FINAL
TMDL for Dissolved Oxygen for Violet Canal (Subsegment 041805) in the Lake Pontchartrain Basin, Louisiana

Prepared for:

United States Environmental Protection Agency, Region 6
Water Quality Protection Division
Permits, Oversight, and TMDL Team
Dallas, TX 75202

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Prepared by:

Tetra Tech, Inc.
10306 Eaton Place, Suite 340
Fairfax, VA 22030

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Executive Summary

Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's (EPA's) Water Quality Planning and Management Regulations (at Title 40 of the *Code of Federal Regulations* [CFR] section 130.7) require TMDLs for waterbody-pollutant pairs on the approved 303(d) impaired waters list, even if pollutant sources have implemented technology-based controls. A total maximum daily load (TMDL) is a calculation of the maximum amount of a pollutant that a waterbody can assimilate while still meeting the water quality standard for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and nonpoint sources to restore and maintain the quality of the state's water resources (USEPA 1991).

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources, and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality, and it may include a future growth (FG) component. The components of the TMDL calculation are illustrated using the following equation:

$$TMDL = \Sigma\ WLAs + \Sigma\ LAs + MOS + FG$$

The area for this TMDL includes Lake Borgne Canal, from Mississippi River siphon at Violet to Bayou Dupre, also called Violet Canal. Violet Canal is entirely within St. Bernard Parish and covers an area of 0.362 square miles (0.937 square kilometers). Violet Canal runs from the Mississippi River in the west to Bayou Dupre, where it is connected to Lake Borgne, in the east. The predominant land use in the impaired subsegment is wetlands (72.8 percent), followed by urban development (19 percent), and open water (8.2 percent).

The Louisiana Department of Environmental Quality (LDEQ) has included Violet Canal (subsegment 041805) on the state's 2010 section 303(d) list of impaired waterbodies (*Final 2010 Integrated Report*) (LDEQ 2010a) (Table ES-1). The subsegment is listed for low dissolved oxygen (DO) and turbidity. Turbidity is not addressed in this report. The impaired designated uses for the subsegment are fish and wildlife propagation (FWP) and outstanding natural resource (ONR).

Table ES-1. Excerpt from the *Final 2010 Integrated Report*

Subsegment	Subsegment name	Designated use			
		Primary Contact Recreation	Secondary Contact Recreation	Fish and Wildlife Propagation	Outstanding Natural Resource
041805	Violet Canal	Fully supporting	Fully supporting	Not supporting	Not supporting

Source: LDEQ 2010a

A water quality model (LA-QUAL) was set up to simulate DO, carbonaceous biochemical oxygen demand (CBOD), ammonia nitrogen, and nitrite+nitrate. The model was calibrated using data from fieldwork conducted in July 2009. The projection simulation was conducted at critical flows and temperatures to address seasonality, as the Clean Water Act requires. No reductions of existing point source loads were required for the projection simulation to meet the DO standard of 4 milligrams per liter (mg/L). In general, the modeling for this TMDL was consistent with guidance in the Louisiana TMDL technical procedures manual (LDEQ 2010b).

TMDLs for CBOD, ammonia, organic nitrogen, and sediment oxygen demand (SOD) were calculated using the projection simulation. In developing the TMDL, allowable loads from all pollutant sources that cumulatively amount to no more than the TMDL must be established, thereby providing the basis for establishing water quality-based controls. WLAs were assigned to permitted point source discharges, including regulated stormwater. The LAs include background loadings and human-induced nonpoint sources. An explicit MOS of 10 percent and an FG component of 10 percent were also included.

This TMDL establishes load limitations for oxygen-demanding substances. The numeric DO water quality criterion for subsegment 041805 is 4 mg/L and was used to calculate the total allowable load in summer and

winter scenarios. There were no reductions to point sources. Table ES-2 presents a summary of the TMDLs for subsegment 041805.

Table ES-2. Summary of TMDLs, WLAs, LAs, MOSs, and FGs

Season	Loadings (lb/d)							
Summer	SOD		$CBOD_u$		Ammonia as N		Organic N as N	
	Baseline	TMDL	Baseline	TMDL	Baseline	TMDL	Baseline	TMDL
WLA	177.2	126.5	4.18	2.67	0.174	0.174	0.240	0.240
LA	736.2	525.8	12.68	6.38	0.043	0.043	0.658	0.658
MOS	114.2	81.5	2.11	1.13	0.027	0.027	0.112	0.112
FG	114.2	81.5	2.11	1.13	0.027	0.027	0.112	0.112
TMDL	1,141.6	815.5	21.08	11.30	0.272	0.272	1.122	1.122
Percent reduction	28.6%		46.4%		0.0%		0.0%	
Season	Loadings (lb/d)							
Winter	SOD		$CBOD_u$		Ammonia as N		Organic N as N	
	Baseline	TMDL	Baseline	TMDL	Baseline	TMDL	Baseline	TMDL
WLA	92.0	92.0	32.04	32.04	0.32	0.32	1.69	1.69
LA	382.2	382.2	128.43	128.43	0.67	0.67	6.70	6.70
MOS	59.3	59.3	20.06	20.06	0.12	0.12	1.05	1.05
FG	59.3	59.3	20.06	20.06	0.12	0.12	1.05	1.05
TMDL	592.6	592.6	200.58	200.58	1.24	1.24	10.49	10.49
Percent reduction	0.0%		0.0%		0.0%		0.0%	

Implementing the DO TMDL through future wastewater discharge permits, if required, and implementing best management practices to control and reduce runoff of soil and oxygen-demanding pollutants from nonpoint sources in the watershed should reduce the nutrient loading from those sources.

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1. Introduction

Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's (EPA's) Water Quality Planning and Management Regulations (at Title 40 of the *Code of Federal Regulations* [CFR] section 130.7) require TMDLs for waterbody-pollutant pairs on the approved 303(d) impaired waters list even if pollutant sources have implemented technology-based controls. A total maximum daily load (TMDL) is a calculation of the maximum allowable load (in mass per unit time) of a pollutant that a waterbody is able to assimilate while still supporting its designated uses. The maximum allowable load is determined on the basis of the relationship between pollutant sources and in-stream water quality. A TMDL provides the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and nonpoint sources to restore and maintain the quality of the state's water resources (USEPA 1991).

The text of 40 CFR 130.7 has been affected by several Federal District Court suits, appeals rulings, and a Supreme Court ruling, mandating that a TMDL must be described in terms of mass per day. According to 40 CFR 130.7, if EPA does not approve a TMDL submitted by a state, EPA is responsible for developing a TMDL. In a District Court case regarding the TMDL program in Louisiana (*Sierra Club and Louisiana Environmental Action Network, Inc. v. EPA*, Civil Action Number: 96-0527), EPA was listed as the sole defendant. That case resulted in the April 1, 2002, consent decree approved by the judge. A consent decree is a negotiated set of actions to satisfy the plaintiff. In many situations, the actions are more stringent than the established regulation. For example, most consent decrees require an annual report to the plaintiff summarizing the work done in the year; that is not required by any regulation and will cease when the consent decree is closed.

The 2002 consent decree between EPA and the plaintiffs establishes a fixed set of waterbody-pollutant pairs for which TMDLs are to be established or approved, and it establishes a timeline for each set of TMDLs. Each set is determined to be complete when every waterbody-pollutant pair either has a TMDL established or approved, or a subsequent approved 303(d) list has removed the waterbody-pollutant pair. The TMDLs in this report are part of that consent decree. Because the original court suit was initiated because of a lack of progress in establishing TMDLs, the date when a TMDL is established or approved is not easy to extend and requires another agreement with the plaintiffs.

In most circumstances, a variety of scientifically acceptable methods can be used for developing a TMDL, wasteload allocation (WLA), and load allocation (LA). For these TMDLs, the LA-QUAL model was used. It should be noted that because some acceptable TMDL calculation methods appear simple, that does not imply that its results are not valid. Models vary in the amount of necessary resources (e.g. training, setup/computational time, personnel, expense), required input and background data, questions answered, and output capability (e.g., charts, tables, data files). The final result of these TMDLs (and any TMDL) is a plan that is adopted into the Water Quality Management Plan (WQMP) to achieve the TMDL. Stakeholder involvement and additional information, such as monitoring data, might lead to an update of the WQMP to propose a different plan to meet water quality objectives. Such a WQMP update receives the same public participation as the original TMDL and WQMP review and approval.

For the TMDL discussed in this report, monitoring data collected by the Louisiana Department of Environmental Quality (LDEQ) indicate that observed dissolved oxygen (DO) levels sometimes do not meet the state's water quality criteria for Violet Canal (subsegment 041805) in the Lake Pontchartrain Basin. The impaired designated uses for the subsegment are primary and secondary contact recreation and fish and wildlife propagation. The subsegment is listed as not supporting the designated uses in Louisiana's 2010 section 303(d) list (as included in the *Final 2010 Integrated Report*). Subsegment 041805 has suspected causes for the DO impairment of *natural sources* and *package plant or other permitted small flow discharges.* The suspected causes for the turbidity impairment are *natural sources* and *changes in tidal circulation/flushing*. Turbidity is not addressed in this TMDL report.

Oxygen concentrations in bodies of water fluctuate naturally; however, depletion of DO can be caused by human activities or natural sources. Temperature and salinity also have an effect on DO. For example, during extended hot weather, the subsequent warmer water can result in fish kills from lower DO in the water column because of decreased gas solubility compared to cooler water (Scorecard 2005). Chemical reactions can generate a chemical oxygen demand on receiving waters and further lower DO. Human activities, such as lawn mowing and fertilizing, can contribute large amounts of biodegradable organic matter or nutrients through stormwater and, over time, lead to eutrophication (Scorecard 2005). Natural sources can also add organic material to a waterbody. Forests add leaves and woody debris, whereas wetlands have large algal masses that can be carried over into the waterbody. In streams with significant amounts of organic matter, bacterial degradation can result in a net reduction of oxygen in the water column.

Other factors that affect DO concentrations include the following (Murphy 2005):

- Volume and velocity of water flowing in the waterbody
- Climate and season
- The type and number of organisms in the waterbody
- Altitude
- Dissolved or suspended solids
- Amount of nutrients in the water
- Organic waste
- Riparian vegetation
- Groundwater inflow

2. Background Information

2.1 General Description

The Lake Pontchartrain Basin is in southeastern Louisiana and is primarily comprised of the rivers and bayous that drain into Lake Pontchartrain. The basin is bordered by the Pearl River Basin to the east, by Breton and Chandeleur Sound to the southeast, and by the Mississippi River Levee to the south and west. The northern portion of the Lake Pontchartrain Basin consists of forests, pines and hardwoods, pastures, and dairies. The southern portion consists of cypress-tupelo swamps and lowlands, and brackish and saline marshes. Elevations in the basin range from minus 5 feet at New Orleans to greater than 200 feet near the Mississippi River (LDEQ 2010c). Subsegment 041805 (Lake Borgne Canal from Mississippi River siphon at Violet to Bayou Dupre; also called Violet Canal) is entirely in St. Bernard Parish and has an area of 0.362 square miles (mi^2)(232 acres). Violet Canal runs from the Mississippi River in the west to Bayou Dupre, where it is connected to Lake Borgne in the east.

2.2 Land Use

Land use data were obtained from the 2006 U.S. Geological Survey (USGS) National Land Cover Dataset (NLCD) (Table 2-1 and Figure 2-2). The predominant land use in subsegment 041805 is wetlands (72.8 percent), followed by urban development (19 percent), and open water (8.2 percent).

Table 2-1. Land uses percentages for subsegment 041805

Land use	Percent of total area
Water	8.2%
Developed	19.0%
Barren	0%
Forest	0%
Grassland/shrub	0%
Pasture/hay	0%
Cultivated crops	0.9%
Wetlands	72.8%
TOTAL	100.00%

2.3 Hydrologic Setting

The USGS online hydrology database (NWISWeb) does not contain any stations with flow data for subsegment 041805 that is impaired for DO. Gated structures exist where Violet Canal meets the Mississippi River Gulf Outlet and are operated to prevent high Gulf tides from reaching the area. Otherwise, Violet Canal is affected by tidal action from Lake Borgne (Max Forbes, retired USGS, personal communication, May 31, 2011; for complete transcript, see Appendix A).

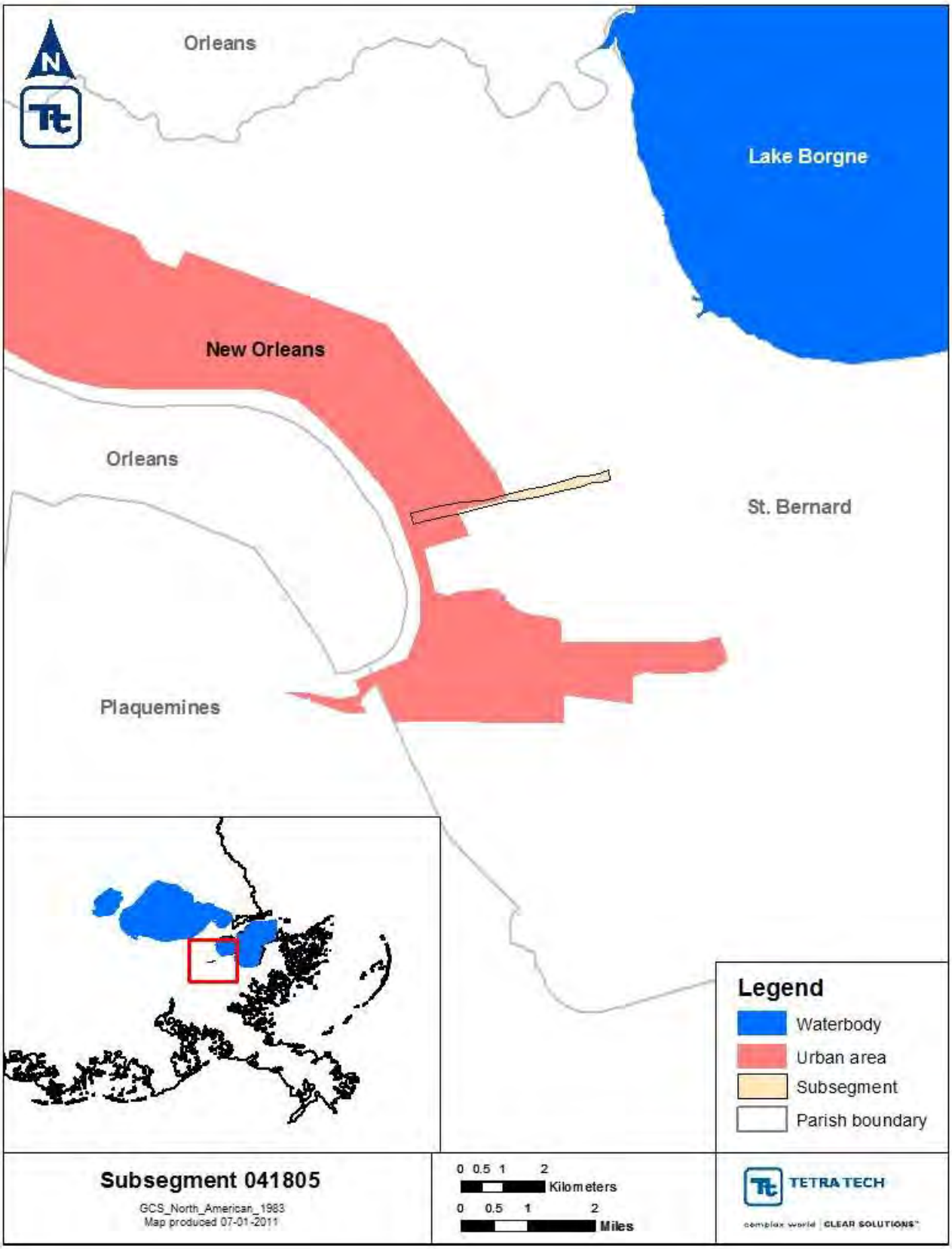

Figure 2-1. Location of subsegment 041805.

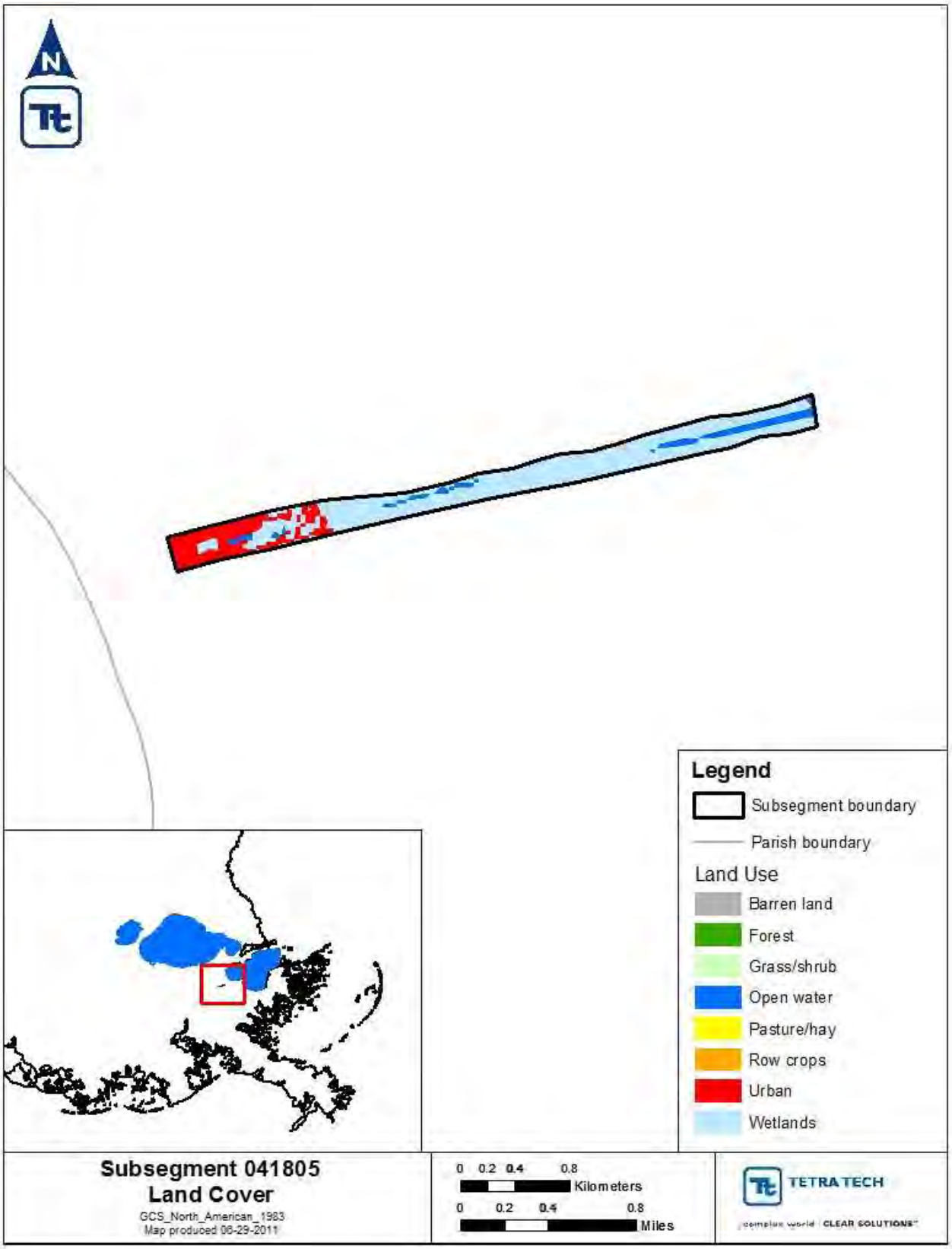

Figure 2-2. Land use in subsegment 041805.

2.4 Designated Uses and Water Quality Criteria

Louisiana's 2010 section 303(d) list (as included in the *Final 2010 Integrated Report*) indicates that designated uses of the subsegment are primary and secondary contact recreation, fish and wildlife propagation, and outstanding natural resources. Primary contact recreation includes any recreational or other water contact involving full-body exposure to water and a considerable probability of ingesting water. Examples of this use are swimming and water skiing. Secondary contact recreation involves activities like fishing, wading, or boating, where water contact is accidental or incidental and there is a minimal chance of ingesting appreciable amounts of water. Fish and wildlife propagation includes the use of water for aquatic habitat, food, resting, reproduction, cover, or travel corridors for any indigenous wildlife and aquatic life species associated with the aquatic environment. Outstanding natural resource waters include waterbodies designated for preservation, protection, reclamation, or enhancement of wilderness, aesthetic qualities, and ecological regimes, such as those designated under the Louisiana Natural and Scenic Rivers System or those designated by LDEQ as waters of ecological significance. Characteristics of outstanding natural resource waters include, but are not limited to, highly diverse or unique in-stream and/or riparian habitat, high species diversity, balanced trophic structure, unique species, or similar qualities.

The assessment methodology presented in LDEQ's 305(b) report (LDEQ 2010a) specifies that primary contact recreation, secondary contact recreation, fish and wildlife propagation, and outstanding natural resource uses are to be fully supported. Subsegment 041805 is an estuarine system. The DO criterion for this subsegment is 4 milligrams per liter (mg/L) year-round.

The Louisiana water quality standards also include an antidegradation policy (*Louisiana Administrative Code* [LAC] Title 33, Part IX, Section 1109.A), which states that state waters exhibiting high water quality should be maintained at that high level of water quality. If that is not possible, water quality of a level that supports the designated uses of the waterbody should be maintained. The designated uses of a waterbody may be changed to allow a lower level of water quality only through a use attainability study.

2.5 Identification of Sources

2.5.1 Point Sources

LDEQ stores permit information using internal databases. LDEQ generated a list of point source discharges in the subsegment by using the TEMPO database. Information on point source discharges to the listed subsegments was obtained from the Integrated Compliance Information System - National Pollutant Discharge Elimination System (ICIS-NPDES) and Louisiana's Electronic Document Management System (EDMS). Data were pulled from ICIS for the list of permits generated by LDEQ and data were confirmed through EDMS. Each facility was evaluated on the basis of its discharges and permit limits to determine whether the facility should be used in developing the TMDLs. The evaluation yielded one active permitted point source discharge in subsegment 041805 (Table 2-2 and Figure 2-3).

Table 2-2. Permit information for subsegment 041805

Agency interest (AI) #	Permit #	Outfall	Outfall type	Facility name	Facility type	Expiration date	Receiving waterbody
20849	LAG531277	001	Treated sanitary wastewater	Violet Chevron	Auto dealers and gasoline service stations	11/30/12	via pipe to Violet Canal
52457	LAU009473			Val J Dauterive & Son Inc. - Petroleum Bulk Plant	Petroleum Refining And Related Industries	Terminated	

Phase I and II stormwater systems are additional possible point source contributors in the Lake Pontchartrain Basin. Stormwater discharges are generated by runoff from urban land and impervious areas such as paved streets, parking lots, and rooftops during precipitation events. These discharges often contain high concentrations of

pollutants that can eventually enter nearby waterbodies. Most stormwater discharges are considered point sources and require coverage by a NPDES permit.

Under the NPDES stormwater program, operators of large, medium, and regulated small municipal separate storm sewer systems (MS4s) must obtain authorization to discharge pollutants. The Stormwater Phase I Rule (55 *Federal Register* 47990, November 16, 1990) requires all operators of medium and large MS4s to obtain an NPDES permit and develop a stormwater management program. Medium and large MS4s are defined by the size of the population within the MS4 area, not including the population served by combined sewer systems. A medium MS4 has a population between 100,000 and 249,999; a large MS4 has a population of 250,000 or more.

Phase II requires a select subset of small MS4s to obtain an NPDES stormwater permit. A small MS4 is any MS4 not already covered by the Phase I program as a medium or large MS4. The Phase II rule automatically covers all small MS4s in urbanized areas (UAs), as defined by the Bureau of the Census, and also includes small MS4s outside an UA that are so designated by NPDES permitting authorities, case by case (USEPA 2000).

In Louisiana, there are two ways that an MS4 can be identified as a regulated, small MS4. This category includes all cities within UAs and any small MS4 area outside UAs with a population of at least 10,000 and a population density of at least 1,000 people per square mile (LDEQ 2002). In subsegment 041805, there is one Phase II (small) MS4. Table 2-3 presents MS4 discharge information for this impaired subsegment in the Lake Pontchartrain Basin. The urban area of the MS4 covers 45 acres of subsegment 041805.

Table 2-3. MS4 information for subsegment 041805

Agency interest (AI) #	Permit #	Facility name	Expiration date	Receiving waterbodies
108277	LAR040003	St Bernard Parish Government - Municipal Separate Storm Sewer System	12/4/12	Violet Canal

2.5.2 Nonpoint Sources

Louisiana's section 303(d) list identifies the suspected causes of the DO impairment in subsegment 041805 of the Lake Pontchartrain Basin as *natural sources and package plant or other permitted small flow discharges.*

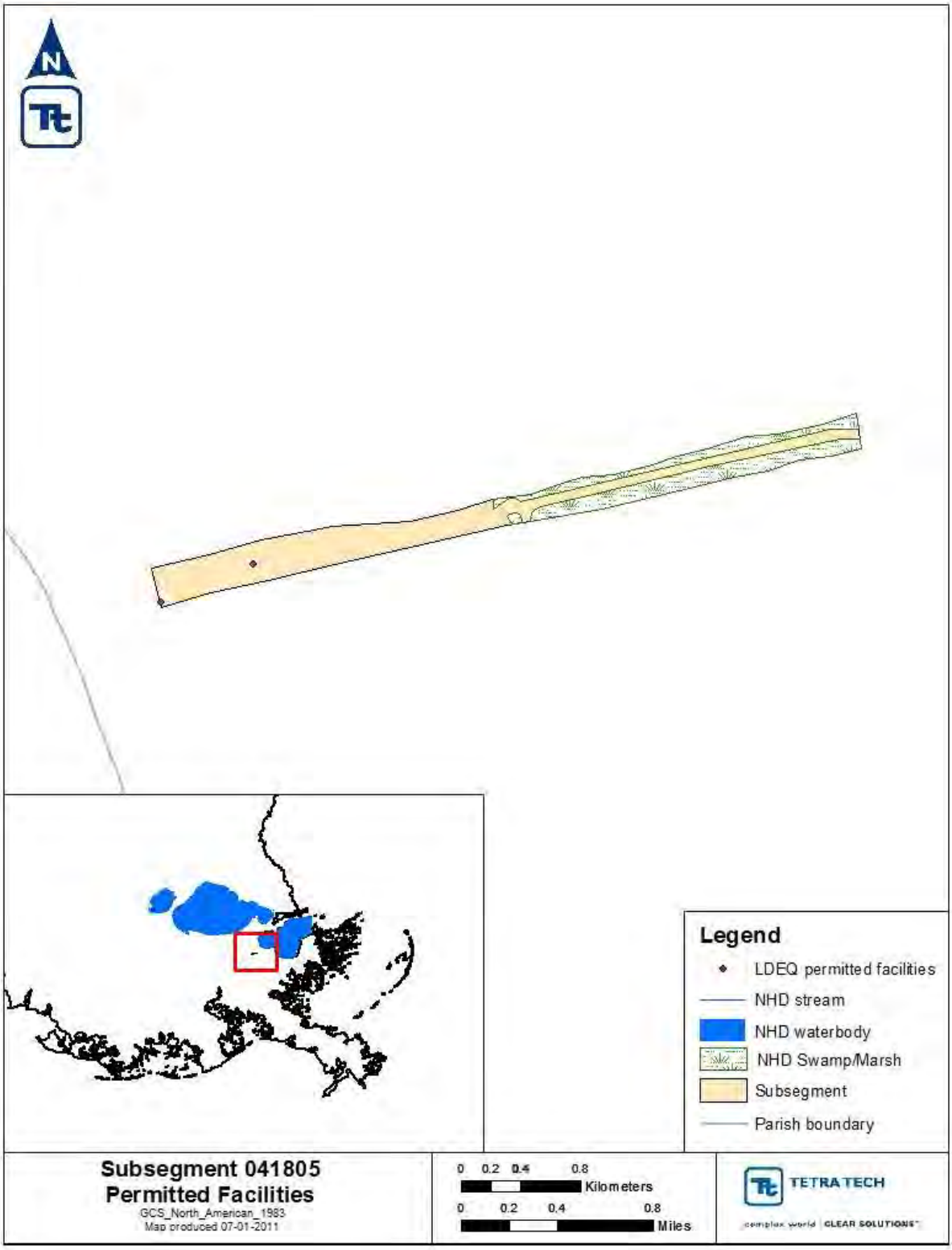

Figure 2-3. Permitted Facilities in subsegment 041805 in the Lake Pontchartrain Basin.

3. Characterization of Existing Water Quality

3.1 Water Quality Data

Water quality data were obtained from LDEQ's routine ambient water quality monitoring program. Additional environmental data were obtained from a monitoring event conducted by FTN Associates (FTN) on July 9, 2009. Figure 3-1 shows the locations of the LDEQ and FTN sampling sites. Data collected during the 2009 field study included in situ measurements of temperature, DO, pH, specific conductivity, and Secchi depth in addition to sampling data for total phosphorus (TP), ortho-phosphorus (OP), chlorophyll *a*, total suspended solids (TSS), ammonia nitrogen, total Kjeldahl nitrogen (TKN), nitrate plus nitrite nitrogen (NO_2+NO_3), total organic carbon (TOC), and carbonaceous biochemical oxygen demand (CBOD) time series, which used a nitrogen suppressant. The CBOD time-series data were collected on days 2, 5, 9, 14, 20, and 27 of the analysis. Tables B-1 through B-7 in Appendix B summarize the water quality data for the section 303(d)-listed constituents, along with additional constituents used in the TMDL development process. Appendix B contains summaries of the DO and nutrient data. Appendix C presents the Field Survey Notes.

3.2 Comparison of Observed Data to Criteria

Table B-1 in Appendix B provides a summary of the July 2009 DO data for five stations (plus a duplicate station) in subsegment 041805. Each station has one observation taken on July 9, 2009. DO was not observed in any of the five stations at levels below the water quality criterion of 4 mg/L. Figures B-1 through B-4 in Appendix B show the LDEQ DO and other continuous monitoring data observations at station VIOLET-3 (Violet Canal) over time.

Table B-4 summarizes 23 observations at the LDEQ DO data at station 1068 (Violet Canal near New Canal). Eight (35 percent) of the DO observations are below the 4 mg/L water quality criterion. Figures 3-2 and 3-3 show the DO data collected at station 1068 plotted over time and season. As expected, DO levels are lower in the hotter summer months.

Louisiana does not have numeric nutrient criteria. The original nutrient impairment for this waterbody was not based on a quantitative assessment of historical nutrient data. The impairment was based on an evaluative assessment that might have included dissolved oxygen. LDEQ and EPA plan to reevaluate the previous nutrient impairments for this waterbody. As a result, both EPA and LDEQ expect the nutrient impairment to change from category 5 (impairment exists; TMDL required) to category 3 (insufficient data) for the 2010 Integrated Report. A TMDL for dissolved oxygen should adequately address any potential nutrient impairment, in the absence of numeric nutrient criteria and a quantitative assessment.

LDEQ is developing numeric nutrient criteria for waterbody types by ecoregions in accordance with LDEQ's plan *Developing Nutrient Criteria for Louisiana 2006*[1]. Waterbody types for nutrient criteria development in Louisiana are (1) inland rivers and streams; (2) freshwater wetlands; (3) freshwater lakes and reservoirs; (4) big rivers and floodplains/boundary rivers and associated waterbodies; and (5) estuarine and coastal waters, including up to Louisiana's 3-mile boundary in the Gulf of Mexico. LDEQ and EPA are reviewing proposed approaches for nutrient criteria development. Nutrient criteria can be implemented upon state promulgation and EPA approval per 40 CFR 131.21.

After nutrient criteria are developed, a subsequent quantitative assessment of the waterbodies, and the development of full nutrient models, nutrient limits can be established for all facilities discharging to impaired waterbodies in the Lake Pontchartrain Basin. LDEQ recommends that all facilities discharging this subsegment take a proactive approach and prepare to receive nutrient limitations in the near future. Such a proactive approach

[1] http://www.deq.louisiana.gov/portal/Portals/0/planning/LA%20Nutrient%20Strategy%20Plan%20Final%20FOR%20WEB.pdf. Accessed March 13, 2012.

should include nutrient monitoring and documentation through facility Discharge Monitoring Reports (DMRs) to assess their nutrient loads and the need to modify their treatment processes for nutrient removal.

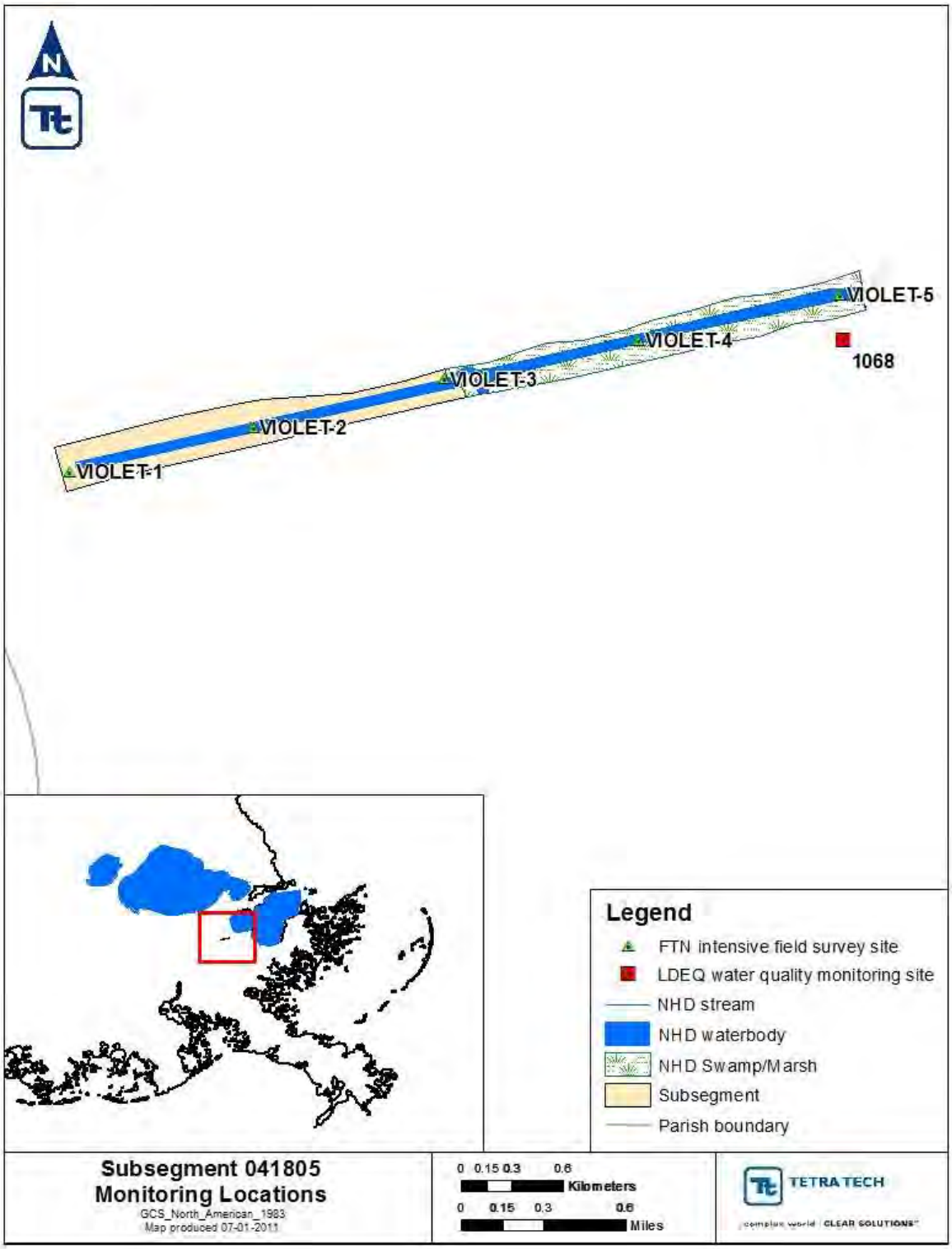

Figure 3-1. Monitoring locations in subsegment 041805 in the Lake Pontchartrain Basin.

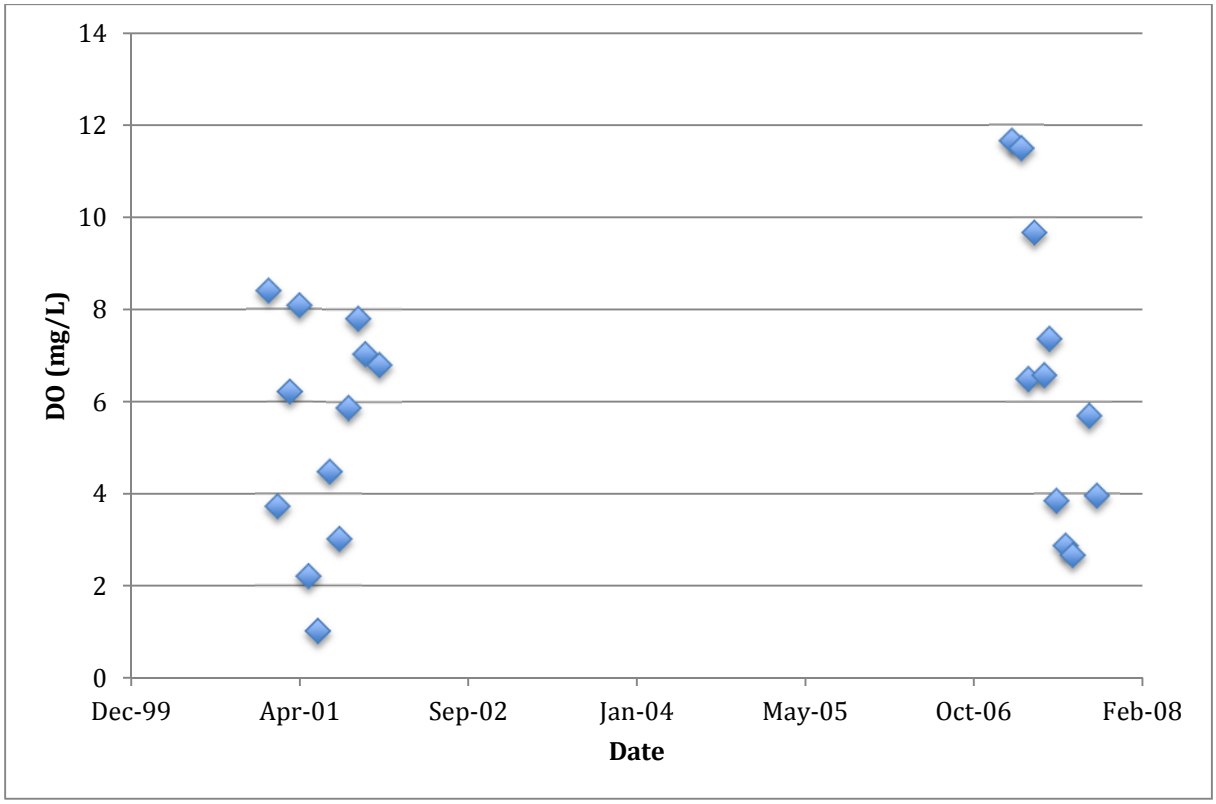

Figure 3-2. DO concentrations over time at station 1068.

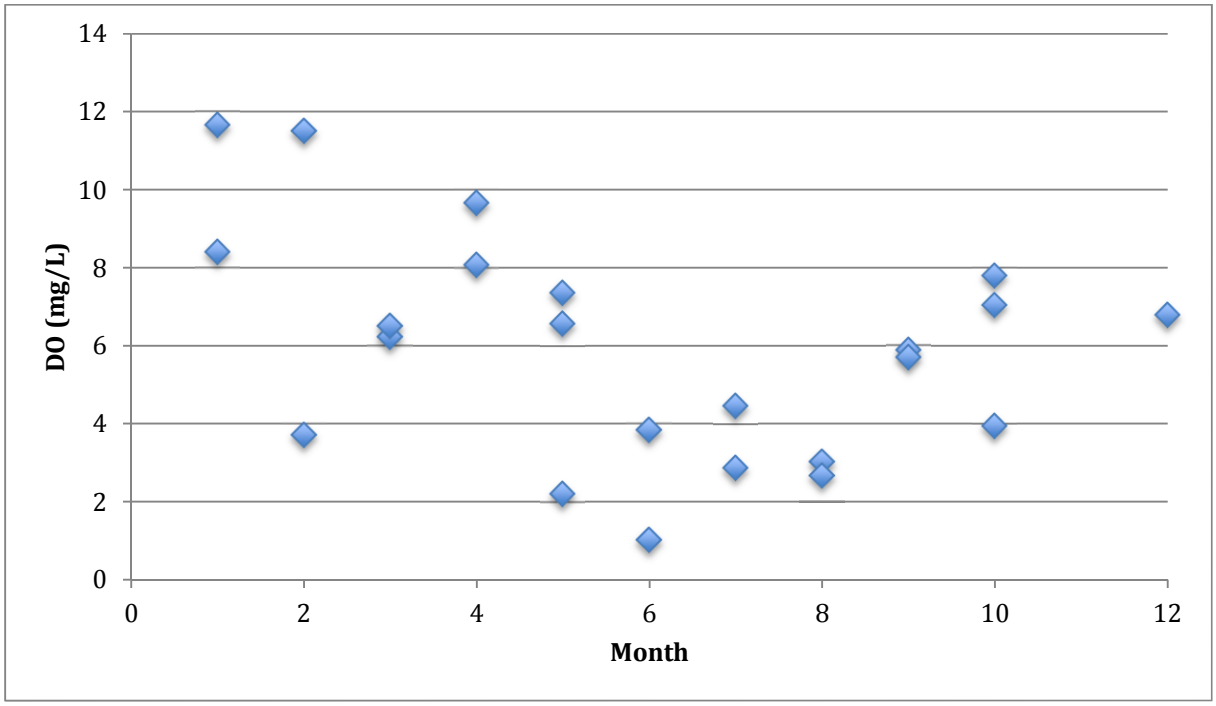

Figure 3-3 Seasonal DO concentrations at station 1068.

