/5/2004 12:59	32.17	7.53	229	14.6	1.06	10.4	0.11	
8/5/2004 13:14	32.25	7.54	229	15.2	1.11	10.3	0.11	
8/5/2004 13:29	32.36	7.54	229	16.4	1.19	10.3	0.11	
8/5/2004 13:44	32.41	7.54	229	16.2	1.17	10.4	0.11	
8/5/2004 13:59	32.44	7.54	229	15.7	1.14	10.4	0.11	
8/5/2004 14:14	32.53	7.54	229	16.5	1.19	10.3	0.11	
8/5/2004 14:29	32.59	7.54	229	16.7	1.21	10.4	0.11	
8/5/2004 14:44	32.67	7.54	229	17.1	1.24	10.3	0.11	
8/5/2004 14:59	32.71	7.54	229	17.2	1.24	10.3	0.11	
8/5/2004 15:14	32.78	7.54	229	18.3	1.32	10.3	0.11	
8/5/2004 15:29	32.87	7.55	229	18.3	1.32	10.3	0.11	**Monitor Retrieved**
8/5/2004 15:44	29.02	7.66	0	92.5	7.11	10.4	-0.01	
8/5/2004 15:59	21.65	7.59	0	88.8	7.82	10.4	-0.01	
8/5/2004 16:14	20.4	7.54	0	92.8	8.37	10.3	-0.01	
8/5/2004 16:29	21.45	7.74	0	94.8	8.38	10.4	-0.01	
8/5/2004 16:44	23.95	7.72	0	93.8	7.9	10.4	-0.01	

8/5/2004 16:59	24.82	7.72	0	93.6	7.76	10.4	-0.01
8/5/2004 17:14	23.51	7.78	0	96	8.15	10.4	-0.01
8/5/2004 17:29	22.78	7.77	0	96.4	8.3	10.4	-0.01
8/5/2004 17:44	21.11	7.83	0	98.1	8.73	10.3	-0.01
8/5/2004 17:59	23.23	7.81	0	95.8	8.19	10.4	-0.01
8/5/2004 18:14	22.3	7.83	0	98.2	8.54	10.4	-0.01
8/5/2004 18:29	22.52	7.91	0	96.2	8.33	10.3	-0.01
8/5/2004 18:44	26.49	8.02	0	99.5	8	10.4	-0.01
8/5/2004 18:59	26.65	7.92	0	101.1	8.1	10.4	-0.01
8/5/2004 19:14	26.1	7.87	0	101.8	8.25	10.4	-0.01
8/5/2004 19:29	25.48	7.81	0	103.2	8.45	10.4	-0.01
8/5/2004 19:44	24.92	7.79	0	103	8.52	10.3	-0.01
8/5/2004 19:59	24.46	7.78	0	104.2	8.7	10.3	-0.01
8/5/2004 20:14	24.1	7.79	0	103.3	8.68	10.4	-0.01
8/5/2004 20:29	23.79	7.79	0	103.2	8.72	10.3	-0.01
8/5/2004 20:44	23.53	7.78	0	102.5	8.71	10.4	-0.01
8/5/2004 20:59	23.32	7.77	0	102.2	8.71	10.3	-0.01
8/5/2004 21:14	23.14	7.75	0	101.9	8.71	10.3	-0.01
8/5/2004 21:29	22.99	7.74	0	102.3	8.78	10.4	-0.01
8/5/2004 21:44	22.87	7.73	0	102.2	8.78	10.3	-0.01
8/5/2004 21:59	22.78	7.72	0	101.2	8.72	10.4	-0.01
8/5/2004 22:14	22.7	7.71	0	101.6	8.76	10.3	-0.01
8/5/2004 22:29	22.63	7.71	0	100.4	8.67	10.4	-0.01
8/5/2004 22:44	22.56	7.69	0	101.1	8.74	10.2	-0.01
8/5/2004 22:59	22.51	7.69	0	101	8.74	10.3	-0.01
8/5/2004 23:14	22.47	7.69	0	100.1	8.67	10.2	-0.01
8/5/2004 23:29	22.44	7.68	0	100.5	8.71	10.4	-0.01
8/5/2004 23:44	22.4	7.68	0	99.3	8.62	10.4	-0.01
8/5/2004 23:59	22.37	7.68	0	99.6	8.65	10.2	-0.01
8/6/2004 00:14	22.34	7.67	0	99.5	8.64	10.4	-0.01
8/6/2004 00:29	22.31	7.66	0	99.9	8.68	10.2	-0.01
8/6/2004 00:44	22.29	7.67	0	99.2	8.62	10.2	-0.01
8/6/2004 00:59	22.26	7.67	0	99.1	8.62	10.2	-0.01
8/6/2004 01:14	22.23	7.65	0	98.5	8.58	10.3	-0.01
8/6/2004 01:29	22.22	7.64	0	99.6	8.67	10.3	-0.01
8/6/2004 01:44	22.18	7.66	0	98.2	8.56	10.3	-0.01
8/6/2004 01:59	22.15	7.64	0	99.3	8.66	10.3	-0.01
8/6/2004 02:14	22.12	7.64	0	98.7	8.61	10.2	-0.01
8/6/2004 02:29	22.09	7.62	0	97.8	8.54	10.3	-0.01
8/6/2004 02:44	22.05	7.62	0	98.2	8.58	10.3	-0.01
8/6/2004 02:59	22.02	7.61	0	97.6	8.53	10.2	-0.01
8/6/2004 03:14	22	7.61	0	97.7	8.55	10.3	-0.01
8/6/2004 03:29	21.96	7.6	0	97.4	8.52	10.3	-0.01
8/6/2004 03:44	21.89	7.6	0	98.1	8.6	10.3	-0.01
8/6/2004 03:59	21.83	7.59	0	98.2	8.61	10.3	-0.01
8/6/2004 04:14	21.76	7.58	0	97.2	8.54	10.3	-0.01
8/6/2004 04:29	21.69	7.58	0	98.1	8.63	10.3	-0.01
8/6/2004 04:44	21.62	7.57	0	97.5	8.59	10.1	-0.01
8/6/2004 04:59	21.56	7.57	0	98	8.64	10.2	-0.01
8/6/2004 05:14	21.5	7.57	0	96.8	8.55	10.3	-0.01
8/6/2004 05:29	21.49	7.57	0	96.9	8.56	10.2	-0.01
8/6/2004 05:44	21.47	7.56	0	96.8	8.55	10.1	-0.01
8/6/2004 05:59	21.45	7.56	0	97.1	8.58	10.1	-0.01

8/6/2004 06:14	21.41	7.56	0	97.4	8.61	10.2	-0.01
8/6/2004 06:29	21.36	7.55	0	96.9	8.58	10.2	-0.01
8/6/2004 06:44	21.31	7.55	0	96.7	8.57	10.3	-0.01
8/6/2004 06:59	21.21	7.54	0	96.1	8.54	10.3	-0.01
8/6/2004 07:14	21.09	7.54	0	96.7	8.61	10.1	-0.01
8/6/2004 07:29	21	7.52	0	95.7	8.53	10.2	-0.01
8/6/2004 07:44	20.91	7.53	0	95.9	8.57	10.3	-0.01
8/6/2004 07:59	20.84	7.52	0	95.8	8.57	10.2	-0.01
8/6/2004 08:14	20.76	7.52	0	95.5	8.55	10.1	-0.01
8/6/2004 08:29	20.7	7.52	0	96.5	8.66	10.2	-0.01
8/6/2004 08:44	20.64	7.53	0	95.3	8.56	10.1	-0.01
8/6/2004 08:59	20.59	7.52	0	95.2	8.55	10.2	-0.01
8/6/2004 09:14	20.56	7.52	0	95.1	8.55	10.1	-0.01
8/6/2004 09:29	20.58	7.51	0	95	8.54	10.1	-0.01
8/6/2004 09:44	20.67	7.51	0	93.4	8.38	10.1	-0.01
8/6/2004 09:59	20.75	7.52	0	93.9	8.41	10.2	-0.01
8/6/2004 10:14	20.81	7.56	0	92.5	8.27	10.2	-0.01
8/6/2004 10:29	26.11	8.74	0	64	5.18	10.3	-0.01
8/6/2004 10:44	20.53	4.8	0	90.1	8.1	10.2	-0.01

BYCOC3 Average during deployment	**32.31**	**7.61**	**227.89**	**22.95**	**1.66**	**10.4**	**0.11**
	Temp	**pH**	**Cond**	**DO%**	**DO**	**Batt**	**Sal**

Bayou Cocodrie 101605
Continuous Monitoring Daily Min, Max, and Avg

Project Number	Site ID Number	DATE	TEMP MIN	TEMP AVG	TEMP MAX	DO MIN	DO AVG	DO MAX	DO (Max-Min)	DO to use	DO For Site	COUNT
ES2004014	BYCOC1	8/2/2004	26.1	26.1	26.1	8.35	8.35	8.35	0			1
ES2004014	BYCOC1	8/3/2004	22.37	29.76	34.19	7.1	8.41	9.25	2.15			96
ES2004014	BYCOC1	8/4/2004	31.98	32.99	34.43	5.53	6.77	8.5	2.97	1+MIN	6.53	96
ES2004014	BYCOC1	8/5/2004	27.33	31.44	32.88	3	5.79	7.64	4.64			96
ES2004014	BYCOC1	8/6/2004	20.54	26.77	30.72	7.05	7.43	8.86	1.81			40
ES2004014	BYCOC2	8/2/2004	25.15	25.15	25.15	8.24	8.24	8.24	0			1
ES2004014	BYCOC2	8/3/2004	23.61	29.04	33.58	4.55	7.35	8.32	3.77			96
ES2004014	BYCOC2	8/4/2004	31.41	32.55	33.91	3.23	5.24	7.84	4.61	1+MIN	4.23	96
ES2004014	BYCOC2	8/5/2004	26.64	31.6	33.11	2.31	5.14	7.64	5.33			96
ES2004014	BYCOC2	8/6/2004	20.6	26.96	30.77	6.23	6.8	9.08	2.85			41
ES2004014	BYCOC3	8/2/2004	24.05	24.05	24.05	8.48	8.48	8.48	0			1
ES2004014	BYCOC3	8/3/2004	23.45	28.8	37.24	2.02	5.51	8.3	6.28			96
ES2004014	BYCOC3	8/4/2004	31.18	32.29	33.48	0.92	1.67	2.61	1.69	1+MIN	1.92	96
ES2004014	BYCOC3	8/5/2004	20.4	29.02	32.87	0.57	3.58	8.78	8.21			96
ES2004014	BYCOC3	8/6/2004	20.53	21.59	26.11	5.18	8.48	8.68	3.5			43

Appendix F5 – BOD Calculations

Bayou Cocodrie 101605 BOD Summary By Site				
Site #	CBOD	CBOD Decay Rate	NBOD	NBOD Decay Rate
BYCOC1	12.4615	0.0846	3.6146	0.0663
BYCOC2	10.5950	0.0946	3.5584	0.0760
BYCOC3	8.5303	0.0783	3.8255	0.0875

Bayou Cocodrie 101605 BOD Summary By Reach					
Reach #	Calculation	CBOD	CBOD Decay Rate	NBOD	NBOD Decay Rate
1	Average (BYCOC1, BYCOC2)	11.5283	0.0896	3.5865	0.0712
2	Average (BYCOC2, BYCOC3)	9.5626	0.0864	3.6919	0.0818

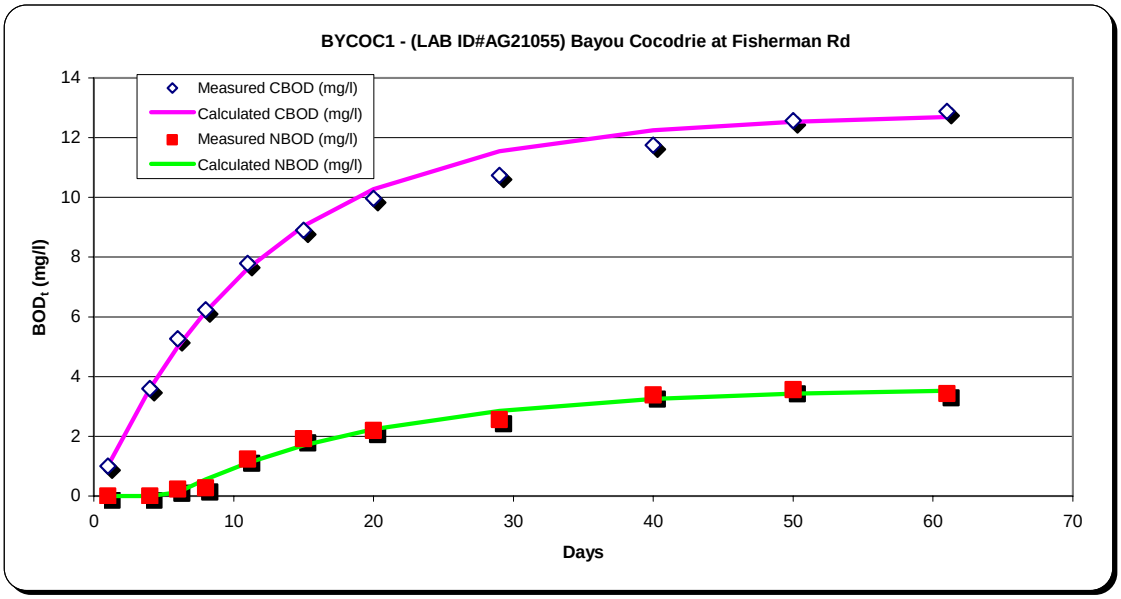
Ratio Calcs for CBOD and NBOD to be used in background

Site	CBOD	NBOD	UBOD	Ratio CBOD to TOTAL	Ratio NBOD to TOTAL	Background CBOD	Background NBOD
BYCOC1	12.4615	3.6146	16.0761259	0.775156594	0.224843406	**4.710368237**	**1.366298429**

Reference Stream Averages		
BOD60	**6.0766667**	

Select Site to Graph:

	NBOD	CBOD
UBOD (mg/l)	3.6146109	12.461515
k rate (1/day)	0.0663021	0.0846354
Lag time (days)	5.4565973	0



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.