4. Model Setup and Calibration

4.1 Model Setup

LA-QUAL (Version 9.05) was chosen to simulate DO in the TMDL for subsegment 041805. LA-QUAL is a steady-state model that LDEQ developed based on the QUAL-TX (Version 3.4) model. Several modifications were made to the QUAL-TX model, including the addition of new aeration equations that better represent conditions in Louisiana. LA-QUAL evaluates the relationships between pollutant sources and water quality. Model configuration involved setting up the model segments and setting initial conditions, boundary conditions, and hydraulic and kinetic parameters. This section describes the configuration and key components of the model.

Only the main stems of the systems were explicitly simulated and thus segmented for modeling purposes. Segmentation refers to separating a waterbody into smaller computational units. Segmentation occurred around major hydrological features, such as tributaries. Tributaries were represented through boundary condition designation. Appendix D contains diagram of the model segmentations and stream kilometers.

During modeling, it is important to consider which factors contribute most to the DO depletion in Violet Canal. In general, CBOD, ammonia and sediment oxygen demand (SOD) will reduce water column DO, and algae can cause strong DO swing. During the July 2009 sampling period, no strong swing of DO was observed, indicating that DO depletion during that period is not caused directly by algae. Therefore, it is reasonable to assume that SOD and CBOD are the major causes for DO depletion in Violet Canal. DO collected in previous years have been below the 4 mg/L water quality criterion as shown in Figures 3-2 and 3-3. However, no flow and other data were collected.

4.2 Model Options (Data Type 2)

Data type 2 is used to identify the constituents being modeled to achieve calibration. For this TMDL, DO, BOD, conductivity, and a nitrogen series (ammonia nitrogen and nitrate+nitrite) were the constituents being modeled.

4.3 Program Constants (Data Type 3)

LA-QUAL is programmed with certain default program parameters, including those for tidal variability. Data type 3 is used to override the default parameters and is optional; that is, values need to be entered only if values other than the default values are desired. Default values were used for all program parameters except those listed in Table 4-1. For descriptions of the parameters and their default values, see the LA-QUAL user manual (Wiland Consulting, Inc. 2010).

Table 4-1. Water quality kinetics rates

Program constant	Value range
Hydraulic calculation method	2
Inhibition control value	3
Ocean exchange ratio	0.5
Tidal height	0.22
Tidal period	12
Period of tidal rise	6

4.4 Temperature Correction of Kinetics (Data Type 4)

Data type 4 contains factors used for temperature correction in rate equations. The temperature correction factors used in the model were consistent with the *Standard Operating Procedure for Louisiana TMDL Technical*

Procedures (LTP) when these factors were available (LDEQ 2010b). Default values were used for all factors. For descriptions of the factors and their default values, see the LA-QUAL user manual (Wiland Consulting, Inc. 2010).

4.5 Hydraulics and Dispersion (Data Types 9 and 10)

Data types 9 and 10 describe the hydraulic and dispersion characteristics of the model reaches. The stream hydraulics were specified in the input file for the model using the following power functions:

$$width = a \times Qb + c$$
$$depth = d \times Qe + f$$

where

a =	width coefficient	=	0.0
b =	width exponent	=	0.0
c =	width constant	=	average width of segment
d =	depth coefficient	=	0.0
e =	depth exponent	=	0.0
f =	depth constant	=	average depth of segment

The average width and depth data for each segment were based on measurements observed in July 2009; measurements are summarized in Table 4-2. Slight adjustments were made in some reaches to better simulate observed hydrology and water quality. Because the subsegment is tidally influenced, it was assumed that the average depth and width over a tidal cycle remain fairly constant unless sustainable high level of flow enters the system, which is not considered the case for this subsegment.

Table 4-2. Average channel widths and depths for each model segment

Model reach	Width (m)	Depth (m)
1	26.82	1.68
2	45.48	1.07
3	53.45	1.07
4	69.49	0.95

4.6 Initial Conditions (Data Type 11)

Initial conditions were set for temperature, DO, nitrate+nitrite, and chlorophyll *a* using observed water quality data, while ammonia data were set to a constant. Because LA-QUAL is a steady-state model, the initial conditions affect only the number of iterations needed to reach steady-state conditions. Setting initial conditions on the basis of observed data reduces the amount of iterations the model must perform to reach a steady state.

Salinity, nitrate+nitrite, phosphorus, phytoplankton, and macrophytes were the parameters not simulated in the model. Their initial conditions were set to zero so that the model would not assume a fixed concentration and include their effects.

4.7 Water Quality Kinetics (Data Types 12 and 13)

Several kinetic rates, including reaeration, SOD, CBOD decay, nitrification, and mineralization (organic nitrogen decay) rates were used in the model. Data types 12 and 13 focus on different rates used by the model. Data type 12 is needed only if BOD or DO is being simulated, and data type 13 is needed only if nitrogen or phosphorus is being simulated. For this TMDL, both data types were included.

The model calculates the reaeration rate by using one of a standard set of equations. For this TMDL, the O'Conner-Dobbins equation was used. This equation is applicable to moderately deep to deep channels (1 to 30 feet with flow between 0.5 feet per second and 12.2 feet per day). The O'Conner-Dobbins equation is

$$K_2 = \frac{3.932 \times V^{0.969}}{D^{1.5}}$$

where
V = stream velocity (meters per second)
D = stream depth (meters)

These values are provided in Appendix E as part of the output file results. Table 4-3 summarizes the water quality kinetics rates. The CBOD decay rate varied per subsegment and was based on the measured $CBOD_3$, $CBOD_5$, $CBOD_{12}$, $CBOD_{20}$, and $CBOD_{25}$ data. Slight adjustments were made in some reaches to better simulate observed water quality. The SOD was calibrated in the model and varied per subsegment reach. SOD was calibrated after the CBOD levels were finalized. The SOD rates changed iteratively until modeled DO concentrations agreed well with measured water column DO concentrations.

Table 4-3. Water quality kinetics rates

Program constant	Value range
Background SOD ($g/m^2/d$)	0.7–1.68
CBOD #1 decay rate (aerobic) (1/d)	0.05
CBOD #1 settling rate (m/d)	0.1
Organic nitrogen decay rate (1/d)	0.12
Ammonia nitrogen decay rate (1/d)	0.02
Denitrification rate (1/d)	0.02

4.8 Incremental Data (Data Types 16, 17, and 18)

Data types 16, 17, and 18 include information on inflows and outflows from the model reaches. For this TMDL, incremental information for flow, temperature, ammonia, $CBOD_u$, DO, organic nitrogen, and nitrate+nitrite was estimated during calibration. Appendix E contains the input values as part of the output file. Incremental flow was estimated based on water quality changes corresponding to flow adjustments during calibration. In addition to incremental inflows, water is withdrawn from segments 3 and 4 of the canal following the analysis by FTN concluding that water in the Violet Canal can spread to small tributaries on the mud flat and flow should be higher near upstream and lower toward downstream. The withdrawal rate of flow was also estimated as a calibration factor.

4.9 Headwater Flow, Water Quality, and Junction Data (Data Types 20, 21, 22, and 23)

Data types 20, 21, 22, and 23 account for flow and water quality from upstream of the modeled subsegment. Headwater flow and water quality data were derived from monitoring data. In general, the flow measured at the most upstream station was taken as the headwater flow. Water quality data (mainly $CBOD_u$ and DO) were estimated from the monitoring data collected from the most upstream stations.

4.10 Wasteload Flow and Water Quality Data (Data Types 24, 25, and 26)

Data types 24, 25, and 26 account for flow and water quality from point sources discharging into the listed waterbodies. The model included one permitted outflow. Stormwater permits are considered point sources; however, for modeling purposes in this TMDL, they are entered as a nonpoint source. The inputs and their associated flows and concentrations are provided in Table 4-4. DO was set to 2.0 for the point source. The

average flow was used, and the permitted BOD_5 discharge limits were converted to $CBOD_u$ by assuming that BOD_5 was approximately equal to $CBOD_5$ and then using a conversion factor of 2.3 to convert to $CBOD_u$.. Organic nitrogen and nitrate+nitrite were assumed on the basis of the BOD_5 discharge limit.

Table 4-4. Summary of calibration point source data used in LA-QUAL

Point source	Flow (gpd)	DO (mg/L)	$CBOD_u$ (mg/L)	Org N (mg/L)	Ammonia (mg/L)	NO_3+NO_2 (mg/L)
LAG531277	1,310	2.0	130.5	7.5	15.0	2.0

4.11 Calibration and Sensitivity Analysis

4.11.1 Calibration

Model calibration is a critical step for model development. Calibration data must be collected in all the parameters of the model at the same time, as much as practical. Only data taken in that manner can be used for the calibration because many of the parameters and rates are dependent on each other. Analysis of the data for calibration indicated some conditions that formed assumptions in the model. The process of the calibration confirms the assumptions or requires revised assumptions. In certain instances, calibrated models are not required to produce valid TMDLs.

Model calibration also depends on the available data and should not be considered data matching. For this model, the magnitude and spatial trends are all captured with reasonable assignment of kinetic rates. Rates were not purposely changed in each reach to exactly match data. The calibration period was selected to coincide with the intensive field monitoring that had occurred in July 2009. The data used for calibration are the averages of the samples taken on July 9, 2009. That date was selected for calibration because it was the only date for which data were available. The date is considered the critical condition because high temperatures decrease DO saturation values and increase rates for oxygen-demanding processes, such as BOD decay, nitrification, and SOD. In addition, lower flow rates do not cause strong reaeration, therefore the exchange of oxygen between air and water is low.

Model calibration was a multi-step process using ammonia, $CBOD_u$, and SOD concentrations for each reach, starting with the most upstream reach and working down to the outflow reach. Organic nitrogen was first adjusted so that predicted concentrations matched observed data. The ammonia and nitrate loads were then adjusted so that the predicted nitrogen concentrations would match the observed concentrations. After ammonia was calibrated, the $CBOD_u$ loads were adjusted until the predicted $CBOD_u$ concentrations were similar to the observed concentrations. Finally, SOD was adjusted until the predicted DO concentrations were similar to the observed concentrations.

Table 4-5 lists the loadings for calibration conditions, which were based on existing conditions. Overall, the model did well in predicting the observed values for temperature, ammonia, $CBOD_u$, and DO, and was considered adequately calibrated on the basis of the data available. Plots of observed and calibration water quality are presented in Appendix F. Figure 4-1 is an example calibration plot.

Table 4-5. Calibration (existing) modeled loadings

Loadings (lb/d)			
SOD	$CBOD_u$	Ammonia as N	Organic N as N
1,142	18,416	132	1,524

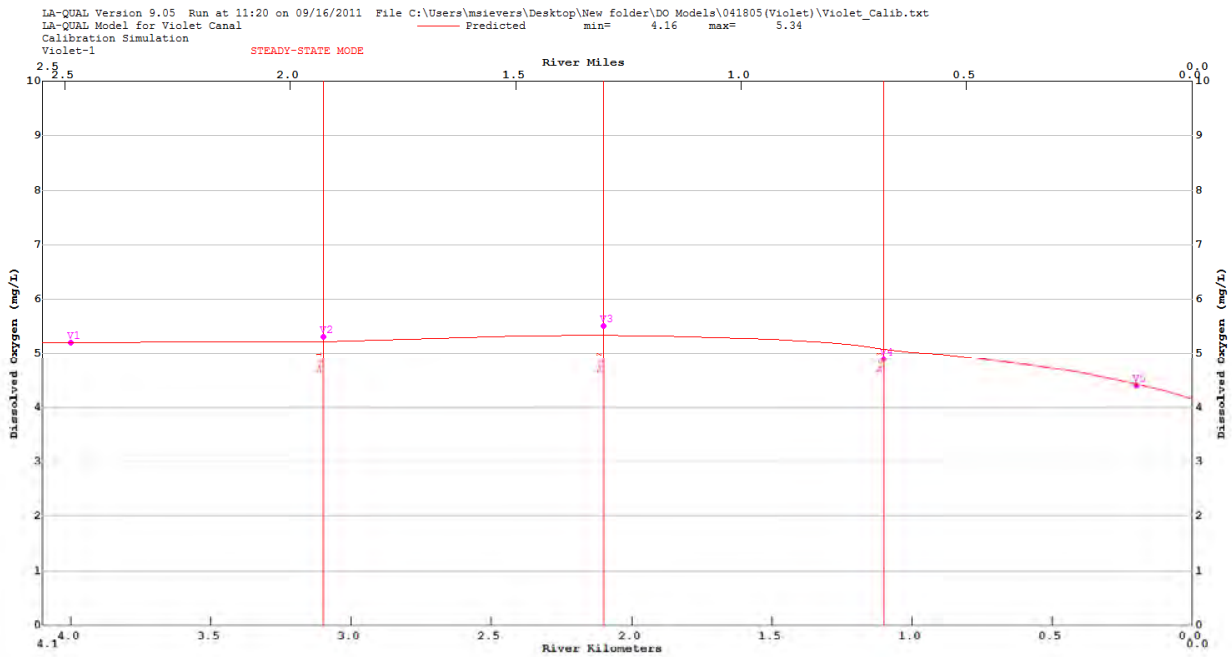

Figure 4-1. Calibration plot for DO in subsegment 041805.

4.11.2 Processes Identified through Calibration

The adjustment of the model rates and coefficients made to help modeled flow and loads agree with observed data for significant pollutants led to an understanding of the processes controlling the conditions of Violet Canal. On the basis of the calibration of the model, the low DO problem in Violet Canal is mainly caused by SOD and CBOD.

4.11.3 Sensitivity Analysis

Because a mathematical model is a simplified representation of the real world, its prediction is often subject to considerable uncertainty from a variety of sources. These sources include over-simplification of modeling assumptions and formulations, noise-distorted data, and model parameter values. It is important to gain a better understanding of a model's reliability by analyzing the uncertainty associated with a model. Sensitivity analysis is a prime method of measuring a model's uncertainty and reliability. Sensitivity is related to the actual waterbody or water system. For example, reaeration in a narrow mountain stream is highly related to velocity, while reaeration for a wide river in flat area is related to both wind and water velocity. Sensitivity runs will provide useful information on understanding the physical, chemical, and biological processes in a specific waterbody. In this model, the sensitivity of the DO concentration to various parameters was examined. The analysis was performed by assessing the effects of the following:

- Velocity
- Dispersion
- Reaeration
- CBOD aerobic decay rate
- Background SOD

SOD is a result of deposition of dead phytoplankton and other organic matters from the watershed and has direct influence of DO levels in the water column. CBOD loading from the watershed contributes to the oxygen demand and can be the source of SOD. Therefore, SOD is included in the sensitivity analysis.

A sensitivity analysis was performed on the model parameters using the sensitivity function built into LA-QUAL. LA-QUAL automatically changed the requested parameters by a set amount while keeping all other parameters constant. The calibration scenario was used as the baseline for the sensitivity analysis. For the analysis, all

parameters were varied by ±30 percent. The results for CBOD and DO are shown in Table 4-6. Result plots are included in Appendix G.

Table 4-6. Results of sensitivity analysis

	DO min/max (mg/L)					CBOD min/max (mg/L)				
	CBOD aerobic decay rate	dispersion	reaeration	Background SOD	velocity	CBOD aerobic decay rate	dispersion	reaeration	Background SOD	velocity
base	4.16/5.34	4.16/5.34	4.16/5.34	4.16/5.34	4.16/5.34	12.52/13.45	12.52/13.45	12.52/13.45	12.52/13.45	12.52/13.45
30%	4.15/5.30	4.16/5.34	4.20/5.46	4.13/5.30	4.21/5.36	12.49/13.43	12.52/13.45	12.52/13.45	12.52/13.45	12.56/13.46
-30%	4.18/5.39	4.16/5.34	4.12/5.23	4.20/5.40	4.10/5.30	12.54/13.47	12.52/13.45	12.52/13.45	12.52/13.45	12.45/13.44

Each sensitivity variable is discussed below:

- When the stream velocity is increased or decreased, DO reaeration rates change correspondingly and DO will increase in faster water and decrease in slower water.
- Stream dispersion mixes and spreads material longitudinally. The sensitivity results show no change of DO with increased or decreased dispersion.
- Stream reaeration rates govern how fast oxygen transfers through the air-water interface. High reaeration rates will bring water oxygen levels closer to the saturation level of DO. In Violet Canal, DO will increase with higher reaeration rates and decrease with lower reaeration rates.
- CBOD is one cause of DO depletion. When CBOD decays, oxygen is used. The sensitivity results show that DO is slightly changed when the decay rates are changed.
- DO is sensitive to the background SOD rates. When SOD rates increase, DO becomes lower. When SOD rates decrease, DO increases.

5. Dissolved Oxygen Model Projection

EPA's regulations at 40 CFR 130.7 require that parties determining TMDLs take into account critical conditions for stream flow, loading, and water quality parameters. The calibrated model was used to project water quality for summer and winter critical conditions. Two scenarios were run for each season's critical conditions at Violet Canal: baseline and TMDL. The model was run for baseline conditions, which used the same water quality and model parameters as the calibration model; however, the flow and temperature were changed to critical conditions and effluent water quality from permitted dischargers were changed to permit limits. The TMDL model run was the same as the baseline run; however, pollutant loadings were reduced so that DO met criteria at all locations. This section describes identification of critical conditions, temperature inputs, headwater and tributary (wasteload) inputs, point source inputs, baseline model results, and TMDL reduction model rates. Appendix H contains the baseline output files and Appendix I contains the TMDL output files. The output files include the input parameters.

5.1 Identification of Critical Conditions

The LDEQ LTP defines critical conditions in terms of flow and temperature. Critical flow conditions for the summer scenario are simulated by using the annual 7Q10 flow or 0.1 cubic feet per second (cfs), whichever is greater. For winter, the critical flow condition is simulated using the annual 7Q10 flow or 1.0 cfs, whichever is greater. In addition, all point sources are assumed to be discharging at design capacity and at their permit limits. The LTP specifies that the critical temperature should be determined by calculating the 90th percentile seasonal temperature for the waterbody being modeled, if data are available. Otherwise, 30 ºC was used for summer and 20 ºC for winter critical conditions.

5.2 Temperature Inputs

The critical temperatures for the headwaters were based on the 90th percentile temperature of LDEQ ambient monitoring in the representative subsegment. For summer conditions, a critical temperature of 30 °C was used for incremental and wasteload inputs, unless the temperature was already greater than 30 °C, in which case the temperature was kept the same as calibration. For winter conditions, a critical temperature of 20 °C was used for incremental and wasteload inputs. The most critical time of year for meeting a constant DO standard is the period of high temperatures and low flows.

5.3 Headwater and Tributary (Wasteload) Inputs

The inputs for the headwater and tributaries for the projection simulation were based on guidance in the LTP. According to the LTP, the critical flow rates for summer should be set to either the 7Q10 flow or 0.1 cfs, whichever is greater, and either the 7Q10 or 1 cfs in the winter. Because 7Q10 values for the waterbodies are not available, the headwater and tributary flows used in calibrating the model were replaced with 0.1 cfs for the summer scenario and 1 cfs for the winter scenario. It was assumed that during critical times, there might not be headwater flow for 7 days, making the 7Q10 equal to 0 cfs; therefore 0.1 cfs and 1 cfs would be used.

DO from headwaters and tributaries were set to the water quality criterion of 4 mg/L or the observed concentration, whichever was greater. CBOD levels from headwaters and tributaries were reduced until modeled DO met the criteria. The ammonia levels were low from both the headwaters and tributaries; therefore, the ammonia inputs were not changed from the calibration values.

5.4 Point Source Inputs

Input point sources were kept at the same flow as the calibration inputs.

5.5 Baseline Model Results

The calibrated model was run for a baseline condition. Baseline conditions are run under critical temperature and water flow conditions for summer and winter using calibrated parameters and water quality values. The baseline condition is essentially the starting point for TMDL analysis from which loading reductions are made because it represents the critical conditions and the calibrated model. Baseline line conditions were run under critical temperature and water flow conditions for calibrated parameters and water quality values. Plots of baseline water quality are presented in Appendix J. Table 5-1 presents the baseline oxygen demand for subsegment 041805. These loadings are less than the calibration results (Table 4-5) due to the critical condition assumptions.

Table 5-1. Baseline model loadings

Season	Loadings (lb/d)			
	SOD	$CBOD_u$	Ammonia as N	Organic N as N
Summer	1,142	21.08	0.27	1.12
Winter	592.6	200.6	1.24	10.49

5.6 TMDL Reduction Model Results

The model demonstrates that with loading reductions, the canal will meet DO criteria (Figure 4-3). For projection runs, the flow (0.1 cfs) and weather conditions were kept identical to the baseline conditions. Only load inputs such as SOD and CBOD from the drainage basin were changed in order to determine the loadings for the TMDL.

Several steps were used to develop the reduction percentages for oxygen demand. The TMDL was calculated by first iteratively reducing SOD. After meeting the DO criterion by reducing SOD, the CBOD reduction rate was calculated by the SOD/CBOD relationship ($SOD = a \times \sqrt{CBOD}$). This equation assumes that the settled $CBOD_u$ is linearly related to the $CBOD_u$ load. The loading of CBOD is in mg/L of O_2, and the settled CBOD is in $m/m^2/d$ of O_2. Slight adjustments were made to the SOD reduction rate, and an updated CBOD reduction rate was calculated. This process was repeated until the optimal reduction rates were determined.

Plots of TMDL water quality are presented in Appendix K.

6. Dissolved Oxygen TMDL Development

A TMDL is the total amount of a pollutant that a receiving waterbody can assimilate while still achieving water quality standards. In TMDL development, allowable loadings from all pollutant sources that cumulatively amount to no more than the TMDL must be established, thereby providing the basis for establishing water quality-based controls.

A TMDL for a given pollutant and waterbody is calculated using the sum of individual WLAs for point sources and LAs for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account any lack of knowledge concerning the relationship between load and wasteload allocations and water quality, and it may include a future growth (FG) component. The components of the TMDL calculation are illustrated using the following equation:

$$TMDL = \Sigma\, WLAs + \Sigma\, LAs + MOS + FG$$

This TMDL establishes load allocations for oxygen-demanding substances and goals for reduction of those pollutants. LDEQ's position is that when oxygen-demanding loads are reduced in order to ensure that the DO criterion is supported, nutrients are also reduced. The implementation of this TMDL through discharge permits and implementation of best management practices (BMPs) to control and reduce runoff of oxygen-demanding pollutants will also reduce the nutrient loading from those sources.

6.1 TMDLs, WLAs, and LAs

The DO TMDLs are presented as oxygen demand from $CBOD_u$, ammonia nitrogen, and SOD, and they were derived using the LA-QUAL model. A summary of the TMDLs is presented in Table 6-1. The TMDLs were calculated from SOD, $CBOD_u$, ammonia, and organic nitrogen from nonpoint source model inputs, tributary flows, incremental flows, and background data.

Table 6-1. Summary of DO TMDLs, WLAs, LAs, MOSs, and FGs

Season	Loadings (lb/d)							
Summer	SOD		$CBOD_u$		Ammonia as N		Organic N as N	
	Baseline	TMDL	Baseline	TMDL	Baseline	TMDL	Baseline	TMDL
WLA	177.2	126.5	4.18	2.67	0.174	0.174	0.240	0.240
LA	736.2	525.8	12.68	6.38	0.043	0.043	0.658	0.658
MOS	114.2	81.5	2.11	1.13	0.027	0.027	0.112	0.112
FG	114.2	81.5	2.11	1.13	0.027	0.027	0.112	0.112
TMDL	1,141.6	815.5	21.08	11.30	0.272	0.272	1.122	1.122
Percent reduction	28.6%		46.4%		0.0%		0.0%	
Season	Loadings (lb/d)							
Winter	SOD		$CBOD_u$		Ammonia as N		Organic N as N	
	Baseline	TMDL	Baseline	TMDL	Baseline	TMDL	Baseline	TMDL
WLA	92.0	92.0	32.04	32.04	0.32	0.32	1.69	1.69
LA	382.2	382.2	128.43	128.43	0.67	0.67	6.70	6.70
MOS	59.3	59.3	20.06	20.06	0.12	0.12	1.05	1.05
FG	59.3	59.3	20.06	20.06	0.12	0.12	1.05	1.05
TMDL	592.6	592.6	200.58	200.58	1.24	1.24	10.49	10.49
Percent reduction	0.0%		0.0%		0.0%		0.0%	

6.1.1 Wasteload Allocation

The WLA portion of the TMDL equation is the total loading of a pollutant that is assigned to point sources. The permitted or average (expected or observed) flows were used to calculate the WLAs. The WLAs are presented in Table 6-2. There were no reductions in point sources.

Table 6-2. WLAs for subsegment 041805 in the Lake Pontchartrain Basin

Agency interest (AI) #	NPDES permit #	Outfall	Facility name	Flow type	Flow (gpd)	Measurement	BOD_5	$CBOD_u$	Amm	Org N
20849	LAG531277	001	Violet Chevron	Average	1,310	Loading (lb/d)	0.492	1.13	0.164	0.082
						Concentration (mg/L)	45.0	103.5	15.0	7.5

Note: The official WLA is $CBOD_u$. BOD_5 is presented as a comparison to a commonly measure parameter. BOD_5 is converted to $CBOD_u$ by assuming that BOD_5 was approximately equal to $CBOD_5$ and then using a conversion factor of 2.3 to convert to $CBOD_u$.

EPA's stormwater permitting regulations require municipalities to obtain permit coverage for all stormwater discharges from MS4s. For the MS4 in the basin, a gross MS4 load was computed by multiplying the LA by the ratio of the MS4 area in each subsegment (45 acres) to the subsegment area (232 acres). Note that these values are estimates that can be refined in the future as more information about the MS4s and land-use-specific loadings becomes available. Note also that the MS4 loads presented reflect only that portion of the MS4 in the subsegment. The computed MS4 load was subtracted from the LA and included as a WLA component of the TMDL because MS4s are permitted dischargers but function similarly to nonpoint sources (through storm-driven processes). In addition, the TMDL was developed for critical low flow conditions, when stormwater is not expected to play a role in loadings.

Table 6-3 lists the individual WLAs for the MS4s identified in Section 2.5. LPDES permitted discharges without DO or nutrient effluent limitations have been determined to not be sources of these. For these dischargers, EPA is not providing allocations or permit limits. If at some point in the future, LDEQ determines that any of the discharges may contain these parameters, WLAs may be provided along with the appropriate permit conditions. MS4 WLAs are not intended to be used as permit limits. Permit limits will not be applied to MS4 permittees. EPA expects that the MS4 WLAs will be achieved through BMPs and adaptive management.

Table 6-3. Summary of WLAs for MS4s subsegment 041805 in the Lake Pontchartrain Basin

NPDES permit #	Agency interest (AI) #	Urban area (UA)	MS4 area (acres)	Season	Pollutant	MS4 (lb/d)
LAR040003	108277	St Bernard Parish Government - Municipal Separate Storm Sewer System	45.00	Summer	$CBOD_u$	1.53
					Organic nitrogen as N	0.158
					Ammonia as N	0.010
					SOD	126.5
				Winter	$CBOD_u$	30.90
					Organic nitrogen as N	1.61
					Ammonia as N	0.161
					SOD	91.96

The estimated annual runoff from the MS4 can be calculated with the following equation.

$$R = P \times Pj \times Rv$$

where

R = Annual runoff (inches)
P = Annual rainfall (inches)
Pj = Fraction of annual rainfall events that produce runoff (usually 0.9)
Rv = Runoff coefficient

Because watershed imperviousness is a reasonable predictor of the runoff coefficient, the runoff coefficient was substituted using the following equation.

$$Rv = 0.05 + 0.9Ia$$

where

Ia = Impervious fraction

The estimated annual runoff from the MS4 was calculated to be 18.72 inches per year. For that calculation, the average annual rainfall (58 inches) was calculated using the past 14 years of complete data collected by the National Climatic Data Center at New Orleans International Airport. The impervious fraction of the MS4 was estimated to be 34 percent using impervious area information from USGS. Once the runoff in inches was calculated, it was multiplied by the area to obtain the runoff is 22.9 million gallons per year (62,700 million gallons per day [gpd]).

6.1.2 Load Allocation

The LA is the portion of the TMDL assigned to nonpoint sources such as natural background loadings or upstream sources. For this TMDL, the LA was calculated by subtracting the WLA, MOS, and FG from the total TMDL allocation. LAs were not allocated to separate nonpoint sources, such as water entering from Lake Borne or the Mississippi River Gulf Outlet, because of the lack of available source characterization data. The LA covers the 187 acres not covered in the MS4 WLA (Table 6-3).

6.2 Seasonality and Critical Condition

The federal regulations at 40 CFR 130.7 require that TMDLs include seasonal variations and take into account critical conditions for stream flow, loading, and water quality parameters. The sampling results for all pollutants were plotted over time and reviewed for any seasonal patterns (see Section 3). The water quality criteria for DO apply all year accounting for seasonal variations. This TMDL was developed under critical conditions, providing a conservative year-round TMDL.

Critical conditions for DO have been determined to be the following: negligible nonpoint runoff and low-stream flow combined with high water temperatures. Oxygen-demanding substances can enter a water system during higher flows and settle to the bottom, where they exert a large oxygen demand during the high-temperature/low-flow seasons. Water temperature is one of the leading factors that affect DO in the segment. High water temperatures lower the DO saturation concentration, decreasing the amount of DO that the stream can contain. In addition, high temperature increases CBOD decay and SOD. Therefore, it is most important to develop a TMDL to address the high-water-temperature conditions. Ambient water quality data from LDEQ show that low DO concentrations occur during the summer months.

6.3 Margin of Safety

Section 303(d) of the Clean Water Act and the regulations at 40 CFR 130.7 require that TMDLs include an MOS to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality. The MOS may be expressed explicitly as unallocated assimilative capacity or implicitly using conservative assumptions in establishing the TMDL. In addition to the MOS, an FG component may be added to account specifically for FG in the TMDL area.

The MOS can be incorporated in two ways (USEPA 1991). One way is to implicitly incorporate it by using conservative model assumptions to develop allocations, including using the DO water quality criteria for model inflows. DO from headwaters and tributaries was set to the water quality criterion, which is lower than the 90 percent saturation level of DO at 30 ºC.

The other way to incorporate the MOS is to explicitly specify a portion of the TMDL as the MOS and use the remainder for allocations. For this analysis, the MOS is explicit: 10 percent of each targeted TMDL was reserved

as the MOS. Using 10 percent of the TMDL load provides an additional level of protection to the designated uses of the subsegments of concern.

6.4 Future Growth

The FG is an allocation for growth. Ten percent of the load was allocated for FG in the area covered by the TMDL. This growth includes future urban development, including point sources, MS4 areas, agriculture, and other nonpoint sources. The FG could also be used for sources not accounted for or unknown and therefore not otherwise included in the TMDL.

7. Future Activities

This section discusses TMDL implementation strategies, environmental monitoring activities, and stormwater permitting requirements and presumptive best management practices approach for the TMDL conducted for the Violet Canal.

7.1 TMDL Implementation Strategies

Current TMDL requirements do not require implementation plans to be included in TMDL reports. Louisiana is responsible for developing and implementing the TMDL implementation plans. Section 303(d) of the Clean Water Act and the implementing regulations at 40 CFR 130.7 state that EPA has no authority to approve or disapprove TMDL implementation plans.

WLAs will be implemented through LPDES permit procedures. LDEQ was delegated to manage the NPDES program in August 1996, and LDEQ is responsible for all permits covered by the delegation package. As part of that designation, a Memorandum of Agreement (MOA) was established between LDEQ and EPA. The designation and memorandum were revised in April 2004. In accordance with Section 1.C of the NPDES MOA between LDEQ and EPA (Revision 1, April 28, 2004), EPA has the responsibility of providing continued technical and other assistance, including interpreting and implementing federal regulations, policies, and guidelines on permitting and enforcement matters. The MOA further states that LDEQ has primary responsibilities for implementing the LPDES program in Louisiana, including applicable sections of the federal Clean Water Act, applicable state legal authority, the applicable requirements of 40 CFR Parts 122–125, and any other applicable federal regulations establishing LPDES program priorities with consideration of EPA Region 6 and national NPDES goals and objectives. For details on the designation and agreement, see the EPA Region 6 website at http://www.epa.gov/region6/water/npdes/docs/louisiana-moa.pdf.[2] LDEQ's position is that, if any unresolved LDEQ comments to these TMDLs become the basis for an EPA Region 6 objection of an LDEQ-drafted permit or permittee objection/appeal of an LDEQ drafted permit, LDEQ may relinquish permitting authority to EPA Region 6.

7.2 Environmental Monitoring Activities

LDEQ uses funds provided under section 106 of the Clean Water Act and under the authority of the Louisiana Environmental Quality Act to run a program for monitoring the quality of Louisiana's surface waters. The LDEQ Surveillance Section collects surface water samples at various locations using appropriate sampling methods and procedures to ensure 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 are used to develop the state's biennial section 305(b) report (*Water Quality Inventory*) and section 303(d) list of impaired waters (*Final 2010 Integrated Report*).

LDEQ has implemented a rotating approach to surface water quality monitoring. Through the rotating approach, the entire state is sampled on a 4-year cycle. Long-term trend monitoring sites at various locations on the larger rivers and Lake Pontchartrain are sampled throughout the 4-year cycle. Sampling is conducted monthly during a water year (October through September) to yield approximately 12 samples per site during each year the site is monitored. Sampling locations are selected where they are considered representative of the waterbody. Under the current monitoring schedule, approximately one-half of the state's waters are newly assessed for section 305(b) and section 303(d) listing purposes for each biennial cycle. Monitoring allows LDEQ to determine whether any improvement in water quality occurred after the TMDLs had been implemented. LDEQ evaluates the monitoring results to generate the Integrated Report submitted by April 1 on even-numbered years. More information can be

[2] Accessed March 13, 2012.

found in *Louisiana's Water Quality Assessment Method and Integrated Report Rationale: 2010 Water Quality Integrated Report* (LDEQ 2010a). Monitoring will allow LDEQ to determine whether there has been any improvement in water quality following TMDL implementation. As the monitoring results are evaluated at the end of each year, waterbodies might be added to or removed from the section 303(d) list of impaired waterbodies.

Two watershed coordinators have been hired to work with the Lake Pontchartrain Basin Foundation (LPBF) on stakeholder involvement for watershed plans. LDEQ's nonpoint source staff is also working with the LPBF to implement these plans, and will be assigned additional watersheds to work on through the planning and implementation process. In order to address some of the known problems that exist within this basin, LDEQ has been implementing programs that address fecal coliform, DO, and mercury, which are the primary water quality problems that have been identified in these waterbodies. LPBF has implemented many programs to restore water quality, and will be an important partner for LDEQ as TMDLs are implemented within the basin. Because much of the basin is included within the Coastal Zone Boundary, Louisiana Department of Natural Resources – Coastal Management Division will be working with LDEQ and LPBF on implementation of management measures required through the Coastal Nonpoint Source Pollution Control Program (LDEQ 2010c).

7.3 Stormwater Permitting Requirements and Presumptive Best Management Practices Approach

7.3.1 Background

The NPDES permitting program for stormwater discharges was established under the Clean Water Act as the result of a 1987 amendment. The Act specifies the level of control to be incorporated into the NPDES stormwater permitting program depending on the source (industrial versus municipal stormwater). These programs contain specific requirements for the regulated communities/facilities to establish a comprehensive stormwater management program (SWMP) or stormwater pollution prevention plan (SWPPP) to implement any requirements of the TMDL allocation (see 40 CFR Part 130).

Stormwater discharges are highly variable both in terms of flow and pollutant concentration, and the relationships between discharges and water quality can be complex. For municipal stormwater discharges in particular, the use of system-wide permits and a variety of jurisdiction-wide BMPs, including educational and programmatic BMPs, does not easily lend itself to the existing methodologies for deriving numeric water quality-based effluent limitations. These methodologies were designed primarily for process wastewater discharges, which occur at predictable rates with predictable pollutant loadings under low-flow conditions in receiving waters. EPA has recognized such problems and developed permitting guidance for stormwater permits (USEPA 1996).

Because of the nature of stormwater discharges, and the typical lack of information on which to base numeric water quality-based effluent limitations (expressed as concentration and mass), EPA recommends an interim permitting approach for NPDES stormwater permits that is based on BMPs. EPA permitting guidance states that, "[t]he interim permitting approach uses BMPs in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards" (USEPA 1996).

A monitoring component is also included in the recommended BMP approach. According to EPA permitting guidance, "each storm water permit should include a coordinated and cost-effective monitoring program to gather necessary information to determine the extent to which the permit provides for attainment of applicable water quality standards and to determine the appropriate conditions or limitations for subsequent permits" (USEPA 1996). This approach was further elaborated in a guidance memo issued in 2002. "The policy outlined in this memorandum affirms the appropriateness of an iterative, adaptive management BMP approach, whereby permits include effluent limits (e.g., a combination of structural and nonstructural BMPs) that address stormwater discharges, implement mechanisms to evaluate the performance of such controls, and make adjustments (i.e., more stringent controls or specific BMPs) as necessary to protect water quality. … If it is determined that a BMP approach (including an iterative BMP approach) is appropriate to meet the storm water component of the TMDL, EPA recommends that the TMDL reflect this" (Wayland and Hanlon 2002). This BMP-based approach to stormwater sources in TMDLs is also recognized and described in the most recent EPA guidance (USEPA 2008).

This TMDL adopts the EPA-recommended approach and relies on appropriate BMPs for implementation. No numeric effluent limitations are required or anticipated for municipal stormwater discharge permits.

7.3.2 Specific SWMP/SWPPP Requirements

As discussed in the Louisiana Small MS4 NPDES permit, if a TMDL assigns an individual WLA specifically to an MS4's stormwater discharge, LDEQ's permit specifies that the WLA must be included as a measurable goal for the SWMP.

Examples of activities that the MS4 may conduct to be consistent with the WLA include the following:

- Monitoring to evaluate program compliance, the appropriateness of identified BMPs, and progress toward achieving identified measurable goals
- Development of a schedule for implementation of additional controls and/or BMPs, if necessary, on the basis of monitoring results, to ensure compliance with applicable TMDLs

8. Public Participation

Federal regulations require EPA to notify the public and seek comments concerning the TMDLs it prepares. These TMDLs were developed under contract to EPA, and EPA held a public review period seeking comments, information, and data from the public and any other interested parties. The notice for the public review period was published in the *Federal Register* on December 6, 2011. The review period closed on January 20, 2012.

Comments were received from LDEQ. EPA reviewed the comments and referred to them while revising and finalizing this TMDL document, as necessary. Full comment text is included in Appendix L. Responses to the comments are included in Appendix M.

EPA will submit the final TMDL to LDEQ for implementation and incorporation into LDEQ's water quality management plan.

9. References

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APPENDIX A:
Tidal Influence in Selected Subsegments: Information Provided by Max Forbes via Personal Communication

From: Max Forbes
Sent: Tuesday, May 31, 2011 3:05 PM
To: Sievers, Mark -- FFX
Cc: Chuck Berger
Subject: Comments on LA streams experiencing tidal action

Following are comments on the listing of streams that you sent. Segments that were obviously not tidal (Comite River, Big Creek) were excluded.

040201—Bayou Manchac - When the Amite River is low, tidal action from Lake Maurepas can affect this Bayou.

040302 – Amite River – When the River is low, tidal action is discernible at Port Vincent; effect may fade out before the Denham Springs gage.

040303 – Amite River – Diversion Canal to Maurepas – tidal action much of the time; fading out if the River is high.

040304 – Gray's Creek – tidal affected in lower reaches, estimated last three miles.

040401 – Blind River – Diversion Canal to Maurepas – tidal action most of the time, high Amite River stages may affect.

040403 – Blind River – Headwaters to Diversion Canal – likely tidal most of the time, high Amite River stages may affect

040305 – Colyell Creek – tidal affected in lower reaches, estimated south of about lat. 30 degrees, 22 minutes, 30 seconds.