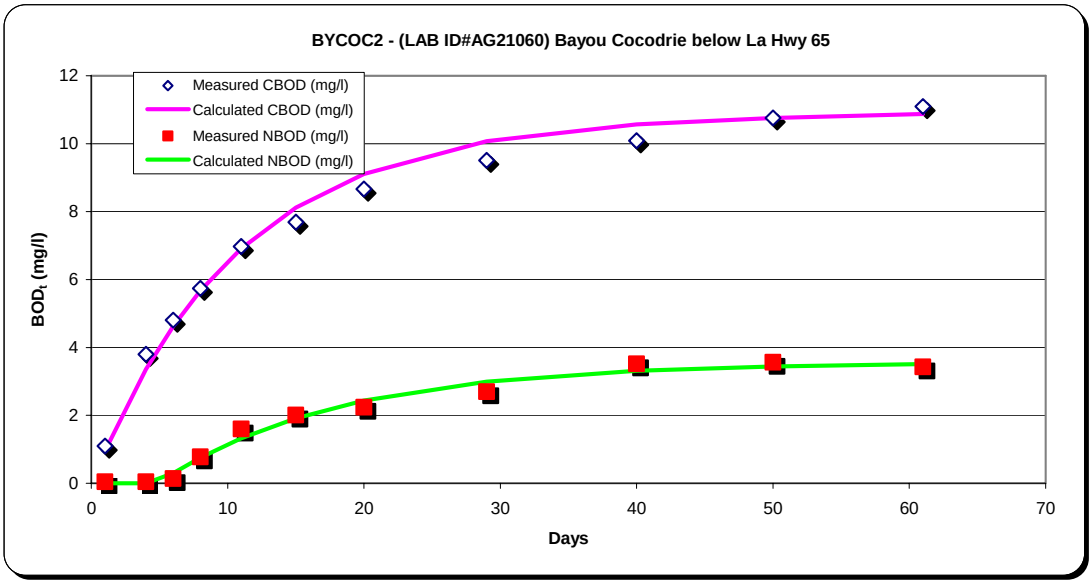
Note 5 - Determined by subtracting the calculated NBOD from the measured total BOD.

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.

Select Site to Graph:

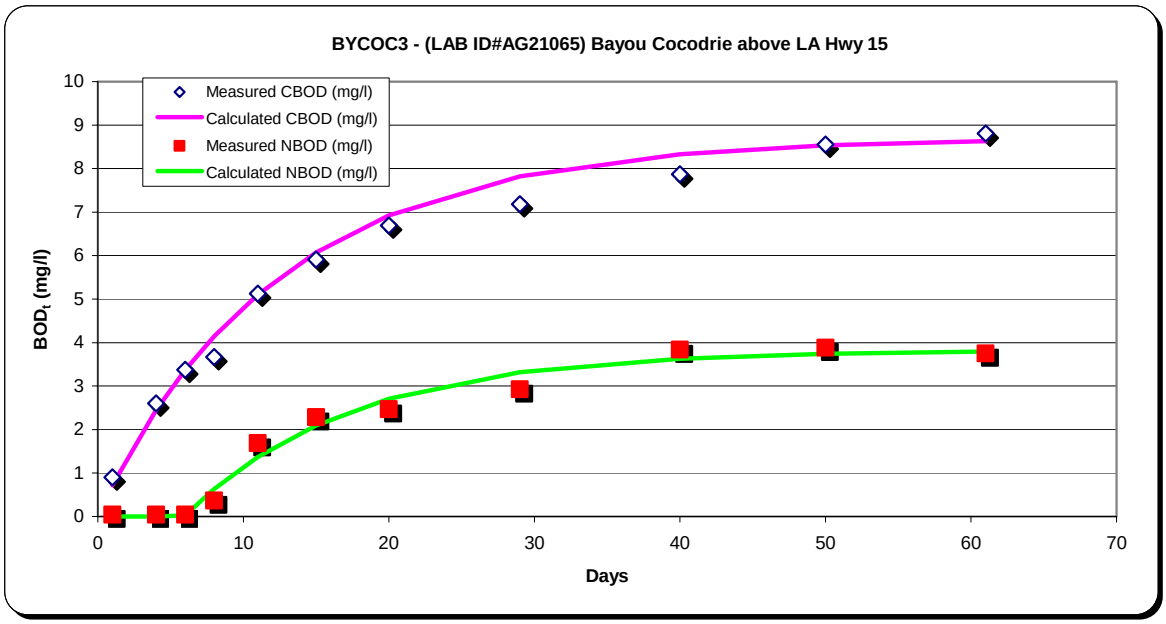
	NBOD	CBOD
UBOD (mg/l)	3.5584116	10.595022
k rate (1/day)	0.0760417	0.094566
Lag time (days)	4.8611107	0



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.

Select Site to Graph:

	NBOD	CBOD
UBOD (mg/l)	3.8254709	8.5302629
k rate (1/day)	0.0875	0.0783333
Lag time (days)	5.9305558	0



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.

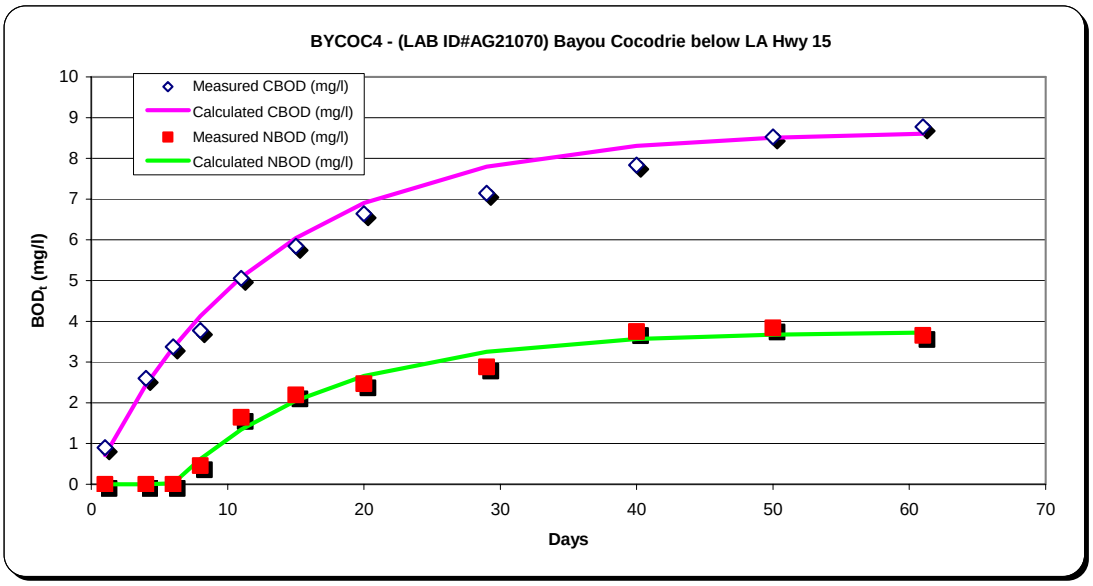
Note 5 - Determined by subtracting the calculated NBOD from the measured total BOD.

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.

Select Site to Graph:

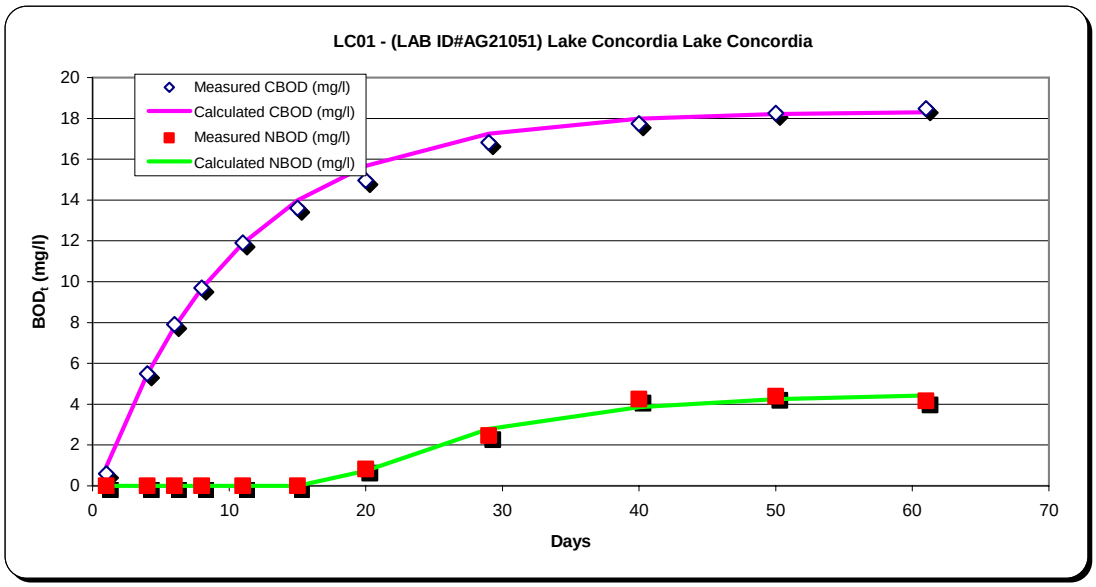
	NBOD	CBOD
UBOD (mg/l)	3.753324	8.5027142
k rate (1/day)	0.0875	0.0783333
Lag time (days)	5.9305558	0



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.

Select Site to Graph:

	NBOD	CBOD
UBOD (mg/l)	4.5341382	18.183643
k rate (1/day)	0.0863542	0.0980035
Lag time (days)	17.9375	0.4618056



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 G – Historical and Ambient Data

Appendix G1 – Ambient Data

Critical Temperature and DO Determinations:

SITE NUMBER: 1232

SITE DESCRIPTION: Bayou Cocodrie southwest of Feriday, Louisiana

	Summer Season	***Winter Season***
90th Percentile Temperature(°C):	28.70	20.18
90 % DO Sat (mg/L):	6.96	8.15
Months:	May To Oct	Nov To Apr

Date	***Water Temp. (°C)***	***DO (mg/L)***
12/17/2002	11.92	9.30
11/19/2002	15.05	6.56
10/22/2002	19.64	0.95
9/24/2002	23.24	0.68
8/20/2002	29.25	1.11
7/23/2002	28.34	1.32
6/18/2002	25.22	1.61
5/21/2002	19.88	3.02
4/16/2002	22.76	6.14
3/26/2002	17.59	6.49
2/18/2002	12.10	8.58
1/22/2002	11.31	7.92

Appendix G2 – Land Use

Land Use Summary

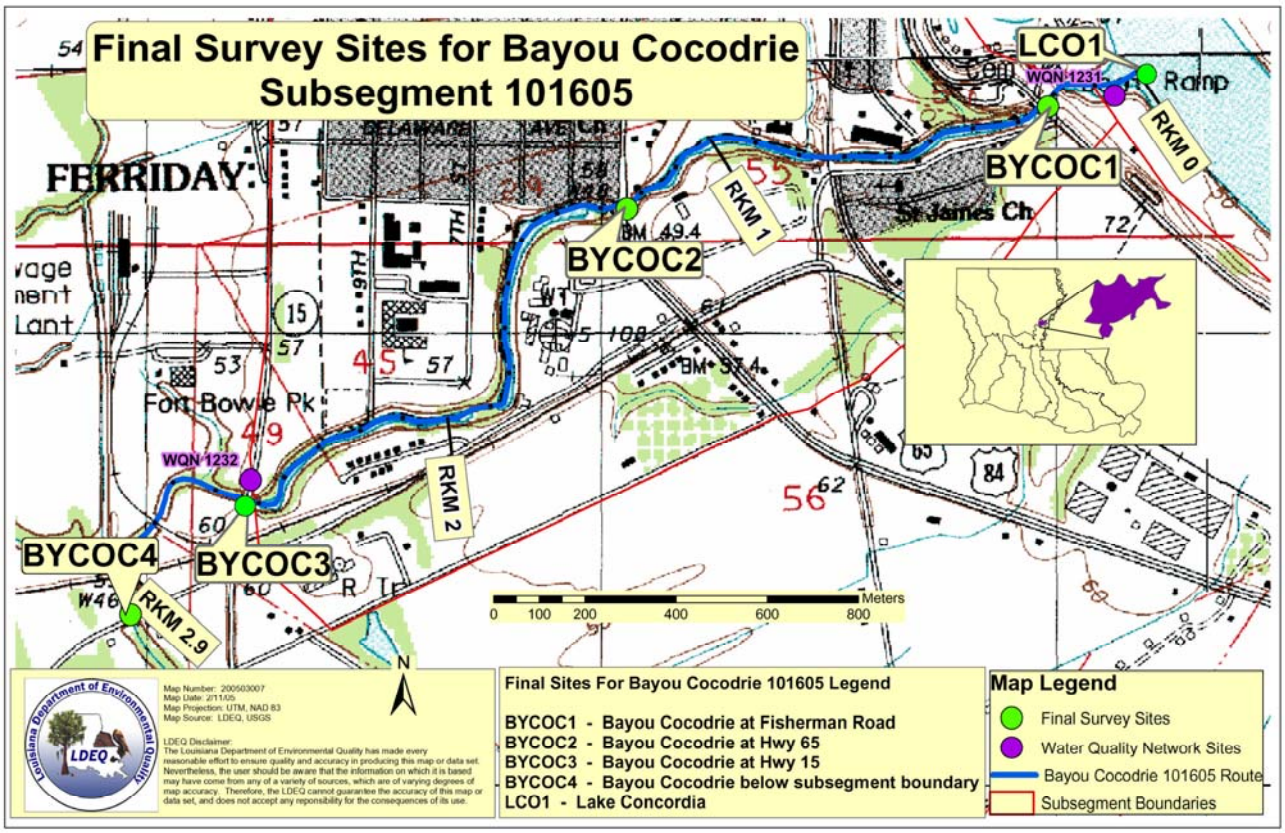
Subsegment 101605

Data Source Name: LA-GAP June 2000

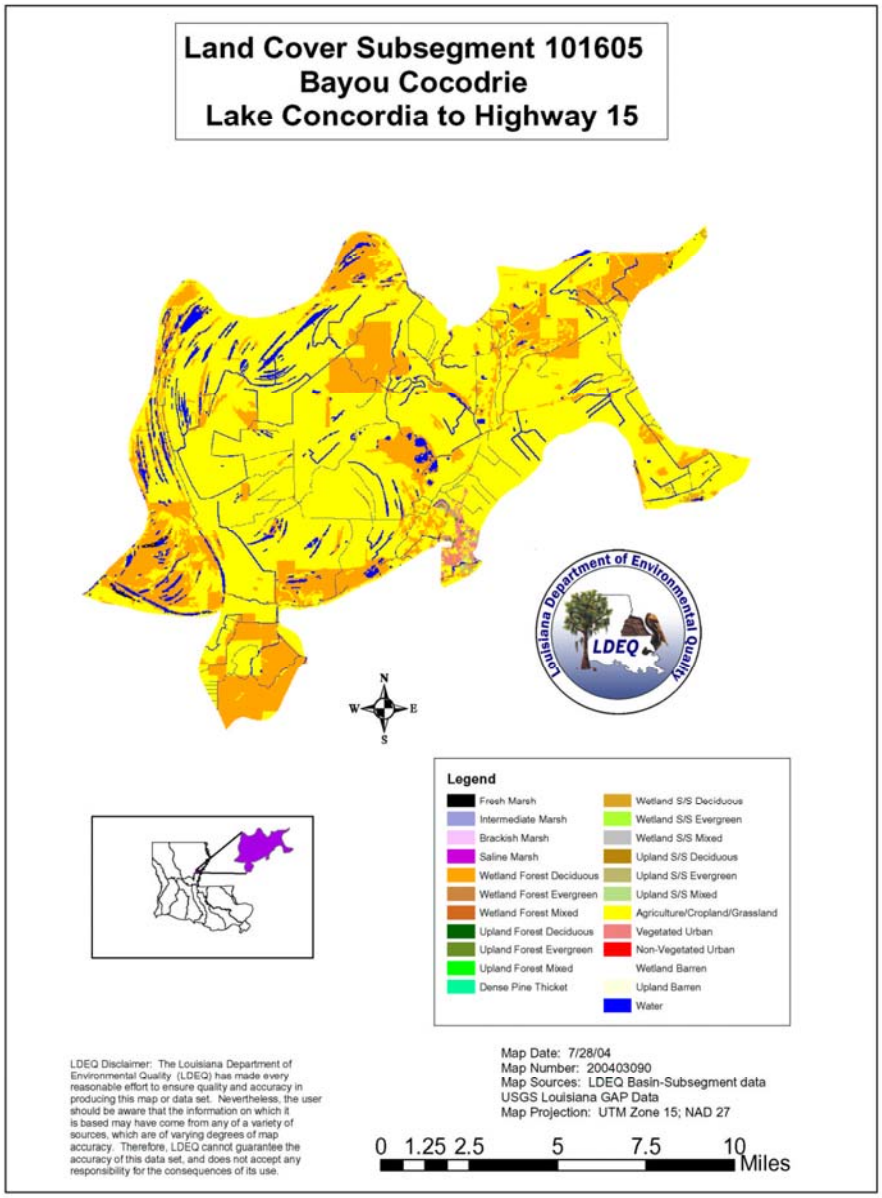
Grid Name	Area (Acres)	% Land Use
Agriculture/Cropland/Grassland	53983.60	70.21
Wetland Forest Deciduous	16992.72	22.10
Water	5122.86	6.66
Vegetated Urban	492.60	0.64
Wetland S/S Deciduous	98.30	0.13
Upland S/S Evergreen	68.50	0.09
Upland S/S Mixed	50.48	0.07
Fresh Marsh	46.26	0.06
Upland Forest Evergreen	29.13	0.04

Appendix H – Maps and Diagrams

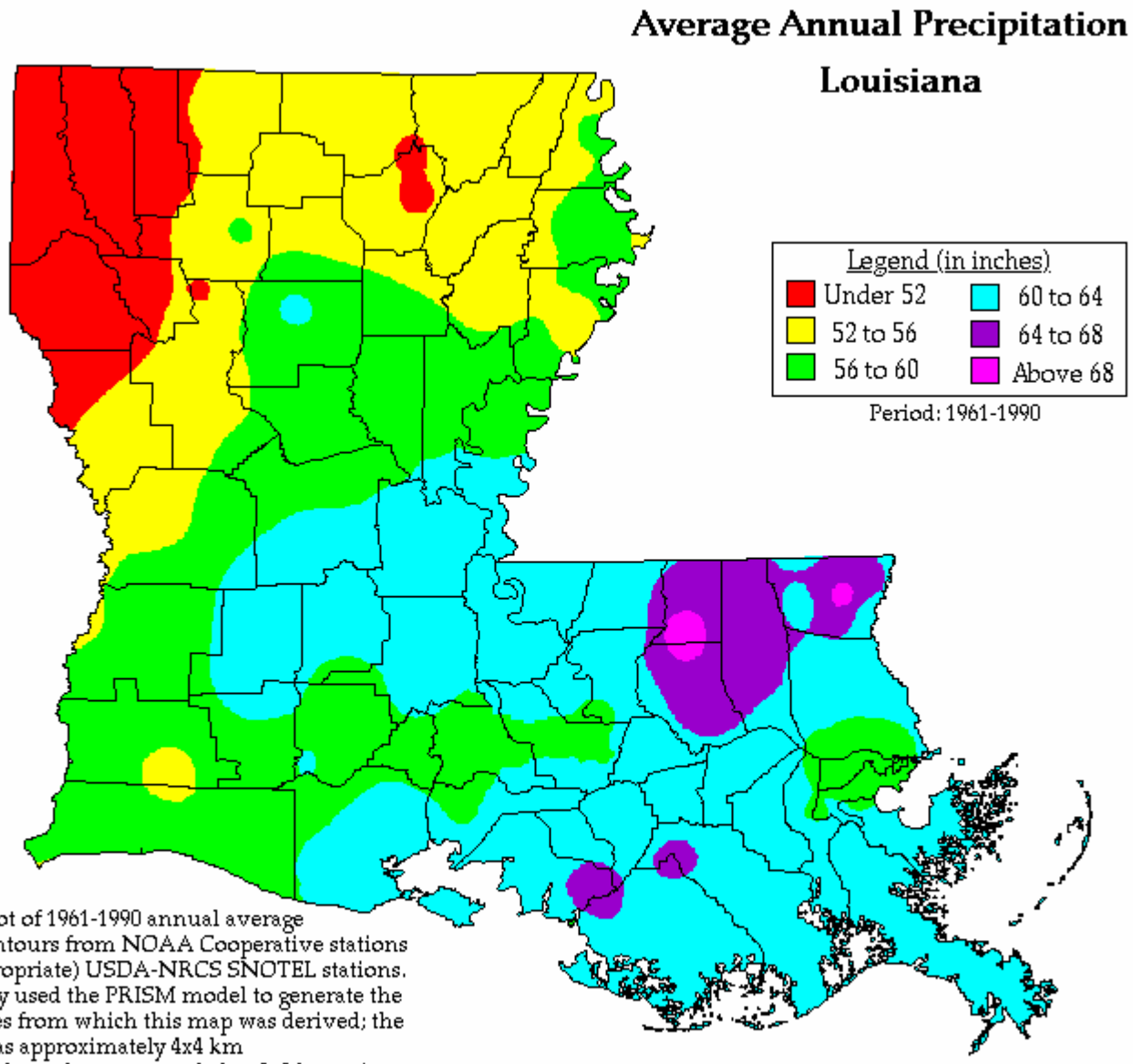
Appendix H1 – Overview Map


Final Survey Sites for Bayou Cocodrie
Subsegment 101605
LCO1
WQN 1231
Ramp
RKM 0
BYCOC1
St James Ch
RKM 1
BM 49.4
BYCOC2
FERRIDAY
Fort Bowie Pk
WQN 1232
RKM 2
BYCOC4
BYCOC3
RKM 2.9
Meters
0 100 200 400 600 800
N
Map Number: 200503007
Map Date: 2/11/05
Map Projection: UTM, NAD 83
Map Source: LDEQ, USGS
LDEQ Disclaimer:
The Louisiana Department of Environmental Quality 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, the LDEQ cannot guarantee the accuracy of this map or data set, and does not accept any reponsibility for the consequences of its use.
Final Sites For Bayou Cocodrie 101605 Legend
BYCOC1 - Bayou Cocodrie at Fisherman Road
BYCOC2 - Bayou Cocodrie at Hwy 65
BYCOC3 - Bayou Cocodrie at Hwy 15
BYCOC4 - Bayou Cocodrie below subsegment boundary
LCO1 - Lake Concordia
Map Legend
Final Survey Sites
Water Quality Network Sites
Bayou Cocodrie 101605 Route
Subsegment Boundaries

Appendix H2 – Land Use Map


Land Cover Subsegment 101605
Bayou Cocodrie
Lake Concordia to Highway 15
Louisiana Department of Environmental Quality
LDEQ
N
W
E
S
Legend
Fresh Marsh
Intermediate Marsh
Brackish Marsh
Saline Marsh
Wetland Forest Deciduous
Wetland Forest Evergreen
Wetland Forest Mixed
Upland Forest Deciduous
Upland Forest Evergreen
Upland Forest Mixed
Dense Pine Thicket
Wetland S/S Deciduous
Wetland S/S Evergreen
Wetland S/S Mixed
Upland S/S Deciduous
Upland S/S Evergreen
Upland S/S Mixed
Agriculture/Cropland/Grassland
Vegetated Urban
Non-Vegetated Urban
Wetland Barren
Upland Barren
Water
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 data set, and does not accept any responsibility for the consequences of its use.
Map Date: 7/28/04
Map Number: 200403090
Map Sources: LDEQ Basin-Subsegment data
USGS Louisiana GAP Data
Map Projection: UTM Zone 15; NAD 27
0 1.25 2.5 5 7.5 10
Miles