040501 – Tickfaw River – Stateline to La 42 – estimate tidal south of about Springville

040503 – Natalbany River – estimate tidal south of I-12

040504 – Yellow Water River – estimate tidal south of La. 22.

040505 – Ponchatoula Creek and River – estimate tidal south of US 61

040603 – Selser's Creek – estimate tidal south of local road about 1 mile south of La. 22.

040701 – Tangipahoa River – estimate tidal south of La. 22.

040801 – Tchefuncte River – estimate tidal south of US 190.

040903 – Bayou Cane – estimate tidal downstream of US 190.

040905—Bayou Liberty – estimate tidal south of I-12.

040906 – Bayou Liberty – estimate entirely tidal

040909 – W-14 Canal – estimate tidal south of Daney Street in Slidell. Call for specifics.

040910 – Salt Bayou – estimate entirely tidal

041201 – Bayou LaBranche – estimate entirely tidal

041302 – Lake Ponchartrain Drainage Canals – the area is leveed and rainfall runoff is pumped when a specified water level is experienced within the leveed area. The boundaries were looked at with regard to free flow.

O41401 – New Orleans East leveed waterbodies – as for 041302

041805 – Violet Canal – A gated structure exists where the Canal meets the MRGO and is operated to prevent high Gulf tides from reaching the area. Otherwise, the Canal is affected by tidal action from Lake Borgne.

Max J. Forbes Jr.

APPENDIX B:
Monitoring Data Tables and Plots

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Table B-3. CBOD monitoring results from July 2009 intensive survey B-1
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Figure B-1. Continuous dissolved oxygen data observed at Violet Canal station VIOLET-3. ..... B-2
Figure B-2. Continuous temperature data observed at Violet Canal station VIOLET-3. ..... B-2
Figure B-3. Continuous specific conductivity data observed at Violet Canal station VIOLET-3. ..... B-3
Figure B-4. Continuous pH data observed at Ponchatoula Creek at Violet Canal station VIOLET-3. .. B-3

Table B-1. In situ data collected during the July 2009 intensive survey

Site ID	Site name	Date	Time	Sample depth (m)	Water Temp. (°C)	Specific Conductivity (umhos/cm)	DO (mg/L)	pH (su)
VIOLET-1	Violet Canal near Mississippi River siphon	7/9/09	15:02	1.0	30.1	392	5.2	7.5
VIOLET-2	Violet Canal near LA Hwy 38 bridge	7/9/09	15:03	0.1	30.6	394	5.3	7.4
VIOLET-3	Violet Canal just west of Forty Arpent Canal	7/9/09	16:20	1.0	30.7	391	5.5	7.7
VIOLET-4	Violet Canal halfway between VIOLET-3 and VIOLET-5	7/9/09	18:15	0.1	30.9	654	4.9	7.6
VIOLET-5	Violet Canal near eastern end of subsegment	7/9/09	19:05	0.85	30.2	4397	4.4	7.4

Note: DO = dissolved oxygen

Table B-2. Water quality data from July 2009 intensive survey

Site ID	Date	Time	TKN (mg/L)	NH_3 (mg/L)	NO_2+ NO_3 (mg/L)	Total Phos. (mg/L)	Ortho Phos. (mg/L)	Chlorophyll *a* (mg/L)	TSS (mg/L)	TOC (mg/L)
VIOLET-1	7/9/09	15:02	1.30	<0.10	1.45	0.185	0.086	3	140	5.5
VIOLET-3	7/9/09	16:20	0.776	<0.10	1.64	0.252	0.107	3	38	1.6
VIOLET-3-D	7/9/09	16:40	0.753	<0.10	1.36	0.195	0.115	3	44	2.2
VIOLET-5	7/9/09	19:05	0.917	<0.10	0.633	0.18	0.122	4	28	2.9

Table B-3. CBOD monitoring results from July 2009 intensive survey

Site ID	Date	Time	CBOD Day 2 (mg/L)	CBOD Day 5 (mg/L)	CBOD Day 9 (mg/L)	CBOD Day 14 (mg/L)	CBOD Day 20 (mg/L)	CBOD Day 27 (mg/L)
VIOLET-1	7/9/09	15:02	<2	<2	<2	3	3	13
VIOLET-3	7/9/09	16:20	<2	<2	<2	2	3	14
VIOLET-3-D	7/9/09	16:40	<2	<2	2	7	7	10
VIOLET-5	7/9/09	19:05	<2	<2	2	3	3	13

Table B-4. Available data for subsegment 041805 at station 1068

Station name	Period of record	No. of obs.	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
Dissolved oxygen	1/17/01–10/10/07	23	1.01	11.66	5.95
Nitrite+nitrate	1/17/01–3/2/10	22	0.05	1.72	0.55
Total Kejldahl nitrogen	1/17/01–3/2/10	25	0.32	2.08	0.84
Total phosphorus	1/17/01–3/2/10	24	0.05	0.35	0.16

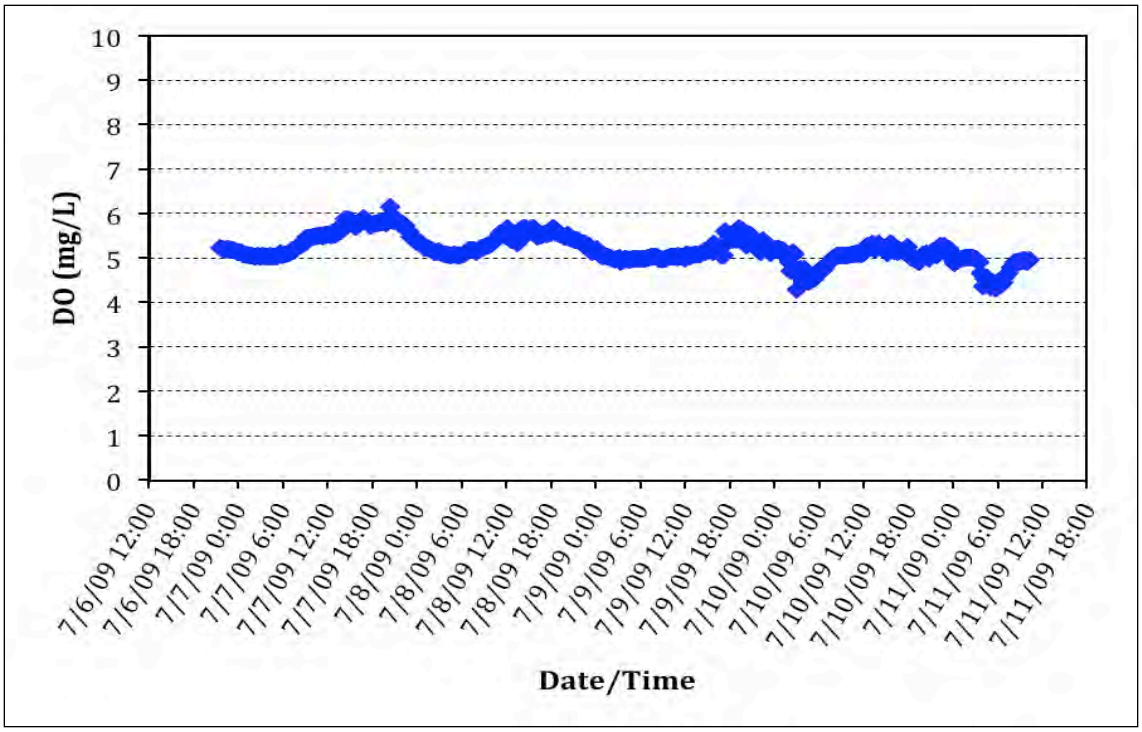

Figure B-1. Continuous dissolved oxygen data observed at Violet Canal station VIOLET-3.

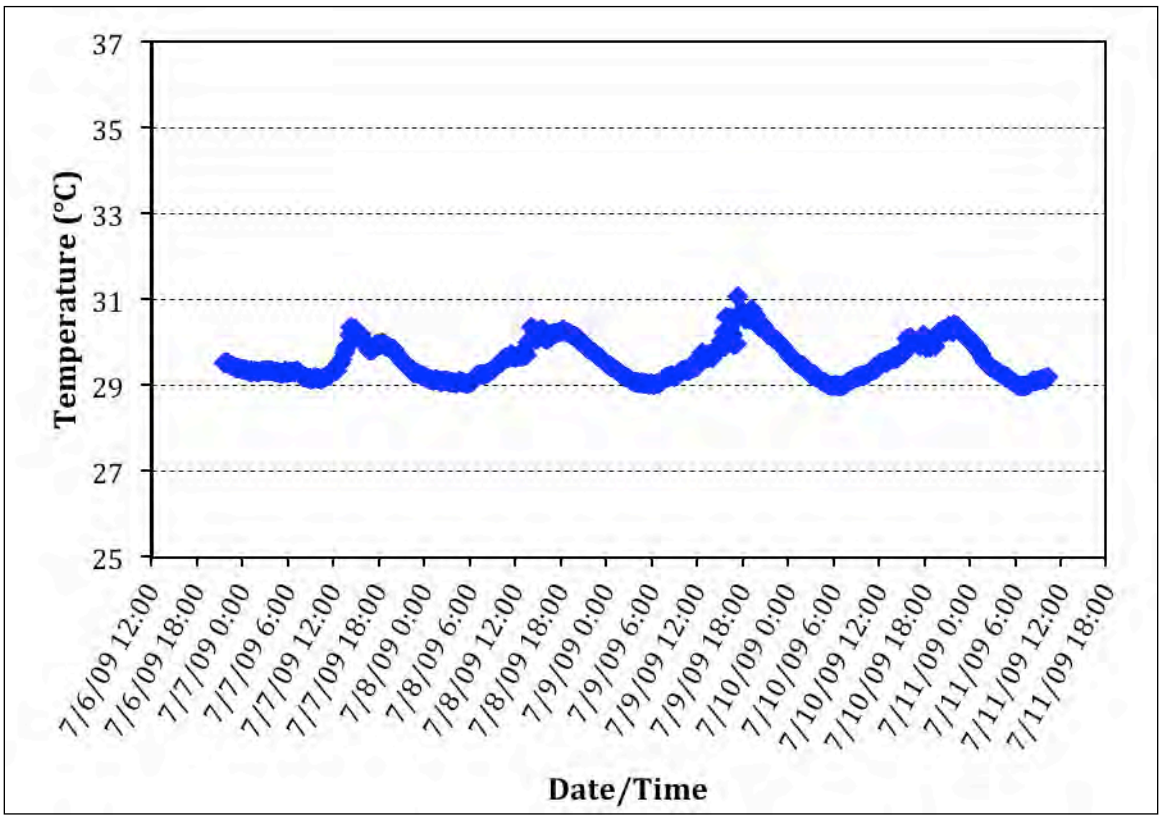

Figure B-2. Continuous temperature data observed at Violet Canal station VIOLET-3.

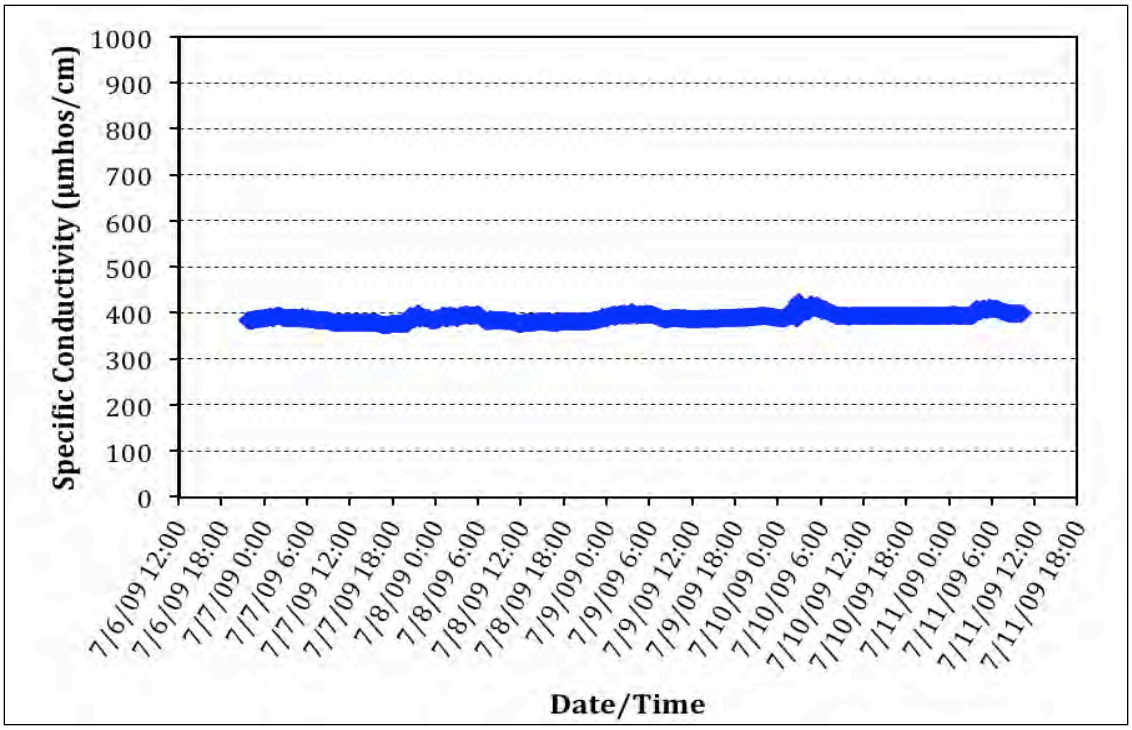

Figure B-3. Continuous specific conductivity data observed at Violet Canal station VIOLET-3.

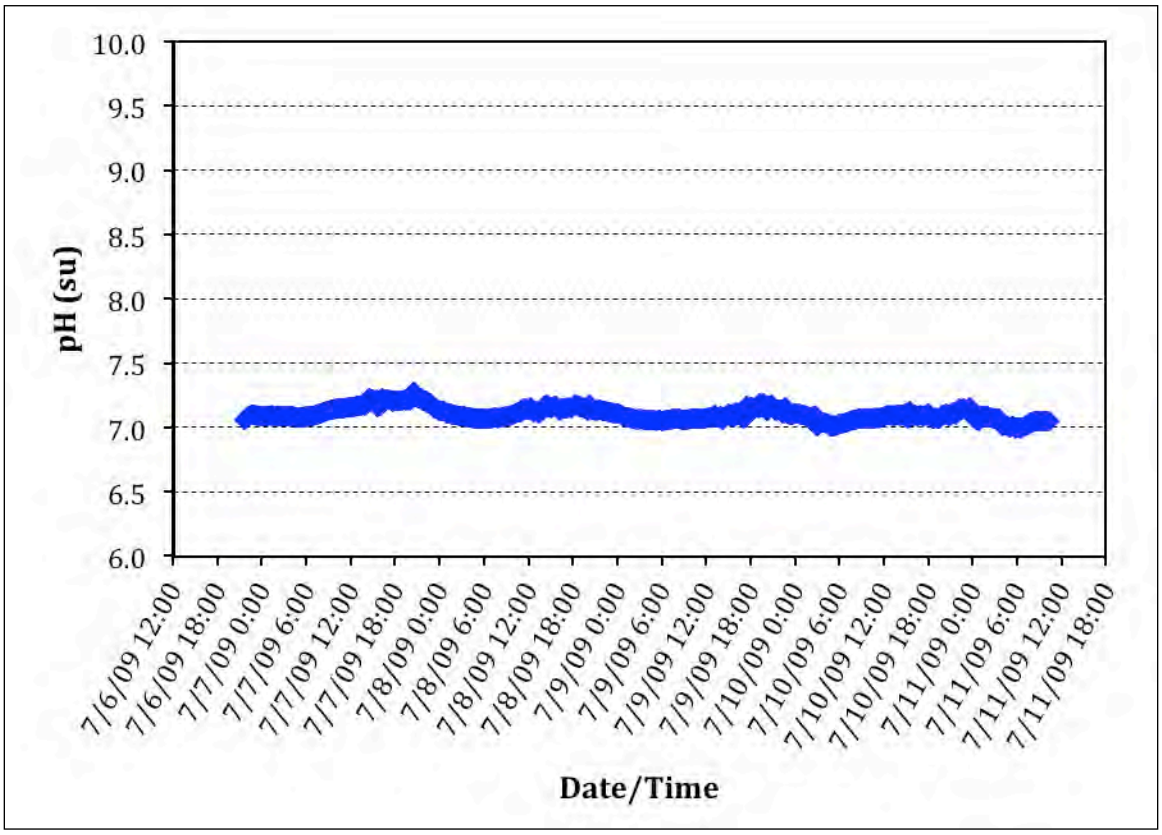

Figure B-4. Continuous pH data observed at Ponchatoula Creek at Violet Canal station VIOLET-3.

APPENDIX C:
Field Survey Notes

FIELD SHEET FOR LAKE PONTCHARTRAIN BASIN DO TMDLs

Page 1 of 1

Site ID: (violet 1) Violet 1 Date/time: 9 Jun 09 Crew: BSG/Kiley

Description of measurement location (position, relative to landmarks and horizontal position): Near north of the siphon gates ~20 meters

GPS coordinates: N 29° 53' 56.4" W 089° 54' 02.6"

Wind speed (mph) and direction wind is coming from: Ø

General appearance of water (including vegetation, if any): Very Turbid ~5" secchi

Sample collected? (Yes) No Number of sample bottles:

Sample depth (m): 1m Total depth (m): 7.2' Apparatus used: Van dorn

QA/QC sample collected? Yes (No) Type: Dup Blank ID:

Cross section measured? Yes No Method (circle one): ADCP GPSFath SurvRod

Flow measured? (Yes) No Method (circle one): (ADCP) MMcB Drogue

Once a Coupl. to

ADCP flows for each run (m3/sec):	Run 1:	Run 3:	Run 5:
	Run 2:	Run 4:	Run 6:

In situ meter used: Rotal Troll Secchi depth (specify units): ~5"

Depth (m)	Temperature (C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	pH (su)
1m	30.06	392.1	5.18	7.51

Comments / Problems encountered (if any) / Corrective action (if any):

Violet 1 pics 1062 - 1063

FIELD SHEET FOR LAKE PONTCHARTRAIN BASIN DO TMDLs

Page 1 of 1

Site ID: Violet - 2 Date/time: 9/June/09 1503 Crew: Riley

Description of measurement location (position relative to landmarks and horizontal position): East of bridge

GPS coordinates: N 29°54' 04.8 W 089°53' 27.6"

Wind speed (mph) and direction wind is coming from: Ø

General appearance of water (including vegetation, if any): turbid

Sample collected? Yes (No) Number of sample bottles:

Sample depth (m): Total depth (m): 8' Apparatus used:

QA/QC sample collected? Yes (No) Type: Dup Blank ID:

Cross section measured? (Yes) No Method (circle one): (ADCP) GPSFath SurvRod

Flow measured? Yes (No) Method (circle one): ADCP MMcB Drogue

ADCP flows for each run (m3/sec):	Run 1:	Run 3:	Run 5:
	Run 2:	Run 4:	Run 6:

In situ meter used: Fratal Trap 2 Secchi depth (specify units):

Depth (m)	Temperature (C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	pH (su)
1	30.55	393.5	5.25	7.42

Comments / Problems encountered (if any) / Corrective action (if any):

pic 1064 1065

FIELD SHEET FOR LAKE PONTCHARTRAIN BASIN DO TMDLs

Page 1 of 1

Site ID: Viol-3 Date/time: 1620 9 Jun 09 Crew: Kilcy [illegible]

Description of measurement location (position relative to landmarks and horizontal position): @ Hydrolab up stream of confluence

GPS coordinates: N29° 54' 14.1" W 089 52' 51.3"

Wind speed (mph) and direction wind is coming from: West 5 mph

General appearance of water (including vegetation, if any): turbid

Sample collected? Yes No Number of sample bottles:

Sample depth (m): 1 Total depth (m): 6.95' Apparatus used: Van Dorn

QA/QC sample collected? Yes No Type: Dup Blank ID: 07 09 2009

Cross section measured? Yes No Method (circle one): ADCP GPSFath SurvRod

Flow measured? Yes No Method (circle one): ADCP MMcB Drogue ~28'/min

ADCP flows for each run (m3/sec):	Run 1:	Run 3:	Run 5:
	Run 2:	Run 4:	Run 6:

In situ meter used: Troll 2 Rental Secchi depth (specify units): 7 in

Depth (m)	Temperature (C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	pH (su)
	30.68	391.2	5.50	7.68

Comments / Problems encountered (if any) / Corrective action (if any):

Ric 1066 West 1067 East

FIELD SHEET FOR LAKE PONTCHARTRAIN BASIN DO TMDLs

Page 1 of 1

Site ID: Wolf 4 Date/time: 09 Jul 09 1815 Crew: BSG

Description of measurement location (position relative to landmarks and horizontal position):

GPS coordinates: N 29° 54' 21.5 W 089° 52' 14.0

Wind speed (mph) and direction wind is coming from: West Supply

General appearance of water (including vegetation, if any): turbid

Sample collected? Yes (No) Number of sample bottles:

Sample depth (m): Total depth (m): 5.95' Apparatus used:

QA/QC sample collected? Yes (No) Type: Dup Blank ID:

Cross section measured? (Yes) No Method (circle one): (ADCP) GPSFath SurvRod

Flow measured? Yes (No) Method (circle one): ADCP MMcB Drogue

ADCP flows for each run (m3/sec):	Run 1:	Run 3:	Run 5:
	Run 2:	Run 4:	Run 6:

In situ meter used: Rachel Secchi depth (specify units):

Depth (m)	Temperature (C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	pH (su)
	30.88	653.7	4.90	7.61

Comments / Problems encountered (if any) / Corrective action (if any):

GPS just quit. tried new batteries still wont turn on went to truck for other

GPS – found out these batteries were dead, GPS fine

FIELD SHEET FOR LAKE PONTCHARTRAIN BASIN DO TMDLs

Site ID: WNot-S Date/time: 9 Jul 09 Crew: BSG

Description of measurement location (position relative to landmarks and horizontal position):

GPS coordinates: N 29° 54' 30.2" W 089° 51' 35.7

Wind speed (mph) and direction wind is coming from: West 5mph

General appearance of water (including vegetation, if any): more clear than before

Sample collected? (Yes) No Number of sample bottles:

Sample depth (m): 2.8' Total depth (m): 5-6' Apparatus used: Van dorn

QA/QC sample collected? Yes (No) Type: Dup Blank ID:

Cross section measured? (Yes) No Method (circle one): ADCP GPSFath SurvRod

Flow measured? (Yes) No Method (circle one): (ADCP) MMcB Drogue

ADCP flows for each run (m3/sec):	Run 1:	Run 3:	Run 5:
	Run 2:	Run 4:	Run 6:

In situ meter used: rental trap 2 Secchi depth (specify units): ~8 in

Depth (m)	Temperature (C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	pH (su)
~ 2.8'	32.6	4397	4.44	7.44

Comments / Problems encountered (if any) / Corrective action (if any):

1068 - 69

APPENDIX D:
Model Vector Diagrams

Figure D-1. Vector diagram for subsegment 041805.....D-1

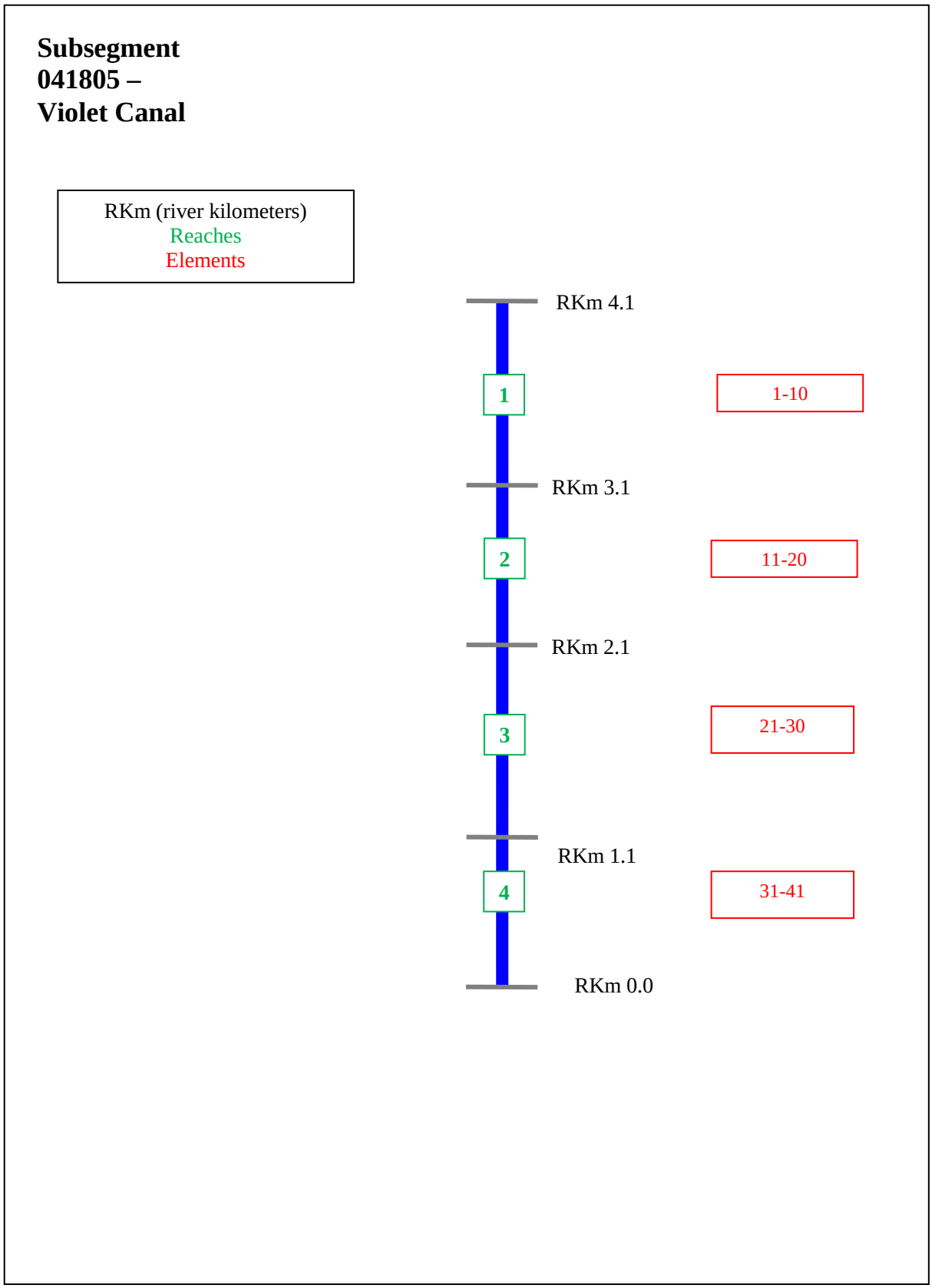

Figure D-1. Vector diagram for subsegment 041805.