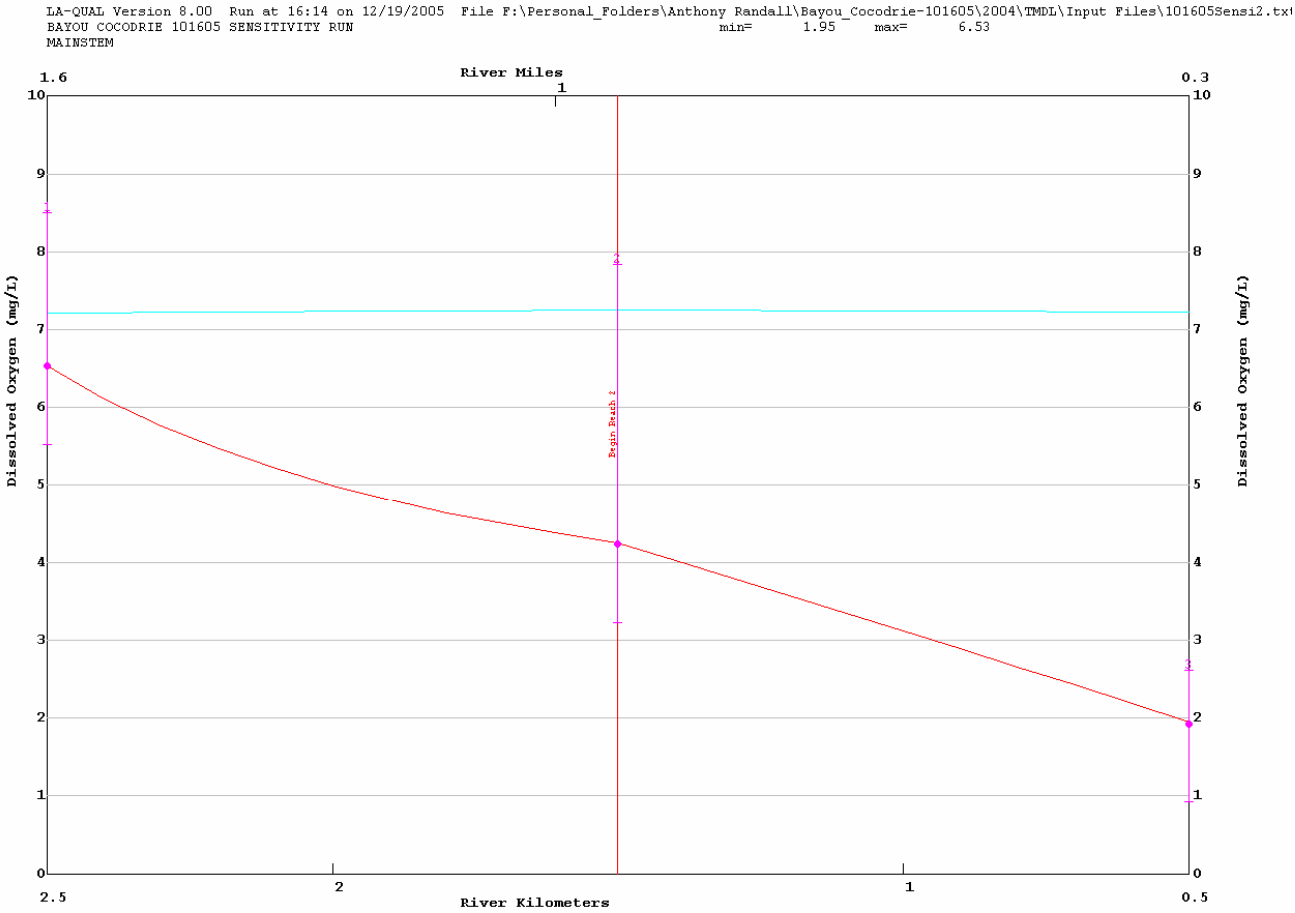
Appendix H3 – La Precipitation Map

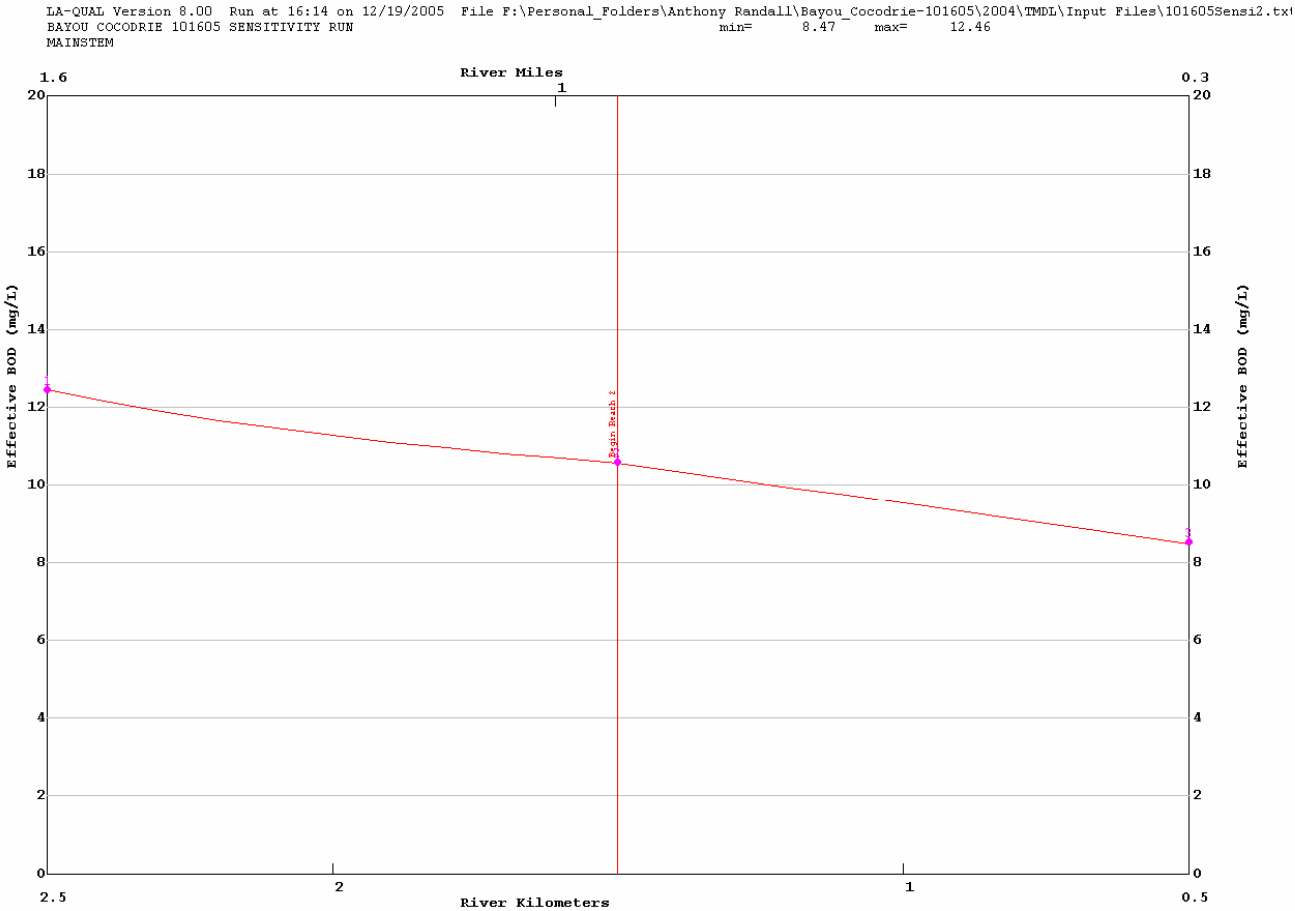


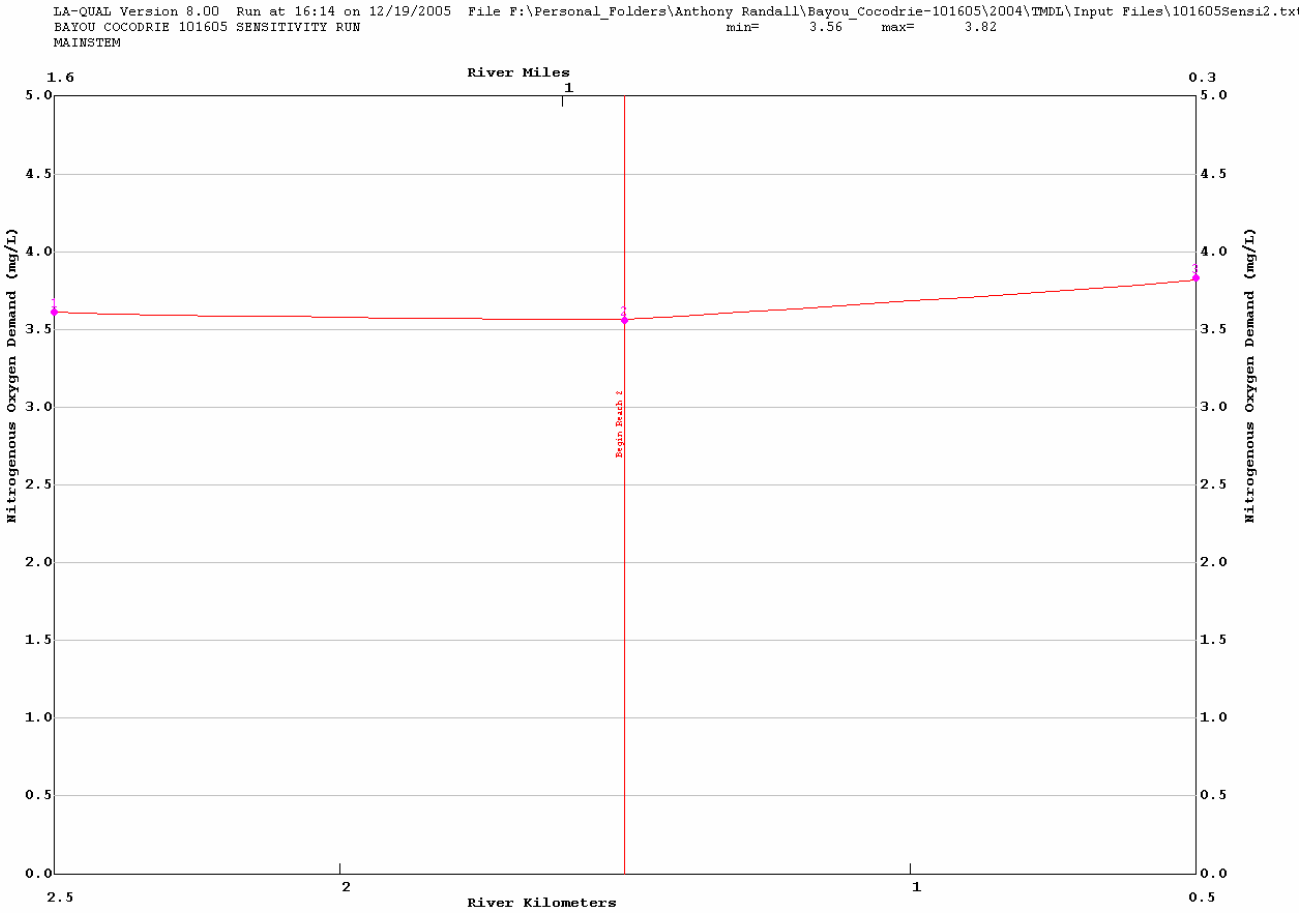
This map is a plot of 1961-1990 annual average precipitation contours from NOAA Cooperative stations and (where appropriate) USDA-NRCS SNOTEL stations. Christopher Daly used the PRISM model to generate the gridded estimates from which this map was derived; the modeled grid was approximately 4x4 km latitude/longitude, and was resampled to 2x2 km using a Gaussian filter. Mapping was performed by Jenny Weisburg. Funding was provided by USDA-NRCS National Water and Climate Center.

Appendix I – Sensitivity Analysis

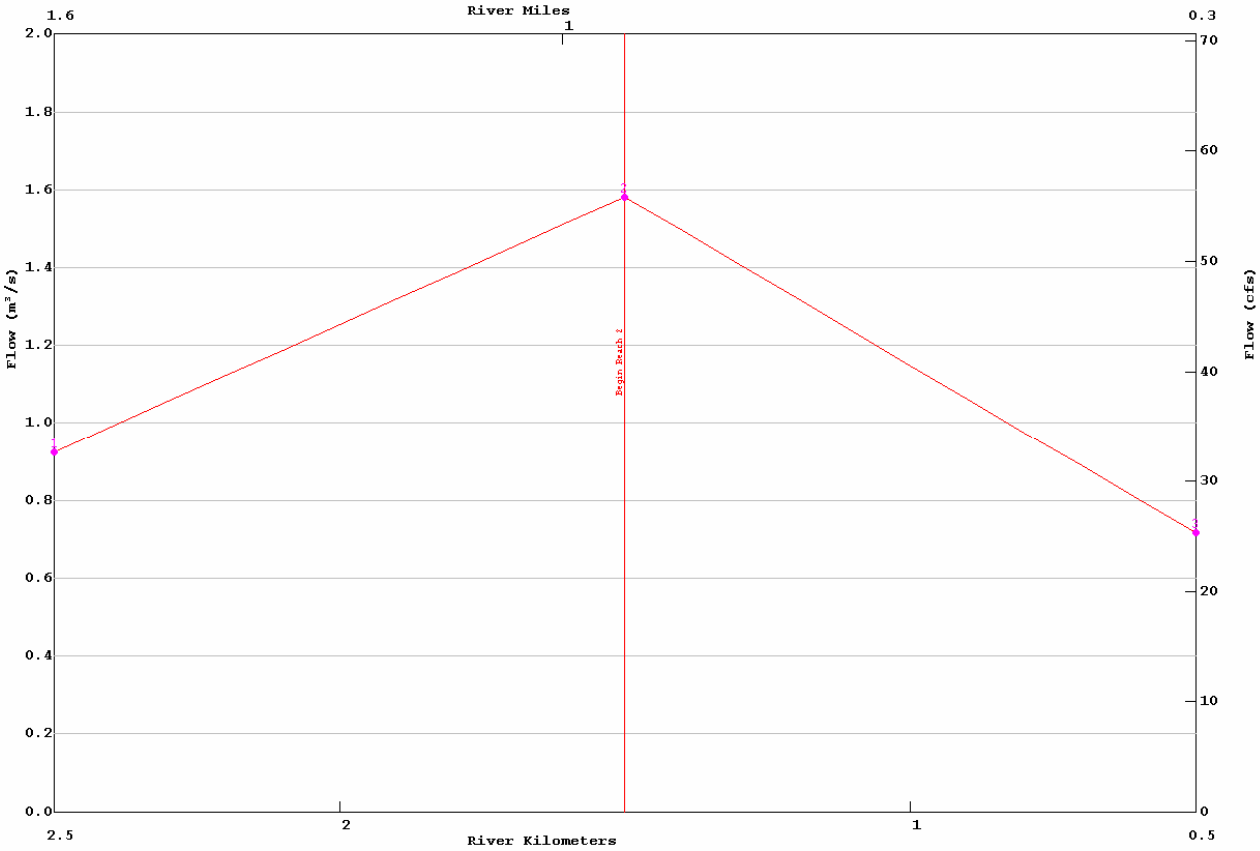
Appendix I1 – Sensitivity Output Graphs

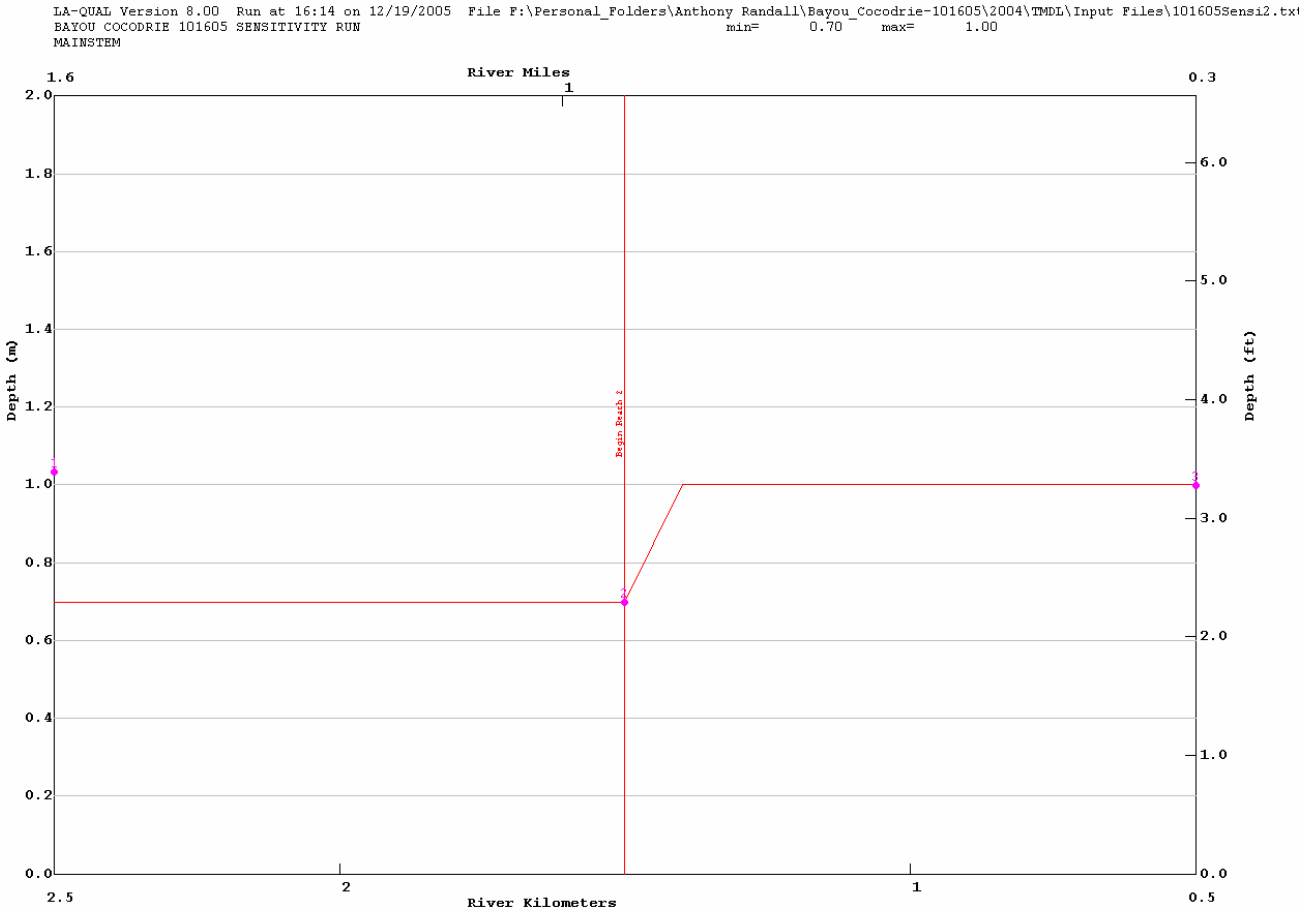

LA-QUAL Version 8.00 Run at 16:14 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605Sensi2.tx
BAYOU COCODRIE 101605 SENSITIVITY RUN
MAINSTEM
min= 1.95 max= 6.53
River Miles
1.6
1
0.3
Dissolved Oxygen (mg/L)
10
9
8
7
6
5
4
3
2
1
0
Begin Reach 2
2.5
2
1
0.5
River Kilometers