APPENDIX E:
Model Calibration Output File

```
LA-QUAL Version 9.05
Louisiana Department of Environmental Quality
Input file is C:\Users\msievers\Desktop\New folder\041805(Violet)\Violet_Calib_DO2.txt
Running in steady-state mode using LA defaults
Output produced at 20:44 on 11/14/2011
$$$ DATA TYPE 1 (TITLES AND CONTROL CARDS) $$$
CARD TYPE       CONTROL TITLES
TITLE01         LA-QUAL Model for Violet Canal
TITLE02         Calibration Simulation
CONTROL   YES   METRIC UNITS
ENDATA01
$$$ DATA TYPE 2 (MODEL OPTIONS) $$$
CARD TYPE       MODEL OPTION
MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL #1   CONDUCTIVITY          UNITS = umhos/cm Conduct
MODOPT04   NO   CONSERVATIVE MATERIAL #2                        UNITS =
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BOD1 BIOCHEMICAL OXYGEN DEMAND #1
MODOPT07   NO   BOD2 BIOCHEMICAL OXYGEN DEMAND #2
MODOPT08  YES   NITROGEN SERIES
MODOPT09   NO   PHOSPHORUS
MODOPT10   NO   CHLOROPHYLL A
MODOPT11   NO   MACROPHYTES
MODOPT12   NO   COLIFORMS
MODOPT13   NO   NONCONSERVATIVE MATERIAL                        UNITS =
ENDATA02
$$$ DATA TYPE 3 (PROGRAM CONSTANTS) $$$
CARD TYPE       DESCRIPTION OF CONSTANT                       VALUE
PROGRAM         HYDRAULIC CALCULATION METHOD       =         2.00000 (widths and depths)
PROGRAM         INHIBITION CONTROL VALUE           =         3.00000 (inhibit all rates but SOD)
PROGRAM         OCEAN EXCHANGE RATIO               =         0.50000
PROGRAM         TIDE HEIGHT                        =         0.22000 meters
PROGRAM         TIDAL PERIOD                       =        12.00000 hours
PROGRAM         PERIOD OF TIDAL RISE               =         6.00000 hours
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
$$$ DATA TYPE 6 (PHYTOPLANKTON CONSTANTS) $$$
CARD TYPE       DESCRIPTION OF CONSTANT                       VALUE
ENDATA06
$$$ DATA TYPE 7 (PERIPHYTON CONSTANTS) $$$
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   V2  MissSiphonToHwy38V1_V2          4.10  TO    3.10   0.1000     1.00        10       1     10
REACH ID      2   V3  Hwy38ToWofFortyArpentCanalV2_V3 3.10  TO    2.10   0.1000     1.00        10      11     20
REACH ID      3   V4  WofFortyArpentCanalToV4         2.10  TO    1.10   0.1000     1.00        10      21     30
REACH ID      4   V5  V4ToV5endofsubseg               1.10  TO    0.00   0.1000     1.10        11      31     41
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   V2       0.000       0.000      26.820       0.000       0.000       1.680     0.00010   0.000
HYDR-1        2   V3       0.000       0.000      45.470       0.000       0.000       1.070     0.00010   0.000
HYDR-1        3   V4       0.000       0.000      53.450       0.000       0.000       1.070     0.00010   0.000
HYDR-1        4   V5       0.000       0.000      69.490       0.000       0.000       0.950     0.00010   0.000
ENDATA09
$$$ DATA TYPE 10 (DISPERSIVE HYDRAULIC COEFFICIENTS) $$$
CARD TYPE  REACH  ID     TIDAL     DISPERSION     DISPERSION     DISPERSION     DISPERSION
                         RANGE        "A"            "B"            "C"            "D"
HYDR          1   V2      0.00        0.500          0.000          0.000          0.000
HYDR          2   V3      0.00        0.500          0.000          0.000          0.000
HYDR          3   V4      0.50       20.000          0.000          0.000          0.000
HYDR          4   V5      1.00       50.000          0.000          0.000          0.000
ENDATA10
$$$ DATA TYPE 11 (INITIAL CONDITIONS) $$$
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CARD TYPE      REACH  ID     TEMP    SALIN       DO    NH3-N    NO3-N    PO4-P    CHL A    PERIP     BOD1     BOD2    ORG-N    ORG-P     COLI      NCM  Conduct     CM-2
                                   deg C      ppt    mg/L     mg/L     mg/L     mg/L     µg/L     g/m²     mg/L     mg/L     mg/L     mg/L  #/100mL          umhos/cm
INITIAL           1   V2    30.60     0.00     5.30     0.10     0.00     0.00     3.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
INITIAL           2   V3    30.70     0.00     5.50     0.10     0.00     0.00     3.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
INITIAL           3   V4    30.90     0.00     4.90     0.10     0.00     0.00     3.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
INITIAL           4   V5    30.20     0.00     4.40     0.10     0.00     0.00     4.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
ENDATA11
$$$ DATA TYPE 12 (REAERATION, SEDIMENT OXYGEN DEMAND, BOD COEFFICIENTS) $$$
                                                                                  AEROB              SETTLD     ANAER     AEROB                          ANAER      BOD2
CARD     RCH  RCH  K2                        K2        K2        K2    BKGRND      BOD       BOD       SOD      BOD      BOD2      BOD2                 BOD2   HYDR TO
TYPE     NUM   ID  OPT                      "A"       "B"       "C"       SOD    DECAY      SETT     AVAIL    DECAY    DECAY      SETT                DECAY      BOD1
                                                                        g/m²/d   per day       m/d      frac   per day   per day       m/d               per day   per day
COEFF-1    1   V2    3 OCONNER-DOBB     0.000     0.000     0.000     0.700     0.050     0.100     0.000     0.000     0.000     0.000                 0.000     0.000
COEFF-1    2   V3    3 OCONNER-DOBB     0.000     0.000     0.000     0.700     0.050     0.100     0.000     0.000     0.000     0.000                 0.000     0.000
COEFF-1    3   V4    3 OCONNER-DOBB     0.000     0.000     0.000     1.680     0.050     0.100     0.000     0.000     0.000     0.000                 0.000     0.000
COEFF-1    4   V5    3 OCONNER-DOBB     0.000     0.000     0.000     1.680     0.050     0.100     0.000     0.000     0.000     0.000                 0.000     0.000
ENDATA12
$$$ DATA TYPE 13 (NITROGEN AND PHOSPHORUS COEFFICIENTS) $$$
                                                  SETTLD              BKGRND    BKGRND                                        SETTLD
CARD TYPE      REACH  ID       ORG-N     ORG-N      ORGN       NH3       NH3       PO4     DENIT      ORGP      ORGP      ORGP
                                 DECA      SETT     AVAIL      DECA      SRCE      SRCE      RATE      DECA      SETT     AVAIL
                               per day       m/d      frac   per day   g/m²/d   g/m²/d   per day   per day       m/d      frac
COEFF-2           1   V2       0.120     0.000     0.000     0.020     0.000     0.000     0.020     0.000     0.000     0.000
COEFF-2           2   V3       0.120     0.000     0.000     0.020     0.000     0.000     0.020     0.000     0.000     0.000
COEFF-2           3   V4       0.120     0.000     0.000     0.020     0.000     0.000     0.020     0.000     0.000     0.000
COEFF-2           4   V5       0.120     0.000     0.000     0.020     0.000     0.000     0.020     0.000     0.000     0.000
ENDATA13
$$$ DATA TYPE 14 (ALGAE PHYTOPLANKTON AND PERIPHYTON COEFFICIENTS) $$$
                                                                     MAX                                   MAX
CARD TYPE      REACH  ID      SECCHI    CHL A:     PHYTO     PHYTO     PHYTO     PHYTO     PERIP     PERIP     PERIP      BANK
                               DEPTH     ALGAE      SETT     DEATH      GROW      RESP     DEATH      GROW      RESP   SHADING
                                   m      frac       m/d   per day   per day   per day   per day   per day   per day      frac
ENDATA14
$$$ DATA TYPE 15 (COLIFORM AND NONCONSERVATIVE COEFFICIENTS) $$$
CARD TYPE      REACH  ID    COLIFORM       NCM       NCM
                           DIE-OFF     DECAY      SETT
                           per day   per day       m/d
ENDATA15
$$$ DATA TYPE 16 (INCREMENTAL DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) $$$
CARD TYPE      REACH  ID       OUTFLOW      INFLOW      TEMP     SALIN   Conduct      CM-2   IN/DIST  OUT/DIST
                                   m³/s        m³/s     deg C       ppt  umhos/cm
INCR-1            1   V2      0.00000     0.00000      0.00      0.00      0.00      0.00   0.00000   0.00000
INCR-1            2   V3      0.00000     0.62300     30.00      0.00    391.00      0.00   0.62300   0.00000
INCR-1            3   V4     -1.41500     0.00000     30.70      0.00    391.00      0.00   0.00000  -1.41500
INCR-1            4   V5     -1.41500     0.00000     30.70      0.00    391.00      0.00   0.00000  -1.28636
ENDATA16
$$$ DATA TYPE 17 (INCREMENTAL DATA FOR DO, BOD, AND NITROGEN) $$$
CARD TYPE      REACH  ID          DO      BOD1     ORG-N     NH3-N     NO3-N      BOD2
                                 mg/L      mg/L      mg/L      mg/L      mg/L      mg/L
INCR-2            1   V2        0.00      0.00      0.00      0.00      0.00      0.00
INCR-2            2   V3        5.50     24.00      0.73      0.10      1.64      0.00
INCR-2            3   V4        5.50     14.00      0.78      0.10      1.64      0.00
INCR-2            4   V5        5.50     14.00      0.78      0.10      1.64      0.00
ENDATA17
$$$ DATA TYPE 18 (INCREMENTAL DATA FOR PHOSPHORUS, PHYTOPLANKTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                         PHYTO
 CARD TYPE      REACH  ID        PO4     CHL A      COLI       NCM      ORGP
                                 mg/L      µg/L   #/100mL                mg/L
ENDATA18
$$$ DATA TYPE 19 (NONPOINT SOURCE DATA) $$$
CARD TYPE      REACH  ID        BOD1     ORG-N      COLI       NCM        DO      BOD2     ORG-P
                                 kg/d      kg/d     #/day                kg/d      kg/d      kg/d
NONPOINT          1   V2        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT          2   V3        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT          3   V4        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT          4   V5        0.00      0.00      0.00      0.00      0.00      0.00      0.00
ENDATA19
$$$ DATA TYPE 20 (HEADWATER FOR FLOW, TEMPERATURE, SALINITY AND CONSERVATIVES) $$$
                                                                                                                HDW DISP
CARD TYPE     ELEMENT   NAME                  UNIT     FLOW       FLOW    TEMP    SALIN   Conduct      CM-2     EXCHG
                                                          m³/s        cfs   deg C     ppt  umhos/cm                frac
HDWTR-1           1     Violet-1                0   6.28634  221.97530   30.10     0.00   392.000     0.000     0.000
ENDATA20
$$$ DATA TYPE 21 (HEADWATER DATA FOR DO, BOD, AND NITROGEN) $$$
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CARD TYPE     ELEMENT   NAME                          DO     BOD#1     ORG-N     NH3-N     NO3-N      BOD2
                                                    mg/L      mg/L      mg/L      mg/L      mg/L      mg/L
HDWTR-2           1     Violet-1                    5.20     13.00      1.20      0.10      1.45      0.00
ENDATA21
$$$ DATA TYPE 22 (HEADWATER DATA FOR PHOSPHORUS, PHYTOPLANKTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                                                PHYTO
CARD TYPE     ELEMENT   NAME                       PO4-P     CHL A      COLI       NCM     ORG-P
                                                     mg/L      µg/L   #/100mL                mg/L
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   Conduct      CM-2
                                                      m³/s        cfs      MGD   deg C     ppt  umhos/cm
WSTLD-1        1       4.10  LAG531277              0.00006    0.00212    0.001   30.00     0.00     0.000     0.000
ENDATA24
$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$
                                                                   % BOD                              %
CARD TYPE     ELEMENT   NAME                          DO       BOD      RMVL     ORG-N     NH3-N    NITRIF     NO3-N      BOD2
                                                    mg/L      mg/L                mg/L      mg/L                mg/L      mg/L
WSTLD-2           1     LAG531277                   2.00    103.50      0.00      7.50     15.00      0.00      2.00      0.00
ENDATA25
$$$ DATA TYPE 26 (WASTELOAD DATA FOR PHOSPHORUS, PHYTOPLANTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                                                PHYTO
CARD TYPE     ELEMENT   NAME                       PO4-P     CHL A      COLI       NCM     ORG-P
                                                     mg/L      µg/L   #/100mL                mg/L
ENDATA26
$$$ DATA TYPE 27 (LOWER BOUNDARY CONDITIONS) $$$
CARD TYPE    CONSTITUENT                     CONCENTRATION
LOWER BC     TEMPERATURE                          30.200     deg C
LOWER BC     SALINITY                       =      0.000     ppt
LOWER BC     CONSERVATIVE MATERIAL I        =   4397.000     umhos/cm
LOWER BC     DISSOLVED OXYGEN                      4.000     mg/L
LOWER BC     BOD1 BIOCHEMICAL OXYGEN DEMAND       14.000     mg/L
LOWER BC     ORGANIC NITROGEN                      0.917     mg/L
LOWER BC     AMMONIA NITROGEN                      0.100     mg/L
LOWER BC     NITRATE NITROGEN                      0.633     mg/L
LOWER BC     CHLOROPHYLL A                         4.000     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 =   4
PLOT RCH  1  2  3  4
ENDATA30
$$$ DATA TYPE 31 (OVERLAY PLOT DATA) $$$
OVERLAY 1 Violet.ovl                     :Violet Canal Overlay File
ENDATA31
     .....NO ERRORS DETECTED IN INPUT DATA
     .....HYDRAULIC CALCULATIONS COMPLETED
     .....TRIDIAGONAL MATRIX TERMS INITIALIZED
     .....OXYGEN DEPENDENT RATES CONVERGENT IN    1 ITERATIONS
     .....CONSTITUENT CALCULATIONS COMPLETED
     .....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 11
INTERMEDIATE REPORT
 Dissolved Oxygen                                                LA-QUAL Model for Violet Canal
     mg/L                                                        Calibration Simulation
  ID   RCH  ELEM         +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1        5.20      5.20      5.21      5.21      5.21      5.21      5.21      5.22      5.22      5.22
  V3     2    11        5.24      5.25      5.26      5.28      5.29      5.30      5.32      5.33      5.34      5.34
  V4     3    21        5.33      5.32      5.31      5.30      5.28      5.26      5.24      5.20      5.15      5.08
  V5     4    31        5.02      4.98      4.93      4.87      4.80      4.73      4.64      4.54      4.43      4.30
  V5     4    41        4.16
INTERMEDIATE REPORT
 Effective BOD1                                                  LA-QUAL Model for Violet Canal
     mg/L                                                        Calibration Simulation
  ID   RCH  ELEM         +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
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V2	1	1	12.98	12.97	12.95	12.93	12.92	12.90	12.88	12.87	12.85	12.84
V3	2	11	12.93	13.02	13.10	13.19	13.27	13.35	13.43	13.51	13.58	13.62
V4	3	21	13.60	13.58	13.56	13.55	13.53	13.51	13.50	13.48	13.47	13.46
V5	4	31	13.45	13.45	13.46	13.47	13.49	13.52	13.57	13.62	13.69	13.77
V5	4	41	13.88									

INTERMEDIATE REPORT

Biochemical Oxygen Demand — LA-QUAL Model for Violet Canal Calibration Simulation

mg/L

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	12.66	12.65	12.63	12.61	12.60	12.58	12.56	12.55	12.53	12.52
V3	2	11	12.61	12.70	12.78	12.87	12.95	13.03	13.11	13.19	13.26	13.30
V4	3	21	13.27	13.24	13.21	13.18	13.16	13.13	13.10	13.08	13.05	13.03
V5	4	31	13.02	13.02	13.03	13.04	13.06	13.10	13.14	13.19	13.26	13.35
V5	4	41	13.45									

INTERMEDIATE REPORT

Organic Nitrogen — LA-QUAL Model for Violet Canal Calibration Simulation

mg/L

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.17	1.17	1.17	1.17	1.17	1.17	1.16	1.16	1.16	1.16
V3	2	11	1.15	1.15	1.14	1.14	1.13	1.13	1.12	1.12	1.11	1.11
V4	3	21	1.10	1.10	1.10	1.10	1.09	1.09	1.08	1.08	1.07	1.05
V5	4	31	1.04	1.04	1.03	1.02	1.01	0.99	0.98	0.97	0.95	0.93
V5	4	41	0.91									

INTERMEDIATE REPORT

Effective Organic Nitrogen — LA-QUAL Model for Violet Canal Calibration Simulation

mg/L

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.20	1.20	1.20	1.19	1.19	1.19	1.19	1.19	1.19	1.19
V3	2	11	1.18	1.17	1.17	1.16	1.16	1.15	1.15	1.14	1.14	1.13
V4	3	21	1.13	1.13	1.13	1.12	1.12	1.12	1.12	1.11	1.10	1.09
V5	4	31	1.08	1.07	1.06	1.05	1.04	1.03	1.01	1.00	0.98	0.96
V5	4	41	0.94									

INTERMEDIATE REPORT

Ammonia Nitrogen — LA-QUAL Model for Violet Canal Calibration Simulation

mg/L

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.10	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11
V3	2	11	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13
V4	3	21	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.14
V5	4	31	0.14	0.14	0.14	0.14	0.14	0.13	0.13	0.13	0.12	0.12
V5	4	41	0.11									

INTERMEDIATE REPORT

Nitrate+Nitrite Nitrogen — LA-QUAL Model for Violet Canal Calibration Simulation

mg/L

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
V3	2	11	1.45	1.45	1.45	1.46	1.46	1.46	1.46	1.46	1.46	1.46
V4	3	21	1.46	1.46	1.46	1.46	1.45	1.44	1.43	1.41	1.38	1.34
V5	4	31	1.31	1.28	1.25	1.21	1.17	1.12	1.06	0.99	0.92	0.84
V5	4	41	0.74									

INTERMEDIATE REPORT

Total Nitrogen — LA-QUAL Model for Violet Canal Calibration Simulation

mg/L

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72
V3	2	11	2.72	2.72	2.72	2.71	2.71	2.71	2.71	2.70	2.70	2.70
V4	3	21	2.70	2.69	2.69	2.69	2.68	2.67	2.65	2.63	2.59	2.54
V5	4	31	2.49	2.46	2.41	2.37	2.31	2.24	2.17	2.09	1.99	1.88
V5	4	41	1.76									

INTERMEDIATE REPORT

Effective Total Nitrogen — LA-QUAL Model for Violet Canal Calibration Simulation

mg/L

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75
V3	2	11	2.75	2.74	2.74	2.74	2.74	2.73	2.73	2.73	2.73	2.72
V4	3	21	2.72	2.72	2.72	2.72	2.71	2.70	2.69	2.66	2.62	2.57
V5	4	31	2.53	2.49	2.45	2.40	2.34	2.28	2.20	2.12	2.02	1.91
V5	4	41	1.79									

INTERMEDIATE REPORT

Chlorophyll a — LA-QUAL Model for Violet Canal Calibration Simulation

µg/L

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
V3	2	11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

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 V4     3    21        3.10      3.20      3.30      3.40      3.50      3.60      3.70      3.80      3.90      4.00
 V5     4    31        4.00      4.00      4.00      4.00      4.00      4.00      4.00      4.00      4.00      4.00
 V5     4    41        4.00
INTERMEDIATE REPORT
 Temperature                                                    LA-QUAL Model for Violet Canal
     deg C                                                      Calibration Simulation
  ID   RCH  ELEM        +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1       30.61     30.62     30.63     30.64     30.65     30.66     30.67     30.68     30.69     30.70
  V3     2    11       30.72     30.74     30.76     30.78     30.80     30.82     30.84     30.86     30.88     30.90
  V4     3    21       30.83     30.76     30.69     30.62     30.55     30.48     30.41     30.34     30.27     30.20
  V5     4    31       30.20     30.20     30.20     30.20     30.20     30.20     30.20     30.20     30.20     30.20
  V5     4    41       30.20
INTERMEDIATE REPORT
 Salinity                                                       LA-QUAL Model for Violet Canal
     ppt                                                        Calibration Simulation
  ID   RCH  ELEM        +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
  V3     2    11        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
  V4     3    21        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
  V5     4    31        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
  V5     4    41        0.00
INTERMEDIATE REPORT
 CONDUCTIVITY          UNIT                                     LA-QUAL Model for Violet Canal
     umhos/cm                                                   Calibration Simulation
  ID   RCH  ELEM        +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1      392.00    392.00    392.00    392.00    392.00    392.00    392.00    392.00    392.00    392.00
  V3     2    11      391.99    391.98    391.97    391.96    391.95    391.94    391.93    391.93    392.08    396.67
  V4     3    21      402.30    408.59    418.58    434.37    459.11    497.57    556.89    647.63    785.32    992.56
  V5     4    31     1151.79   1285.50   1440.94   1621.05   1829.03   2068.39   2342.93   2656.75   3014.24   3420.10
  V5     4    41     3879.28
INTERMEDIATE REPORT
 River Distance                                                 LA-QUAL Model for Violet Canal
     km                                                         Calibration Simulation
  ID   RCH  ELEM        +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1        4.        4.        4.        4.        4.        4.        3.        3.        3.        3.
  V3     2    11        3.        3.        3.        3.        3.        3.        2.        2.        2.        2.
  V4     3    21        2.        2.        2.        2.        2.        1.        1.        1.        1.        1.
  V5     4    31        1.        1.        1.        1.        1.        0.        0.        0.        0.        0.
  V5     4    41        0.
INTERMEDIATE REPORT
 Flow                                                           LA-QUAL Model for Violet Canal
     m³/s                                                       Calibration Simulation
  ID   RCH  ELEM        +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1        6.3       6.3       6.3       6.3       6.3       6.3       6.3       6.3       6.3       6.3
  V3     2    11        6.3       6.4       6.5       6.5       6.6       6.7       6.7       6.8       6.8       6.9
  V4     3    21        6.8       6.6       6.5       6.3       6.2       6.1       5.9       5.8       5.6       5.5
  V5     4    31        5.4       5.2       5.1       5.0       4.9       4.7       4.6       4.5       4.3       4.2
  V5     4    41        4.1
INTERMEDIATE REPORT
 Dispersion                                                     LA-QUAL Model for Violet Canal
     m²/s                                                       Calibration Simulation
  ID   RCH  ELEM        +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1        0.5       0.5       0.5       0.5       0.5       0.5       0.5       0.5       0.5       0.5
  V3     2    11        0.5       0.5       0.5       0.5       0.5       0.5       0.5       0.5       0.5       0.5
  V4     3    21       20.0      20.0      20.0      20.0      20.0      20.0      20.0      20.0      20.0      20.0
  V5     4    31       50.0      50.0      50.0      50.0      50.0      50.0      50.0      50.0      50.0      50.0
  V5     4    41       50.0
INTERMEDIATE REPORT
 Depth                                                          LA-QUAL Model for Violet Canal
     m                                                          Calibration Simulation
  ID   RCH  ELEM        +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1        1.7       1.7       1.7       1.7       1.7       1.7       1.7       1.7       1.7       1.7
  V3     2    11        1.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1
  V4     3    21        1.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1       1.1
  V5     4    31        0.9       0.9       0.9       0.9       0.9       0.9       0.9       0.9       0.9       0.9
  V5     4    41        0.9
INTERMEDIATE REPORT
 Width                                                          LA-QUAL Model for Violet Canal
     m                                                          Calibration Simulation
  ID   RCH  ELEM        +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1       26.8      26.8      26.8      26.8      26.8      26.8      26.8      26.8      26.8      26.8
  V3     2    11       45.5      45.5      45.5      45.5      45.5      45.5      45.5      45.5      45.5      45.5
  V4     3    21       53.5      53.5      53.5      53.5      53.5      53.5      53.5      53.5      53.5      53.5
  V5     4    31       69.5      69.5      69.5      69.5      69.5      69.5      69.5      69.5      69.5      69.5
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  V5     4    41        69.5
INTERMEDIATE REPORT
 Advective Velocity                                          LA-QUAL Model for Violet Canal
     m/s                                                     Calibration Simulation
  ID   RCH  ELEM         +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1         0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1
  V3     2    11         0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1
  V4     3    21         0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1
  V5     4    31         0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1
  V5     4    41         0.1
INTERMEDIATE REPORT
 Mean Velocity                                               LA-QUAL Model for Violet Canal
     m/s                                                     Calibration Simulation
  ID   RCH  ELEM         +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1         0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1
  V3     2    11         0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1
  V4     3    21         0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1
  V5     4    31         0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1       0.1
  V5     4    41         0.1
INTERMEDIATE REPORT
 Cross-Sectional Area                                        LA-QUAL Model for Violet Canal
     m²                                                      Calibration Simulation
  ID   RCH  ELEM         +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1        45.1      45.1      45.1      45.1      45.1      45.1      45.1      45.1      45.1      45.1
  V3     2    11        48.7      48.7      48.7      48.7      48.7      48.7      48.7      48.7      48.7      48.7
  V4     3    21        57.2      57.2      57.2      57.2      57.2      57.2      57.2      57.2      57.2      57.2
  V5     4    31        66.0      66.0      66.0      66.0      66.0      66.0      66.0      66.0      66.0      66.0
  V5     4    41        66.0
INTERMEDIATE REPORT
 Reaeration Rate                                             LA-QUAL Model for Violet Canal
     per day                                                 Calibration Simulation
  ID   RCH  ELEM         +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1       0.820     0.820     0.820     0.820     0.820     0.821     0.821     0.821     0.821     0.821
  V3     2    11       1.563     1.571     1.579     1.587     1.595     1.604     1.612     1.620     1.627     1.635
  V4     3    21       1.491     1.474     1.456     1.438     1.421     1.403     1.384     1.366     1.348     1.329
  V5     4    31       1.461     1.444     1.426     1.408     1.390     1.371     1.352     1.333     1.314     1.294
  V5     4    41       1.274
INTERMEDIATE REPORT
 BOD1 Decay Rate                                             LA-QUAL Model for Violet Canal
     per day                                                 Calibration Simulation
  ID   RCH  ELEM         +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V3     2    11         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V4     3    21         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V5     4    31         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V5     4    41         0.
INTERMEDIATE REPORT
 BOD1 Settling Rate                                          LA-QUAL Model for Violet Canal
     m/d                                                     Calibration Simulation
  ID   RCH  ELEM         +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V3     2    11         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V4     3    21         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V5     4    31         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V5     4    41         0.
INTERMEDIATE REPORT
 Ammonia Nitrogen Decay Rate                                 LA-QUAL Model for Violet Canal
     per day                                                 Calibration Simulation
  ID   RCH  ELEM         +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V3     2    11         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V4     3    21         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V5     4    31         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V5     4    41         0.
INTERMEDIATE REPORT
 Sediment Oxygen Demand                                      LA-QUAL Model for Violet Canal
     g/m²/d                                                  Calibration Simulation
  ID   RCH  ELEM         +0        +1        +2        +3        +4        +5        +6        +7        +8        +9
  V2     1     1         1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
  V3     2    11         1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
  V4     3    21         3.        3.        3.        3.        3.        3.        3.        3.        3.        3.
  V5     4    31         3.        3.        3.        3.        3.        3.        3.        3.        3.        3.
  V5     4    41         3.
CAPSULE SUMMARY FOR Violet-1
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IOR	REACH	DIST km	FLOW m³/s	TEMP deg C	SALN ppt	DO mg/L	BOD1 mg/L	BOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	ORG-P mg/L	PO4-P 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		6.286	30.10	0.0	5.20	12.68	0.00	1.17	0.10	1.45	2.72	0.00	0.00	3.0													
WASTELOAD # 001 (LAG531277) ENTERS HERE																												
1	V2 1	4.00	6.286	30.61	0.0	5.20	12.66	0.00	1.17	0.10	1.45	2.72	0.00	0.00	3.0	0.5	1.68	26.8	0.140	0.140	7.479	0.820	0.08	0.08	0.00	0.00	0.04	1.37
2	V2 1	3.90	6.286	30.62	0.0	5.20	12.65	0.00	1.17	0.10	1.45	2.72	0.00	0.00	3.0	0.5	1.68	26.8	0.140	0.140	7.478	0.820	0.08	0.08	0.00	0.00	0.04	1.37
3	V2 1	3.80	6.286	30.63	0.0	5.21	12.63	0.00	1.17	0.10	1.45	2.72	0.00	0.00	3.0	0.5	1.68	26.8	0.140	0.140	7.477	0.820	0.08	0.08	0.00	0.00	0.04	1.37
4	V2 1	3.70	6.286	30.64	0.0	5.21	12.61	0.00	1.17	0.11	1.45	2.72	0.00	0.00	3.0	0.5	1.68	26.8	0.140	0.140	7.475	0.820	0.08	0.08	0.00	0.00	0.04	1.37
5	V2 1	3.60	6.286	30.65	0.0	5.21	12.60	0.00	1.17	0.11	1.45	2.72	0.00	0.00	3.0	0.5	1.68	26.8	0.140	0.140	7.474	0.820	0.08	0.08	0.00	0.00	0.04	1.37
6	V2 1	3.50	6.286	30.66	0.0	5.21	12.58	0.00	1.17	0.11	1.45	2.72	0.00	0.00	3.0	0.5	1.68	26.8	0.140	0.140	7.473	0.821	0.08	0.08	0.00	0.00	0.04	1.37
7	V2 1	3.40	6.286	30.67	0.0	5.21	12.56	0.00	1.16	0.11	1.45	2.72	0.00	0.00	3.0	0.5	1.68	26.8	0.140	0.140	7.472	0.821	0.08	0.08	0.00	0.00	0.04	1.37
8	V2 1	3.30	6.286	30.68	0.0	5.22	12.55	0.00	1.16	0.11	1.45	2.72	0.00	0.00	3.0	0.5	1.68	26.8	0.140	0.140	7.471	0.821	0.08	0.08	0.00	0.00	0.04	1.37
9	V2 1	3.20	6.286	30.69	0.0	5.22	12.53	0.00	1.16	0.11	1.45	2.72	0.00	0.00	3.0	0.5	1.68	26.8	0.140	0.140	7.469	0.821	0.08	0.08	0.00	0.00	0.04	1.37
10	V2 1	3.10	6.286	30.70	0.0	5.22	12.52	0.00	1.16	0.11	1.45	2.72	0.00	0.00	3.0	0.5	1.68	26.8	0.140	0.140	7.468	0.821	0.08	0.08	0.00	0.00	0.04	1.37
11	V3 2	3.00	6.349	30.72	0.0	5.24	12.61	0.00	1.15	0.12	1.45	2.72	0.00	0.00	3.0	0.5	1.07	45.5	0.130	0.130	7.465	1.563	0.08	0.12	0.00	0.00	0.04	1.37
12	V3 2	2.90	6.411	30.74	0.0	5.25	12.70	0.00	1.15	0.12	1.45	2.72	0.00	0.00	3.0	0.5	1.07	45.5	0.132	0.132	7.463	1.571	0.08	0.12	0.00	0.00	0.04	1.38
13	V3 2	2.80	6.473	30.76	0.0	5.26	12.78	0.00	1.14	0.12	1.45	2.72	0.00	0.00	3.0	0.5	1.07	45.5	0.133	0.133	7.461	1.579	0.08	0.12	0.00	0.00	0.04	1.38
14	V3 2	2.70	6.536	30.78	0.0	5.28	12.87	0.00	1.14	0.12	1.46	2.71	0.00	0.00	3.0	0.5	1.07	45.5	0.134	0.134	7.458	1.587	0.08	0.12	0.00	0.00	0.04	1.38
15	V3 2	2.60	6.598	30.80	0.0	5.29	12.95	0.00	1.13	0.12	1.46	2.71	0.00	0.00	3.0	0.5	1.07	45.5	0.136	0.136	7.455	1.595	0.08	0.12	0.00	0.00	0.04	1.38
16	V3 2	2.50	6.660	30.82	0.0	5.30	13.03	0.00	1.13	0.12	1.46	2.71	0.00	0.00	3.0	0.5	1.07	45.5	0.137	0.137	7.452	1.604	0.08	0.12	0.00	0.00	0.04	1.38
17	V3 2	2.40	6.723	30.84	0.0	5.32	13.11	0.00	1.12	0.12	1.46	2.71	0.00	0.00	3.0	0.5	1.07	45.5	0.138	0.138	7.450	1.612	0.08	0.12	0.00	0.00	0.04	1.39
18	V3 2	2.30	6.785	30.86	0.0	5.33	13.19	0.00	1.12	0.12	1.46	2.70	0.00	0.00	3.0	0.5	1.07	45.5	0.139	0.139	7.448	1.620	0.08	0.12	0.00	0.00	0.04	1.39
19	V3 2	2.20	6.847	30.88	0.0	5.34	13.26	0.00	1.11	0.13	1.46	2.70	0.00	0.00	3.0	0.5	1.07	45.5	0.141	0.141	7.445	1.627	0.08	0.12	0.00	0.00	0.04	1.39
20	V3 2	2.10	6.909	30.90	0.0	5.34	13.30	0.00	1.11	0.13	1.46	2.70	0.00	0.00	3.0	0.5	1.07	45.5	0.142	0.142	7.443	1.635	0.08	0.12	0.00	0.00	0.04	1.39
21	V4 3	2.00	6.768	30.83	0.0	5.33	13.27	0.00	1.10	0.13	1.46	2.70	0.00	0.00	3.1	20.0	1.07	53.5	0.118	0.118	7.451	1.491	0.08	0.12	0.00	0.00	0.04	3.32
22	V4 3	1.90	6.626	30.76	0.0	5.32	13.24	0.00	1.10	0.13	1.46	2.69	0.00	0.00	3.2	20.0	1.07	53.5	0.116	0.116	7.461	1.474	0.08	0.12	0.00	0.00	0.04	3.31
23	V4 3	1.80	6.485	30.69	0.0	5.31	13.21	0.00	1.10	0.13	1.46	2.69	0.00	0.00	3.3	20.0	1.07	53.5	0.113	0.113	7.469	1.456	0.08	0.12	0.00	0.00	0.04	3.29
24	V4 3	1.70	6.343	30.62	0.0	5.30	13.18	0.00	1.10	0.13	1.46	2.69	0.00	0.00	3.4	20.0	1.07	53.5	0.111	0.111	7.478	1.438	0.08	0.12	0.00	0.00	0.04	3.28
25	V4 3	1.60	6.202	30.55	0.0	5.28	13.16	0.00	1.09	0.14	1.45	2.68	0.00	0.00	3.5	20.0	1.07	53.5	0.108	0.108	7.488	1.421	0.08	0.12	0.00	0.00	0.04	3.26
26	V4 3	1.50	6.060	30.48	0.0	5.26	13.13	0.00	1.09	0.14	1.44	2.67	0.00	0.00	3.6	20.0	1.07	53.5	0.106	0.106	7.496	1.403	0.08	0.12	0.00	0.00	0.04	3.25
27	V4 3	1.40	5.919	30.41	0.0	5.24	13.10	0.00	1.08	0.14	1.43	2.65	0.00	0.00	3.7	20.0	1.07	53.5	0.103	0.103	7.505	1.384	0.08	0.12	0.00	0.00	0.04	3.24
28	V4 3	1.30	5.777	30.34	0.0	5.20	13.08	0.00	1.08	0.14	1.41	2.63	0.00	0.00	3.8	20.0	1.07	53.5	0.101	0.101	7.514	1.366	0.08	0.12	0.00	0.00	0.04	3.22
29	V4 3	1.20	5.636	30.27	0.0	5.15	13.05	0.00	1.07	0.14	1.38	2.59	0.00	0.00	3.9	20.0	1.07	53.5	0.099	0.099	7.523	1.348	0.08	0.12	0.00	0.00	0.04	3.21
30	V4 3	1.10	5.494	30.20	0.0	5.08	13.03	0.00	1.05	0.14	1.34	2.54	0.00	0.00	4.0	20.0	1.07	53.5	0.096	0.096	7.532	1.329	0.08	0.12	0.00	0.00	0.04	3.19
31	V5 4	1.00	5.366	30.20	0.0	5.02	13.02	0.00	1.04	0.14	1.31	2.49	0.00	0.00	4.0	50.0	0.95	69.5	0.081	0.081	7.532	1.461	0.08	0.13	0.00	0.00	0.04	3.19
32	V5 4	0.90	5.237	30.20	0.0	4.98	13.02	0.00	1.04	0.14	1.28	2.46	0.00	0.00	4.0	50.0	0.95	69.5	0.079	0.079	7.532	1.444	0.08	0.13	0.00	0.00	0.04	3.19
33	V5 4	0.80	5.108	30.20	0.0	4.93	13.03	0.00	1.03	0.14	1.25	2.41	0.00	0.00	4.0	50.0	0.95	69.5	0.077	0.077	7.532	1.426	0.08	0.13	0.00	0.00	0.04	3.19
34	V5 4	0.70	4.980	30.20	0.0	4.87	13.04	0.00	1.02	0.14	1.21	2.37	0.00	0.00	4.0	50.0	0.95	69.5	0.075	0.075	7.532	1.408	0.08	0.13	0.00	0.00	0.04	3.19
35	V5 4	0.60	4.851	30.20	0.0	4.80	13.06	0.00	1.01	0.14	1.17	2.31	0.00	0.00	4.0	50.0	0.95	69.5	0.073	0.073	7.532	1.390	0.08	0.13	0.00	0.00	0.04	3.19
36	V5 4	0.50	4.723	30.20	0.0	4.73	13.10	0.00	0.99	0.13	1.12	2.24	0.00	0.00	4.0	50.0	0.95	69.5	0.072	0.072	7.532	1.371	0.08	0.13	0.00	0.00	0.04	3.19
37	V5 4	0.40	4.594	30.20	0.0	4.64	13.14	0.00	0.98	0.13	1.06	2.17	0.00	0.00	4.0	50.0	0.95	69.5	0.070	0.070	7.532	1.352	0.08	0.13	0.00	0.00	0.04	3.19
38	V5 4	0.30	4.465	30.20	0.0	4.54	13.19	0.00	0.97	0.13	0.99	2.09	0.00	0.00	4.0	50.0	0.95	69.5	0.068	0.068	7.532	1.333	0.08	0.13	0.00	0.00	0.04	3.19
39	V5 4	0.20	4.337	30.20	0.0	4.43	13.26	0.00	0.95	0.12	0.92	1.99	0.00	0.00	4.0	50.0	0.95	69.5	0.066	0.066	7.532	1.314	0.08	0.13	0.00	0.00	0.04	3.19
40	V5 4	0.10	4.208	30.20	0.0	4.30	13.35	0.00	0.93	0.12	0.84	1.88	0.00	0.00	4.0	50.0	0.95	69.5	0.064	0.064	7.532	1.294	0.08	0.13	0.00	0.00	0.04	3.19
41	V5 4	0.00	4.079	30.20	0.0	4.16	13.45	0.00	0.91	0.11	0.74	1.76	0.00	0.00	4.0	50.0	0.95	69.5	0.062	0.062	7.532	1.274	0.08	0.13	0.00	0.00	0.04	3.19

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 1 MissSiphonToHwy38V1_V2 Calibration Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
1	HDWTR	6.28634	30.10	0.00	392.00	0.00	5.20	12.68	0.00	13.00	0.00	1.20	0.10	1.45	0.00	3.00	0.00	0.00
1	WSTLD	0.00006	30.00	0.00	0.00	0.00	2.00	103.50	0.00	103.50	0.00	7.50	15.00	2.00	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	CUM 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	4.10	4.00	6.28640	0.0	0.13952	0.01	0.01	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.140
2	4.00	3.90	6.28640	0.0	0.13952	0.01	0.02	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.140
3	3.90	3.80	6.28640	0.0	0.13952	0.01	0.02	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.140
4	3.80	3.70	6.28640	0.0	0.13952	0.01	0.03	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.140
5	3.70	3.60	6.28640	0.0	0.13952	0.01	0.04	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.140
6	3.60	3.50	6.28640	0.0	0.13952	0.01	0.05	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.140
7	3.50	3.40	6.28640	0.0	0.13952	0.01	0.06	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.140
8	3.40	3.30	6.28640	0.0	0.13952	0.01	0.07	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.140
9	3.30	3.20	6.28640	0.0	0.13952	0.01	0.07	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.140
10	3.20	3.10	6.28640	0.0	0.13952	0.01	0.08	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.140
TOT						0.08				45057.59	26820.00					
AVG					0.1395			1.68	26.82			45.06				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
1	4.000	7.48	0.82	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00

2	3.900	7.48	0.82	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
3	3.800	7.48	0.82	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
4	3.700	7.48	0.82	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
5	3.600	7.47	0.82	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
6	3.500	7.47	0.82	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
7	3.400	7.47	0.82	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
8	3.300	7.47	0.82	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
9	3.200	7.47	0.82	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
10	3.100	7.47	0.82	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.67	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.70			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
1	4.000	30.61	0.00	392.00	0.00	5.20	12.66	0.00	12.98	0.00	1.17	0.10	1.45	2.72	1.20	2.75	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
2	3.900	30.62	0.00	392.00	0.00	5.20	12.65	0.00	12.97	0.00	1.17	0.10	1.45	2.72	1.20	2.75	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
3	3.800	30.63	0.00	392.00	0.00	5.21	12.63	0.00	12.95	0.00	1.17	0.10	1.45	2.72	1.20	2.75	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
4	3.700	30.64	0.00	392.00	0.00	5.21	12.61	0.00	12.93	0.00	1.17	0.11	1.45	2.72	1.19	2.75	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
5	3.600	30.65	0.00	392.00	0.00	5.21	12.60	0.00	12.92	0.00	1.17	0.11	1.45	2.72	1.19	2.75	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
6	3.500	30.66	0.00	392.00	0.00	5.21	12.58	0.00	12.90	0.00	1.17	0.11	1.45	2.72	1.19	2.75	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
7	3.400	30.67	0.00	392.00	0.00	5.21	12.56	0.00	12.88	0.00	1.16	0.11	1.45	2.72	1.19	2.75	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
8	3.300	30.68	0.00	392.00	0.00	5.22	12.55	0.00	12.87	0.00	1.16	0.11	1.45	2.72	1.19	2.75	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
9	3.200	30.69	0.00	392.00	0.00	5.22	12.53	0.00	12.85	0.00	1.16	0.11	1.45	2.72	1.19	2.75	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
10	3.100	30.70	0.00	392.00	0.00	5.22	12.52	0.00	12.84	0.00	1.16	0.11	1.45	2.72	1.19	2.75	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00

PHYTOPLANKTON AND PERIPHYTON DATA

ELEM NO.	ENDING DIST	BANK SHADE frac	SECCHI DEPTH m	PHYT N PREF	PHYT LIT LIM	PHYT N LIM	PHYT P LIM	PHYT N&P LIM	PHYT TOT LIM	PHYT GROW 1/da	PHYT RESP 1/da	PHYT DEATH 1/da	PHYT SETT 1/da	PHYT P/R RATIO	PHYTO µg/L	PERI N PREF	PERI LIT LIM	PERI N LIM	PERI P LIM	PERI N&P LIM	PERI SPC LIM	PERI TOT LIM	PERI GROW 1/da	PERI RESP 1/da	PERI DEATH 1/da	PERI P/R RATIO	PERIP g/m²
1	4.000	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
2	3.900	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
3	3.800	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
4	3.700	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
5	3.600	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
6	3.500	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
7	3.400	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
8	3.300	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
9	3.200	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
10	3.100	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
20 DEG C RATE										0.000	0.000	0.000	0.000										0.000	0.000	0.000		

NOTE ON NITR PREF: 1.0=NO3 ; 0.0=NH3

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 2 Hwy38ToWofFortyArpentCanalV2_V3 Calibration Simulation

REACH INPUTS

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
11	UPR RCH	6.28640	30.70	0.00	392.00	0.00	5.22	12.52	0.00	12.84	0.00	1.16	0.11	1.45	0.00	3.00	0.00	0.00
EACH	INCR	0.06230	30.00	0.00	391.00	0.00	5.50	24.00	0.00			0.73	0.10	1.64	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	CUM 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	3.10	3.00	6.34870	0.0	0.13049	0.01	0.09	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.130
12	3.00	2.90	6.41100	0.0	0.13177	0.01	0.10	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.132
13	2.90	2.80	6.47330	0.0	0.13305	0.01	0.11	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.133
14	2.80	2.70	6.53560	0.0	0.13433	0.01	0.12	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.134
15	2.70	2.60	6.59790	0.0	0.13561	0.01	0.13	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.136
16	2.60	2.50	6.66020	0.0	0.13689	0.01	0.13	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.137
17	2.50	2.40	6.72250	0.0	0.13817	0.01	0.14	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.138
18	2.40	2.30	6.78480	0.0	0.13945	0.01	0.15	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.139
19	2.30	2.20	6.84710	0.0	0.14073	0.01	0.16	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.141
20	2.20	2.10	6.90940	0.0	0.14201	0.01	0.17	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.142
TOT						0.09				48652.90	45470.00					
AVG					0.1362			1.07	45.47			48.65				

BIOLOGICAL AND PHYSICAL COEFFICIENTS

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
11	3.000	7.47	1.56	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
12	2.900	7.46	1.57	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.38	1.38	1.38	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
13	2.800	7.46	1.58	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.38	1.38	1.38	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
14	2.700	7.46	1.59	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.38	1.38	1.38	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
15	2.600	7.46	1.60	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.38	1.38	1.38	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
16	2.500	7.45	1.60	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.38	1.38	1.38	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
17	2.400	7.45	1.61	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.39	1.39	1.39	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00

18	2.300	7.45	1.62	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.39	1.39	1.39	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
19	2.200	7.45	1.63	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.39	1.39	1.39	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
20	2.100	7.44	1.64	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.39	1.39	1.39	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			1.31	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.70			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
11	3.000	30.72	0.00	391.99	0.00	5.24	12.61	0.00	12.93	0.00	1.15	0.12	1.45	2.72	1.18	2.75	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
12	2.900	30.74	0.00	391.98	0.00	5.25	12.70	0.00	13.02	0.00	1.15	0.12	1.45	2.72	1.17	2.74	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
13	2.800	30.76	0.00	391.97	0.00	5.26	12.78	0.00	13.10	0.00	1.14	0.12	1.45	2.72	1.17	2.74	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
14	2.700	30.78	0.00	391.96	0.00	5.28	12.87	0.00	13.19	0.00	1.14	0.12	1.46	2.71	1.16	2.74	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
15	2.600	30.80	0.00	391.95	0.00	5.29	12.95	0.00	13.27	0.00	1.13	0.12	1.46	2.71	1.16	2.74	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
16	2.500	30.82	0.00	391.94	0.00	5.30	13.03	0.00	13.35	0.00	1.13	0.12	1.46	2.71	1.15	2.73	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
17	2.400	30.84	0.00	391.93	0.00	5.32	13.11	0.00	13.43	0.00	1.12	0.12	1.46	2.71	1.15	2.73	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
18	2.300	30.86	0.00	391.93	0.00	5.33	13.19	0.00	13.51	0.00	1.12	0.12	1.46	2.70	1.14	2.73	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
19	2.200	30.88	0.00	392.08	0.00	5.34	13.26	0.00	13.58	0.00	1.11	0.13	1.46	2.70	1.14	2.73	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
20	2.100	30.90	0.00	396.67	0.00	5.34	13.30	0.00	13.62	0.00	1.11	0.13	1.46	2.70	1.13	2.72	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00

PHYTOPLANKTON AND PERIPHYTON DATA

ELEM NO.	ENDING DIST	BANK SHADE frac	SECCHI DEPTH m	PHYT N PREF	PHYT LIT LIM	PHYT N LIM	PHYT P LIM	PHYT N&P LIM	PHYT TOT LIM	PHYT GROW 1/da	PHYT RESP 1/da	PHYT DEATH 1/da	PHYT SETT 1/da	PHYT P/R RATIO	PHYTO µg/L	PERI N PREF	PERI LIT LIM	PERI N LIM	PERI P LIM	PERI N&P LIM	PERI SPC LIM	PERI TOT LIM	PERI GROW 1/da	PERI RESP 1/da	PERI DEATH 1/da	PERI P/R RATIO	PERIP g/m²
11	3.000	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
12	2.900	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
13	2.800	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
14	2.700	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
15	2.600	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
16	2.500	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
17	2.400	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
18	2.300	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
19	2.200	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
20	2.100	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
20 DEG C RATE										0.000	0.000	0.000	0.000										0.000	0.000	0.000		

NOTE ON NITR PREF: 1.0=NO3 ; 0.0=NH3

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal

REACH NO. 3 WofFortyArpentCanalToV4 Calibration Simulation

REACH INPUTS

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
21	UPR RCH	6.90940	30.90	0.00	396.67	0.00	5.34	13.30	0.00	13.62	0.00	1.11	0.13	1.46	0.00	3.00	0.00	0.00
EACH	INCR	-0.14150																

HYDRAULIC PARAMETER VALUES

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	CUM 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
21	2.10	2.00	6.76790	0.0	0.11834	0.01	0.18	1.07	53.45	5719.15	5345.00	57.19	587.95	0.000	20.000	0.118
22	2.00	1.90	6.62640	0.0	0.11586	0.01	0.19	1.07	53.45	5719.15	5345.00	57.19	1175.90	0.001	20.000	0.116
23	1.90	1.80	6.48490	0.0	0.11339	0.01	0.20	1.07	53.45	5719.15	5345.00	57.19	1763.85	0.001	20.000	0.113
24	1.80	1.70	6.34340	0.0	0.11092	0.01	0.21	1.07	53.45	5719.15	5345.00	57.19	2351.80	0.002	20.000	0.111
25	1.70	1.60	6.20190	0.0	0.10844	0.01	0.22	1.07	53.45	5719.15	5345.00	57.19	2939.75	0.002	20.000	0.108
26	1.60	1.50	6.06040	0.0	0.10597	0.01	0.23	1.07	53.45	5719.15	5345.00	57.19	3527.70	0.003	20.000	0.106
27	1.50	1.40	5.91890	0.0	0.10349	0.01	0.24	1.07	53.45	5719.15	5345.00	57.19	4115.65	0.003	20.000	0.103
28	1.40	1.30	5.77740	0.0	0.10102	0.01	0.25	1.07	53.45	5719.15	5345.00	57.19	4703.60	0.004	20.000	0.101
29	1.30	1.20	5.63590	0.0	0.09854	0.01	0.26	1.07	53.45	5719.15	5345.00	57.19	5291.55	0.004	20.000	0.099
30	1.20	1.10	5.49440	0.0	0.09607	0.01	0.28	1.07	53.45	5719.15	5345.00	57.19	5879.50	0.005	20.000	0.096
TOT						0.11				57191.50	53450.00					
AVG					0.1067			1.07	53.45			57.19				

BIOLOGICAL AND PHYSICAL COEFFICIENTS

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
21	2.000	7.45	1.49	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.32	3.32	3.32	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
22	1.900	7.46	1.47	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.31	3.31	3.31	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00
23	1.800	7.47	1.46	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.29	3.29	3.29	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00
24	1.700	7.48	1.44	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.28	3.28	3.28	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00
25	1.600	7.49	1.42	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.26	3.26	3.26	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00
26	1.500	7.50	1.40	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.25	3.25	3.25	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00
27	1.400	7.51	1.38	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.24	3.24	3.24	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00
28	1.300	7.51	1.37	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.22	3.22	3.22	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00
29	1.200	7.52	1.35	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.21	3.21	3.21	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00
30	1.100	7.53	1.33	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			1.16	0.05	0.01	0.00	0.00	0.00	0.00	0.00	1.68			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
21	2.000	30.83	0.00	402.30	0.00	5.33	13.27	0.00	13.60	0.00	1.10	0.13	1.46	2.70	1.13	2.72	0.00	0.00	0.00	0.00	0.00	3.1	0.0	0.	0.00
22	1.900	30.76	0.00	408.59	0.00	5.32	13.24	0.00	13.58	0.00	1.10	0.13	1.46	2.69	1.13	2.72	0.00	0.00	0.00	0.00	0.00	3.2	0.0	0.	0.00
23	1.800	30.69	0.00	418.58	0.00	5.31	13.21	0.00	13.56	0.00	1.10	0.13	1.46	2.69	1.13	2.72	0.00	0.00	0.00	0.00	0.00	3.3	0.0	0.	0.00
24	1.700	30.62	0.00	434.37	0.00	5.30	13.18	0.00	13.55	0.00	1.10	0.13	1.46	2.69	1.12	2.72	0.00	0.00	0.00	0.00	0.00	3.4	0.0	0.	0.00
25	1.600	30.55	0.00	459.11	0.00	5.28	13.16	0.00	13.53	0.00	1.09	0.14	1.45	2.68	1.12	2.71	0.00	0.00	0.00	0.00	0.00	3.5	0.0	0.	0.00
26	1.500	30.48	0.00	497.57	0.00	5.26	13.13	0.00	13.51	0.00	1.09	0.14	1.44	2.67	1.12	2.70	0.00	0.00	0.00	0.00	0.00	3.6	0.0	0.	0.00
27	1.400	30.41	0.00	556.89	0.00	5.24	13.10	0.00	13.50	0.00	1.08	0.14	1.43	2.65	1.12	2.69	0.00	0.00	0.00	0.00	0.00	3.7	0.0	0.	0.00
28	1.300	30.34	0.00	647.63	0.00	5.20	13.08	0.00	13.48	0.00	1.08	0.14	1.41	2.63	1.11	2.66	0.00	0.00	0.00	0.00	0.00	3.8	0.0	0.	0.00
29	1.200	30.27	0.00	785.32	0.00	5.15	13.05	0.00	13.47	0.00	1.07	0.14	1.38	2.59	1.10	2.62	0.00	0.00	0.00	0.00	0.00	3.9	0.0	0.	0.00
30	1.100	30.20	0.00	992.56	0.00	5.08	13.03	0.00	13.46	0.00	1.05	0.14	1.34	2.54	1.09	2.57	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00

********** PHYTOPLANKTON AND PERIPHYTON DATA **********

ELEM NO.	ENDING DIST	BANK SHADE frac	SECCHI DEPTH m	PHYT N PREF	PHYT LIT LIM	PHYT N LIM	PHYT P LIM	PHYT N&P LIM	PHYT TOT LIM	PHYT GROW 1/da	PHYT RESP 1/da	PHYT DEATH 1/da	PHYT SETT 1/da	PHYT P/R RATIO	PHYTO µg/L	PERI N PREF	PERI LIT LIM	PERI N LIM	PERI P LIM	PERI N&P LIM	PERI SPC LIM	PERI TOT LIM	PERI GROW 1/da	PERI RESP 1/da	PERI DEATH 1/da	PERI P/R RATIO	PERIP g/m²
21	2.000	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
22	1.900	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
23	1.800	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
24	1.700	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
25	1.600	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
26	1.500	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
27	1.400	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
28	1.300	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
29	1.200	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	3.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
30	1.100	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	4.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
20 DEG C RATE										0.000	0.000	0.000	0.000										0.000	0.000	0.000		

NOTE ON NITR PREF: 1.0=NO3 ; 0.0=NH3

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal

REACH NO. 4 V4ToV5endofsubseg Calibration Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
31	UPR RCH	5.49440	30.20	0.00	992.56	0.00	5.08	13.03	0.00	13.46	0.00	1.05	0.14	1.34	0.00	4.00	0.00	0.00
EACH	INCR	-0.12864																

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	CUM TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
31	1.10	1.00	5.36577	0.0	0.08128	0.01	0.29	0.95	69.49	6601.55	6949.00	66.02	7408.28	0.005	50.000	0.081
32	1.00	0.90	5.23713	0.0	0.07933	0.01	0.31	0.95	69.49	6601.55	6949.00	66.02	8937.06	0.006	50.000	0.079
33	0.90	0.80	5.10849	0.0	0.07738	0.01	0.32	0.95	69.49	6601.55	6949.00	66.02	10465.84	0.007	50.000	0.077
34	0.80	0.70	4.97986	0.0	0.07543	0.02	0.34	0.95	69.49	6601.55	6949.00	66.02	11994.62	0.008	50.000	0.075
35	0.70	0.60	4.85122	0.0	0.07349	0.02	0.35	0.95	69.49	6601.55	6949.00	66.02	13523.40	0.009	50.000	0.073
36	0.60	0.50	4.72258	0.0	0.07154	0.02	0.37	0.95	69.49	6601.55	6949.00	66.02	15052.18	0.011	50.000	0.072
37	0.50	0.40	4.59395	0.0	0.06959	0.02	0.38	0.95	69.49	6601.55	6949.00	66.02	16580.96	0.012	50.000	0.070
38	0.40	0.30	4.46531	0.0	0.06764	0.02	0.40	0.95	69.49	6601.55	6949.00	66.02	18109.74	0.013	50.000	0.068
39	0.30	0.20	4.33668	0.0	0.06569	0.02	0.42	0.95	69.49	6601.55	6949.00	66.02	19638.52	0.014	50.000	0.066
40	0.20	0.10	4.20804	0.0	0.06374	0.02	0.44	0.95	69.49	6601.55	6949.00	66.02	21167.30	0.015	50.000	0.064
41	0.10	0.00	4.07940	0.0	0.06179	0.02	0.46	0.95	69.49	6601.55	6949.00	66.02	22696.08	0.016	50.000	0.062
TOT						0.18				72617.05	76439.00					
AVG					0.0710			0.95	69.49			66.02				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
31	1.000	7.53	1.46	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
32	0.900	7.53	1.44	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
33	0.800	7.53	1.43	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
34	0.700	7.53	1.41	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
35	0.600	7.53	1.39	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
36	0.500	7.53	1.37	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
37	0.400	7.53	1.35	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
38	0.300	7.53	1.33	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
39	0.200	7.53	1.31	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
40	0.100	7.53	1.29	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
41	0.000	7.53	1.27	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			1.13	0.05	0.01	0.00	0.00	0.00	0.00	0.00	1.68			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
31	1.000	30.20	0.00	1151.79	0.00	5.02	13.02	0.00	13.45	0.00	1.04	0.14	1.31	2.49	1.08	2.53	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
32	0.900	30.20	0.00	1285.50	0.00	4.98	13.02	0.00	13.45	0.00	1.04	0.14	1.28	2.46	1.07	2.49	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00

33	0.800	30.20	0.00	1440.94	0.00	4.93	13.03	0.00	13.46	0.00	1.03	0.14	1.25	2.41	1.06	2.45	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
34	0.700	30.20	0.00	1621.05	0.00	4.87	13.04	0.00	13.47	0.00	1.02	0.14	1.21	2.37	1.05	2.40	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
35	0.600	30.20	0.00	1829.03	0.00	4.80	13.06	0.00	13.49	0.00	1.01	0.14	1.17	2.31	1.04	2.34	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
36	0.500	30.20	0.00	2068.39	0.00	4.73	13.10	0.00	13.52	0.00	0.99	0.13	1.12	2.24	1.03	2.28	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
37	0.400	30.20	0.00	2342.93	0.00	4.64	13.14	0.00	13.57	0.00	0.98	0.13	1.06	2.17	1.01	2.20	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
38	0.300	30.20	0.00	2656.75	0.00	4.54	13.19	0.00	13.62	0.00	0.97	0.13	0.99	2.09	1.00	2.12	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
39	0.200	30.20	0.00	3014.24	0.00	4.43	13.26	0.00	13.69	0.00	0.95	0.12	0.92	1.99	0.98	2.02	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
40	0.100	30.20	0.00	3420.10	0.00	4.30	13.35	0.00	13.77	0.00	0.93	0.12	0.84	1.88	0.96	1.91	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
41	0.000	30.20	0.00	3879.28	0.00	4.16	13.45	0.00	13.88	0.00	0.91	0.11	0.74	1.76	0.94	1.79	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00

********** PHYTOPLANKTON AND PERIPHYTON DATA **********

ELEM NO.	ENDING DIST	BANK SHADE frac	SECCHI DEPTH m	PHYT N PREF	PHYT LIT LIM	PHYT N LIM	PHYT P LIM	PHYT N&P LIM	PHYT TOT LIM	PHYT GROW 1/da	PHYT RESP 1/da	PHYT DEATH 1/da	PHYT SETT 1/da	PHYT P/R RATIO	PHYTO µg/L	PERI N PREF	PERI LIT LIM	PERI N LIM	PERI P LIM	PERI N&P LIM	PERI SPC LIM	PERI TOT LIM	PERI GROW 1/da	PERI RESP 1/da	PERI DEATH 1/da	PERI P/R RATIO	PERIP g/m²
31	1.000	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	4.0	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
32	0.900	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	4.0	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
33	0.800	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	4.0	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
34	0.700	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	4.0	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
35	0.600	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	4.0	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
36	0.500	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	4.0	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
37	0.400	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	4.0	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
38	0.300	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	4.0	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
39	0.200	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	4.0	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
40	0.100	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	4.0	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
41	0.000	0.00	Inf	1.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.0	4.0	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.0	0.0
20 DEG C RATE										0.000	0.000	0.000	0.000										0.000	0.000	0.000		

NOTE ON NITR PREF: 1.0=NO3 ; 0.0=NH3
LA-QUAL Model for Violet Canal
Calibration Simulation
REACH SUMMARY REPORT: Violet-1

RCH NO.	REACH NAME	BEGIN DIST km	ENDING DIST km	REACH LENGTH km	TRAVEL TIME days	FLOW AT RCH END m3/s	AVG VELO m/s	AVG DEPTH m	AVG WIDTH m	FLOW AT RCH END cfs	AVG VELO fps	AVG DEPTH ft	AVG WIDTH ft
1	MissSiphonToHwy38V1_V2	4.10	3.10	1.00	0.08	6.28640	0.13952	1.680	26.82	221.973	0.458	5.512	88.00
2	Hwy38ToWofFortyArpentCanalV2_V3	3.10	2.10	1.00	0.09	6.90940	0.13615	1.070	45.47	243.971	0.447	3.511	149.19
3	WofFortyArpentCanalToV4	2.10	1.10	1.00	0.11	5.49440	0.10673	1.070	53.45	194.007	0.350	3.511	175.37
4	V4ToV5endofsubseg	1.10	0.00	1.10	0.18	4.07940	0.07100	0.950	69.49	144.044	0.233	3.117	228.00

LA-QUAL Model for Violet Canal
Calibration Simulation
STREAM SUMMARY REPORT: Violet-1

TRAVEL TIME	=	0.46	DAYS		
MAXIMUM EFFLUENT	=	0.00	PERCENT		
FLOW	=	4.07940	TO	6.90940	m³/s
DISPERSION	=	0.5000	TO	50.0000	m²/s
VELOCITY	=	0.06179	TO	0.14201	m/s
DEPTH	=	0.95	TO	1.68	m
WIDTH	=	26.82	TO	69.49	m
BOD DECAY	=	0.08	TO	0.08	per day
NH3 DECAY	=	0.04	TO	0.04	per day
SOD	=	1.37	TO	3.32	g/m²/d
NH3 SED SOURCE	=	0.00	TO	0.00	g/m²/d
PO4 SED SOURCE	=	0.00	TO	0.00	g/m²/d
REAERATION	=	0.82	TO	1.64	per day
BOD SETTLING	=	0.08	TO	0.13	per day
ORG-N DECAY	=	0.15	TO	0.15	per day
ORG-N SETTLING	=	0.00	TO	0.00	per day
TEMPERATURE	=	30.20	TO	30.90	deg C
DISSOLVED OXYGEN	=	4.16	TO	5.34	mg/L

LA-QUAL Model for Violet Canal
Calibration Simulation
INPUT/OUTPUT LOADING SUMMARY

	FLOW m³/s	DO kg/d	BOD1 kg/d	BOD2 kg/d	ORG-N kg/d	NH3-N kg/d	NO3-N kg/d	ORG-P kg/d	PO4-P kg/d	CHL A	PERIP	NCM
HEADWATER FLOW	6.28634	2824.33	6886.79	0.00	637.92	54.31	787.55	0.00	0.00	0.00		0.00
INCREMENTAL INFLOW	0.62300	296.05	1291.85	0.00	39.29	5.38	88.28	0.00	0.00	0.00		0.00
INCREMENTAL OUTFLOW	-2.83000	-1212.67	-3215.04	0.00	-253.48	-32.59	-306.81	0.00	0.00	0.00		0.00
WASTELOADS	0.00006	0.01	0.54	0.00	0.04	0.08	0.01	0.00	0.00	0.00		0.00
WITHDRAWLS	0.00000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
FLOW THRU LOWER BNDRY	-4.07940	-1466.82	-4740.63	0.00	-319.68	-38.15	-260.94	0.00	0.00	0.00		0.00
DISPERSION THRU LOWER BNDRY		-461.03	349.88	0.00	-68.42	-23.53	-306.12	0.00	0.00	0.00		0.00
DISPERSION THRU HDWTR BNDRY		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
NON-POINT INPUT		0.00	0.00	0.00	0.00			0.00				0.00
NATURAL REAERATION		715.74										
DAM REAERATION		0.00										
SOD BACKGROUND		-517.84										

BOD1 DECAY		-235.37	-235.37									
BOD1 SETTLING		0.00	-337.96									
ANAEROBIC BOD1 DECAY			0.00									
BOD2 DECAY		0.00		0.00								
BOD2 SETTLING		0.00		0.00								
ANAEROBIC BOD2 DECAY				0.00								
BOD2 HYDROLYSIS			0.00	0.00								
ORG-N DECAY		0.00			-35.67	35.67						
ORG-N SETTLING					0.00	0.00						
NH3-N DECAY (NITRIFICATION)		-5.09				-1.18	1.18					
NH3-N BACKGROUND SEDIMENT SOURCE						0.00						
DENITRIFICATION			0.00				0.00					
ORG-P HYDROLYSIS								0.00	0.00			
ORG-P SETTLING								0.00	0.00			
PO4-P BACKGROUND SEDIMENT SOURCE									0.00			
PHYTOPLANKTON GROWTH/PHOTOSYNTHESIS		62.66				0.00	-3.13		0.00	0.00		
PHYTOPLANKTON RESPIRATION/EXCRETION		0.00				0.00			0.00	0.00		
PHYTOPLANKTON SETTLING		0.00				0.00			0.00	0.00		
PHYTOPLANKTON DEATH			0.00	0.00	0.00			0.00		0.00		
PERIPHYTON GROWTH/PHOTOSYNTHESIS		0.00				0.00	0.00		0.00		0.00	
PERIPHYTON RESPIRATION/EXCRETION		0.00				0.00			0.00		0.00	
PERIPHYTON DEATH			0.00	0.00	0.00			0.00			0.00	
NCM DECAY		0.00										0.00
NCM SETTLING		0.00										0.00
TOTAL INPUTS	6.90940	3898.79	8529.07	0.00	677.25	95.44	877.02	0.00	0.00	0.00	0.00	0.00
TOTAL OUTPUTS	-6.90940	-3898.82	-8529.00	0.00	-677.25	-95.45	-877.00	0.00	0.00	0.00	0.00	0.00
NET CONVERGENCE ERROR	0.00000	-0.04	0.07	0.00	0.00	-0.01	0.01	0.00	0.00	0.00	0.00	0.00

.....EXECUTION COMPLETED

APPENDIX F:
Calibration Water Quality Plots

Figure F-1. Temperature calibration results for subsegment 041805. ..... F-1
Figure F-2. Ammonia calibration results for subsegment 041805..... F-1
Figure F-3. $CBOD_u$ calibration results for subsegment 041805. ..... F-2
Figure F-4. DO calibration results for subsegment 041805. ..... F-2
Figure F-5. Organic nitrogen calibration results for subsegment 041805. ..... F-3
Figure F-6. Nitrate+nitrite calibration results for subsegment 041805..... F-3

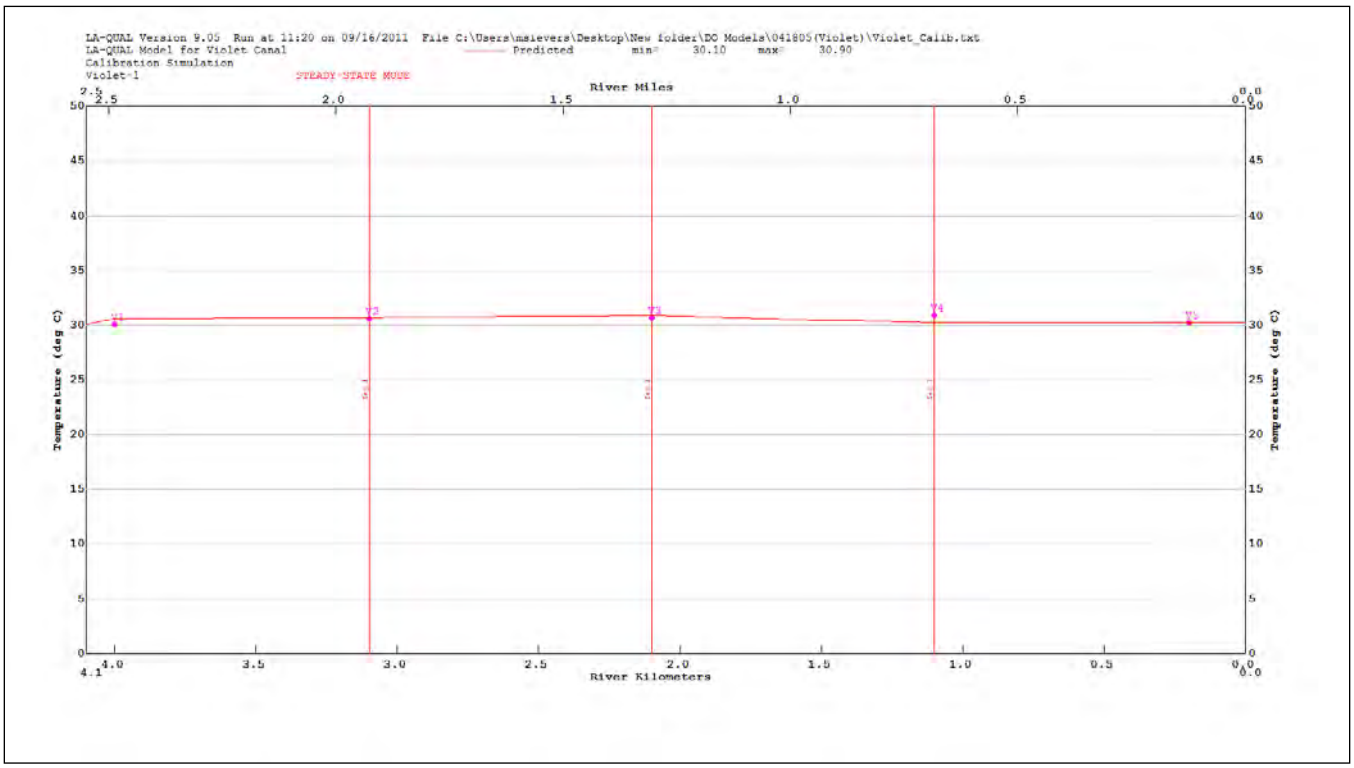

Figure F-1. Temperature calibration results for subsegment 041805.

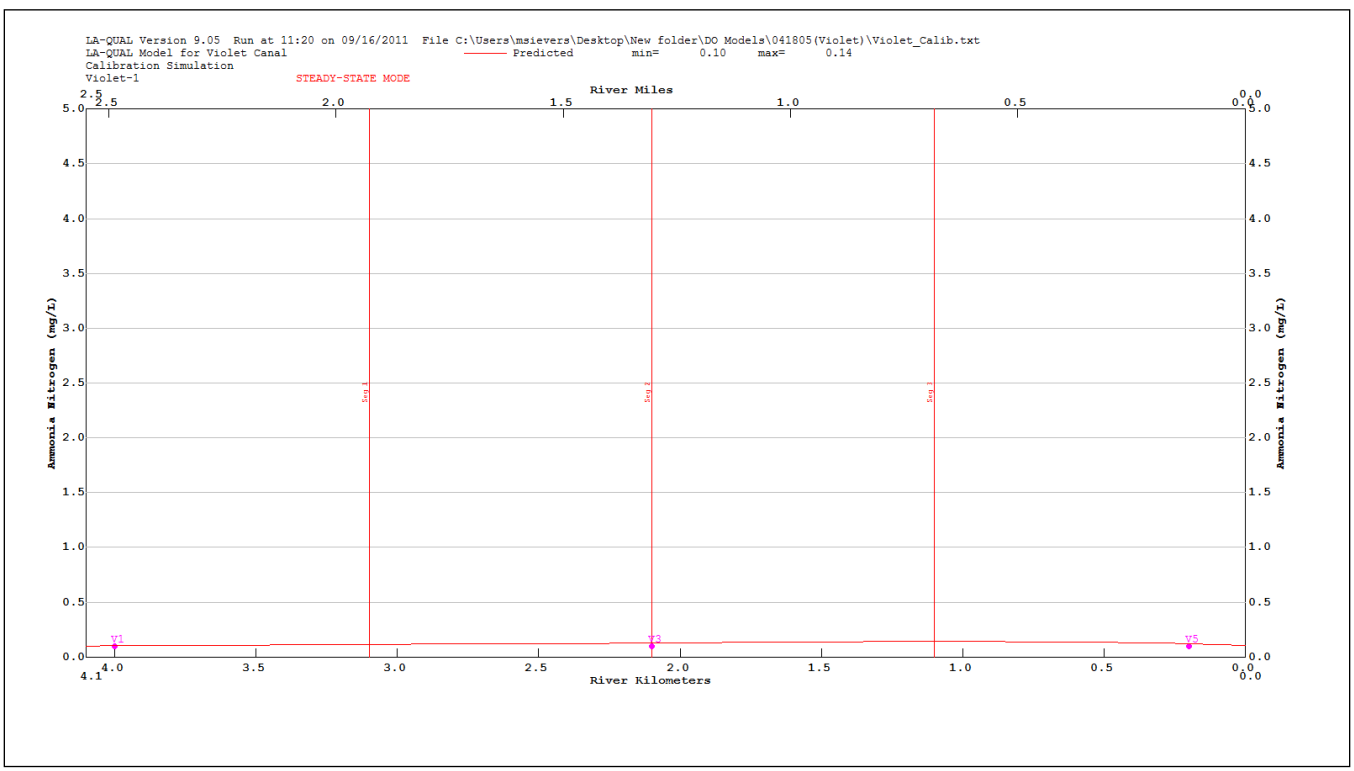

Figure F-2. Ammonia calibration results for subsegment 041805.

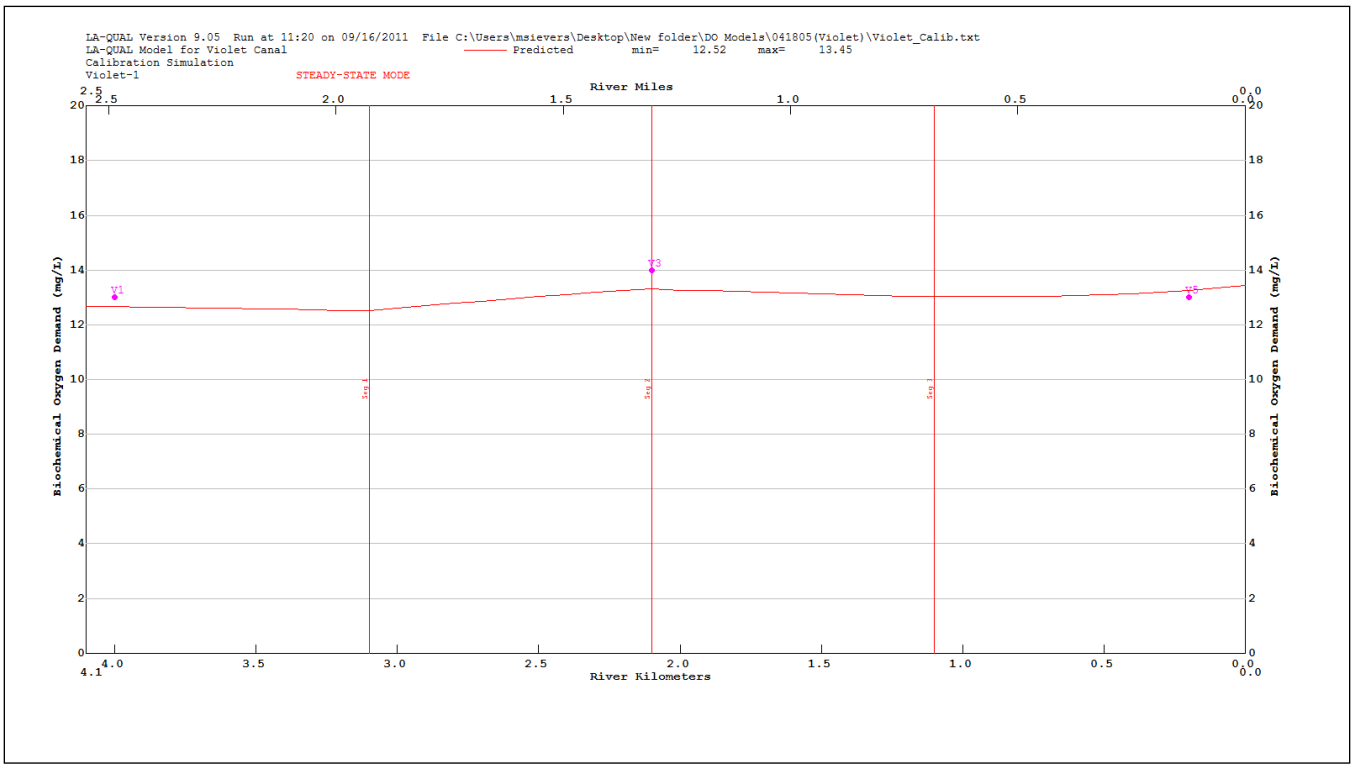

Figure F-3. CBOD$_u$ calibration results for subsegment 041805.

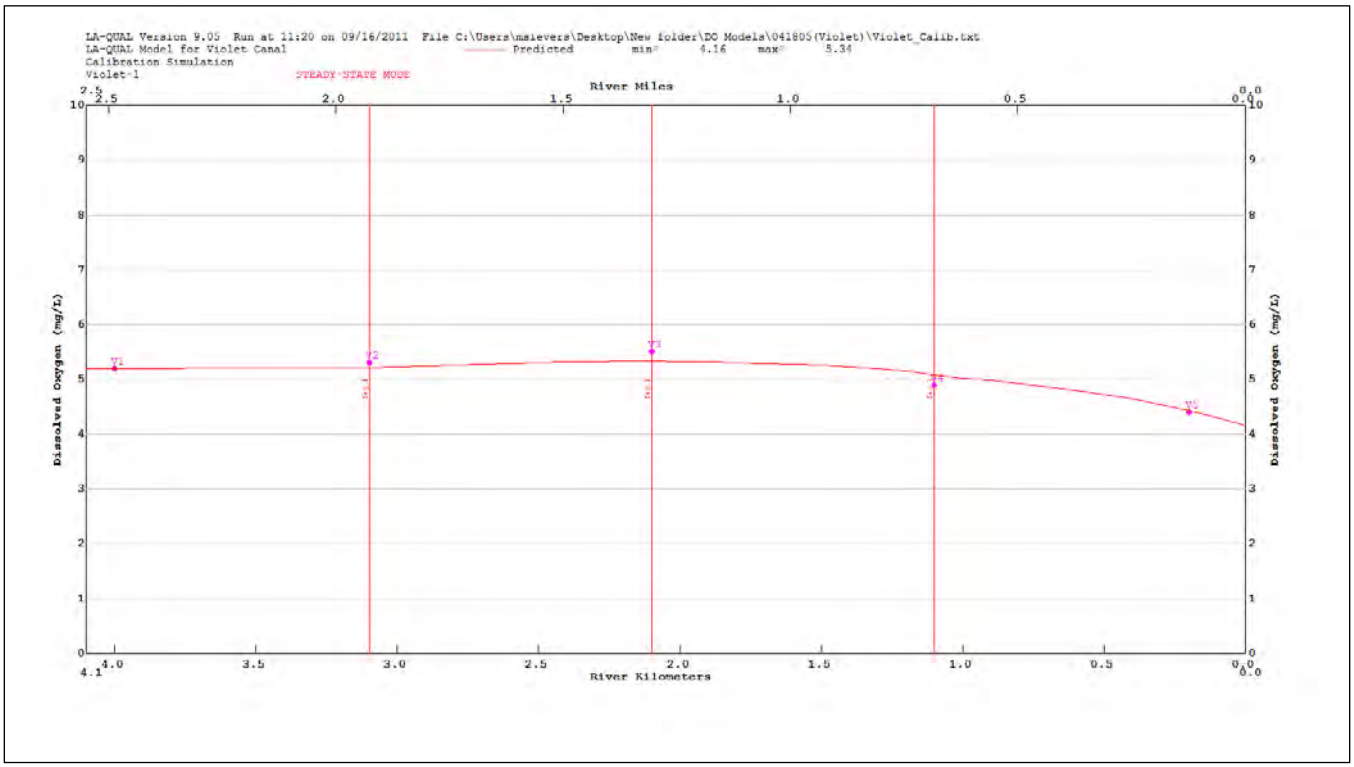

Figure F-4. DO calibration results for subsegment 041805.

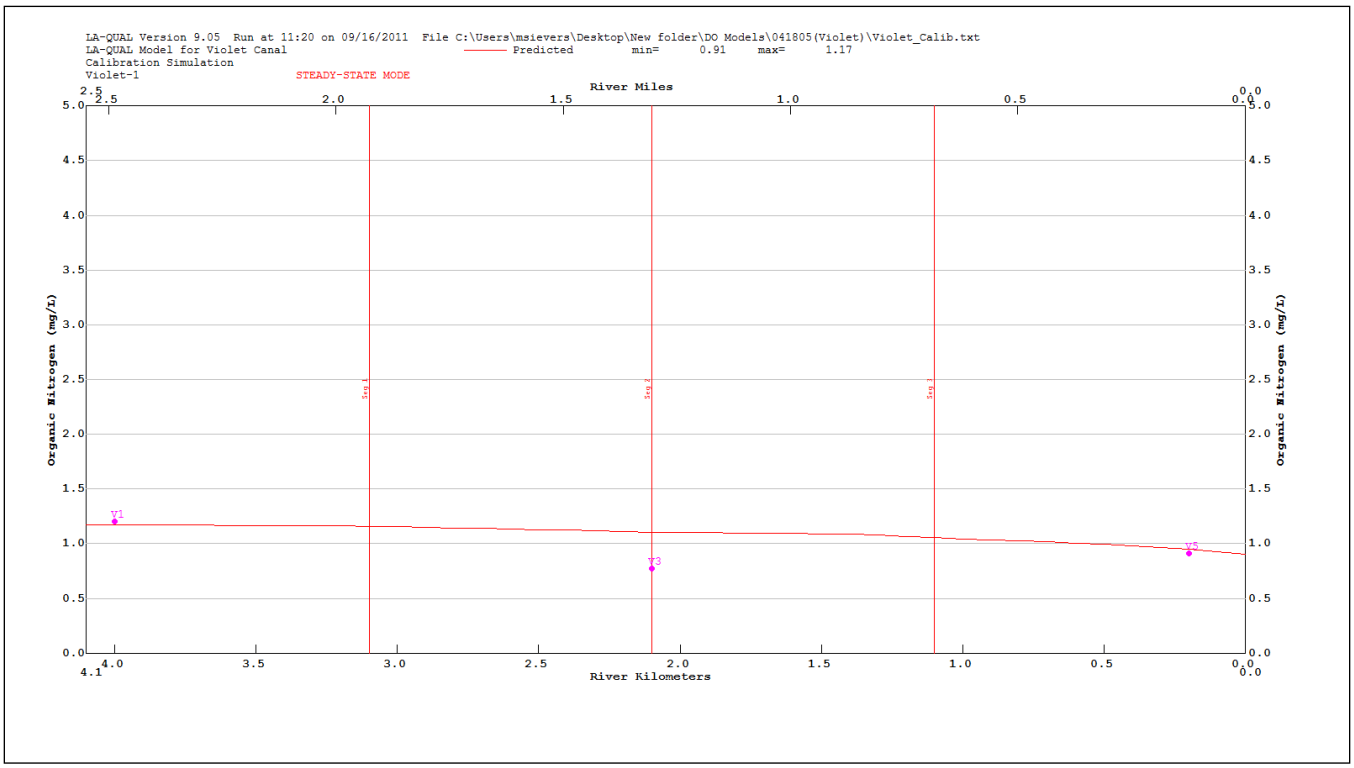

Figure F-5. Organic nitrogen calibration results for subsegment 041805.

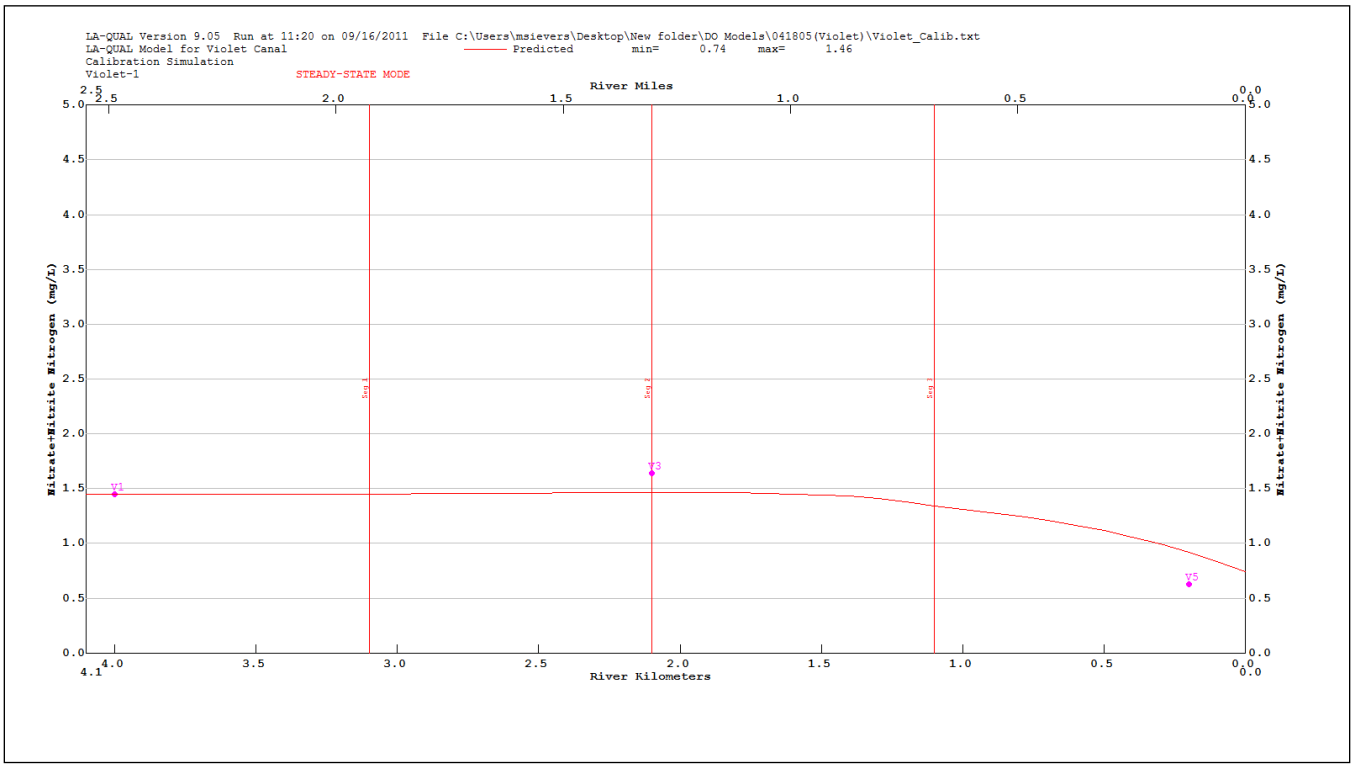

Figure F-6. Nitrate+nitrite calibration results for subsegment 041805.

APPENDIX G:
Sensitivity Analysis Plots

Figure G-1. CBOD sensitivity results (CBOD aerobic decay rate) for subsegment 041805. ..... G-1
Figure G-2. CBOD sensitivity results (dispersion) for subsegment 041805. ..... G-1
Figure G-3. CBOD sensitivity results (reaeration) for subsegment 041805. ..... G-2
Figure G-4. CBOD sensitivity results (background SOD) for subsegment 041805. ..... G-2
Figure G-5. CBOD sensitivity results (stream velocity) for subsegment 041805. ..... G-3
Figure G-6. DO sensitivity results (CBOD aerobic decay rate) for subsegment 041805. ..... G-3
Figure G-7. DO sensitivity results (dispersion) for subsegment 041805. ..... G-4
Figure G-8. DO sensitivity results (reaeration) for subsegment 041805. ..... G-4
Figure G-9. DO sensitivity results (background SOD) for subsegment 041805. ..... G-5
Figure G-10. DO sensitivity results (stream velocity) for subsegment 041805. ..... G-5

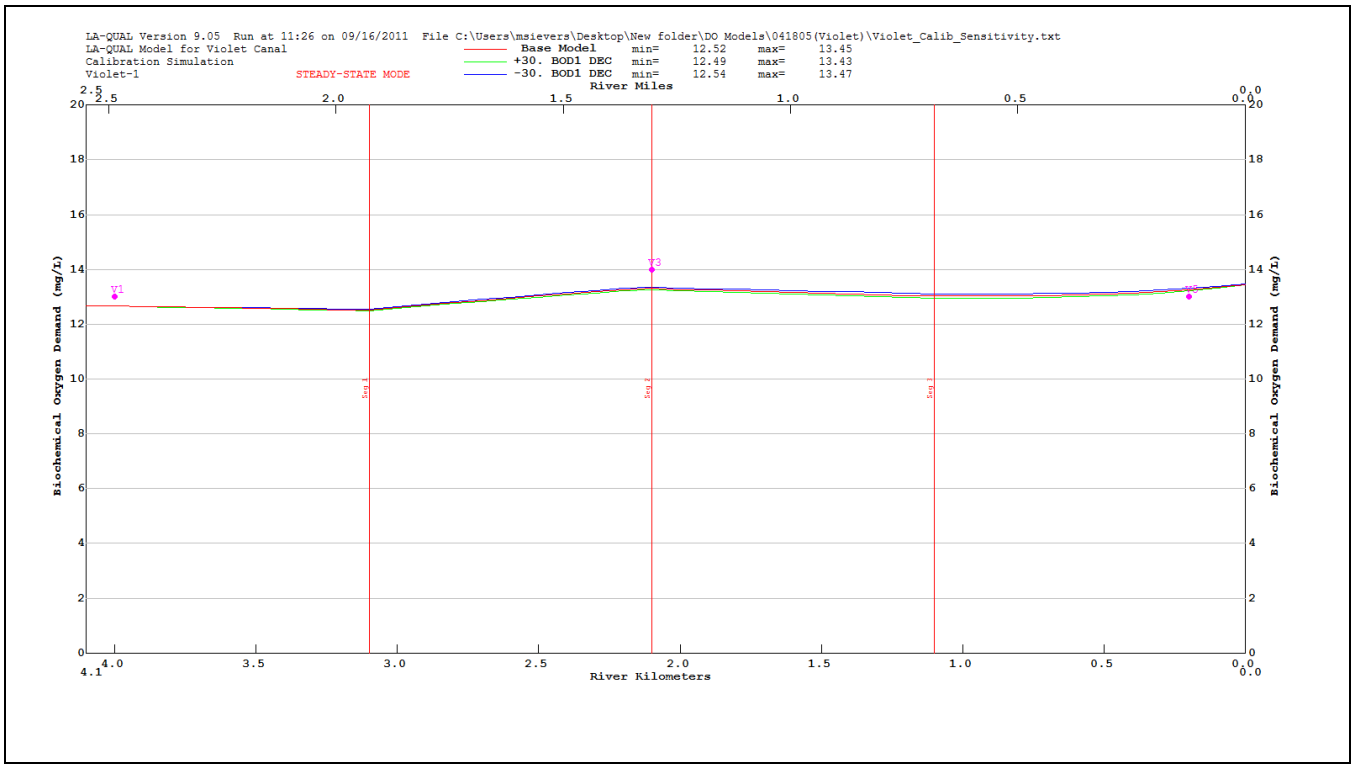

Figure G-1. CBOD sensitivity results (CBOD aerobic decay rate) for subsegment 041805.

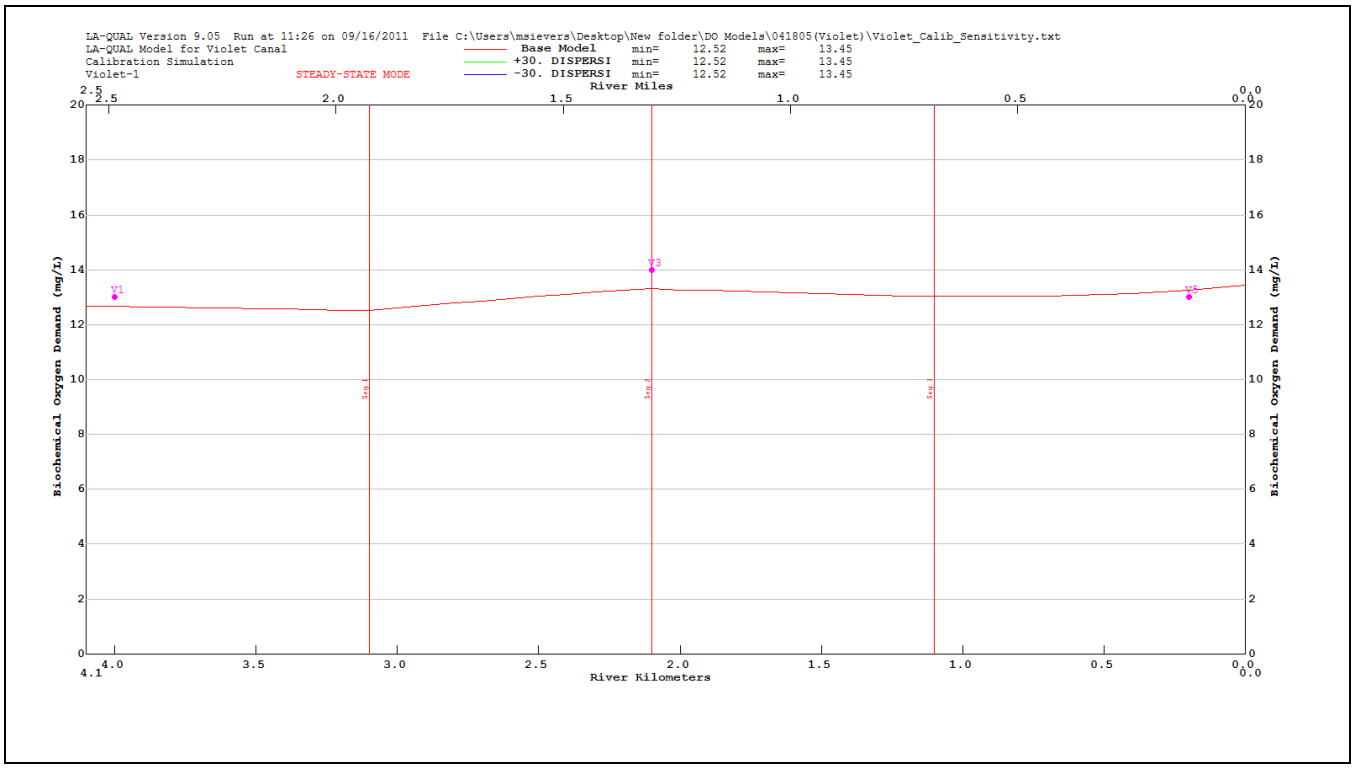

Figure G-2. CBOD sensitivity results (dispersion) for subsegment 041805.

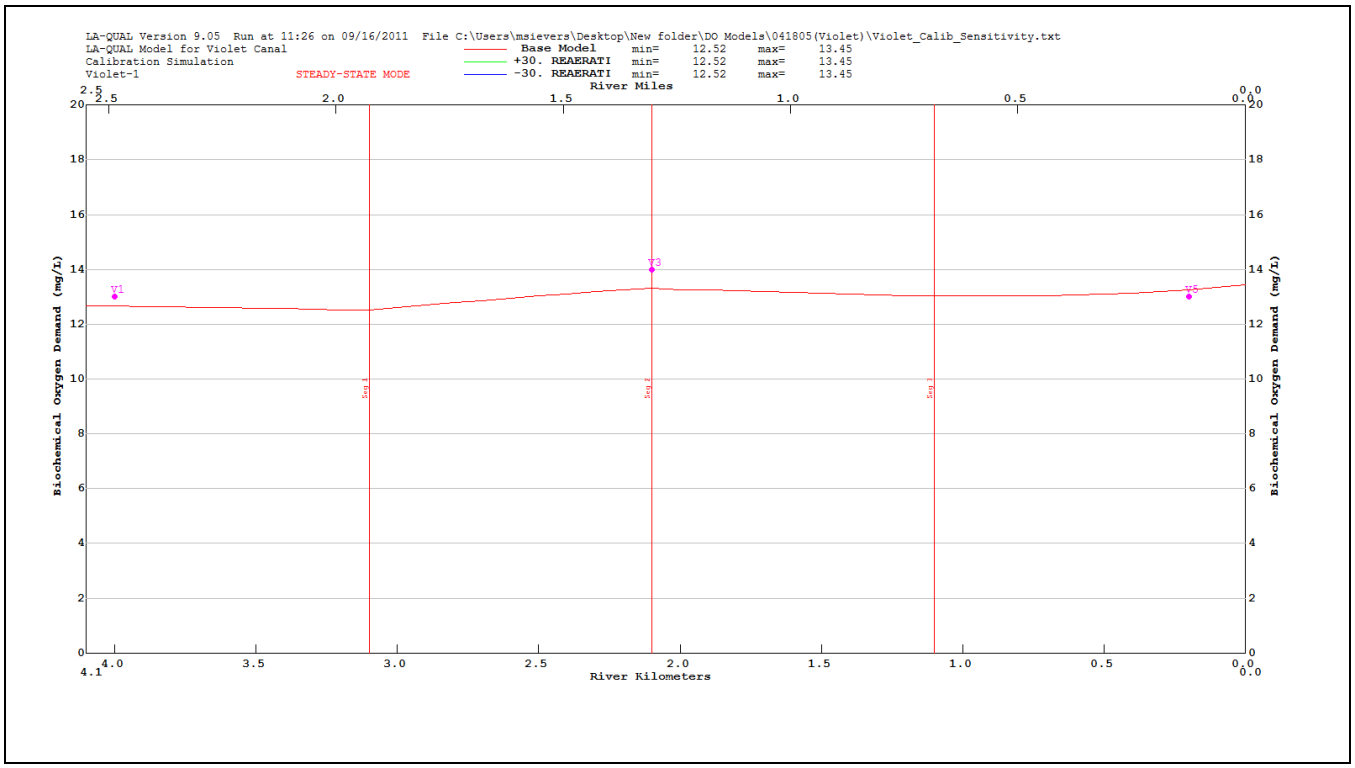

Figure G-3. CBOD sensitivity results (reaeration) for subsegment 041805.

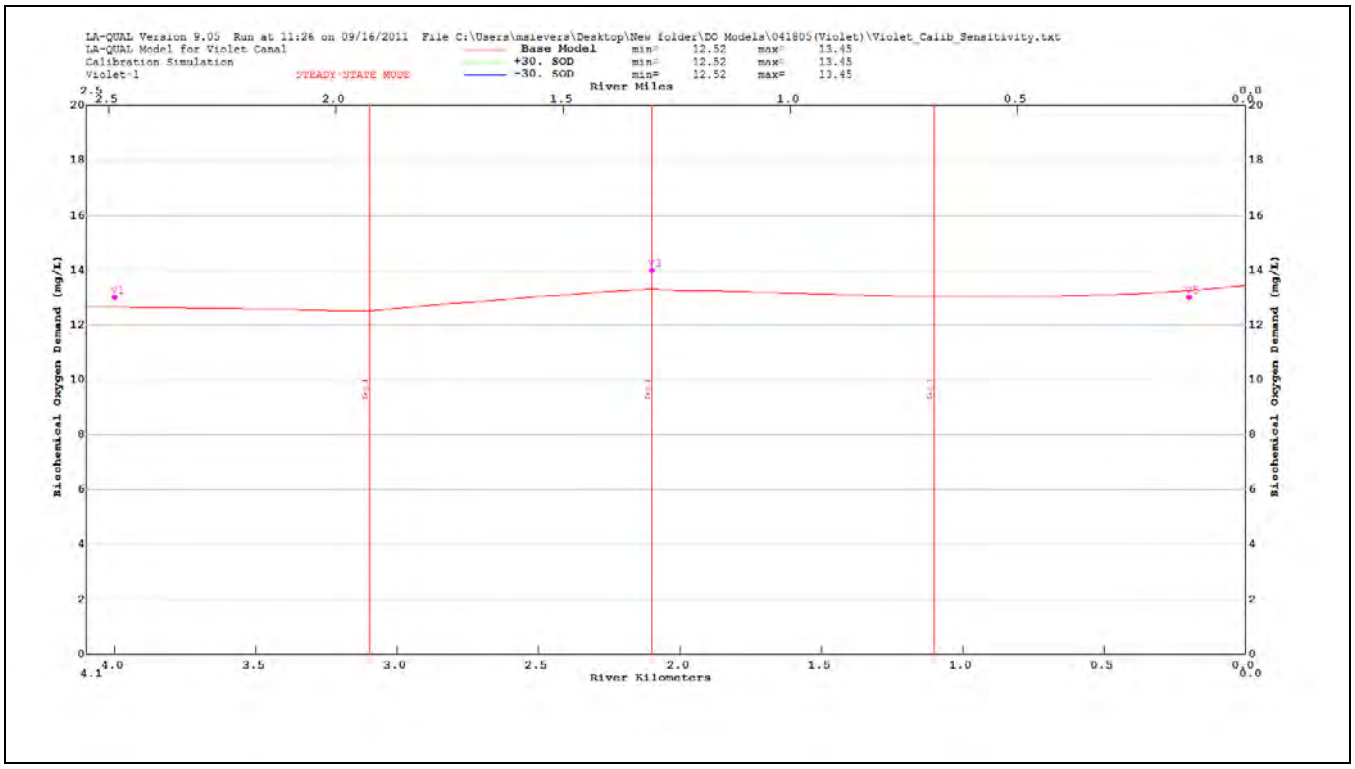

Figure G-4. CBOD sensitivity results (background SOD) for subsegment 041805.

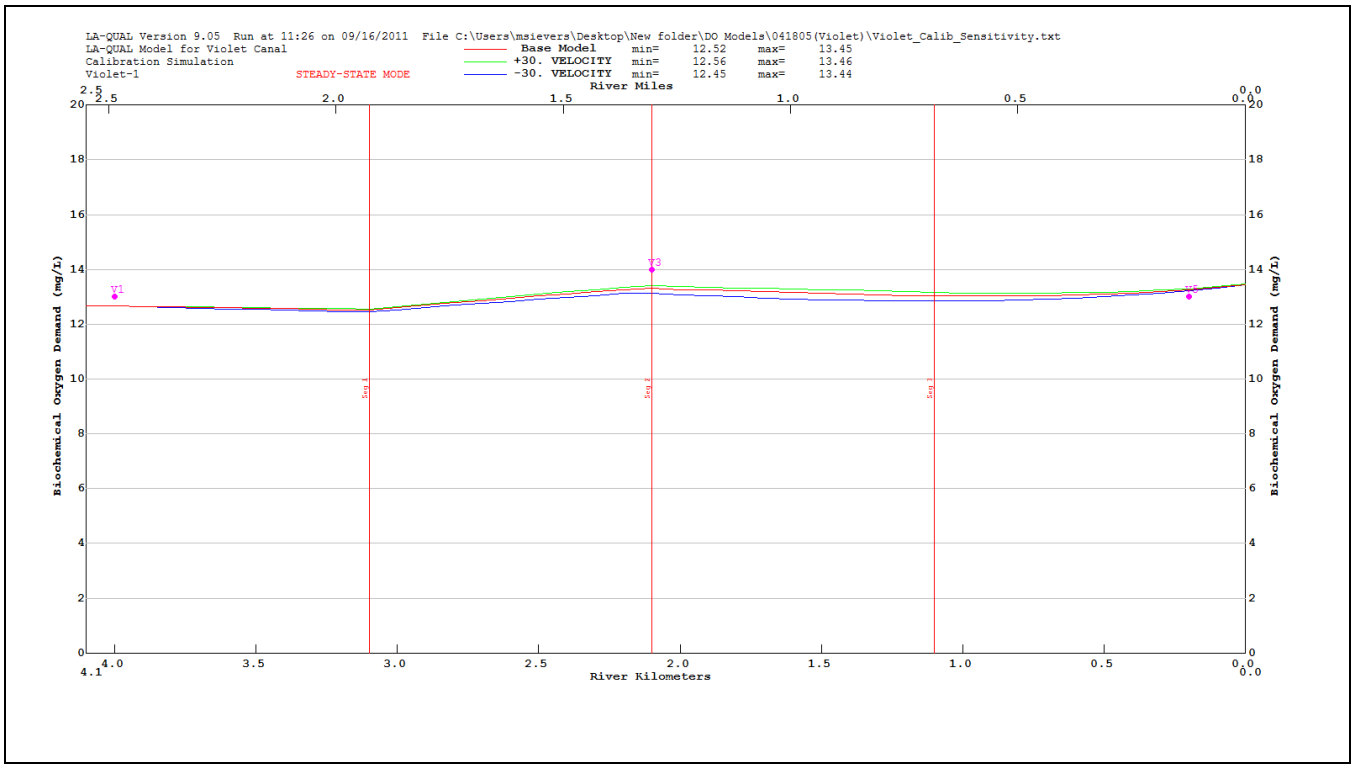

Figure G-5. CBOD sensitivity results (stream velocity) for subsegment 041805.

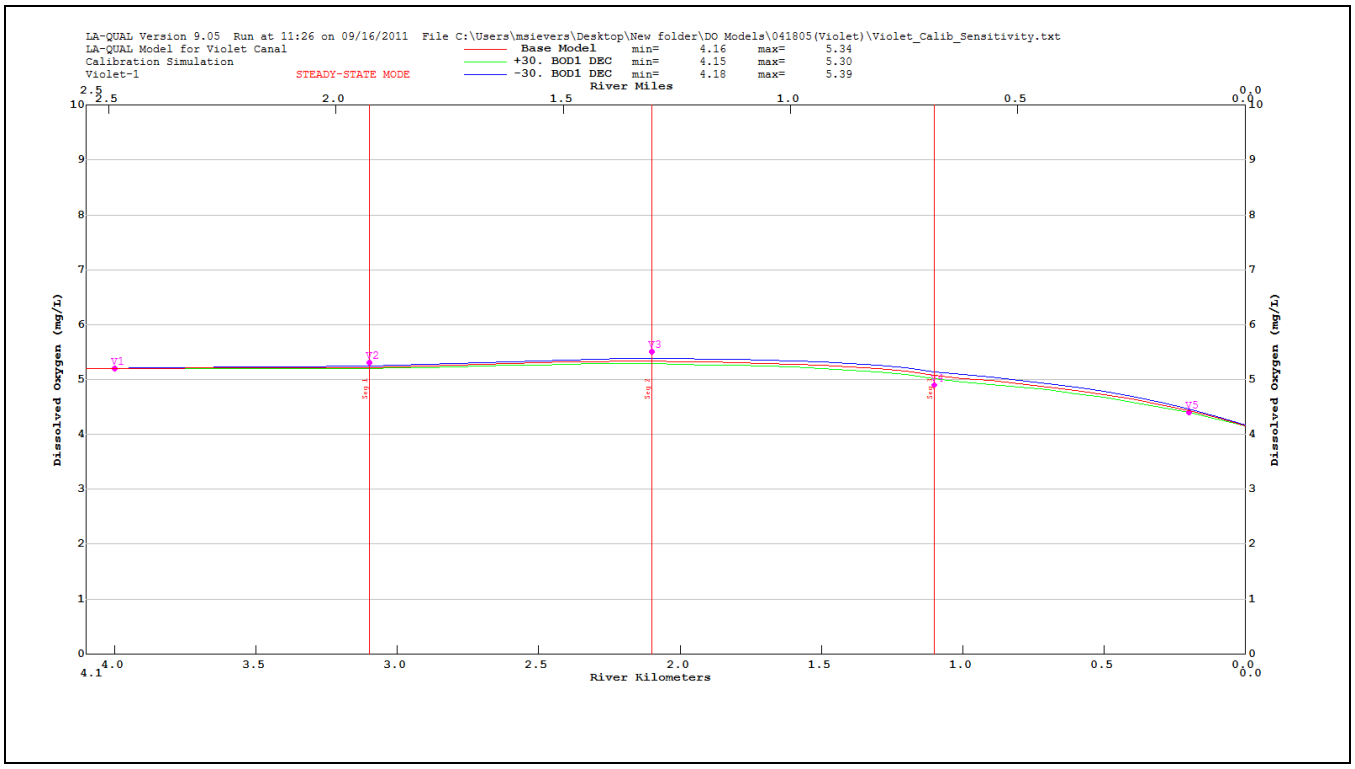

Figure G-6. DO sensitivity results (CBOD aerobic decay rate) for subsegment 041805.

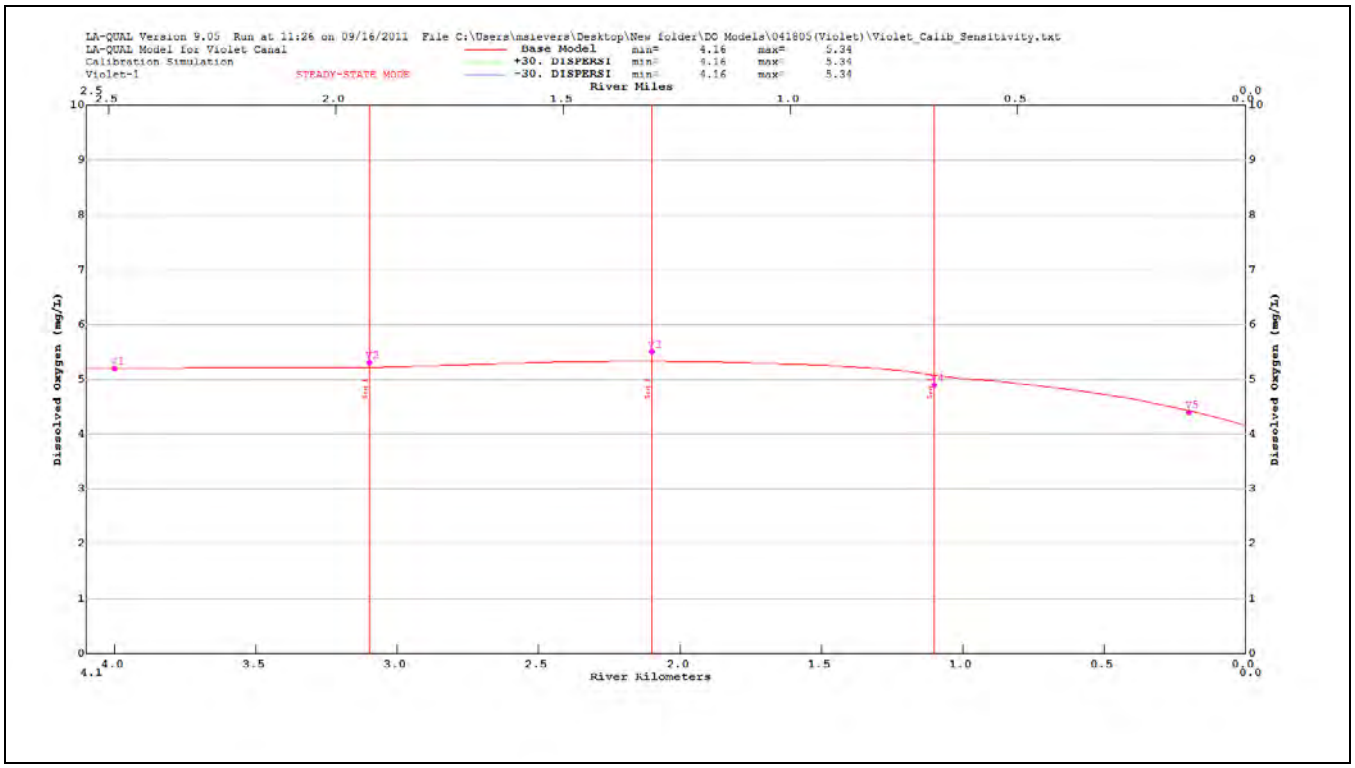

Figure G-7. DO sensitivity results (dispersion) for subsegment 041805.

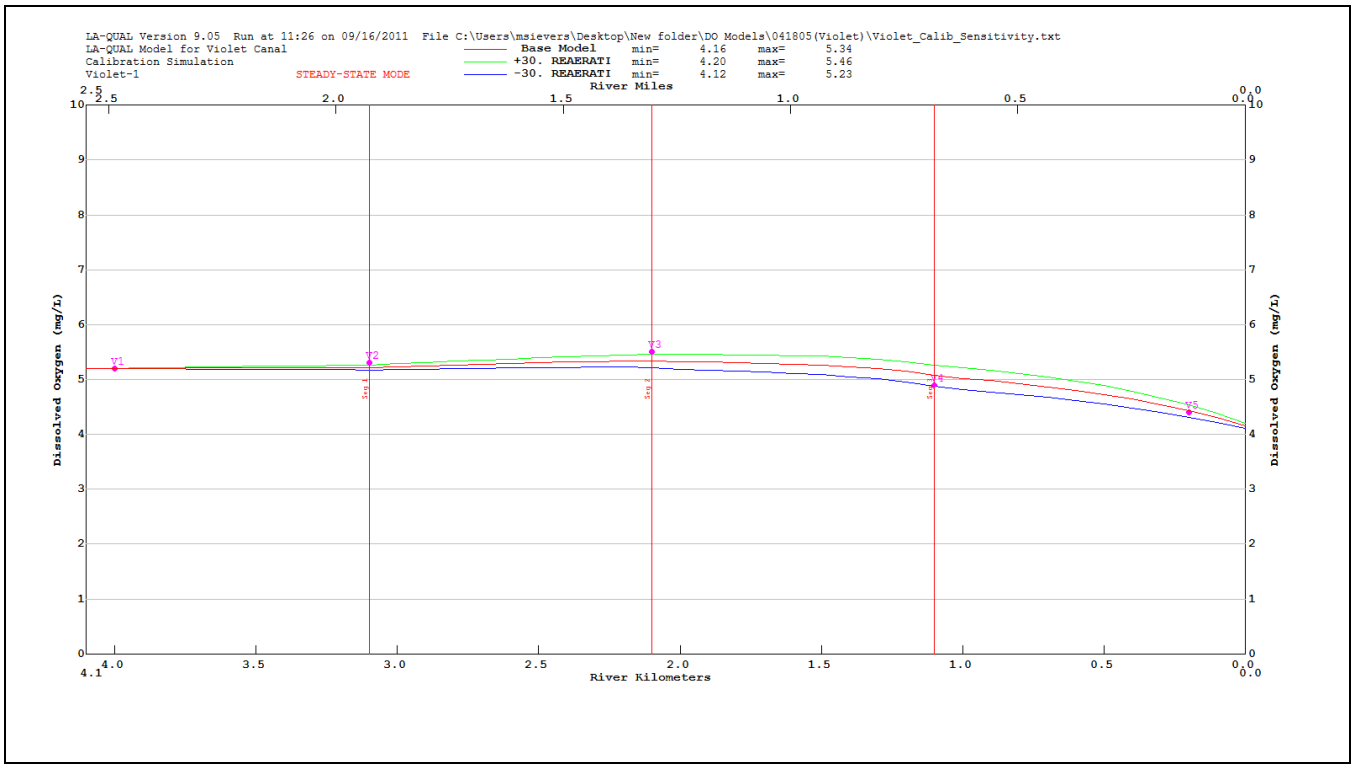

Figure G-8. DO sensitivity results (reaeration) for subsegment 041805.

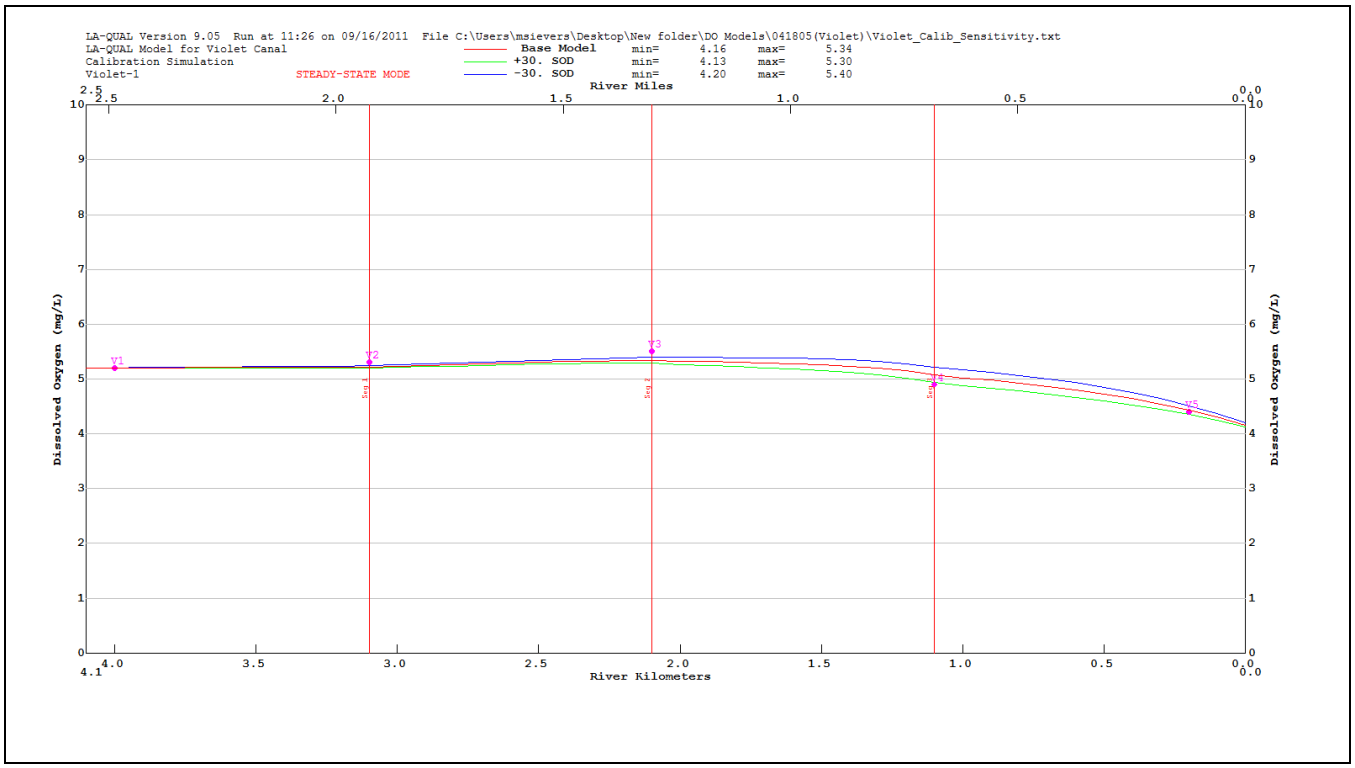

Figure G-9. DO sensitivity results (background SOD) for subsegment 041805.

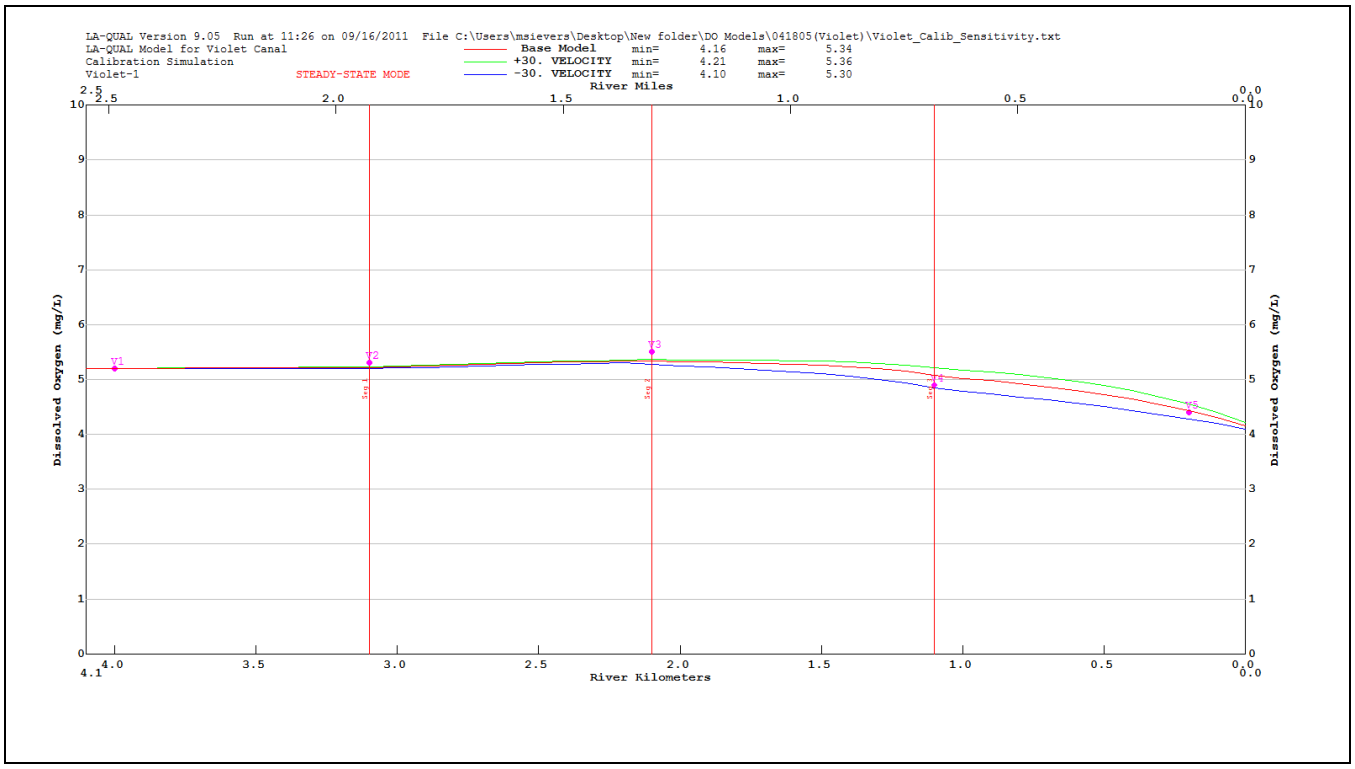

Figure G-10. DO sensitivity results (stream velocity) for subsegment 041805.

APPENDIX H:
Model Baseline Output Files

Summer LA-QUAL model baseline output H-1
Winter LA-QUAL model baseline output H-15

Summer LA-QUAL model baseline output

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LA-QUAL Version 9.05
Louisiana Department of Environmental Quality

Input file is E:\EPA_R06\LA TMDL 2006\Phase IV (Lake P)\DO Models\041805(Violet)\Violet_Baseline_DO2.txt
Running in steady-state mode using LA defaults
Output produced at 15:53 on 11/15/2011

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

CARD TYPE       CONTROL TITLES

TITLE01         LA-QUAL Model for Violet Canal
TITLE02         Baseline Simulation
CONTROL   YES   METRIC UNITS
ENDATA01

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

CARD TYPE       MODEL OPTION

MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL #1   CONDUCTIVITY          UNITS = umhos/cm Conduct
MODOPT04   NO   CONSERVATIVE MATERIAL #2                         UNITS =
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BOD1 BIOCHEMICAL OXYGEN DEMAND #1
MODOPT07   NO   BOD2 BIOCHEMICAL OXYGEN DEMAND #2
MODOPT08  YES   NITROGEN SERIES
MODOPT09   NO   PHOSPHORUS
MODOPT10   NO   CHLOROPHYLL A
MODOPT11   NO   MACROPHYTES
MODOPT12   NO   COLIFORMS
MODOPT13   NO   NONCONSERVATIVE MATERIAL                         UNITS =
ENDATA02

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

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

PROGRAM         HYDRAULIC CALCULATION METHOD       =         2.00000 (widths and depths)
PROGRAM         INHIBITION CONTROL VALUE           =         3.00000 (inhibit all rates but SOD)
PROGRAM         OCEAN EXCHANGE RATIO               =         0.50000
PROGRAM         TIDE HEIGHT                        =         0.22000 meters
PROGRAM         TIDAL PERIOD                       =        12.00000 hours
PROGRAM         PERIOD OF TIDAL RISE               =         6.00000 hours
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

$$$ DATA TYPE 6 (PHYTOPLANKTON CONSTANTS) $$$

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA06

$$$ DATA TYPE 7 (PERIPHYTON CONSTANTS) $$$

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   V2  MissSiphonToHwy38V1_V2             4.10  TO    3.10   0.1000     1.00        10      1     10
REACH ID      2   V3  Hwy38ToWofFortyArpentCanalV2_V3    3.10  TO    2.10   0.1000     1.00        10     11     20
REACH ID      3   V4  WofFortyArpentCanalToV4            2.10  TO    1.10   0.1000     1.00        10     21     30
REACH ID      4   V5  V4ToV5endofsubseg                  1.10  TO    0.00   0.1000     1.10        11     31     41
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   V2       0.000       0.000      26.820       0.000       0.000       1.680     0.00010   0.000
HYDR-1        2   V3       0.000       0.000      45.470       0.000       0.000       1.070     0.00010   0.000
HYDR-1        3   V4       0.000       0.000      53.450       0.000       0.000       1.070     0.00010   0.000
HYDR-1        4   V5       0.000       0.000      69.490       0.000       0.000       0.950     0.00010   0.000
ENDATA09

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

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

HYDR          1   V2      0.00        0.500          0.000          0.000          0.000
HYDR          2   V3      0.00        0.500          0.000          0.000          0.000
HYDR          3   V4      0.50       20.000          0.000          0.000          0.000
HYDR          4   V5      1.00       50.000          0.000          0.000          0.000
ENDATA10

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

CARD TYPE      REACH  ID     TEMP    SALIN       DO    NH3-N    NO3-N    PO4-P    CHL A    PERIP     BOD1     BOD2    ORG-N    ORG-P     COLI      NCM  Conduct     CM-2
                                   deg C      ppt     mg/L     mg/L     mg/L     mg/L     µg/L     g/m²     mg/L     mg/L     mg/L     mg/L  #/100mL          umhos/cm

INITIAL           1   V2    30.60     0.00     5.30     0.10     0.00     0.00     3.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
INITIAL           2   V3    30.70     0.00     5.50     0.10     0.00     0.00     3.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
INITIAL           3   V4    30.90     0.00     4.90     0.10     0.00     0.00     3.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
INITIAL           4   V5    30.20     0.00     4.40     0.10     0.00     0.00     4.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
ENDATA11

$$$ DATA TYPE 12 (REAERATION, SEDIMENT OXYGEN DEMAND, BOD COEFFICIENTS) $$$
                                                                                AEROB              SETTLD     ANAER     AEROB                          ANAER      BOD2
CARD     RCH  RCH  K2                    K2        K2        K2    BKGRND      BOD       BOD       SOD       BOD      BOD2      BOD2                   BOD2   HYDR TO
TYPE     NUM   ID  OPT                   "A"       "B"       "C"       SOD    DECAY      SETT     AVAIL     DECAY     DECAY      SETT                  DECAY      BOD1
                                                                     g/m²/d   per day       m/d      frac   per day   per day       m/d               per day   per day

COEFF-1    1   V2   3 OCONNER-DOBB     0.000     0.000     0.000     0.700     0.050     0.100     0.000     0.000     0.000     0.000                 0.000     0.000
COEFF-1    2   V3   3 OCONNER-DOBB     0.000     0.000     0.000     0.700     0.050     0.100     0.000     0.000     0.000     0.000                 0.000     0.000
COEFF-1    3   V4   3 OCONNER-DOBB     0.000     0.000     0.000     1.680     0.050     0.100     0.000     0.000     0.000     0.000                 0.000     0.000
COEFF-1    4   V5   3 OCONNER-DOBB     0.000     0.000     0.000     1.680     0.050     0.100     0.000     0.000     0.000     0.000                 0.000     0.000
ENDATA12

$$$ DATA TYPE 13 (NITROGEN AND PHOSPHORUS COEFFICIENTS) $$$
                                                  SETTLD                BKGRND    BKGRND                                    SETTLD
CARD TYPE      REACH  ID       ORG-N     ORG-N      ORGN       NH3       NH3       PO4     DENIT      ORGP      ORGP      ORGP
                                 DECA      SETT     AVAIL      DECA      SRCE      SRCE      RATE      DECA      SETT     AVAIL
                            per day       m/d      frac   per day   g/m²/d   g/m²/d   per day   per day       m/d      frac

COEFF-2           1   V2       0.120     0.000     0.000     0.020     0.000     0.000     0.020     0.000     0.000     0.000
COEFF-2           2   V3       0.120     0.000     0.000     0.020     0.000     0.000     0.020     0.000     0.000     0.000
COEFF-2           3   V4       0.120     0.000     0.000     0.020     0.000     0.000     0.020     0.000     0.000     0.000
COEFF-2           4   V5       0.120     0.000     0.000     0.020     0.000     0.000     0.020     0.000     0.000     0.000
ENDATA13

$$$ DATA TYPE 14 (ALGAE PHYTOPLANKTON AND PERIPHYTON COEFFICIENTS) $$$
                                                                   MAX                                   MAX
 CARD TYPE      REACH  ID      SECCHI    CHL A:     PHYTO     PHYTO     PHYTO     PHYTO     PERIP     PERIP     PERIP     PERIP      BANK
                                DEPTH     ALGAE      SETT     DEATH     GROW      RESP     DEATH      GROW      RESP   SHADING
                                    m      frac       m/d   per day   per day   per day   per day   per day   per day      frac
```

```
ENDATA14

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

CARD TYPE      REACH  ID    COLIFORM       NCM       NCM
                            DIE-OFF     DECAY      SETT
                            per day   per day       m/d

ENDATA15

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

CARD TYPE      REACH  ID       OUTFLOW      INFLOW      TEMP     SALIN   Conduct      CM-2   IN/DIST  OUT/DIST
                                  m³/s        m³/s     deg C       ppt  umhos/cm

INCR-1           1   V2       0.00000     0.00000      0.00      0.00      0.00      0.00   0.00000   0.00000
INCR-1           2   V3       0.00000     0.00283     30.00      0.00    391.00      0.00   0.00283   0.00000
INCR-1           3   V4      -0.00283     0.00000     30.70      0.00    391.00      0.00   0.00000  -0.00283
INCR-1           4   V5      -0.00283     0.00000     30.70      0.00    391.00      0.00   0.00000  -0.00257
ENDATA16

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

CARD TYPE      REACH  ID          DO      BOD1     ORG-N     NH3-N     NO3-N      BOD2
                                mg/L      mg/L      mg/L      mg/L      mg/L      mg/L

INCR-2           1   V2        0.00      0.00      0.00      0.00      0.00      0.00
INCR-2           2   V3        5.50     24.00      0.73      0.10      1.64      0.00
INCR-2           3   V4        5.50     14.00      0.78      0.10      1.64      0.00
INCR-2           4   V5        5.50     14.00      0.78      0.10      1.64      0.00
ENDATA17

$$$ DATA TYPE 18 (INCREMENTAL DATA FOR PHOSPHORUS, PHYTOPLANKTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                         PHYTO
 CARD TYPE      REACH  ID         PO4     CHL A      COLI       NCM      ORGP
                                mg/L      µg/L   #/100mL                 mg/L

ENDATA18

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

CARD TYPE      REACH  ID        BOD1     ORG-N      COLI       NCM        DO      BOD2     ORG-P
                                mg/d      kg/d     #/day                 kg/d      kg/d      kg/d

NONPOINT         1   V2        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT         2   V3        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT         3   V4        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT         4   V5        0.00      0.00      0.00      0.00      0.00      0.00      0.00
ENDATA19

$$$ DATA TYPE 20 (HEADWATER FOR FLOW, TEMPERATURE, SALINITY AND CONSERVATIVES) $$$
                                                                                                          HDW DISP
CARD TYPE     ELEMENT   NAME                  UNIT     FLOW       FLOW    TEMP    SALIN   Conduct      CM-2     EXCHG
                                                        m³/s        cfs   deg C      ppt  umhos/cm                frac

HDWTR-1          1     Violet-1                0   0.00283    0.09993   30.10     0.00   392.000     0.000     0.000
ENDATA20

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

CARD TYPE     ELEMENT   NAME                          DO     BOD#1     ORG-N     NH3-N     NO3-N      BOD2
                                                    mg/L      mg/L      mg/L      mg/L      mg/L      mg/L

HDWTR-2          1     Violet-1                    5.20     13.00      1.20      0.10      1.45      0.00
ENDATA21

$$$ DATA TYPE 22 (HEADWATER DATA FOR PHOSPHORUS, PHYTOPLANKTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                                         PHYTO
CARD TYPE     ELEMENT   NAME                        PO4-P     CHL A      COLI       NCM     ORG-P
                                                     mg/L      µg/L   #/100mL                mg/L

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   Conduct      CM-2
                                                      m³/s        cfs      MGD   deg C      ppt  umhos/cm

WSTLD-1        1       4.10  LAG531277              0.00006    0.00212    0.001   30.00     0.00     0.000     0.000
ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$
                                                                      % BOD                            %
CARD TYPE     ELEMENT   NAME                          DO       BOD      RMVL     ORG-N     NH3-N    NITRIF     NO3-N      BOD2
                                                     mg/L      mg/L                mg/L      mg/L                mg/L      mg/L

WSTLD-2           1     LAG531277                   2.00    103.50      0.00      7.50     15.00      0.00      2.00      0.00
ENDATA25

$$$ DATA TYPE 26 (WASTELOAD DATA FOR PHOSPHORUS, PHYTOPLANTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                                                 PHYTO
CARD TYPE     ELEMENT   NAME                        PO4-P     CHL A      COLI       NCM     ORG-P
                                                     mg/L      µg/L   #/100mL                mg/L

ENDATA26

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

CARD TYPE    CONSTITUENT                    CONCENTRATION

LOWER BC     TEMPERATURE                          30.200     deg C
LOWER BC     SALINITY                       =      0.000     ppt
LOWER BC     CONSERVATIVE MATERIAL I        =   4397.000     umhos/cm
LOWER BC     DISSOLVED OXYGEN                      4.000     mg/L
LOWER BC     BOD1 BIOCHEMICAL OXYGEN DEMAND       14.000     mg/L
LOWER BC     ORGANIC NITROGEN                      0.917     mg/L
LOWER BC     AMMONIA NITROGEN                      0.100     mg/L
LOWER BC     NITRATE NITROGEN                      0.633     mg/L
LOWER BC     CHLOROPHYLL A                         4.000     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 =   4
PLOT RCH  1  2  3  4
ENDATA30

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

OVERLAY 1 Violet.ovl                     :Violet Canal Overlay File
ENDATA31

     .....NO ERRORS DETECTED IN INPUT DATA
     .....HYDRAULIC CALCULATIONS COMPLETED
     .....TRIDIAGONAL MATRIX TERMS INITIALIZED
     .....OXYGEN DEPENDENT RATES CONVERGENT IN    1 ITERATIONS
     .....CONSTITUENT CALCULATIONS COMPLETED
```