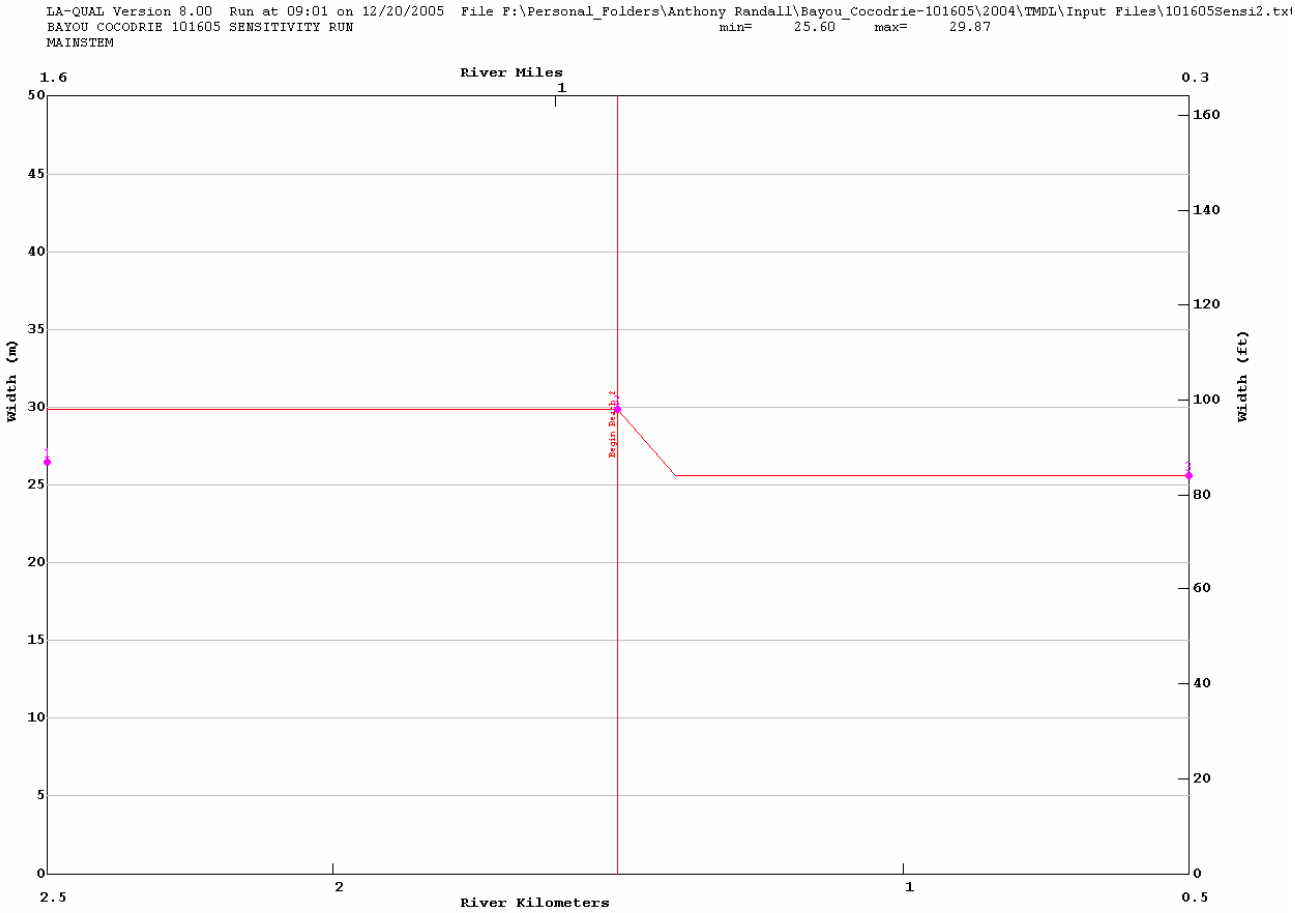

LA-QUAL Version 8.00 Run at 16:14 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605Sensi2.tx
BAYOU COCODRIE 101605 SENSITIVITY RUN
MAINSTEM
min= 8.47 max= 12.46
River Miles
1.6
1
0.3
Effective BOD (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Begin Reach 2
2.5
2
1
0.5
River Kilometers

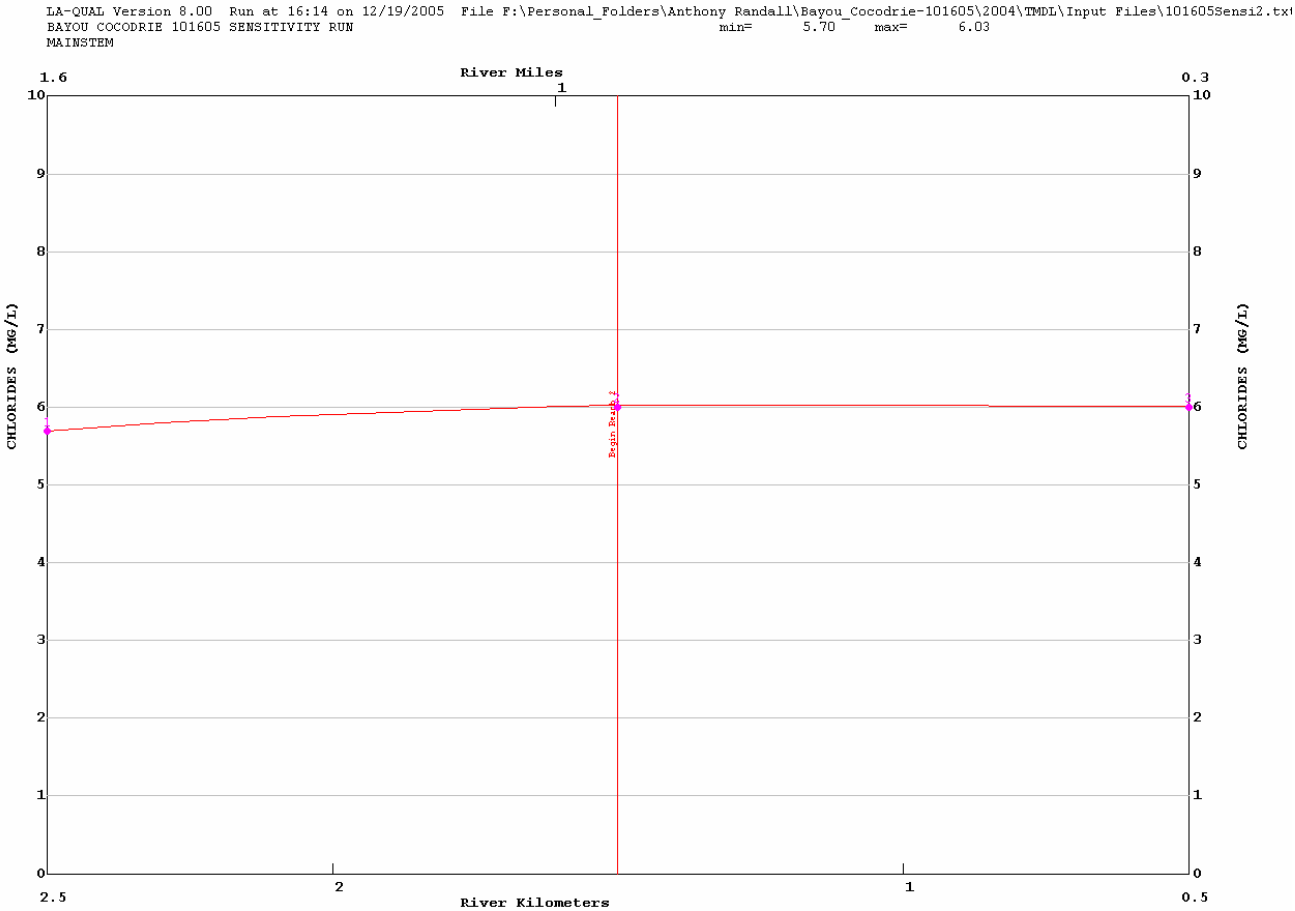

LA-QUAL Version 8.00 Run at 16:14 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605Sensi2.tx
BAYOU COCODRIE 101605 SENSITIVITY RUN
MAINSTEM
min= 3.56 max= 3.82
River Miles
1.6
1
0.3
Nitrogenous Oxygen Demand (mg/L)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Begin Reach 2
2.5
2
1
0.5
River Kilometers

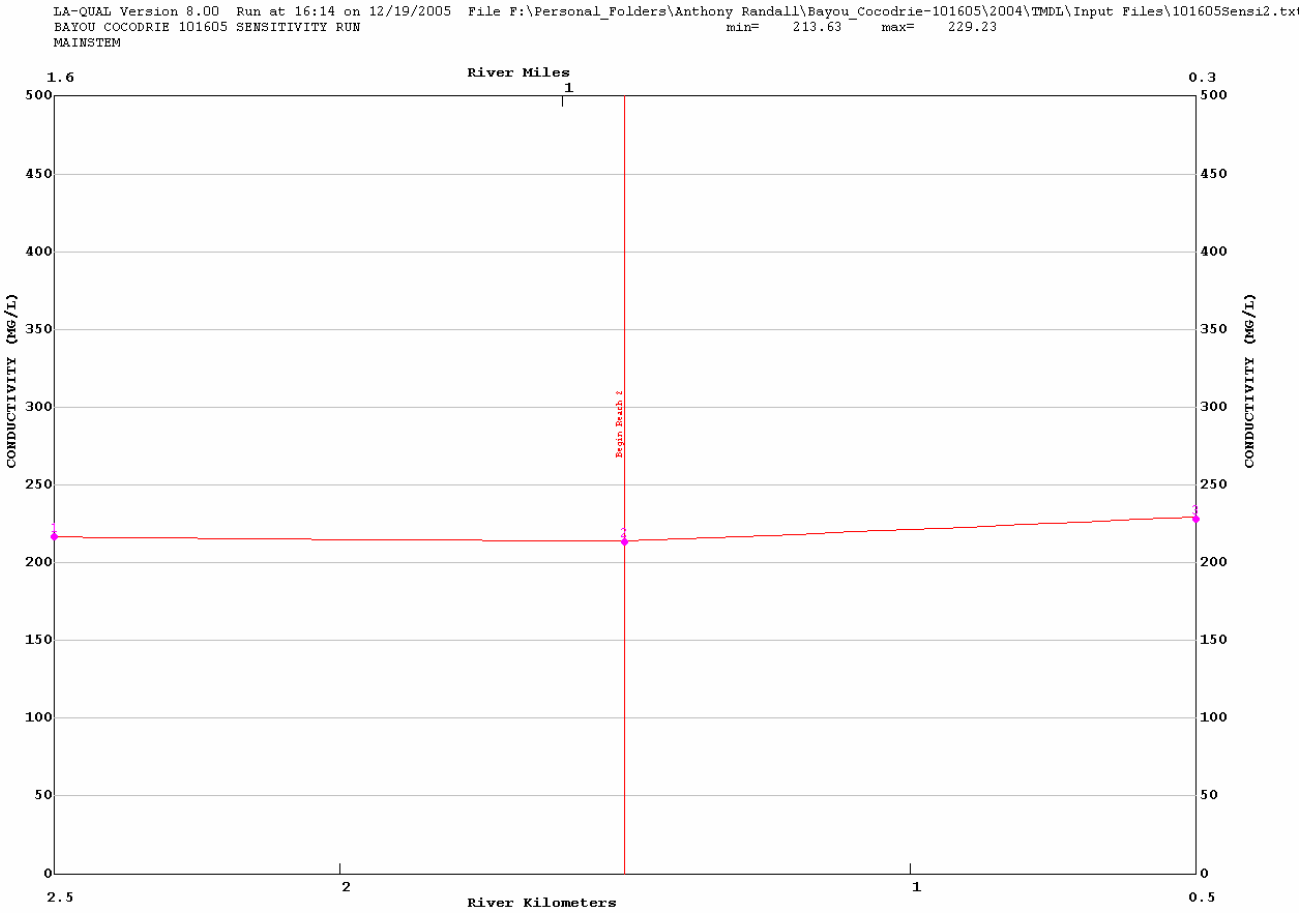
LA-QUAL Version 8.00 Run at 16:14 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605Sensi2.tx
BAYOU COCODRIE 101605 SENSITIVITY RUN min= 0.72 max= 1.58
MAINSTEM

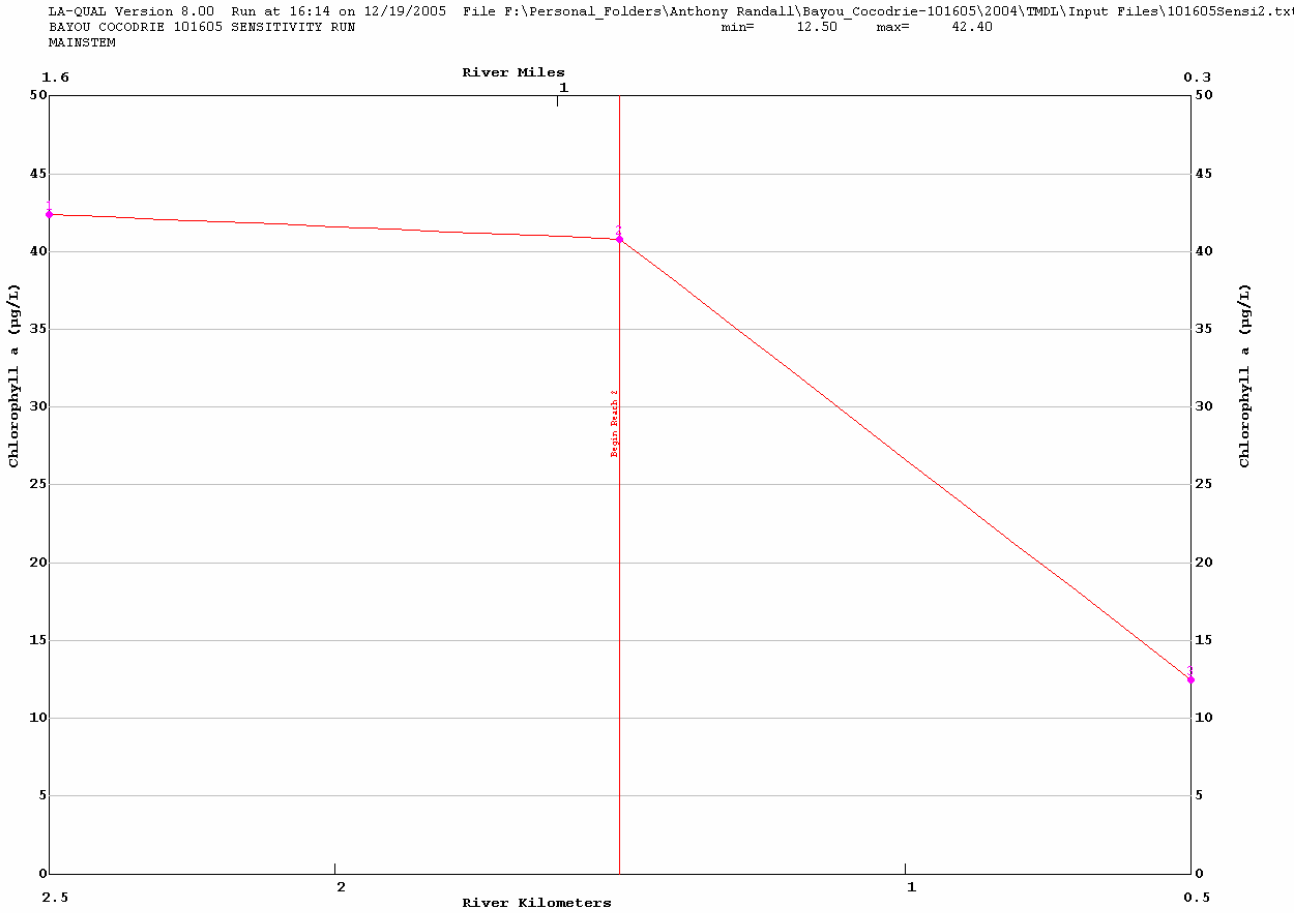



LA-QUAL Version 8.00 Run at 16:14 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605Sensi2.tx
BAYOU COCODRIE 101605 SENSITIVITY RUN
MAINSTEM
min= 0.70 max= 1.00
River Miles
1.6
1
0.3
Depth (m)
Depth (ft)
Begin Reach 2
River Kilometers
2.5
2
1
0.5


LA-QUAL Version 8.00 Run at 09:01 on 12/20/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605Sensi2.tx
BAYOU COCODRIE 101605 SENSITIVITY RUN
MAINSTEM
min= 25.60 max= 29.87
River Miles
1.6
1
0.3
Width (m)
Width (ft)
River Kilometers
2.5
2
1
0.5


LA-QUAL Version 8.00 Run at 16:14 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605Sensi2.tx
BAYOU COCODRIE 101605 SENSITIVITY RUN
MAINSTEM
min= 5.70 max= 6.03
River Miles
1.6
1
0.3
CHLORIDES (MG/L)
10
9
8
7
6
5
4
3
2
1
0
2.5
2
1
0.5
River Kilometers


LA-QUAL Version 8.00 Run at 16:14 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605Sensi2.tx
BAYOU COCODRIE 101605 SENSITIVITY RUN
MAINSTEM
min= 213.63 max= 229.23
River Miles
1.6
1
0.3
CONDUCTIVITY (MG/L)
500
450
400
350
300
250
200
150
100
50
0
Begin Reach 2
2.5
2
1
0.5
River Kilometers


LA-QUAL Version 8.00 Run at 16:14 on 12/19/2005 File F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605Sensi2.tx
BAYOU COCODRIE 101605 SENSITIVITY RUN
MAINSTEM
min= 12.50 max= 42.40
River Miles
1.6
1
0.3
Chlorophyll a (µg/L)
50
45
40
35
30
25
20
15
10
5
0
Begin Reach 2
2.5
2
1
0.5
River Kilometers

Appendix I2 – Sensitivity Output Data Set

SENSITIVITY ANALYSIS SUMMARY

MAINSTEM
BAYOU COCODRIE 101605 CALIBRATION RUN

Plot 1 Base Model Minimum DO = 1.95

Parameter	%Param Chg	Min D.O.	%D.O. Chg	%Param Chg	Min D.O.	%D.O. Chg
Stream Baseflow	30.	2.58	32.6	-30.	0.51	-74.0
Initial Chorophyll a	30.	1.95	0.0	-30.	1.95	0.0
Stream Velocity	30.	2.31	18.6	-30.	1.37	-29.8
Initial Temperature	2.	1.64	-15.9	-2.	2.24	15.1
CBOD Aerobic Decay Rate	30.	1.89	-2.8	-30.	2.01	2.9
CBOD Settling Rate	30.	1.95	0.2	-30.	1.94	-0.3
NBOD Decay Rate	30.	1.92	-1.7	-30.	1.98	1.8
NBOD Settling Rate	30.	1.95	0.1	-30.	1.95	-0.1
Benthal Demand	30.	1.39	-28.8	-30.	2.54	30.2
Stream Dispersion	30.	1.95	0.0	-30.	1.95	0.0
Stream Reaeration	30.	2.22	14.1	-30.	1.66	-14.9
Headwater Flow	30.	2.47	26.7	-30.	1.34	-31.1
Headwater DO	30.	2.32	19.2	-30.	1.59	-18.2
Headwater CBOD	30.	1.92	-1.4	-30.	1.98	1.3
Headwater NBOD	30.	1.93	-0.8	-30.	1.96	0.8
Stream Depth	30.	1.83	-6.1	-30.	2.10	7.5
Incremental Inflow	30.	2.20	12.7	-30.	1.45	-25.5
Incremental Outflow	30.	1.44	-26.2	-30.	2.29	17.4
Incremental Temperature	2.	1.95	0.0	-2.	1.95	0.0
Incremental DO	30.	2.27	16.4	-30.	1.64	-15.7
Incremental CBOD	30.	1.95	0.0	-30.	1.95	0.0
Incremental NBOD	30.	1.95	0.0	-30.	1.95	0.0
Wasteload Flow	30.	1.95	0.0	-30.	1.95	0.0
Wasteload Temperature	2.	1.95	0.0	-2.	1.95	0.0
Wasteload DO	30.	1.95	0.0	-30.	1.95	0.0
Wasteload CBOD	30.	1.95	0.0	-30.	1.95	0.0
Wasteload NBOD	30.	1.95	0.0	-30.	1.95	0.0
Lower Boundary Temperature	2.	1.95	0.0	-2.	1.95	0.0
Lower Boundary DO	30.	1.95	0.0	-30.	1.95	0.0
Lower Boundary CBOD	30.	1.95	0.0	-30.	1.95	0.0
Lower Boundary NBOD	30.	1.95	0.0	-30.	1.95	0.0

Bayou Cocodrie 101605 Sensitivity Analysis Input Data Set

```
CNTROL01     BAYOU COCODRIE 101605
CNTROL02     BAYOU COCODRIE 101605 SENSITIVITY RUN
CNTROL04 YES METRIC UNITS
ENDATA01
MODOPT01  NO TEMPERATURE
MODOPT02  NO SALINITY
MODOPT03 YES CONSERVATIVE MATERIAL  I = CHLORIDES                 IN MG/L
MODOPT04 YES CONSERVATIVE MATERIAL II = CONDUCTIVITY              IN MG/L
MODOPT05 YES DISSOLVED OXYGEN
MODOPT06 YES BOD1 BIOCHEMICAL OXYGEN DEMAND
MODOPT07  NO BOD2 BIOCHEMICAL OXYGEN DEMAND
MODOPT08 YES NBOD OXYGEN DEMAND
MODOPT10  NO PHOSPHORUS
MODOPT11  NO CHLOROPHYLL A
MODOPT12  NO MACROPHYTES
MODOPT13  NO COLIFORM
ENDATA02
PROGRAM  KL MINIMUM                        =     0.7
PROGRAM  INHIBITION CONTROL VALUE          =     3.
PROGRAM  HYDRAULIC CALCULATION METHOD      =     2.
PROGRAM  SETTLING RATE UNITS               =     2.
PROGRAM  ALGAE OXYGEN PROD                 =     0.
PROGRAM  EFFECTIVE BOD DUE TO ALGAE        =     0.15
ENDATA03
!Temperature Correction Constants
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ******** ********
ENDATA04
ENDATA05
ENDATA06
ENDATA07
!Reach Identification Data
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -- ********************************----------**********----------
!          R#  ID   SITE NAME                           RKM        RKM   LENGTH
```

```
REACH ID    1  PC HEADWATER BYCOC 1 - BYCOC 2           2.5        1.5     0.1
REACH ID    2  PC BYCOC 2 - BYCOC 3                     1.5        0.5     0.1
ENDATA08
!Advective Hydraulic Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!         ***  -------*******-------*******-------*******-------*******
!                a      b       c     d      e        f
!               WIDTH  WIDTH   WIDTH DEPTH  DEPTH   DEPTH
!          R#   COEFF   EXP    CONST COEFF   EXP    CONST SLOPE MANNING
HYDR-1      1   0.00   0.20   29.870 0.00   0.30    0.698
HYDR-1      2   0.00   0.20   25.603 0.00   0.30    1.000
ENDATA09
!Dispersive Hydraulic Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!         ***  -----**********----------**********----------
!              TIDAL
!          R#  RANGE    a          b         c         d
ENDATA10
!Initial Conditions
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!         ***  --------********--------********--------********--------********
!          R#    TEMP  SALINITY   DO     NH3 N  NIT NIT  PHOS   CHL A   MACROPHYTES
INITIAL     1    32.73          5.38                           42.4
INITIAL     2    32.44          3.08                           40.8
ENDATA11
!Reaeration, Sediment Oxygen Demand and BOD Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8---------9
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!         ***  -----******----- ******-------*******-------*******-------*******-------***
!                                              BOD 1  BOD 1               BOD 2    BOD 2
!          R#  REA  KL MIN               SOD  DECAY  SETT                DECAY    SETT
COEF-1      1  11.00                     1.50 0.0896 0.30
COEF-1      2  11.00                     4.50 0.0864 0.45
ENDATA12
!Nitrogen and Phosphorus Coefficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!         ***  -------*******-------*******-------*******-------
```

```
!               NBOD     NBOD
!          R#   DECAY    SETT
COEF-2      1   0.0712   0.20
COEF-2      2   0.0818   0.20
ENDATA13
ENDATA14
!Coliform and Nonconservative Cofficients
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  -------*******-------*******
ENDATA15
!Incremental Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------*********
!          R#   OUTFLOW   INFLOW  TEMP     SALINITY CHLORIDE  COND
INCR-1      1    0.0000   0.6567  32.730     0.1      6.50    210.00
INCR-1      2   -1.5230   0.6567  32.440     0.1      6.00    250.00
ENDATA16
!Incremental Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------*********
!          R#      DO     BOD 1     NBOD    NH3 N   NIT NIT    BOD 2
INCR-2      1     2.00
INCR-2      2     2.00
ENDATA17
!Incremental Data for Phosphorus, Chlorophyll, Coliform and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********
!          R#   PHOSPH    CHL A   COLIFORM NONCONSERVATIVE
INCR-3      1              42.4
INCR-3      2              40.8
ENDATA18
!Nonpoint Source Data
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!         ***  ---------*********---------*********---------*********
!          R#     BOD 1    NBOD   COLIFORM NONCONS    DO      BOD 2
NONPOINT    1     180.0    230.0
```

```
NONPOINT    2     650.0    275.0
ENDATA19
!Headwater Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  -------------------- *** --------********--------********--------
!         E#    NAME                      FLOW    TEMP  SALIN   CHLORIDE   COND
HDWTR-1     1  HEADWATER             0.  0.9252  32.89  0.1       5.7      216.2
ENDATA20
!Headwater Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  ---------********---------********---------********
!          E#      DO      BOD 1    NBOD    NH3 N    NIT NIT  BOD 2
HDWTR-2     1      6.53    12.46    3.61
ENDATA21
!Headwater Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  ---------********---------********
!          E#  PHOSPHOR   CHL A   COLIFORM  NONCONSERVATIVE
HDWTR-3     1              42.4
ENDATA22
ENDATA23
!Wasteload Data for Flow, Temperature, Salinity, and Conservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  --------------------********---------********---------********
!          E#     NAME               FLOW      TEMP   SALINITY CHLORIDE  COND
ENDATA24
!Wasteload Data for DO, BOD, and Nitrogen
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  ---------********-----********---------*****---------********
!          E#       DO    BOD 1         NBOD    NH3 N          NIT NIT  BOD 2
ENDATA25
!Wasteload Data for Phosphorus, Chlorophyll, Coliform, and Nonconservatives
!--------1---------2---------3---------4---------5---------6---------7---------8
!234567890123456789012345678901234567890123456789012345678901234567890123456789 0
!        ****  ---------********---------********
!          E#  PHOSPHOR  CHL A    COLIFORM NONCONSERVATIVE
```

```
ENDATA26
LOWER BC TEMPERATURE                        =  32.59
LOWER BC SALINITY                           =   0.11
LOWER BC CONSERVATIVE MATERIAL I            =   6.50
LOWER BC CONSERVATIVE MATERIAL II           = 227.40
LOWER BC DISSOLVED OXYGEN                   =   1.56
LOWER BC BOD1 BIOCHEMICAL OXYGEN DEMAND     =   8.50
LOWER BC NBOD                               =   3.75
LOWER BC CHLOROPHYLL A                      =  12.50
ENDATA27
!Dam Data
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ****  ******************** ** ******** ******** ********
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 NBOD DEC   30    -30
SENSITIV NBOD SET   30    -30
SENSITIV BENTHAL    30    -30
SENSITIV DISPERSI   30    -30
SENSITIV REAERATI   30    -30
SENSITIV HDW FLOW   30    -30
SENSITIV HDW DO     30    -30
SENSITIV HDW BOD    30    -30
SENSITIV HDW NBOD   30    -30
SENSITIV DEPTH      30    -30
SENSITIV INC INFL   30    -30
SENSITIV INC OUTF   30    -30
SENSITIV INC TEMP    2     -2
SENSITIV INC DO     30    -30
SENSITIV INC BOD    30    -30
SENSITIV INC NBOD   30    -30
SENSITIV WSL FLOW   30    -30
SENSITIV WSL TEMP    2     -2
SENSITIV WSL DO     30    -30
SENSITIV WSL BOD    30    -30
```

```
SENSITIV WSL NBOD   30    -30
SENSITIV LBC TEMP    2     -2
SENSITIV LBC DO     30    -30
SENSITIV LBC BOD    30    -30
SENSITIV LBC NBOD   30    -30
ENDATA29
NUMBER OF PLOTS = 1
NUMBER OF REACHES IN PLOT 1 =   2                        INCREMENT =  0.1
!--------1---------2---------3---------4---------5---------6---------7---------8
!23456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
!        ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** **
PLOT RCH  1  2
ENDATA30
OVERLAY 1 101605ovl.txt                   :MAINSTEM
ENDATA31
```