.....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 11

INTERMEDIATE REPORT
Dissolved Oxygen
mg/L

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	5.98	5.99	5.99	5.99	5.98	5.97	5.95	5.92	5.89	5.85
V3	2	11	5.80	5.74	5.66	5.56	5.44	5.27	5.05	4.74	4.33	3.76
V4	3	21	3.72	3.71	3.70	3.70	3.70	3.71	3.72	3.73	3.75	3.77
V5	4	31	3.78	3.79	3.80	3.82	3.83	3.85	3.87	3.89	3.92	3.94
V5	4	41	3.97									

INTERMEDIATE REPORT
Effective BOD1
mg/L

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.63	1.51	1.43	1.39	1.39	1.42	1.50	1.62	1.79	2.02
V3	2	11	2.30	2.64	3.07	3.61	4.29	5.15	6.22	7.57	9.27	11.41
V4	3	21	11.53	11.61	11.71	11.81	11.94	12.07	12.22	12.38	12.56	12.75
V5	4	31	12.85	12.92	13.00	13.08	13.18	13.27	13.38	13.49	13.61	13.73
V5	4	41	13.86									

INTERMEDIATE REPORT
Biochemical Oxygen Demand
mg/L

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.31	1.19	1.11	1.07	1.07	1.10	1.18	1.30	1.47	1.70
V3	2	11	1.98	2.32	2.75	3.29	3.97	4.83	5.90	7.25	8.95	11.09
V4	3	21	11.20	11.27	11.35	11.45	11.56	11.69	11.82	11.97	12.14	12.32
V5	4	31	12.42	12.49	12.57	12.66	12.75	12.85	12.95	13.06	13.18	13.30
V5	4	41	13.44									

INTERMEDIATE REPORT
Organic Nitrogen
mg/L

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.12	0.11	0.10	0.09	0.09	0.09	0.10	0.11	0.12	0.14
V3	2	11	0.16	0.18	0.22	0.25	0.30	0.36	0.43	0.52	0.62	0.75
V4	3	21	0.76	0.76	0.77	0.77	0.78	0.79	0.79	0.80	0.81	0.82
V5	4	31	0.83	0.83	0.83	0.84	0.84	0.85	0.85	0.86	0.86	0.87
V5	4	41	0.88									

INTERMEDIATE REPORT
Effective Organic Nitrogen
mg/L

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.14	0.13	0.12	0.12	0.12	0.12	0.13	0.13	0.15	0.16
V3	2	11	0.18	0.21	0.24	0.28	0.33	0.39	0.46	0.54	0.65	0.78
V4	3	21	0.79	0.79	0.80	0.80	0.81	0.82	0.83	0.83	0.84	0.85
V5	4	31	0.86	0.86	0.87	0.87	0.88	0.88	0.89	0.89	0.90	0.90
V5	4	41	0.91									

INTERMEDIATE REPORT
Ammonia Nitrogen
mg/L

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.40	0.40
V3	2	11	0.40	0.40	0.40	0.40	0.39	0.38	0.36	0.32	0.27	0.20
V4	3	21	0.20	0.20	0.19	0.19	0.19	0.18	0.17	0.17	0.16	0.15
V5	4	31	0.15	0.15	0.14	0.14	0.14	0.13	0.13	0.12	0.12	0.11
V5	4	41	0.11									

INTERMEDIATE REPORT
Nitrate+Nitrite Nitrogen
mg/L

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.02	1.01	1.01	1.00	0.99	0.97	0.96	0.95	0.93	0.92
V3	2	11	0.90	0.88	0.86	0.83	0.81	0.78	0.75	0.71	0.68	0.64
V4	3	21	0.64	0.64	0.64	0.64	0.64	0.64	0.63	0.63	0.63	0.63
V5	4	31	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
V5	4	41	0.63									

INTERMEDIATE REPORT
Total Nitrogen
mg/L

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.52	1.51	1.49	1.48	1.47	1.46	1.45	1.45	1.45	1.46
V3	2	11	1.46	1.47	1.48	1.49	1.50	1.52	1.53	1.55	1.57	1.60
V4	3	21	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.61	1.61	1.61
V5	4	31	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61
V5	4	41	1.62									

INTERMEDIATE REPORT
Effective Total Nitrogen
mg/L

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.55	1.53	1.52	1.50	1.49	1.48	1.48	1.48	1.48	1.48
V3	2	11	1.49	1.49	1.50	1.51	1.53	1.54	1.56	1.58	1.60	1.62
V4	3	21	1.63	1.63	1.63	1.63	1.63	1.63	1.64	1.64	1.64	1.64
V5	4	31	1.64	1.64	1.64	1.64	1.64	1.65	1.65	1.65	1.65	1.65
V5	4	41	1.65									

INTERMEDIATE REPORT
Chlorophyll a
µg/L

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
V3	2	11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
V4	3	21	3.10	3.20	3.30	3.40	3.50	3.60	3.70	3.80	3.90	4.00
V5	4	31	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
V5	4	41	4.00									

INTERMEDIATE REPORT
Temperature
deg C

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	30.61	30.62	30.63	30.64	30.65	30.66	30.67	30.68	30.69	30.70
V3	2	11	30.72	30.74	30.76	30.78	30.80	30.82	30.84	30.86	30.88	30.90
V4	3	21	30.83	30.76	30.69	30.62	30.55	30.48	30.41	30.34	30.27	30.20
V5	4	31	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20
V5	4	41	30.20									

INTERMEDIATE REPORT
Salinity
ppt

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
V3	2	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
V4	3	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
V5	4	31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
V5	4	41	0.00									

INTERMEDIATE REPORT
CONDUCTIVITY UNIT

LA-QUAL Model for Violet Canal

umhos/cm

Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	3379.73	3418.16	3457.09	3496.51	3536.44	3576.88	3617.84	3659.32	3701.34	3743.89
V3	2	11	3785.34	3829.70	3878.63	3932.32	3990.95	4054.74	4123.93	4198.76	4279.51	4366.51
V4	3	21	4370.40	4372.39	4374.39	4376.38	4378.37	4380.37	4382.36	4384.35	4386.35	4388.35
V5	4	31	4389.37	4390.06	4390.76	4391.45	4392.14	4392.83	4393.53	4394.22	4394.91	4395.61
V5	4	41	4396.30									

INTERMEDIATE REPORT
River Distance
km

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	4.	4.	4.	4.	4.	4.	3.	3.	3.	3.
V3	2	11	3.	3.	3.	3.	3.	3.	2.	2.	2.	2.
V4	3	21	2.	2.	2.	2.	2.	1.	1.	1.	1.	1.
V5	4	31	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
V5	4	41	0.									