Bayou Cocodrie 101605 Sensitivity Analysis Output Data Set

```
LA-QUAL Version 8.00
Louisiana Department of Environmental Quality

Input file is F:\Personal_Folders\Anthony Randall\Bayou_Cocodrie-101605\2004\TMDL\Input Files\101605Sensi2.txt
Output produced at 10:30 on 12/22/2005

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

CARD TYPE       CONTROL TITLES

TITLE01         BAYOU COCODRIE 101605
TITLE02         BAYOU COCODRIE 101605 SENSITIVITY RUN
CNTROL04  YES   METRIC UNITS
ENDATA01

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

CARD TYPE       MODEL OPTION

MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL  I = CHLORIDES                  IN MG/L
```

```
MODOPT04  YES   CONSERVATIVE MATERIAL II = CONDUCTIVITY               IN MG/L
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BOD1 BIOCHEMICAL OXYGEN DEMAND
MODOPT07   NO   BOD2 BIOCHEMICAL OXYGEN DEMAND
MODOPT08  YES   NBOD OXYGEN DEMAND
MODOPT10   NO   PHOSPHORUS
MODOPT11   NO   CHLOROPHYLL A
MODOPT12   NO   MACROPHYTES
MODOPT13   NO   COLIFORM
ENDATA02

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

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

PROGRAM         KL MINIMUM                        =         0.70000 meters/day
PROGRAM         INHIBITION CONTROL VALUE          =         3.00000 (inhibit all rates but SOD)
PROGRAM         HYDRAULIC CALCULATION METHOD      =         2.00000 (widths and depths)
PROGRAM         SETTLING RATE UNITS               =         2.00000 (values entered as per day)
PROGRAM         ALGAE OXYGEN PROD                 =         0.00000 mg O/ug chl a/day
PROGRAM         EFFECTIVE BOD DUE TO ALGAE        =         0.15000 mg/L BOD per ug/L chl a
ENDATA03

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

 CARD TYPE     RATE CODE     THETA VALUE

ENDATA04

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

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA05

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

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA06
```

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

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA07

$$$ DATA TYPE 8 (REACH IDENTIFICATION DATA) $$$
                                                        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   PC  HEADWATER BYCOC 1 - BYCOC 2        2.50  TO    1.50   0.1000     1.00      10        1     10
REACH ID      2   PC  BYCOC 2 - BYCOC 3                  1.50  TO    0.50   0.1000     1.00      10       11     20
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   PC       0.000       0.200      29.870       0.000       0.300       0.698     0.00000   0.000
HYDR-1        2   PC       0.000       0.200      25.603       0.000       0.300       1.000     0.00000   0.000
ENDATA09

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

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

ENDATA10

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

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

INITIAL          1   PC       32.73      0.00      5.38      0.00      0.00      0.00     42.40      0.00
INITIAL          2   PC       32.44      0.00      3.08      0.00      0.00      0.00     40.80      0.00
ENDATA11

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

```
                                                                                                                                                                                                BOD     ANAER
BOD2     ANAER
CARD     RCH  RCH  K2                    K2        K2        K2    BKGRND       BOD       BOD      CONV      BOD2      BOD2      BOD2
CONV      BOD2
TYPE     NUM   ID  OPT                  "A"       "B"       "C"       SOD     DECAY      SETT    TO SOD     DECAY     DECAY      SETT    TO
SOD     DECAY
                                                                  g/m²/d   per day       m/d             per day   per day       m/d
per day

COEF-1     1   PC  11 TEXAS           0.000     0.000     0.000     1.500     0.090     0.300     0.000     0.000     0.000     0.000
0.000     0.000
COEF-1     2   PC  11 TEXAS           0.000     0.000     0.000     4.500     0.086     0.450     0.000     0.000     0.000     0.000
0.000     0.000
ENDATA12

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

CARD TYPE      REACH  ID        NBOD      NBOD   ORGN CONV       NH3       NH3      PHOS     DENIT
                                DECA      SETT  TO NH3 SRCE     DECA      SRCE      SRCE      RATE

COEF-2            1   PC       0.071     0.200     0.000       0.000     0.000     0.000     0.000
COEF-2            2   PC       0.082     0.200     0.000       0.000     0.000     0.000     0.000
ENDATA13

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

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

ENDATA14

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

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

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   PC       0.00000     0.65670     32.73      0.10      6.50    210.00   0.65670   0.00000
INCR-1            2   PC      -1.52300     0.65670     32.44      0.10      6.00    250.00   0.65670  -1.52300
ENDATA16

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

CARD TYPE      REACH  ID          DO       BOD      NBOD                          BOD#2

INCR-2            1   PC        2.00      0.00      0.00      0.00      0.00      0.00
INCR-2            2   PC        2.00      0.00      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   PC        0.00     42.40      0.00      0.00
INCR-3            2   PC        0.00     40.80      0.00      0.00
ENDATA18

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

CARD TYPE      REACH  ID       BOD#1     NBOD       COLI       NCM        DO     BOD#2

NONPOINT          1   PC      180.00    230.00      0.00      0.00      0.00      0.00
NONPOINT          2   PC      650.00    275.00      0.00      0.00      0.00      0.00
ENDATA19

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

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

HDWTR-1           1     HEADWATER               0   0.92520   32.669   32.89     0.10     5.700   216.200
ENDATA20

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

CARD TYPE     ELEMENT   NAME                          DO     BOD#1     NBOD                          BOD#2
                                                    mg/L      mg/L      mg/L      mg/L      mg/L      mg/L
```

```
HDWTR-2           1     HEADWATER                   6.53     12.46      3.61      0.00      0.00      0.00
ENDATA21

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

CARD TYPE     ELEMENT   NAME                         PHOS     CHL A      COLI       NCM
                                                     mg/L      mg/L      mg/L      mg/L

HDWTR-3           1     HEADWATER                    0.00     42.40      0.00      0.00
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       FLOW     FLOW    TEMP    SALIN      CM-I     CM-II
                                                       m³/s        cfs      MGD   deg C      ppt      MG/L      MG/L

ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$
                                                                   % BOD                          %
CARD TYPE     ELEMENT   NAME                          DO       BOD      RMVL     NBOD               NITRIF                BOD#2
                                                     mg/L      mg/L                mg/L      mg/L                mg/L      mg/L

ENDATA25

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

CARD TYPE     ELEMENT   NAME                         PHOS     CHL A      COLI       NCM
                                                     mg/L      mg/L      mg/L      mg/L

ENDATA26

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

```
CARD TYPE    CONSTITUENT                    CONCENTRATION

LOWER BC     TEMPERATURE                       =     32.590     deg C
LOWER BC     SALINITY                          =      0.110     ppt
LOWER BC     CONSERVATIVE MATERIAL I           =      6.500     MG/L
LOWER BC     CONSERVATIVE MATERIAL II          =    227.400     MG/L
LOWER BC     DISSOLVED OXYGEN                  =      1.560     mg/L
LOWER BC     BOD1 BIOCHEMICAL OXYGEN DEMAND    =      8.500     mg/L
LOWER BC     NBOD                              =      3.750     mg/L
LOWER BC     CHLOROPHYLL A                     =     12.500     µg/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

SENSITIV         BASEFLOW      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         CHLOR A       30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         VELOCITY      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         TEMPERAT       2.0      -2.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         BOD DECA      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         BOD SETT      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         NBOD DEC      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         NBOD SET      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         BENTHAL       30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         DISPERSI      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         REAERATI      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         HDW FLOW      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         HDW DO        30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         HDW BOD       30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         HDW NBOD      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         DEPTH         30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         INC INFL      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         INC OUTF      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
```

```
SENSITIV         INC TEMP       2.0      -2.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         INC DO        30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         INC BOD       30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         INC NBOD      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         WSL FLOW      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         WSL TEMP       2.0      -2.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         WSL DO        30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         WSL BOD       30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         WSL NBOD      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         LBC TEMP       2.0      -2.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         LBC DO        30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         LBC BOD       30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
SENSITIV         LBC NBOD      30.0     -30.0       0.0       0.0       0.0       0.0       0.0       0.0
ENDATA29

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


NUMBER OF PLOTS =  1
NUMBER OF REACHES IN PLOT 1 =   2
PLOT RCH  1  2
ENDATA30

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


OVERLAY 1 101605ovl.txt                   :MAINSTEM
ENDATA31



     .....NO ERRORS DETECTED IN INPUT DATA
     .....HYDRAULIC CALCULATIONS COMPLETED
     .....TRIDIAGONAL MATRIX TERMS INITIALIZED
     .....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
     .....CONSTITUENT CALCULATIONS COMPLETED
     .....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 21