INTERMEDIATE REPORT
Flow
m^3/s

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V3	2	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V4	3	21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	41	0.0									

INTERMEDIATE REPORT
Dispersion
m^2/s

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
V3	2	11	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
V4	3	21	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
V5	4	31	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
V5	4	41	50.0									

INTERMEDIATE REPORT
Depth
m

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
V3	2	11	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
V4	3	21	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
V5	4	31	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
V5	4	41	0.9									

INTERMEDIATE REPORT
Width
m

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8
V3	2	11	45.5	45.5	45.5	45.5	45.5	45.5	45.5	45.5	45.5	45.5
V4	3	21	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5
V5	4	31	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5
V5	4	41	69.5									

INTERMEDIATE REPORT
Advective Velocity
m/s

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V3	2	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V4	3	21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	41	0.0									

INTERMEDIATE REPORT
Mean Velocity
m/s

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V3	2	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V4	3	21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	41	0.0									

INTERMEDIATE REPORT
Cross-Sectional Area
m^2

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	45.1	45.1	45.1	45.1	45.1	45.1	45.1	45.1	45.1	45.1
V3	2	11	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7
V4	3	21	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.2
V5	4	31	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
V5	4	41	66.0									

INTERMEDIATE REPORT
Reaeration Rate
per day

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.507	0.507	0.507	0.507	0.507	0.507	0.507	0.507	0.507	0.507
V3	2	11	0.797	0.797	0.797	0.798	0.798	0.798	0.798	0.799	0.799	0.799
V4	3	21	0.798	0.797	0.796	0.795	0.794	0.793	0.792	0.792	0.791	0.790
V5	4	31	0.889	0.889	0.889	0.889	0.889	0.889	0.889	0.889	0.889	0.889
V5	4	41	0.889									

INTERMEDIATE REPORT
BOD1 Decay Rate
per day

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V3	2	11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V4	3	21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	41	0.									

INTERMEDIATE REPORT
BOD1 Settling Rate
m/d

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V3	2	11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V4	3	21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	41	0.									

INTERMEDIATE REPORT
Ammonia Nitrogen Decay Rate
per day

LA-QUAL Model for Violet Canal
Baseline Simulation

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

V2	1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V3	2	11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V4	3	21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	41	0.									

INTERMEDIATE REPORT
Sediment Oxygen Demand
g/m²/d

LA-QUAL Model for Violet Canal
Baseline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
V3	2	11	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
V4	3	21	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
V5	4	31	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
V5	4	41	3.									

CAPSULE SUMMARY FOR Violet-1

IOR	REACH		DIST km	FLOW m³/s	TEMP deg C	SALN ppt	DO mg/L	BOD1 mg/L	BOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	ORG-P mg/L	PO4-P 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	0.003	30.10	0.0	5.20	12.68	0.00	1.17	0.10	1.45	2.72	0.00	0.00	3.0													
		WASTELOAD #	001 (LAG531277) ENTERS HERE																										
1	V2	1	4.00	0.003	30.61	0.0	5.98	1.31	0.00	0.12	0.39	1.02	1.52	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.479	0.507	0.08	0.08	0.00	0.00	0.04	1.37
2	V2	1	3.90	0.003	30.62	0.0	5.99	1.19	0.00	0.11	0.39	1.01	1.51	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.478	0.507	0.08	0.08	0.00	0.00	0.04	1.37
3	V2	1	3.80	0.003	30.63	0.0	5.99	1.11	0.00	0.10	0.39	1.01	1.49	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.477	0.507	0.08	0.08	0.00	0.00	0.04	1.37
4	V2	1	3.70	0.003	30.64	0.0	5.99	1.07	0.00	0.09	0.39	1.00	1.48	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.475	0.507	0.08	0.08	0.00	0.00	0.04	1.37
5	V2	1	3.60	0.003	30.65	0.0	5.98	1.07	0.00	0.09	0.39	0.99	1.47	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.474	0.507	0.08	0.08	0.00	0.00	0.04	1.37
6	V2	1	3.50	0.003	30.66	0.0	5.97	1.10	0.00	0.09	0.39	0.97	1.46	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.473	0.507	0.08	0.08	0.00	0.00	0.04	1.37
7	V2	1	3.40	0.003	30.67	0.0	5.95	1.18	0.00	0.10	0.39	0.96	1.45	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.472	0.507	0.08	0.08	0.00	0.00	0.04	1.37
8	V2	1	3.30	0.003	30.68	0.0	5.92	1.30	0.00	0.11	0.39	0.95	1.45	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.471	0.507	0.08	0.08	0.00	0.00	0.04	1.37
9	V2	1	3.20	0.003	30.69	0.0	5.89	1.47	0.00	0.12	0.40	0.93	1.45	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.469	0.507	0.08	0.08	0.00	0.00	0.04	1.37
10	V2	1	3.10	0.003	30.70	0.0	5.85	1.70	0.00	0.14	0.40	0.92	1.46	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.468	0.507	0.08	0.08	0.00	0.00	0.04	1.37
11	V3	2	3.00	0.003	30.72	0.0	5.80	1.98	0.00	0.16	0.40	0.90	1.46	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.465	0.797	0.08	0.12	0.00	0.00	0.04	1.37
12	V3	2	2.90	0.003	30.74	0.0	5.74	2.32	0.00	0.18	0.40	0.88	1.47	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.463	0.797	0.08	0.12	0.00	0.00	0.04	1.38
13	V3	2	2.80	0.004	30.76	0.0	5.66	2.75	0.00	0.22	0.40	0.86	1.48	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.461	0.797	0.08	0.12	0.00	0.00	0.04	1.38
14	V3	2	2.70	0.004	30.78	0.0	5.56	3.29	0.00	0.25	0.40	0.83	1.49	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.458	0.798	0.08	0.12	0.00	0.00	0.04	1.38
15	V3	2	2.60	0.004	30.80	0.0	5.44	3.97	0.00	0.30	0.39	0.81	1.50	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.455	0.798	0.08	0.12	0.00	0.00	0.04	1.38
16	V3	2	2.50	0.005	30.82	0.0	5.27	4.83	0.00	0.36	0.38	0.78	1.52	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.452	0.798	0.08	0.12	0.00	0.00	0.04	1.38
17	V3	2	2.40	0.005	30.84	0.0	5.05	5.90	0.00	0.43	0.36	0.75	1.53	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.450	0.798	0.08	0.12	0.00	0.00	0.04	1.39
18	V3	2	2.30	0.005	30.86	0.0	4.74	7.25	0.00	0.52	0.32	0.71	1.55	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.448	0.799	0.08	0.12	0.00	0.00	0.04	1.39
19	V3	2	2.20	0.005	30.88	0.0	4.33	8.95	0.00	0.62	0.27	0.68	1.57	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.445	0.799	0.08	0.12	0.00	0.00	0.04	1.39
20	V3	2	2.10	0.006	30.90	0.0	3.76	11.09	0.00	0.75	0.20	0.64	1.60	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.443	0.799	0.08	0.12	0.00	0.00	0.04	1.39
21	V4	3	2.00	0.005	30.83	0.0	3.72	11.20	0.00	0.76	0.20	0.64	1.60	0.00	0.00	3.1	20.0	1.07	53.5	0.000	0.000	7.451	0.798	0.08	0.12	0.00	0.00	0.04	3.32
22	V4	3	1.90	0.005	30.76	0.0	3.71	11.27	0.00	0.76	0.20	0.64	1.60	0.00	0.00	3.2	20.0	1.07	53.5	0.000	0.001	7.461	0.797	0.08	0.12	0.00	0.00	0.04	3.31
23	V4	3	1.80	0.005	30.69	0.0	3.70	11.35	0.00	0.77	0.19	0.64	1.60	0.00	0.00	3.3	20.0	1.07	53.5	0.000	0.001	7.469	0.796	0.08	0.12	0.00	0.00	0.04	3.29
24	V4	3	1.70	0.005	30.62	0.0	3.70	11.45	0.00	0.77	0.19	0.64	1.60	0.00	0.00	3.4	20.0	1.07	53.5	0.000	0.002	7.478	0.795	0.08	0.12	0.00	0.00	0.04	3.28
25	V4	3	1.60	0.004	30.55	0.0	3.70	11.56	0.00	0.78	0.19	0.64	1.60	0.00	0.00	3.5	20.0	1.07	53.5	0.000	0.002	7.488	0.794	0.08	0.12	0.00	0.00	0.04	3.26
26	V4	3	1.50	0.004	30.48	0.0	3.71	11.69	0.00	0.79	0.18	0.64	1.60	0.00	0.00	3.6	20.0	1.07	53.5	0.000	0.003	7.496	0.793	0.08	0.12	0.00	0.00	0.04	3.25
27	V4	3	1.40	0.004	30.41	0.0	3.72	11.82	0.00	0.79	0.17	0.63	1.60	0.00	0.00	3.7	20.0	1.07	53.5	0.000	0.003	7.505	0.792	0.08	0.12	0.00	0.00	0.04	3.24
28	V4	3	1.30	0.003	30.34	0.0	3.73	11.97	0.00	0.80	0.17	0.63	1.61	0.00	0.00	3.8	20.0	1.07	53.5	0.000	0.004	7.514	0.792	0.08	0.12	0.00	0.00	0.04	3.22
29	V4	3	1.20	0.003	30.27	0.0	3.75	12.14	0.00	0.81	0.16	0.63	1.61	0.00	0.00	3.9	20.0	1.07	53.5	0.000	0.004	7.523	0.791	0.08	0.12	0.00	0.00	0.04	3.21
30	V4	3	1.10	0.003	30.20	0.0	3.77	12.32	0.00	0.82	0.15	0.63	1.61	0.00	0.00	4.0	20.0	1.07	53.5	0.000	0.005	7.532	0.790	0.08	0.12	0.00	0.00	0.04	3.19
31	V5	4	1.00	0.003	30.20	0.0	3.78	12.42	0.00	0.83	0.15	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.005	7.532	0.889	0.08	0.13	0.00	0.00	0.04	3.19
32	V5	4	0.90	0.002	30.20	0.0	3.79	12.49	0.00	0.83	0.15	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.006	7.532	0.889	0.08	0.13	0.00	0.00	0.04	3.19
33	V5	4	0.80	0.002	30.20	0.0	3.80	12.57	0.00	0.83	0.14	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.007	7.532	0.889	0.08	0.13	0.00	0.00	0.04	3.19
34	V5	4	0.70	0.002	30.20	0.0	3.82	12.66	0.00	0.84	0.14	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.008	7.532	0.889	0.08	0.13	0.00	0.00	0.04	3.19
35	V5	4	0.60	0.002	30.20	0.0	3.83	12.75	0.00	0.84	0.14	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.009	7.532	0.889	0.08	0.13	0.00	0.00	0.04	3.19
36	V5	4	0.50	0.001	30.20	0.0	3.85	12.85	0.00	0.85	0.13	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.011	7.532	0.889	0.08	0.13	0.00	0.00	0.04	3.19
37	V5	4	0.40	0.001	30.20	0.0	3.87	12.95	0.00	0.85	0.13	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.012	7.532	0.889	0.08	0.13	0.00	0.00	0.04	3.19
38	V5	4	0.30	0.001	30.20	0.0	3.89	13.06	0.00	0.86	0.12	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.013	7.532	0.889	0.08	0.13	0.00	0.00	0.04	3.19
39	V5	4	0.20	0.001	30.20	0.0	3.92	13.18	0.00	0.86	0.12	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.014	7.532	0.889	0.08	0.13	0.00	0.00	0.04	3.19
40	V5	4	0.10	0.000	30.20	0.0	3.94	13.30	0.00	0.87	0.11	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.015	7.532	0.889	0.08	0.13	0.00	0.00	0.04	3.19
41	V5	4	0.00	0.000	30.20	0.0	3.97	13.44	0.00	0.88	0.11	0.63	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.016	7.532	0.889	0.08	0.13	0.00	0.00	0.04	3.19

FINAL REPORT Violet-1
REACH NO. 1 MissSiphonToHwy38V1_V2

LA-QUAL Model for Violet Canal
Baseline Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM

1	HDWTR	0.00283	30.10	0.00	392.00	0.00	5.20	12.68	0.00	13.00	0.00	1.20	0.10	1.45	0.00	3.00	0.00	0.00
1	WSTLD	0.00006	30.00	0.00	0.00	0.00	2.00	103.50	0.00	103.50	0.00	7.50	15.00	2.00	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	CUM 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	4.10	4.00	0.00289	2.1	0.00006	18.04	18.04	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
2	4.00	3.90	0.00289	2.1	0.00006	18.04	36.09	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
3	3.90	3.80	0.00289	2.1	0.00006	18.04	54.13	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
4	3.80	3.70	0.00289	2.1	0.00006	18.04	72.18	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
5	3.70	3.60	0.00289	2.1	0.00006	18.04	90.22	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
6	3.60	3.50	0.00289	2.1	0.00006	18.04	108.27	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
7	3.50	3.40	0.00289	2.1	0.00006	18.04	126.31	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
8	3.40	3.30	0.00289	2.1	0.00006	18.04	144.36	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
9	3.30	3.20	0.00289	2.1	0.00006	18.04	162.40	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
10	3.20	3.10	0.00289	2.1	0.00006	18.04	180.45	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
TOT						180.45				45057.59	26820.00					
AVG					0.0001			1.68	26.82			45.06				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
1	4.000	7.48	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
2	3.900	7.48	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
3	3.800	7.48	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
4	3.700	7.48	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
5	3.600	7.47	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
6	3.500	7.47	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
7	3.400	7.47	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
8	3.300	7.47	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
9	3.200	7.47	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
10	3.100	7.47	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.42	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.70			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
1	4.000	30.61	0.00	3379.73	0.00	5.98	1.31	0.00	1.63	0.00	0.12	0.39	1.02	1.52	0.14	1.55	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
2	3.900	30.62	0.00	3418.16	0.00	5.99	1.19	0.00	1.51	0.00	0.11	0.39	1.01	1.51	0.13	1.53	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
3	3.800	30.63	0.00	3457.09	0.00	5.99	1.11	0.00	1.43	0.00	0.10	0.39	1.01	1.49	0.12	1.52	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
4	3.700	30.64	0.00	3496.51	0.00	5.99	1.07	0.00	1.39	0.00	0.09	0.39	1.00	1.48	0.12	1.50	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
5	3.600	30.65	0.00	3536.44	0.00	5.98	1.07	0.00	1.39	0.00	0.09	0.39	0.99	1.47	0.12	1.49	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
6	3.500	30.66	0.00	3576.88	0.00	5.97	1.10	0.00	1.42	0.00	0.09	0.39	0.97	1.46	0.12	1.48	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
7	3.400	30.67	0.00	3617.84	0.00	5.95	1.18	0.00	1.50	0.00	0.10	0.39	0.96	1.45	0.13	1.48	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
8	3.300	30.68	0.00	3659.32	0.00	5.92	1.30	0.00	1.62	0.00	0.11	0.39	0.95	1.45	0.13	1.48	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
9	3.200	30.69	0.00	3701.34	0.00	5.89	1.47	0.00	1.79	0.00	0.12	0.40	0.93	1.45	0.15	1.48	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
10	3.100	30.70	0.00	3743.89	0.00	5.85	1.70	0.00	2.02	0.00	0.14	0.40	0.92	1.46	0.16	1.48	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 2 Hwy38ToWofFortyArpentCanalV2_V3 Baseline Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
11	UPR RCH	0.00289	30.70	0.00	3743.89	0.00	5.85	1.70	0.00	2.02	0.00	0.14	0.40	0.92	0.00	3.00	0.00	0.00
EACH	INCR	0.00028	30.00	0.00	391.00	0.00	5.50	24.00	0.00			0.73	0.10	1.64	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	CUM 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	3.10	3.00	0.00317	1.9	0.00007	17.75	198.20	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
12	3.00	2.90	0.00346	1.7	0.00007	16.29	214.49	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
13	2.90	2.80	0.00374	1.6	0.00008	15.06	229.55	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
14	2.80	2.70	0.00402	1.5	0.00008	14.00	243.55	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
15	2.70	2.60	0.00430	1.4	0.00009	13.08	256.63	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
16	2.60	2.50	0.00459	1.3	0.00009	12.27	268.91	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
17	2.50	2.40	0.00487	1.2	0.00010	11.56	280.47	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
18	2.40	2.30	0.00515	1.2	0.00011	10.93	291.39	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
19	2.30	2.20	0.00544	1.1	0.00011	10.36	301.75	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
20	2.20	2.10	0.00572	1.0	0.00012	9.84	311.59	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
TOT						131.14				48652.90	45470.00					
AVG					0.0001			1.07	45.47			48.65				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
11	3.000	7.47	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.37	1.37	1.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
12	2.900	7.46	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.38	1.38	1.38	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
13	2.800	7.46	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.38	1.38	1.38	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
14	2.700	7.46	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.38	1.38	1.38	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
15	2.600	7.46	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.38	1.38	1.38	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
16	2.500	7.45	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.38	1.38	1.38	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
17	2.400	7.45	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.39	1.39	1.39	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
18	2.300	7.45	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.39	1.39	1.39	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
19	2.200	7.45	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.39	1.39	1.39	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
20	2.100	7.44	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.39	1.39	1.39	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.65	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.70			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
11	3.000	30.72	0.00	3785.34	0.00	5.80	1.98	0.00	2.30	0.00	0.16	0.40	0.90	1.46	0.18	1.49	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
12	2.900	30.74	0.00	3829.70	0.00	5.74	2.32	0.00	2.64	0.00	0.18	0.40	0.88	1.47	0.21	1.49	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
13	2.800	30.76	0.00	3878.63	0.00	5.66	2.75	0.00	3.07	0.00	0.22	0.40	0.86	1.48	0.24	1.50	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
14	2.700	30.78	0.00	3932.32	0.00	5.56	3.29	0.00	3.61	0.00	0.25	0.40	0.83	1.49	0.28	1.51	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
15	2.600	30.80	0.00	3990.95	0.00	5.44	3.97	0.00	4.29	0.00	0.30	0.39	0.81	1.50	0.33	1.53	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
16	2.500	30.82	0.00	4054.74	0.00	5.27	4.83	0.00	5.15	0.00	0.36	0.38	0.78	1.52	0.39	1.54	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
17	2.400	30.84	0.00	4123.93	0.00	5.05	5.90	0.00	6.22	0.00	0.43	0.36	0.75	1.53	0.46	1.56	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
18	2.300	30.86	0.00	4198.76	0.00	4.74	7.25	0.00	7.57	0.00	0.52	0.32	0.71	1.55	0.54	1.58	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
19	2.200	30.88	0.00	4279.51	0.00	4.33	8.95	0.00	9.27	0.00	0.62	0.27	0.68	1.57	0.65	1.60	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
20	2.100	30.90	0.00	4366.51	0.00	3.76	11.09	0.00	11.41	0.00	0.75	0.20	0.64	1.60	0.78	1.62	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 3 WofFortyArpentCanalToV4 Baseline Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
21	UPR RCH	0.00572	30.90	0.00	4366.51	0.00	3.76	11.09	0.00	11.41	0.00	0.75	0.20	0.64	0.00	3.00	0.00	0.00
EACH	INCR	-0.00028																

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	CUM 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
21	2.10	2.00	0.00544	1.0	0.00010	12.17	323.77	1.07	53.45	5719.15	5345.00	57.19	587.95	0.000	20.000	0.000
22	2.00	1.90	0.00515	1.0	0.00009	12.84	336.61	1.07	53.45	5719.15	5345.00	57.19	1175.90	0.001	20.000	0.001

23	1.90	1.80	0.00487	1.0	0.00009	13.59	350.20	1.07	53.45	5719.15	5345.00	57.19	1763.85	0.001	20.000	0.001
24	1.80	1.70	0.00459	1.0	0.00008	14.43	364.63	1.07	53.45	5719.15	5345.00	57.19	2351.80	0.002	20.000	0.002
25	1.70	1.60	0.00430	1.0	0.00008	15.38	380.00	1.07	53.45	5719.15	5345.00	57.19	2939.75	0.002	20.000	0.002
26	1.60	1.50	0.00402	1.0	0.00007	16.46	396.46	1.07	53.45	5719.15	5345.00	57.19	3527.70	0.003	20.000	0.003
27	1.50	1.40	0.00374	1.0	0.00007	17.70	414.17	1.07	53.45	5719.15	5345.00	57.19	4115.65	0.003	20.000	0.003
28	1.40	1.30	0.00346	1.0	0.00006	19.15	433.32	1.07	53.45	5719.15	5345.00	57.19	4703.60	0.004	20.000	0.004
29	1.30	1.20	0.00317	1.0	0.00006	20.86	454.18	1.07	53.45	5719.15	5345.00	57.19	5291.55	0.004	20.000	0.004
30	1.20	1.10	0.00289	1.0	0.00005	22.90	477.09	1.07	53.45	5719.15	5345.00	57.19	5879.50	0.005	20.000	0.005
TOT						165.49				57191.50	53450.00					
AVG					0.0001			1.07	53.45			57.19				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
21	2.000	7.45	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.32	3.32	3.32	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
22	1.900	7.46	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.31	3.31	3.31	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00
23	1.800	7.47	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.29	3.29	3.29	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00
24	1.700	7.48	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.28	3.28	3.28	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00
25	1.600	7.49	0.79	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.26	3.26	3.26	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00
26	1.500	7.50	0.79	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.25	3.25	3.25	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00
27	1.400	7.51	0.79	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.24	3.24	3.24	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00
28	1.300	7.51	0.79	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.22	3.22	3.22	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00
29	1.200	7.52	0.79	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.21	3.21	3.21	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00
30	1.100	7.53	0.79	0.08	0.12	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.65	0.05	0.01	0.00	0.00	0.00	0.00	0.00	1.68			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
21	2.000	30.83	0.00	4370.40	0.00	3.72	11.20	0.00	11.53	0.00	0.76	0.20	0.64	1.60	0.79	1.63	0.00	0.00	0.00	0.00	0.00	3.1	0.0	0.	0.00
22	1.900	30.76	0.00	4372.39	0.00	3.71	11.27	0.00	11.61	0.00	0.76	0.20	0.64	1.60	0.79	1.63	0.00	0.00	0.00	0.00	0.00	3.2	0.0	0.	0.00
23	1.800	30.69	0.00	4374.39	0.00	3.70	11.35	0.00	11.71	0.00	0.77	0.19	0.64	1.60	0.80	1.63	0.00	0.00	0.00	0.00	0.00	3.3	0.0	0.	0.00
24	1.700	30.62	0.00	4376.38	0.00	3.70	11.45	0.00	11.81	0.00	0.77	0.19	0.64	1.60	0.80	1.63	0.00	0.00	0.00	0.00	0.00	3.4	0.0	0.	0.00
25	1.600	30.55	0.00	4378.37	0.00	3.70	11.56	0.00	11.94	0.00	0.78	0.19	0.64	1.60	0.81	1.63	0.00	0.00	0.00	0.00	0.00	3.5	0.0	0.	0.00
26	1.500	30.48	0.00	4380.37	0.00	3.71	11.69	0.00	12.07	0.00	0.79	0.18	0.64	1.60	0.82	1.63	0.00	0.00	0.00	0.00	0.00	3.6	0.0	0.	0.00
27	1.400	30.41	0.00	4382.36	0.00	3.72	11.82	0.00	12.22	0.00	0.79	0.17	0.63	1.60	0.83	1.64	0.00	0.00	0.00	0.00	0.00	3.7	0.0	0.	0.00
28	1.300	30.34	0.00	4384.35	0.00	3.73	11.97	0.00	12.38	0.00	0.80	0.17	0.63	1.61	0.83	1.64	0.00	0.00	0.00	0.00	0.00	3.8	0.0	0.	0.00
29	1.200	30.27	0.00	4386.35	0.00	3.75	12.14	0.00	12.56	0.00	0.81	0.16	0.63	1.61	0.84	1.64	0.00	0.00	0.00	0.00	0.00	3.9	0.0	0.	0.00
30	1.100	30.20	0.00	4388.35	0.00	3.77	12.32	0.00	12.75	0.00	0.82	0.15	0.63	1.61	0.85	1.64	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 4 V4ToV5endofsubseg Baseline Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
31	UPR RCH	0.00289	30.20	0.00	4388.35	0.00	3.77	12.32	0.00	12.75	0.00	0.82	0.15	0.63	0.00	4.00	0.00	0.00
EACH	INCR	-0.00026																

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m^3/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	CUM TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
31	1.10	1.00	0.00263	1.0	0.00004	29.02	506.11	0.95	69.49	6601.55	6949.00	66.02	7408.28	0.005	50.000	0.005
32	1.00	0.90	0.00238	1.0	0.00004	32.17	538.27	0.95	69.49	6601.55	6949.00	66.02	8937.06	0.006	50.000	0.006
33	0.90	0.80	0.00212	1.0	0.00003	36.07	574.34	0.95	69.49	6601.55	6949.00	66.02	10465.84	0.007	50.000	0.007
34	0.80	0.70	0.00186	1.0	0.00003	41.06	615.40	0.95	69.49	6601.55	6949.00	66.02	11994.62	0.008	50.000	0.008
35	0.70	0.60	0.00160	1.0	0.00002	47.65	663.05	0.95	69.49	6601.55	6949.00	66.02	13523.40	0.009	50.000	0.009
36	0.60	0.50	0.00135	1.0	0.00002	56.75	719.80	0.95	69.49	6601.55	6949.00	66.02	15052.18	0.011	50.000	0.011
37	0.50	0.40	0.00109	1.0	0.00002	70.16	789.96	0.95	69.49	6601.55	6949.00	66.02	16580.96	0.012	50.000	0.012
38	0.40	0.30	0.00083	1.0	0.00001	91.86	881.81	0.95	69.49	6601.55	6949.00	66.02	18109.74	0.013	50.000	0.013

39	0.30	0.20	0.00057	1.0	0.00001	132.99	1014.80	0.95	69.49	6601.55	6949.00	66.02	19638.52	0.014	50.000	0.014										
40	0.20	0.10	0.00032	1.0	0.00000	240.82	1255.62	0.95	69.49	6601.55	6949.00	66.02	21167.30	0.015	50.000	0.015										
41	0.10	0.00	0.00006	1.0	0.00000	1273.46	2529.08	0.95	69.49	6601.55	6949.00	66.02	22696.08	0.016	50.000	0.016										
TOT						2051.99				72617.05	76439.00															
AVG					0.0000			0.95	69.49			66.02														

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
31	1.000	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
32	0.900	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
33	0.800	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
34	0.700	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
35	0.600	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
36	0.500	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
37	0.400	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
38	0.300	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
39	0.200	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
40	0.100	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
41	0.000	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	3.19	3.19	3.19	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.74	0.05	0.01	0.00	0.00	0.00	0.00	0.00	1.68			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
31	1.000	30.20	0.00	4389.37	0.00	3.78	12.42	0.00	12.85	0.00	0.83	0.15	0.63	1.61	0.86	1.64	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
32	0.900	30.20	0.00	4390.06	0.00	3.79	12.49	0.00	12.92	0.00	0.83	0.15	0.63	1.61	0.86	1.64	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
33	0.800	30.20	0.00	4390.76	0.00	3.80	12.57	0.00	13.00	0.00	0.83	0.14	0.63	1.61	0.87	1.64	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
34	0.700	30.20	0.00	4391.45	0.00	3.82	12.66	0.00	13.08	0.00	0.84	0.14	0.63	1.61	0.87	1.64	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
35	0.600	30.20	0.00	4392.14	0.00	3.83	12.75	0.00	13.18	0.00	0.84	0.14	0.63	1.61	0.88	1.64	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
36	0.500	30.20	0.00	4392.83	0.00	3.85	12.85	0.00	13.27	0.00	0.85	0.13	0.63	1.61	0.88	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
37	0.400	30.20	0.00	4393.53	0.00	3.87	12.95	0.00	13.38	0.00	0.85	0.13	0.63	1.61	0.89	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
38	0.300	30.20	0.00	4394.22	0.00	3.89	13.06	0.00	13.49	0.00	0.86	0.12	0.63	1.61	0.89	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
39	0.200	30.20	0.00	4394.91	0.00	3.92	13.18	0.00	13.61	0.00	0.86	0.12	0.63	1.61	0.90	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
40	0.100	30.20	0.00	4395.61	0.00	3.94	13.30	0.00	13.73	0.00	0.87	0.11	0.63	1.61	0.90	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
41	0.000	30.20	0.00	4396.30	0.00	3.97	13.44	0.00	13.86	0.00	0.88	0.11	0.63	1.62	0.91	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00

LA-QUAL Model for Violet Canal
Baseline Simulation

REACH SUMMARY REPORT: Violet-1

RCH NO.	REACH NAME	BEGIN DIST km	ENDING DIST km	REACH LENGTH km	TRAVEL TIME days	FLOW AT RCH END m3/s	AVG VELO m/s	AVG DEPTH m	AVG WIDTH m	FLOW AT RCH END cfs	AVG VELO fps	AVG DEPTH ft	AVG WIDTH ft
1	MissSiphonToHwy38V1_V2	4.10	3.10	1.00	180.45	0.00289	0.00006	1.680	26.82	0.102	0.000	5.512	88.00
2	Hwy38ToWofFortyArpentCanalV2_V3	3.10	2.10	1.00	131.14	0.00572	0.00009	1.070	45.47	0.202	0.000	3.511	149.19
3	WofFortyArpentCanalToV4	2.10	1.10	1.00	165.49	0.00289	0.00007	1.070	53.45	0.102	0.000	3.511	175.37
4	V4ToV5endofsubseg	1.10	0.00	1.10	2051.99	0.00006	0.00001	0.950	69.49	0.002	0.000	3.117	228.00

LA-QUAL Model for Violet Canal
Baseline Simulation

STREAM SUMMARY REPORT: Violet-1

TRAVEL TIME = 2529.08 DAYS
MAXIMUM EFFLUENT = 2.08 PERCENT

FLOW	=	0.00006	TO	0.00572	m³/s
DISPERSION	=	0.5000	TO	50.0000	m²/s
VELOCITY	=	0.00000	TO	0.00012	m/s
DEPTH	=	0.95	TO	1.68	m
WIDTH	=	26.82	TO	69.49	m

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BOD DECAY         =    0.08   TO    0.08      per day
NH3 DECAY         =    0.04   TO    0.04      per day
SOD               =    1.37   TO    3.32      g/m²/d
NH3 SED SOURCE    =    0.00   TO    0.00      g/m²/d
PO4 SED SOURCE    =    0.00   TO    0.00      g/m²/d
REAERATION        =    0.51   TO    0.89      per day
BOD SETTLING      =    0.08   TO    0.13      per day
ORG-N DECAY       =    0.15   TO    0.15      per day
ORG-N SETTLING    =    0.00   TO    0.00      per day

TEMPERATURE       =   30.20   TO   30.90      deg C
DISSOLVED OXYGEN  =    3.70   TO    5.99      mg/L

LA-QUAL Model for Violet Canal
Baseline Simulation
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INPUT/OUTPUT LOADING SUMMARY

	FLOW m³/s	DO kg/d	BOD1 kg/d	BOD2 kg/d	ORG-N kg/d	NH3-N kg/d	NO3-N kg/d	ORG-P kg/d	PO4-P kg/d	CHL A	PERIP	NCM
HEADWATER FLOW	0.00283	1.27	3.10	0.00	0.29	0.02	0.35	0.00	0.00	0.00		0.00
INCREMENTAL INFLOW	0.00283	1.34	5.87	0.00	0.18	0.02	0.40	0.00	0.00	0.00		0.00
INCREMENTAL OUTFLOW	-0.00566	-1.85	-6.00	0.00	-0.40	-0.08	-0.31	0.00	0.00	0.00		0.00
WASTELOADS	0.00006	0.01	0.54	0.00	0.04	0.08	0.01	0.00	0.00	0.00		0.00
WITHDRAWLS	0.00000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
FLOW THRU LOWER BNDRY	-0.00006	-0.02	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
DISPERSION THRU LOWER BNDRY		85.60	391.58	0.00	19.06	-16.89	0.36	0.00	0.00	0.00		0.00
DISPERSION THRU HDWTR BNDRY		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
NON-POINT INPUT		0.00	0.00	0.00	0.00			0.00				0.00
NATURAL REAERATION		533.23										
DAM REAERATION		0.00										
SOD BACKGROUND		-517.84										
BOD1 DECAY		-154.37	-154.37									
BOD1 SETTLING		0.00	-240.58									
ANAEROBIC BOD1 DECAY			0.00									
BOD2 DECAY		0.00		0.00								
BOD2 SETTLING		0.00		0.00								
ANAEROBIC BOD2 DECAY				0.00								
BOD2 HYDROLYSIS			0.00	0.00								
ORG-N DECAY		0.00			-19.16	19.16						
ORG-N SETTLING					0.00	0.00						
NH3-N DECAY (NITRIFICATION)		-10.00				-2.31	2.31					
NH3-N BACKGROUND SEDIMENT SOURCE						0.00						
DENITRIFICATION			0.00				0.00					
ORG-P HYDROLYSIS								0.00	0.00			
ORG-P SETTLING								0.00	0.00			
PO4-P BACKGROUND SEDIMENT SOURCE									0.00			
PHYTOPLANKTON GROWTH/PHOTOSYNTHESIS		62.66				0.00	-3.13		0.00	0.00		
PHYTOPLANKTON RESPIRATION/EXCRETION		0.00				0.00			0.00	0.00		
PHYTOPLANKTON SETTLING		0.00				0.00			0.00	0.00		
PHYTOPLANKTON DEATH			0.00	0.00	0.00			0.00		0.00		
PERIPHYTON GROWTH/PHOTOSYNTHESIS		0.00				0.00	0.00		0.00		0.00	
PERIPHYTON RESPIRATION/EXCRETION		0.00				0.00			0.00		0.00	
PERIPHYTON DEATH			0.00	0.00	0.00			0.00			0.00	
NCM DECAY		0.00										0.00
NCM SETTLING		0.00										0.00
TOTAL INPUTS	0.00572	684.12	401.08	0.00	19.57	19.29	3.44	0.00	0.00	0.00	0.00	0.00
TOTAL OUTPUTS	-0.00572	-684.09	-401.02	0.00	-19.57	-19.28	-3.45	0.00	0.00	0.00	0.00	0.00
NET CONVERGENCE ERROR	0.00000	0.03	0.06	0.00	0.00	0.01	-0.01	0.00	0.00	0.00	0.00	0.00

.....EXECUTION COMPLETED

Winter LA-QUAL model baseline output

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LA-QUAL Version 9.05
Louisiana Department of Environmental Quality

Input file is E:\EPA_R06\LA TMDL 2006\Phase IV (Lake P)\DO Models\041805(Violet)\Violet_Baseline_winter_DO2.txt
Running in steady-state mode using LA defaults
Output produced at 15:50 on 11/16/2011

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

CARD TYPE       CONTROL TITLES

TITLE01         LA-QUAL Model for Violet Canal
TITLE02         Basline Simulation
CONTROL   YES   METRIC UNITS
ENDATA01

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

CARD TYPE       MODEL OPTION

MODOPT01  YES   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL #1   CONDUCTIVITY          UNITS = umhos/cm Conduct
MODOPT04   NO   CONSERVATIVE MATERIAL #2                         UNITS =
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BOD1 BIOCHEMICAL OXYGEN DEMAND #1
MODOPT07   NO   BOD2 BIOCHEMICAL OXYGEN DEMAND #2
MODOPT08  YES   NITROGEN SERIES
MODOPT09   NO   PHOSPHORUS
MODOPT10   NO   CHLOROPHYLL A
MODOPT11   NO   MACROPHYTES
MODOPT12   NO   COLIFORMS
MODOPT13   NO   NONCONSERVATIVE MATERIAL                         UNITS =
ENDATA02