FINAL REPORT    HEADWATER                                        BAYOU COCODRIE 101605
REACH NO.  1    HEADWATER BYCOC 1 - BYCOC 2                      BAYOU COCODRIE 101605 SENSITIVITY RUN
```

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	PHOS mg/L	CHL A µg/L	COLI #/100mL	NCM
1	HDWTR	0.92520	32.89	0.10	5.70	216.20	6.53	6.10	0.00	12.46	0.00	3.61	0.00	0.00	0.00	42.40	0.00	0.00
EACH	INCR	0.06567	32.73	0.10	6.50	210.00	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 m³/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
1	2.50	2.40	0.99087	0.0	0.04753	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.048
2	2.40	2.30	1.05654	0.0	0.05068	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.051
3	2.30	2.20	1.12221	0.0	0.05382	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.054
4	2.20	2.10	1.18788	0.0	0.05697	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.057
5	2.10	2.00	1.25355	0.0	0.06012	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.060
6	2.00	1.90	1.31922	0.0	0.06327	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.063
7	1.90	1.80	1.38489	0.0	0.06642	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.066
8	1.80	1.70	1.45056	0.0	0.06957	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.070
9	1.70	1.60	1.51623	0.0	0.07272	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.073
10	1.60	1.50	1.58190	0.0	0.07587	0.02	0.70	29.87	2084.93	2987.00	20.85	0.00	0.000	0.000	0.076
TOT						0.19			20849.26	29870.00					
AVG					0.0603		0.70	29.87			20.85				
CUM						0.19									

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

ELEM NO.	ENDING NCM DIST	SAT D.O.	REAER RATE	BOD#1 DECAY	BOD#1 SETT	ABOD#1 DECAY	BOD#2 DECAY	BOD#2 SETT	ABOD#2 DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	SETT

		mg/L	1/da	1/da	1/da	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
1	2.400	7.22	1.45	0.16	0.41	0.00	0.00	0.00	0.00	3.34	3.34	3.34	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.300	7.22	1.48	0.16	0.41	0.00	0.00	0.00	0.00	3.33	3.33	3.33	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	2.200	7.23	1.50	0.16	0.40	0.00	0.00	0.00	0.00	3.33	3.33	3.33	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	2.100	7.23	1.53	0.16	0.40	0.00	0.00	0.00	0.00	3.32	3.32	3.32	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.000	7.23	1.55	0.16	0.40	0.00	0.00	0.00	0.00	3.31	3.31	3.31	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	1.900	7.24	1.57	0.16	0.40	0.00	0.00	0.00	0.00	3.31	3.31	3.31	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	1.800	7.24	1.59	0.16	0.40	0.00	0.00	0.00	0.00	3.30	3.30	3.30	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	1.700	7.24	1.61	0.16	0.40	0.00	0.00	0.00	0.00	3.30	3.30	3.30	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	1.600	7.25	1.63	0.16	0.40	0.00	0.00	0.00	0.00	3.29	3.29	3.29	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	1.500	7.25	1.64	0.16	0.40	0.00	0.00	0.00	0.00	3.28	3.28	3.28	0.14	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			1.24	0.09	0.30	0.00	0.00	0.00	0.00	1.50			0.07	0.20	0.00	0.00	0.00	0.00			0.00	0.00	0.00

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

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

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO g/m^3	COLI #/100mL	NCM
1	2.400	32.70	0.00	5.75	215.79	6.12	5.83	0.00	12.16	0.00	3.60	0.00	0.00	0.00	0.00	42.24	0.00	0.	0.00
2	2.300	32.67	0.00	5.80	215.43	5.77	5.59	0.00	11.90	0.00	3.59	0.00	0.00	0.00	0.00	42.08	0.00	0.	0.00

3	2.200	32.64	0.00	5.84	215.11	5.47	5.38	0.00	11.67	0.00	3.59	0.00	0.00	0.00	0.00	41.92	0.00	0.	0.00
4	2.100	32.61	0.00	5.88	214.83	5.22	5.20	0.00	11.46	0.00	3.58	0.00	0.00	0.00	0.00	41.76	0.00	0.	0.00
5	2.000	32.58	0.00	5.91	214.58	5.00	5.04	0.00	11.28	0.00	3.58	0.00	0.00	0.00	0.00	41.60	0.00	0.	0.00
6	1.900	32.56	0.00	5.94	214.35	4.81	4.90	0.00	11.11	0.00	3.58	0.00	0.00	0.00	0.00	41.44	0.00	0.	0.00
7	1.800	32.53	0.00	5.97	214.14	4.64	4.77	0.00	10.96	0.00	3.57	0.00	0.00	0.00	0.00	41.28	0.00	0.	0.00
8	1.700	32.50	0.00	5.99	213.95	4.49	4.65	0.00	10.82	0.00	3.57	0.00	0.00	0.00	0.00	41.12	0.00	0.	0.00
9	1.600	32.47	0.00	6.01	213.78	4.37	4.55	0.00	10.69	0.00	3.57	0.00	0.00	0.00	0.00	40.96	0.00	0.	0.00
10	1.500	32.44	0.00	6.03	213.63	4.25	4.45	0.00	10.57	0.00	3.56	0.00	0.00	0.00	0.00	40.80	0.00	0.	0.00

FINAL REPORT HEADWATER BAYOU COCODRIE 101605
REACH NO. 2 BYCOC 2 - BYCOC 3 BAYOU COCODRIE 101605 SENSITIVITY RUN

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 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	1.58190	32.44	0.00	6.03	213.63	4.25	4.45	0.00	10.57	0.00	3.56	0.00	0.00	0.00	40.80	0.00	0.00
EACH	INCR	0.06567	32.44	0.10	6.00	250.00	2.00	0.00	0.00			0.00	0.00	0.00	0.00	0.00	0.00	
EACH	INCR	-0.15230																

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m^3/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
11	1.50	1.40	1.49527	0.0	0.05840	0.02	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.058

12	1.40	1.30	1.40864	0.0	0.05502	0.02	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.055
13	1.30	1.20	1.32201	0.0	0.05163	0.02	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.052
14	1.20	1.10	1.23538	0.0	0.04825	0.02	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.048
15	1.10	1.00	1.14875	0.0	0.04487	0.03	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.045
16	1.00	0.90	1.06212	0.0	0.04148	0.03	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.041
17	0.90	0.80	0.97549	0.0	0.03810	0.03	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.038
18	0.80	0.70	0.88886	0.0	0.03472	0.03	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.035
19	0.70	0.60	0.80223	0.0	0.03133	0.04	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.031
20	0.60	0.50	0.71560	0.0	0.02795	0.04	1.00	25.60	2560.30	2560.30	25.60	0.00	0.000	0.000	0.028
TOT						0.28			25603.00	25603.00					
AVG					0.0409		1.00	25.60			25.60				
CUM						0.47									

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

ELEM NO.	ENDING DIST	SAT D.O.	REAER RATE	BOD#1 DECAY	BOD#1 SETT	ABOD#1 DECAY	BOD#2 DECAY	BOD#2 SETT	ABOD#2 DECAY	BKGD SOD	FULL SOD	CORR SOD	ORGN DECAY	ORGN SETT	NH3 DECAY	NH3 SRCE	DENIT RATE	PO4 SRCE	ALG PROD	MAC PROD	COLI DECAY	NCM DECAY	NCM SETT
		mg/L	1/da	1/da	1/da	1/da	1/da	1/da	1/da	*	*	*	1/da	1/da	1/da	*	1/da	*	**	**	1/da	1/da	1/da
11	1.400	7.25	1.11	0.15	0.60	0.00	0.00	0.00	0.00	9.86	9.86	9.86	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	1.300	7.25	1.09	0.15	0.60	0.00	0.00	0.00	0.00	9.87	9.87	9.87	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	1.200	7.24	1.07	0.15	0.61	0.00	0.00	0.00	0.00	9.88	9.88	9.88	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	1.100	7.24	1.06	0.15	0.61	0.00	0.00	0.00	0.00	9.89	9.89	9.89	0.16	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	1.000	7.24	1.03	0.15	0.61	0.00	0.00	0.00	0.00	9.90	9.90	9.90	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.900	7.24	1.01	0.15	0.61	0.00	0.00	0.00	0.00	9.91	9.91	9.91	0.15	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.800	7.23	0.99	0.15	0.61	0.00	0.00	0.00	0.00	9.92	9.92	9.92	0.14	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.700	7.23	0.97	0.15	0.61	0.00	0.00	0.00	0.00	9.92	9.92	9.92	0.14	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

19	0.600	7.23	0.94	0.15	0.61	0.00	0.00	0.00	0.00	9.93	9.93	9.93	0.13	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.500	7.23	0.91	0.15	0.61	0.00	0.00	0.00	0.00	9.94	9.94	9.94	0.12	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.81	0.09	0.45	0.00	0.00	0.00	0.00	4.50			0.08	0.20	0.00	0.00	0.00	0.00				0.00	0.00

* g/m²/d ** mg/L/day

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

ELEM NO.	ENDING DIST	TEMP DEG C	SALN PPT	CM-I MG/L	CM-II MG/L	DO mg/L	BOD#1 mg/L	BOD#2 mg/L	EBOD#1 mg/L	EBOD#2 mg/L	ORGN mg/L	NH3 mg/L	NO3+2 mg/L	TOTN mg/L	PHOS mg/L	CHL A µg/L	MACRO g/m³	COLI #/100mL	NCM
11	1.400	32.45	0.01	6.03	215.08	4.03	4.67	0.00	10.36	0.00	3.59	0.00	0.00	0.00	0.00	37.97	0.00	0.	0.00
12	1.300	32.47	0.02	6.03	216.55	3.80	4.88	0.00	10.15	0.00	3.61	0.00	0.00	0.00	0.00	35.14	0.00	0.	0.00
13	1.200	32.49	0.03	6.03	218.04	3.57	5.10	0.00	9.94	0.00	3.63	0.00	0.00	0.00	0.00	32.31	0.00	0.	0.00
14	1.100	32.50	0.04	6.03	219.55	3.35	5.31	0.00	9.73	0.00	3.66	0.00	0.00	0.00	0.00	29.48	0.00	0.	0.00
15	1.000	32.51	0.05	6.03	221.09	3.12	5.53	0.00	9.52	0.00	3.68	0.00	0.00	0.00	0.00	26.65	0.00	0.	0.00
16	0.900	32.53	0.07	6.02	222.65	2.89	5.74	0.00	9.31	0.00	3.71	0.00	0.00	0.00	0.00	23.82	0.00	0.	0.00
17	0.800	32.54	0.08	6.02	224.24	2.66	5.96	0.00	9.10	0.00	3.73	0.00	0.00	0.00	0.00	20.99	0.00	0.	0.00
18	0.700	32.56	0.09	6.02	225.87	2.42	6.17	0.00	8.89	0.00	3.76	0.00	0.00	0.00	0.00	18.16	0.00	0.	0.00
19	0.600	32.58	0.10	6.02	227.53	2.19	6.38	0.00	8.68	0.00	3.79	0.00	0.00	0.00	0.00	15.33	0.00	0.	0.00
20	0.500	32.59	0.11	6.02	229.23	1.95	6.60	0.00	8.47	0.00	3.82	0.00	0.00	0.00	0.00	12.50	0.00	0.	0.00

STREAM SUMMARY BAYOU COCODRIE 101605
HEADWATER BAYOU COCODRIE 101605 SENSITIVITY RUN

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TRAVEL TIME       =           0.47 DAYS

MAXIMUM EFFLUENT  =           0.00 PERCENT

FLOW              =   0.71560 TO    1.58190   m³/s
DISPERSION        =   0.0000  TO    0.0000    m²/s
VELOCITY          =   0.02795 TO    0.07587   m/s
DEPTH             =   0.70    TO    1.00      m
WIDTH             =  25.60    TO   29.87      m

BOD DECAY         =    0.15   TO    0.16      per day
NH3 DECAY         =    0.00   TO    0.00      per day
SOD               =    3.28   TO    9.94      g/m²/d
NH3 SOURCE        =    0.00   TO    0.00      g/m²/d
REAERATION        =    0.91   TO    1.64      per day
BOD SETTLING      =    0.40   TO    0.61      per day
NBOD DECAY        =    0.12   TO    0.16      per day
NBOD SETTLING     =    0.27   TO    0.27      per day

TEMPERATURE       =   32.44   TO   32.70      deg C
DISSOLVED OXYGEN  =    1.95   TO    6.12      mg/L


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


    .....BEGIN SENSITIVITY RUN  2 ON PARAMETER SET  1 AND COLUMN  2
    .....HYDRAULIC CALCULATIONS COMPLETED
    .....TRIDIAGONAL MATRIX TERMS INITIALIZED
    .....OXYGEN DEPENDENT RATES CONVERGENT IN  23 ITERATIONS
    .....CONSTITUENT CALCULATIONS COMPLETED
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.....BEGIN SENSITIVITY RUN  3 ON PARAMETER SET  2 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



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



.....BEGIN SENSITIVITY RUN  5 ON PARAMETER SET  3 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  20 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN  6 ON PARAMETER SET  3 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   5 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



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



.....BEGIN SENSITIVITY RUN  8 ON PARAMETER SET  4 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  11 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN  9 ON PARAMETER SET  5 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  12 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 10 ON PARAMETER SET  5 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  18 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 11 ON PARAMETER SET  6 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  10 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED
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.....BEGIN SENSITIVITY RUN 12 ON PARAMETER SET  6 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 13 ON PARAMETER SET  7 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  11 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



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



.....BEGIN SENSITIVITY RUN 15 ON PARAMETER SET  8 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 16 ON PARAMETER SET  8 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
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.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 17 ON PARAMETER SET  9 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   5 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 18 ON PARAMETER SET  9 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  21 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 19 ON PARAMETER SET 10 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 20 ON PARAMETER SET 10 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED
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.....BEGIN SENSITIVITY RUN 21 ON PARAMETER SET 11 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  22 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 22 ON PARAMETER SET 11 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   7 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 23 ON PARAMETER SET 12 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  21 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 24 ON PARAMETER SET 12 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   5 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



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



.....BEGIN SENSITIVITY RUN 26 ON PARAMETER SET 13 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   5 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 27 ON PARAMETER SET 14 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 28 ON PARAMETER SET 14 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  11 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 29 ON PARAMETER SET 15 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED
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.....BEGIN SENSITIVITY RUN 30 ON PARAMETER SET 15 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  10 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 31 ON PARAMETER SET 16 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 32 ON PARAMETER SET 16 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  21 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 33 ON PARAMETER SET 17 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  22 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 34 ON PARAMETER SET 17 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   6 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED
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.....BEGIN SENSITIVITY RUN 35 ON PARAMETER SET 18 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   6 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 36 ON PARAMETER SET 18 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  23 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 37 ON PARAMETER SET 19 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 38 ON PARAMETER SET 19 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 39 ON PARAMETER SET 20 AND COLUMN  1
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.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN  19 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 40 ON PARAMETER SET 20 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   7 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 41 ON PARAMETER SET 21 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 42 ON PARAMETER SET 21 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 43 ON PARAMETER SET 22 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED
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.....BEGIN SENSITIVITY RUN 44 ON PARAMETER SET 22 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 45 ON PARAMETER SET 23 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 46 ON PARAMETER SET 23 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 47 ON PARAMETER SET 24 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 48 ON PARAMETER SET 24 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
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.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 49 ON PARAMETER SET 25 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 50 ON PARAMETER SET 25 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 51 ON PARAMETER SET 26 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 52 ON PARAMETER SET 26 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED
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.....BEGIN SENSITIVITY RUN 53 ON PARAMETER SET 27 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 54 ON PARAMETER SET 27 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 55 ON PARAMETER SET 28 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 56 ON PARAMETER SET 28 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 57 ON PARAMETER SET 29 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
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.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 58 ON PARAMETER SET 29 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 59 ON PARAMETER SET 30 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 60 ON PARAMETER SET 30 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....BEGIN SENSITIVITY RUN 61 ON PARAMETER SET 31 AND COLUMN  1
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED
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.....BEGIN SENSITIVITY RUN 62 ON PARAMETER SET 31 AND COLUMN  2
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....OXYGEN DEPENDENT RATES CONVERGENT IN   9 ITERATIONS
.....CONSTITUENT CALCULATIONS COMPLETED



.....EXECUTION COMPLETED
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