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

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

PROGRAM         HYDRAULIC CALCULATION METHOD       =         2.00000 (widths and depths)
PROGRAM         INHIBITION CONTROL VALUE           =         3.00000 (inhibit all rates but SOD)
PROGRAM         OCEAN EXCHANGE RATIO               =         0.50000
PROGRAM         TIDE HEIGHT                        =         0.22000 meters
PROGRAM         TIDAL PERIOD                       =        12.00000 hours
PROGRAM         PERIOD OF TIDAL RISE               =         6.00000 hours
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

$$$ DATA TYPE 6 (PHYTOPLANKTON CONSTANTS) $$$

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA06

$$$ DATA TYPE 7 (PERIPHYTON CONSTANTS) $$$

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA07
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$$$ DATA TYPE 8 (REACH IDENTIFICATION DATA) $$$
                                                        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   V2  MissSiphonToHwy38V1_V2             4.10  TO    3.10   0.1000     1.00        10      1     10
REACH ID      2   V3  Hwy38ToWofFortyArpentCanalV2_V3    3.10  TO    2.10   0.1000     1.00        10     11     20
REACH ID      3   V4  WofFortyArpentCanalToV4            2.10  TO    1.10   0.1000     1.00        10     21     30
REACH ID      4   V5  V4ToV5endofsubseg                  1.10  TO    0.00   0.1000     1.10        11     31     41
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   V2       0.000       0.000      26.820       0.000       0.000       1.680     0.00010   0.000
HYDR-1        2   V3       0.000       0.000      45.470       0.000       0.000       1.070     0.00010   0.000
HYDR-1        3   V4       0.000       0.000      53.450       0.000       0.000       1.070     0.00010   0.000
HYDR-1        4   V5       0.000       0.000      69.490       0.000       0.000       0.950     0.00010   0.000
ENDATA09

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

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

HYDR          1   V2      0.00        0.500          0.000          0.000          0.000
HYDR          2   V3      0.00        0.500          0.000          0.000          0.000
HYDR          3   V4      0.50       20.000          0.000          0.000          0.000
HYDR          4   V5      1.00       50.000          0.000          0.000          0.000
ENDATA10

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

CARD TYPE      REACH  ID     TEMP    SALIN       DO    NH3-N    NO3-N    PO4-P    CHL A    PERIP     BOD1     BOD2    ORG-N    ORG-P     COLI      NCM  Conduct     CM-2
                                   deg C      ppt     mg/L     mg/L     mg/L     mg/L     µg/L     g/m²     mg/L     mg/L     mg/L     mg/L  #/100mL          umhos/cm

INITIAL           1   V2    20.00     0.00     5.30     0.10     0.00     0.00     3.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
INITIAL           2   V3    20.00     0.00     5.50     0.10     0.00     0.00     3.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
INITIAL           3   V4    20.00     0.00     4.90     0.10     0.00     0.00     3.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
INITIAL           4   V5    20.00     0.00     4.40     0.10     0.00     0.00     4.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
ENDATA11

$$$ DATA TYPE 12 (REAERATION, SEDIMENT OXYGEN DEMAND, BOD COEFFICIENTS) $$$
                                                                                AEROB                SETTLD     ANAER     AEROB                          ANAER      BOD2
CARD     RCH  RCH  K2                      K2        K2        K2    BKGRND      BOD       BOD       SOD       BOD      BOD2      BOD2                  BOD2   HYDR TO
TYPE     NUM   ID  OPT                    "A"       "B"       "C"       SOD    DECAY      SETT     AVAIL     DECAY     DECAY      SETT                 DECAY      BOD1
                                                                      g/m²/d   per day       m/d      frac   per day   per day       m/d               per day   per day

COEFF-1    1   V2   3 OCONNER-DOBB     0.000     0.000     0.000     0.700     0.050     0.100     0.000     0.000     0.000     0.000                 0.000     0.000
COEFF-1    2   V3   3 OCONNER-DOBB     0.000     0.000     0.000     0.700     0.050     0.100     0.000     0.000     0.000     0.000                 0.000     0.000
COEFF-1    3   V4   3 OCONNER-DOBB     0.000     0.000     0.000     1.680     0.050     0.100     0.000     0.000     0.000     0.000                 0.000     0.000
COEFF-1    4   V5   3 OCONNER-DOBB     0.000     0.000     0.000     1.680     0.050     0.100     0.000     0.000     0.000     0.000                 0.000     0.000
ENDATA12

$$$ DATA TYPE 13 (NITROGEN AND PHOSPHORUS COEFFICIENTS) $$$
                                                  SETTLD                BKGRND    BKGRND                                    SETTLD
CARD TYPE      REACH  ID       ORG-N     ORG-N      ORGN       NH3       NH3       PO4     DENIT      ORGP      ORGP      ORGP
                                 DECA      SETT     AVAIL      DECA      SRCE      SRCE      RATE      DECA      SETT     AVAIL
                            per day       m/d      frac   per day   g/m²/d   g/m²/d   per day   per day       m/d      frac

COEFF-2           1   V2       0.120     0.000     0.000     0.020     0.000     0.000     0.020     0.000     0.000     0.000
COEFF-2           2   V3       0.120     0.000     0.000     0.020     0.000     0.000     0.020     0.000     0.000     0.000
COEFF-2           3   V4       0.120     0.000     0.000     0.020     0.000     0.000     0.020     0.000     0.000     0.000
COEFF-2           4   V5       0.120     0.000     0.000     0.020     0.000     0.000     0.020     0.000     0.000     0.000
ENDATA13

$$$ DATA TYPE 14 (ALGAE PHYTOPLANKTON AND PERIPHYTON COEFFICIENTS) $$$
                                                                   MAX                                   MAX
 CARD TYPE      REACH  ID      SECCHI    CHL A:     PHYTO     PHYTO     PHYTO     PHYTO     PERIP     PERIP     PERIP      BANK
                                DEPTH     ALGAE      SETT     DEATH      GROW      RESP     DEATH      GROW      RESP    SHADING
                                    m      frac       m/d   per day   per day   per day   per day   per day   per day      frac
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ENDATA14

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

CARD TYPE      REACH  ID    COLIFORM       NCM       NCM
                            DIE-OFF     DECAY      SETT
                            per day   per day       m/d

ENDATA15

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

CARD TYPE      REACH  ID       OUTFLOW      INFLOW      TEMP     SALIN   Conduct      CM-2   IN/DIST  OUT/DIST
                                  m³/s        m³/s     deg C       ppt  umhos/cm

INCR-1           1   V2       0.00000     0.00000      0.00      0.00      0.00      0.00   0.00000   0.00000
INCR-1           2   V3       0.00000     0.02830     20.00      0.00    391.00      0.00   0.02830   0.00000
INCR-1           3   V4      -0.02830     0.00000     20.00      0.00    391.00      0.00   0.00000  -0.02830
INCR-1           4   V5      -0.02830     0.00000     20.00      0.00    391.00      0.00   0.00000  -0.02573
ENDATA16

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

CARD TYPE      REACH  ID          DO      BOD1     ORG-N     NH3-N     NO3-N      BOD2
                                mg/L      mg/L      mg/L      mg/L      mg/L      mg/L

INCR-2           1   V2        0.00      0.00      0.00      0.00      0.00      0.00
INCR-2           2   V3        5.50     24.00      0.73      0.10      1.64      0.00
INCR-2           3   V4        5.50     14.00      0.78      0.10      1.64      0.00
INCR-2           4   V5        5.50     14.00      0.78      0.10      1.64      0.00
ENDATA17

$$$ DATA TYPE 18 (INCREMENTAL DATA FOR PHOSPHORUS, PHYTOPLANKTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                         PHYTO
 CARD TYPE      REACH  ID         PO4     CHL A      COLI       NCM      ORGP
                                mg/L      µg/L   #/100mL                 mg/L

ENDATA18

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

CARD TYPE      REACH  ID        BOD1     ORG-N      COLI       NCM        DO      BOD2     ORG-P
                                mg/d      kg/d     #/day                 kg/d      kg/d      kg/d

NONPOINT         1   V2        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT         2   V3        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT         3   V4        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT         4   V5        0.00      0.00      0.00      0.00      0.00      0.00      0.00
ENDATA19

$$$ DATA TYPE 20 (HEADWATER FOR FLOW, TEMPERATURE, SALINITY AND CONSERVATIVES) $$$
                                                                                                          HDW DISP
CARD TYPE     ELEMENT   NAME                  UNIT     FLOW       FLOW    TEMP    SALIN   Conduct      CM-2     EXCHG
                                                        m³/s        cfs   deg C      ppt  umhos/cm                frac

HDWTR-1          1     Violet-1                0   0.02830    0.99929   20.00     0.00   392.000     0.000     0.000
ENDATA20

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

CARD TYPE     ELEMENT   NAME                          DO     BOD#1     ORG-N     NH3-N     NO3-N      BOD2
                                                    mg/L      mg/L      mg/L      mg/L      mg/L      mg/L

HDWTR-2          1     Violet-1                    5.20     13.00      1.20      0.10      1.45      0.00
ENDATA21

$$$ DATA TYPE 22 (HEADWATER DATA FOR PHOSPHORUS, PHYTOPLANKTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                                          PHYTO
CARD TYPE     ELEMENT   NAME                        PO4-P     CHL A      COLI       NCM     ORG-P
                                                     mg/L      µg/L   #/100mL                mg/L

ENDATA22
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$$$ DATA TYPE 23 (JUNCTION DATA) $$$

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   Conduct      CM-2
                                                      m³/s        cfs      MGD   deg C      ppt  umhos/cm

WSTLD-1        1       4.10  LAG531277              0.00006    0.00212    0.001   20.00     0.00     0.000     0.000
ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$
                                                                          % BOD                            %
CARD TYPE     ELEMENT   NAME                          DO       BOD      RMVL     ORG-N     NH3-N    NITRIF     NO3-N      BOD2
                                                     mg/L      mg/L                mg/L      mg/L                mg/L      mg/L

WSTLD-2           1     LAG531277                   2.00    103.50      0.00      7.50     15.00      0.00      2.00      0.00
ENDATA25

$$$ DATA TYPE 26 (WASTELOAD DATA FOR PHOSPHORUS, PHYTOPLANTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                                                   PHYTO
CARD TYPE     ELEMENT   NAME                        PO4-P     CHL A      COLI       NCM     ORG-P
                                                     mg/L      µg/L   #/100mL                mg/L

ENDATA26

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

CARD TYPE    CONSTITUENT                    CONCENTRATION

LOWER BC     TEMPERATURE                          20.000     deg C
LOWER BC     SALINITY                       =      0.000     ppt
LOWER BC     CONSERVATIVE MATERIAL I        =   4397.000     umhos/cm
LOWER BC     DISSOLVED OXYGEN                      4.000     mg/L
LOWER BC     BOD1 BIOCHEMICAL OXYGEN DEMAND       14.000     mg/L
LOWER BC     ORGANIC NITROGEN                      0.917     mg/L
LOWER BC     AMMONIA NITROGEN                      0.100     mg/L
LOWER BC     NITRATE NITROGEN                      0.633     mg/L
LOWER BC     CHLOROPHYLL A                         4.000     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 =   4
PLOT RCH  1  2  3  4
ENDATA30

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

OVERLAY 1 Violet.ovl                     :Violet Canal Overlay File
ENDATA31

     .....NO ERRORS DETECTED IN INPUT DATA
     .....HYDRAULIC CALCULATIONS COMPLETED
     .....TRIDIAGONAL MATRIX TERMS INITIALIZED
     .....TEMPERATURE CONVERGENT IN    3 ITERATIONS
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 DAY OF YEAR                          = July **
 SUNRISE (add 1 hr if DLS in effect)  = 05:34a
 SUNSET (add 1 hr if DLS in effect)   = 07:37p
 NUMBER OF DAYLIGHT HOURS             =     14.05 HOURS
 DRY BULB TEMPERATURE                 =      20.0 DEG C ( 68.0 DEG F)
 WET BULB TEMPERATURE                 =      20.0 DEG C ( 68.0 DEG F)
 DEWPOINT                             =      20.0 DEG C  ( 68.0 DEG F)
 HUMIDITY                             =     100.0 PERCENT
 WIND VEOCITY                         =      0.00 METERS/SEC
 ELEVATION                            =    300.00 METERS (  984.3 FEET)
 ATMOSPHERIC PRESSURE                 =   1013.25 MILLIBARS
 ATMOSPHERIC VAPOR PRESSURE           =     23.38              MILLIBARS
 SAT VAPOR PRESSURE AT DRY BULB TEMP  =     23.38              MILLIBARS
 SAT VAPOR PRESSURE AT WET BULB TEMP  =     23.38              MILLIBARS
 SAT VAPOR PRESSURE AT WATER TEMP     =     23.74 TO     49.93 MILLIBARS
 WATER DENSITY                        =    994.72 TO    998.28 KILOGRAMS/CUBIC METER
 LATENT HEAT OF VAPORIZATION          =    577.99 TO    584.87 KILOCALORIES/KILOGRAM
 WATER TEMPERATURE                    =      20.2 TO      32.9 DEGREES C

 SOLAR CONSTANT                       =    2851.2 LANGLEYS/DAY
 SOLAR RADIATION AT TOP OF ATMOSPHERE =     990.7 LANGLEYS/DAY
 NET SOLAR RADIATION BEFORE SHADING   =     691.2 LANGLEYS/DAY

 NET SOLAR RADIATION AFTER SHADING    =     691.2 TO     691.2 LANGLEYS/DAY
 NET ATMOSPHERIC RADIATION            =     674.9              LANGLEYS/DAY
 BACK RADIATION FROM WATER SURFACE    =    -993.7 TO    -839.5 LANGLEYS/DAY
 EVAPORATIVE HEAT EXCHANGE            =    -224.4 TO      -3.1 LANGLEYS/DAY
 CONDUCTIVE HEAT EXCHANGE             =     -67.2 TO      -1.3 LANGLEYS/DAY
 TOTAL NET FLUX AT AIR-WATER INTERFACE =     80.9 TO     522.2 LANGLEYS/DAY

     .....OXYGEN DEPENDENT RATES CONVERGENT IN    1 ITERATIONS
     .....CONSTITUENT CALCULATIONS COMPLETED
     .....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 11

INTERMEDIATE REPORT
 Dissolved Oxygen                                          LA-QUAL Model for Violet Canal
     mg/L                                                  Basline Simulation

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

  V2     1     1      5.34     5.34     5.33     5.30     5.28     5.26     5.24     5.22     5.21     5.20
  V3     2    11      5.21     5.21     5.22     5.23     5.23     5.23     5.21     5.14     4.97     4.59
  V4     3    21      4.56     4.55     4.53     4.51     4.48     4.46     4.43     4.40     4.37     4.34
  V5     4    31      4.31     4.30     4.28     4.26     4.24     4.21     4.18     4.15     4.12     4.08
  V5     4    41      4.04

INTERMEDIATE REPORT
 Effective BOD1                                            LA-QUAL Model for Violet Canal
     mg/L                                                  Basline Simulation

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

  V2     1     1      6.21     5.53     4.96     4.49     4.11     3.84     3.66     3.60     3.65     3.85
  V3     2    11      4.19     4.53     4.88     5.28     5.77     6.39     7.19     8.26     9.71    11.69
  V4     3    21     11.81    11.89    11.98    12.08    12.20    12.32    12.46    12.61    12.77    12.94
  V5     4    31     13.02    13.09    13.16    13.23    13.31    13.39    13.48    13.58    13.68    13.78
  V5     4    41     13.89

INTERMEDIATE REPORT
 Biochemical Oxygen Demand                                 LA-QUAL Model for Violet Canal
     mg/L                                                  Basline Simulation

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

  V2     1     1      5.89     5.21     4.64     4.17     3.79     3.52     3.34     3.28     3.33     3.53
  V3     2    11      3.87     4.21     4.56     4.96     5.45     6.07     6.87     7.94     9.39    11.37
  V4     3    21     11.48    11.55    11.63    11.72    11.82    11.94    12.06    12.20    12.35    12.51
  V5     4    31     12.60    12.66    12.73    12.80    12.88    12.97    13.06    13.15    13.25    13.35
  V5     4    41     13.46

INTERMEDIATE REPORT
 Organic Nitrogen                                          LA-QUAL Model for Violet Canal
     mg/L                                                  Basline Simulation
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ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.54	0.48	0.43	0.38	0.34	0.31	0.28	0.26	0.25	0.25
V3	2	11	0.25	0.26	0.28	0.30	0.33	0.37	0.42	0.50	0.60	0.75
V4	3	21	0.76	0.76	0.77	0.77	0.78	0.79	0.79	0.80	0.81	0.82
V5	4	31	0.83	0.83	0.84	0.84	0.84	0.85	0.85	0.86	0.86	0.87
V5	4	41	0.88									

INTERMEDIATE REPORT
Effective Organic Nitrogen
mg/L

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.57	0.51	0.45	0.41	0.37	0.33	0.31	0.29	0.28	0.28
V3	2	11	0.28	0.29	0.30	0.32	0.35	0.39	0.45	0.52	0.63	0.77
V4	3	21	0.78	0.79	0.79	0.80	0.81	0.82	0.83	0.84	0.85	0.86
V5	4	31	0.86	0.87	0.87	0.87	0.88	0.88	0.89	0.89	0.90	0.90
V5	4	41	0.91									

INTERMEDIATE REPORT
Ammonia Nitrogen
mg/L

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.47	0.50	0.52	0.54	0.55	0.55	0.55	0.55	0.54	0.53
V3	2	11	0.52	0.50	0.49	0.48	0.46	0.44	0.40	0.36	0.30	0.21
V4	3	21	0.20	0.20	0.20	0.19	0.19	0.18	0.17	0.17	0.16	0.15
V5	4	31	0.15	0.15	0.14	0.14	0.13	0.13	0.13	0.12	0.12	0.11
V5	4	41	0.11									

INTERMEDIATE REPORT
Nitrate+Nitrite Nitrogen
mg/L

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.53	1.53	1.54	1.54	1.55	1.55	1.54	1.54	1.53	1.51
V3	2	11	1.49	1.46	1.43	1.38	1.32	1.25	1.16	1.04	0.89	0.71
V4	3	21	0.70	0.69	0.69	0.68	0.68	0.67	0.67	0.66	0.66	0.65
V5	4	31	0.65	0.65	0.65	0.65	0.64	0.64	0.64	0.64	0.64	0.64
V5	4	41	0.63									

INTERMEDIATE REPORT
Total Nitrogen
mg/L

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	2.54	2.52	2.49	2.46	2.43	2.41	2.38	2.35	2.32	2.29
V3	2	11	2.26	2.23	2.19	2.15	2.11	2.05	1.98	1.90	1.80	1.66
V4	3	21	1.66	1.65	1.65	1.65	1.64	1.64	1.64	1.63	1.63	1.63
V5	4	31	1.63	1.63	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62
V5	4	41	1.62									

INTERMEDIATE REPORT
Effective Total Nitrogen
mg/L

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	2.57	2.54	2.51	2.49	2.46	2.43	2.40	2.37	2.34	2.31
V3	2	11	2.28	2.25	2.22	2.18	2.13	2.08	2.01	1.92	1.82	1.69
V4	3	21	1.68	1.68	1.68	1.68	1.67	1.67	1.67	1.67	1.66	1.66
V5	4	31	1.66	1.66	1.66	1.66	1.66	1.66	1.65	1.65	1.65	1.65
V5	4	41	1.65									

INTERMEDIATE REPORT
Chlorophyll a
µg/L

LA-QUAL Model for Violet Canal
Basline Simulation

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

V2	1	1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
V3	2	11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
V4	3	21	3.10	3.20	3.30	3.40	3.50	3.60	3.70	3.80	3.90	4.00
V5	4	31	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
V5	4	41	4.00									

INTERMEDIATE REPORT
Temperature
deg C

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	29.29	30.15	30.87	31.45	31.92	32.29	32.57	32.76	32.86	32.87
V3	2	11	32.77	32.65	32.46	32.20	31.81	31.23	30.37	29.08	27.15	24.26
V4	3	21	24.08	23.97	23.83	23.67	23.49	23.28	23.05	22.79	22.51	22.21
V5	4	31	22.04	21.91	21.78	21.63	21.47	21.29	21.11	20.91	20.70	20.48
V5	4	41	20.25									

INTERMEDIATE REPORT
CONDUCTIVITY UNIT
umhos/cm

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	659.58	693.37	731.41	774.24	822.46	876.75	937.88	1006.70	1084.19	1171.43
V3	2	11	1265.88	1378.03	1516.05	1686.45	1897.74	2161.02	2490.89	2906.68	3434.07	4107.43
V4	3	21	4143.48	4162.07	4180.74	4199.50	4218.34	4237.25	4256.23	4275.28	4294.39	4313.56
V5	4	31	4323.45	4330.12	4336.79	4343.47	4350.15	4356.84	4363.53	4370.22	4376.91	4383.61
V5	4	41	4390.30									

INTERMEDIATE REPORT
River Distance
km

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	4.	4.	4.	4.	4.	4.	3.	3.	3.	3.
V3	2	11	3.	3.	3.	3.	3.	3.	2.	2.	2.	2.
V4	3	21	2.	2.	2.	2.	2.	1.	1.	1.	1.	1.
V5	4	31	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
V5	4	41	0.									

INTERMEDIATE REPORT
Flow
m^3/s

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V3	2	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
V4	3	21	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	41	0.0									

INTERMEDIATE REPORT
Dispersion
m^2/s

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
V3	2	11	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
V4	3	21	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
V5	4	31	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
V5	4	41	50.0									

INTERMEDIATE REPORT
Depth
m

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
V3	2	11	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

V4	3	21	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
V5	4	31	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
V5	4	41	0.9									

INTERMEDIATE REPORT
Width
m

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8
V3	2	11	45.5	45.5	45.5	45.5	45.5	45.5	45.5	45.5	45.5	45.5
V4	3	21	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5
V5	4	31	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5
V5	4	41	69.5									

INTERMEDIATE REPORT
Advective Velocity
m/s

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V3	2	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V4	3	21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	41	0.0									

INTERMEDIATE REPORT
Mean Velocity
m/s

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V3	2	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V4	3	21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	41	0.0									

INTERMEDIATE REPORT
Cross-Sectional Area
m^2

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	45.1	45.1	45.1	45.1	45.1	45.1	45.1	45.1	45.1	45.1
V3	2	11	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7
V4	3	21	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.2
V5	4	31	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
V5	4	41	66.0									

INTERMEDIATE REPORT
Reaeration Rate
per day

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.495	0.503	0.509	0.514	0.518	0.521	0.524	0.525	0.526	0.526
V3	2	11	0.825	0.823	0.821	0.817	0.812	0.804	0.792	0.775	0.749	0.710
V4	3	21	0.708	0.706	0.704	0.702	0.700	0.697	0.694	0.691	0.687	0.683
V5	4	31	0.767	0.765	0.763	0.761	0.758	0.756	0.753	0.750	0.747	0.744
V5	4	41	0.740									

INTERMEDIATE REPORT
BOD1 Decay Rate
per day

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V3	2	11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V4	3	21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V5	4	41	0.									

INTERMEDIATE REPORT
BOD1 Settling Rate
m/d

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V3	2	11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V4	3	21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	41	0.									

INTERMEDIATE REPORT
Ammonia Nitrogen Decay Rate
per day

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V3	2	11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V4	3	21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	41	0.									

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

LA-QUAL Model for Violet Canal
Basline Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.
V3	2	11	2.	2.	2.	2.	1.	1.	1.	1.	1.	1.
V4	3	21	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
V5	4	31	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
V5	4	41	2.									

CAPSULE SUMMARY FOR Violet-1

IOR	REACH		DIST km	FLOW m^3/s	TEMP deg C	SALN ppt	DO mg/L	BOD1 mg/L	BOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	ORG-P mg/L	PO4-P mg/L	CHLA µg/L	DISP m^2/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 $g/m^2/d$
			HDWTR	0.028	20.00	0.0	5.20	12.68	0.00	1.17	0.10	1.45	2.72	0.00	0.00	3.0													
	WASTELOAD # 001 (LAG531277) ENTERS HERE																												
1	V2	1	4.00	0.028	29.29	0.0	5.34	5.89	0.00	0.54	0.47	1.53	2.54	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	7.653	0.495	0.08	0.07	0.00	0.00	0.04	1.26
2	V2	1	3.90	0.028	30.15	0.0	5.34	5.21	0.00	0.48	0.50	1.53	2.52	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	7.539	0.503	0.08	0.08	0.00	0.00	0.04	1.33
3	V2	1	3.80	0.028	30.87	0.0	5.33	4.64	0.00	0.43	0.52	1.54	2.49	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	7.447	0.509	0.08	0.08	0.00	0.00	0.04	1.39
4	V2	1	3.70	0.028	31.45	0.0	5.30	4.17	0.00	0.38	0.54	1.54	2.46	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	7.373	0.514	0.08	0.08	0.00	0.00	0.05	1.44
5	V2	1	3.60	0.028	31.92	0.0	5.28	3.79	0.00	0.34	0.55	1.55	2.43	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	7.314	0.518	0.09	0.08	0.00	0.00	0.05	1.48
6	V2	1	3.50	0.028	32.29	0.0	5.26	3.52	0.00	0.31	0.55	1.55	2.41	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	7.269	0.521	0.09	0.08	0.00	0.00	0.05	1.52
7	V2	1	3.40	0.028	32.57	0.0	5.24	3.34	0.00	0.28	0.55	1.54	2.38	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	7.235	0.524	0.09	0.08	0.00	0.00	0.05	1.54
8	V2	1	3.30	0.028	32.76	0.0	5.22	3.28	0.00	0.26	0.55	1.54	2.35	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	7.212	0.525	0.09	0.08	0.00	0.00	0.05	1.56
9	V2	1	3.20	0.028	32.86	0.0	5.21	3.33	0.00	0.25	0.54	1.53	2.32	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	7.200	0.526	0.09	0.08	0.00	0.00	0.05	1.57
10	V2	1	3.10	0.028	32.87	0.0	5.20	3.53	0.00	0.25	0.53	1.51	2.29	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	7.199	0.526	0.09	0.08	0.00	0.00	0.05	1.57
11	V3	2	3.00	0.031	32.77	0.0	5.21	3.87	0.00	0.25	0.52	1.49	2.26	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	7.210	0.825	0.09	0.13	0.00	0.00	0.05	1.56
12	V3	2	2.90	0.034	32.65	0.0	5.21	4.21	0.00	0.26	0.50	1.46	2.23	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	7.225	0.823	0.09	0.13	0.00	0.00	0.05	1.55
13	V3	2	2.80	0.037	32.46	0.0	5.22	4.56	0.00	0.28	0.49	1.43	2.19	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	7.248	0.821	0.09	0.13	0.00	0.00	0.05	1.53
14	V3	2	2.70	0.040	32.20	0.0	5.23	4.96	0.00	0.30	0.48	1.38	2.15	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	7.281	0.817	0.09	0.12	0.00	0.00	0.05	1.51
15	V3	2	2.60	0.043	31.81	0.0	5.23	5.45	0.00	0.33	0.46	1.32	2.11	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	7.328	0.812	0.09	0.12	0.00	0.00	0.05	1.47
16	V3	2	2.50	0.045	31.23	0.0	5.23	6.07	0.00	0.37	0.44	1.25	2.05	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	7.400	0.804	0.08	0.12	0.00	0.00	0.05	1.42
17	V3	2	2.40	0.048	30.37	0.0	5.21	6.87	0.00	0.42	0.40	1.16	1.98	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	7.510	0.792	0.08	0.12	0.00	0.00	0.04	1.35
18	V3	2	2.30	0.051	29.08	0.0	5.14	7.94	0.00	0.50	0.36	1.04	1.90	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	7.680	0.775	0.08	0.12	0.00	0.00	0.04	1.24
19	V3	2	2.20	0.054	27.15	0.0	4.97	9.39	0.00	0.60	0.30	0.89	1.80	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	7.946	0.749	0.07	0.11	0.00	0.00	0.03	1.10
20	V3	2	2.10	0.057	24.26	0.0	4.59	11.37	0.00	0.75	0.21	0.71	1.66	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	8.377	0.710	0.06	0.10	0.00	0.00	0.03	0.92
21	V4	3	2.00	0.054	24.08	0.0	4.56	11.48	0.00	0.76	0.20	0.70	1.66	0.00	0.00	3.1	20.0	1.07	53.5	0.001	0.001	8.405	0.708	0.06	0.10	0.00	0.00	0.02	2.17
22	V4	3	1.90	0.051	23.97	0.0	4.55	11.55	0.00	0.76	0.20	0.69	1.65	0.00	0.00	3.2	20.0	1.07	53.5	0.001	0.001	8.423	0.706	0.06	0.10	0.00	0.00	0.02	2.16
23	V4	3	1.80	0.048	23.83	0.0	4.53	11.63	0.00	0.77	0.20	0.69	1.65	0.00	0.00	3.3	20.0	1.07	53.5	0.001	0.002	8.445	0.704	0.06	0.10	0.00	0.00	0.02	2.14
24	V4	3	1.70	0.045	23.67	0.0	4.51	11.72	0.00	0.77	0.19	0.68	1.65	0.00	0.00	3.4	20.0	1.07	53.5	0.001	0.002	8.470	0.702	0.06	0.10	0.00	0.00	0.02	2.12
25	V4	3	1.60	0.043	23.49	0.0	4.48	11.82	0.00	0.78	0.19	0.68	1.64	0.00	0.00	3.5	20.0	1.07	53.5	0.001	0.002	8.500	0.700	0.06	0.10	0.00	0.00	0.02	2.09
26	V4	3	1.50	0.040	23.28	0.0	4.46	11.94	0.00	0.79	0.18	0.67	1.64	0.00	0.00	3.6	20.0	1.07	53.5	0.001	0.003	8.533	0.697	0.06	0.10	0.00	0.00	0.02	2.07
27	V4	3	1.40	0.037	23.05	0.0	4.43	12.06	0.00	0.79	0.17	0.67	1.64	0.00	0.00	3.7	20.0	1.07	53.5	0.001	0.003	8.570	0.694	0.06	0.10	0.00	0.00	0.02	2.04
28	V4	3	1.30	0.034	22.79	0.0	4.40	12.20	0.00	0.80	0.17	0.66	1.63	0.00	0.00	3.8	20.0	1.07	53.5	0.001	0.004	8.612	0.691	0.06	0.10	0.00	0.00	0.02	2.00
29	V4	3	1.20	0.031	22.51	0.0	4.37	12.35	0.00	0.81	0.16	0.66	1.63	0.00	0.00	3.9	20.0	1.07	53.5	0.001	0.004	8.658	0.687	0.06	0.10	0.00	0.00	0.02	1.97

30	V4	3	1.10	0.028	22.21	0.0	4.34	12.51	0.00	0.82	0.15	0.65	1.63	0.00	0.00	4.0	20.0	1.07	53.5	0.000	0.005	8.708	0.683	0.06	0.10	0.00	0.00	0.02	1.93
31	V5	4	1.00	0.026	22.04	0.0	4.31	12.60	0.00	0.83	0.15	0.65	1.63	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.005	8.737	0.767	0.05	0.11	0.00	0.00	0.02	1.91
32	V5	4	0.90	0.023	21.91	0.0	4.30	12.66	0.00	0.83	0.15	0.65	1.63	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.006	8.758	0.765	0.05	0.11	0.00	0.00	0.02	1.90
33	V5	4	0.80	0.021	21.78	0.0	4.28	12.73	0.00	0.84	0.14	0.65	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.007	8.782	0.763	0.05	0.11	0.00	0.00	0.02	1.88
34	V5	4	0.70	0.018	21.63	0.0	4.26	12.80	0.00	0.84	0.14	0.65	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.008	8.806	0.761	0.05	0.11	0.00	0.00	0.02	1.86
35	V5	4	0.60	0.015	21.47	0.0	4.24	12.88	0.00	0.84	0.13	0.64	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.009	8.834	0.758	0.05	0.11	0.00	0.00	0.02	1.84
36	V5	4	0.50	0.013	21.29	0.0	4.21	12.97	0.00	0.85	0.13	0.64	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.011	8.864	0.756	0.05	0.11	0.00	0.00	0.02	1.82
37	V5	4	0.40	0.010	21.11	0.0	4.18	13.06	0.00	0.85	0.13	0.64	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.012	8.896	0.753	0.05	0.11	0.00	0.00	0.02	1.80
38	V5	4	0.30	0.008	20.91	0.0	4.15	13.15	0.00	0.86	0.12	0.64	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.013	8.931	0.750	0.05	0.11	0.00	0.00	0.02	1.78
39	V5	4	0.20	0.005	20.70	0.0	4.12	13.25	0.00	0.86	0.12	0.64	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.014	8.967	0.747	0.05	0.11	0.00	0.00	0.02	1.76
40	V5	4	0.10	0.003	20.48	0.0	4.08	13.35	0.00	0.87	0.11	0.64	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.015	9.006	0.744	0.05	0.11	0.00	0.00	0.02	1.73
41	V5	4	0.00	0.000	20.25	0.0	4.04	13.46	0.00	0.88	0.11	0.63	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.016	9.048	0.740	0.05	0.11	0.00	0.00	0.02	1.71

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 1 MissSiphonToHwy38V1_V2 Basline Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
1	HDWTR	0.02830	20.00	0.00	392.00	0.00	5.20	12.68	0.00	13.00	0.00	1.20	0.10	1.45	0.00	3.00	0.00	0.00
1	WSTLD	0.00006	20.00	0.00	0.00	0.00	2.00	103.50	0.00	103.50	0.00	7.50	15.00	2.00	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	CUM 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	4.10	4.00	0.02836	0.2	0.00063	1.84	1.84	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
2	4.00	3.90	0.02836	0.2	0.00063	1.84	3.68	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
3	3.90	3.80	0.02836	0.2	0.00063	1.84	5.52	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
4	3.80	3.70	0.02836	0.2	0.00063	1.84	7.36	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
5	3.70	3.60	0.02836	0.2	0.00063	1.84	9.19	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
6	3.60	3.50	0.02836	0.2	0.00063	1.84	11.03	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
7	3.50	3.40	0.02836	0.2	0.00063	1.84	12.87	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
8	3.40	3.30	0.02836	0.2	0.00063	1.84	14.71	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
9	3.30	3.20	0.02836	0.2	0.00063	1.84	16.55	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
10	3.20	3.10	0.02836	0.2	0.00063	1.84	18.39	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
TOT						18.39				45057.59	26820.00					
AVG					0.0006			1.68	26.82			45.06				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
1	4.000	7.65	0.50	0.08	0.07	0.00	0.00	0.00	0.00	0.00	1.26	1.26	1.26	0.14	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00
2	3.900	7.54	0.50	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.33	1.33	1.33	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
3	3.800	7.45	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.39	1.39	1.39	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
4	3.700	7.37	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	1.44	1.44	1.44	0.15	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
5	3.600	7.31	0.52	0.09	0.08	0.00	0.00	0.00	0.00	0.00	1.48	1.48	1.48	0.15	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00
6	3.500	7.27	0.52	0.09	0.08	0.00	0.00	0.00	0.00	0.00	1.52	1.52	1.52	0.15	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00
7	3.400	7.24	0.52	0.09	0.08	0.00	0.00	0.00	0.00	0.00	1.54	1.54	1.54	0.15	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00
8	3.300	7.21	0.53	0.09	0.08	0.00	0.00	0.00	0.00	0.00	1.56	1.56	1.56	0.15	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00
9	3.200	7.20	0.53	0.09	0.08	0.00	0.00	0.00	0.00	0.00	1.57	1.57	1.57	0.15	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00
10	3.100	7.20	0.53	0.09	0.08	0.00	0.00	0.00	0.00	0.00	1.57	1.57	1.57	0.15	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.42	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.70			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
1	4.000	29.29	0.00	659.58	0.00	5.34	5.89	0.00	6.21	0.00	0.54	0.47	1.53	2.54	0.57	2.57	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
2	3.900	30.15	0.00	693.37	0.00	5.34	5.21	0.00	5.53	0.00	0.48	0.50	1.53	2.52	0.51	2.54	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
3	3.800	30.87	0.00	731.41	0.00	5.33	4.64	0.00	4.96	0.00	0.43	0.52	1.54	2.49	0.45	2.51	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
4	3.700	31.45	0.00	774.24	0.00	5.30	4.17	0.00	4.49	0.00	0.38	0.54	1.54	2.46	0.41	2.49	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00

5	3.600	31.92	0.00	822.46	0.00	5.28	3.79	0.00	4.11	0.00	0.34	0.55	1.55	2.43	0.37	2.46	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
6	3.500	32.29	0.00	876.75	0.00	5.26	3.52	0.00	3.84	0.00	0.31	0.55	1.55	2.41	0.33	2.43	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
7	3.400	32.57	0.00	937.88	0.00	5.24	3.34	0.00	3.66	0.00	0.28	0.55	1.54	2.38	0.31	2.40	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
8	3.300	32.76	0.00	1006.70	0.00	5.22	3.28	0.00	3.60	0.00	0.26	0.55	1.54	2.35	0.29	2.37	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
9	3.200	32.86	0.00	1084.19	0.00	5.21	3.33	0.00	3.65	0.00	0.25	0.54	1.53	2.32	0.28	2.34	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
10	3.100	32.87	0.00	1171.43	0.00	5.20	3.53	0.00	3.85	0.00	0.25	0.53	1.51	2.29	0.28	2.31	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 2 HwyS38ToWofFortyArpentCanalV2_V3 Basline Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
11	UPR RCH	0.02836	32.87	0.00	1171.43	0.00	5.20	3.53	0.00	3.85	0.00	0.25	0.53	1.51	0.00	3.00	0.00	0.00
EACH	INCR	0.00283	20.00	0.00	391.00	0.00	5.50	24.00	0.00			0.73	0.10	1.64	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	CUM 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	3.10	3.00	0.03119	0.2	0.00064	1.81	20.19	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
12	3.00	2.90	0.03402	0.2	0.00070	1.66	21.85	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
13	2.90	2.80	0.03685	0.2	0.00076	1.53	23.38	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
14	2.80	2.70	0.03968	0.2	0.00082	1.42	24.80	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
15	2.70	2.60	0.04251	0.1	0.00087	1.32	26.12	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
16	2.60	2.50	0.04534	0.1	0.00093	1.24	27.36	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
17	2.50	2.40	0.04817	0.1	0.00099	1.17	28.53	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
18	2.40	2.30	0.05100	0.1	0.00105	1.10	29.64	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
19	2.30	2.20	0.05383	0.1	0.00111	1.05	30.68	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
20	2.20	2.10	0.05666	0.1	0.00116	0.99	31.68	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
TOT						13.29				48652.90	45470.00					
AVG					0.0009			1.07	45.47			48.65				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
11	3.000	7.21	0.82	0.09	0.13	0.00	0.00	0.00	0.00	0.00	1.56	1.56	1.56	0.15	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00
12	2.900	7.23	0.82	0.09	0.13	0.00	0.00	0.00	0.00	0.00	1.55	1.55	1.55	0.15	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00
13	2.800	7.25	0.82	0.09	0.13	0.00	0.00	0.00	0.00	0.00	1.53	1.53	1.53	0.15	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00
14	2.700	7.28	0.82	0.09	0.12	0.00	0.00	0.00	0.00	0.00	1.51	1.51	1.51	0.15	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00
15	2.600	7.33	0.81	0.09	0.12	0.00	0.00	0.00	0.00	0.00	1.47	1.47	1.47	0.15	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00
16	2.500	7.40	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.42	1.42	1.42	0.15	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
17	2.400	7.51	0.79	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.35	1.35	1.35	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
18	2.300	7.68	0.77	0.08	0.12	0.00	0.00	0.00	0.00	0.00	1.24	1.24	1.24	0.14	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00
19	2.200	7.95	0.75	0.07	0.11	0.00	0.00	0.00	0.00	0.00	1.10	1.10	1.10	0.14	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00
20	2.100	8.38	0.71	0.06	0.10	0.00	0.00	0.00	0.00	0.00	0.92	0.92	0.92	0.13	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.65	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.70			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
11	3.000	32.77	0.00	1265.88	0.00	5.21	3.87	0.00	4.19	0.00	0.25	0.52	1.49	2.26	0.28	2.28	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
12	2.900	32.65	0.00	1378.03	0.00	5.21	4.21	0.00	4.53	0.00	0.26	0.50	1.46	2.23	0.29	2.25	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
13	2.800	32.46	0.00	1516.05	0.00	5.22	4.56	0.00	4.88	0.00	0.28	0.49	1.43	2.19	0.30	2.22	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
14	2.700	32.20	0.00	1686.45	0.00	5.23	4.96	0.00	5.28	0.00	0.30	0.48	1.38	2.15	0.32	2.18	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
15	2.600	31.81	0.00	1897.74	0.00	5.23	5.45	0.00	5.77	0.00	0.33	0.46	1.32	2.11	0.35	2.13	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
16	2.500	31.23	0.00	2161.02	0.00	5.23	6.07	0.00	6.39	0.00	0.37	0.44	1.25	2.05	0.39	2.08	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
17	2.400	30.37	0.00	2490.89	0.00	5.21	6.87	0.00	7.19	0.00	0.42	0.40	1.16	1.98	0.45	2.01	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
18	2.300	29.08	0.00	2906.68	0.00	5.14	7.94	0.00	8.26	0.00	0.50	0.36	1.04	1.90	0.52	1.92	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
19	2.200	27.15	0.00	3434.07	0.00	4.97	9.39	0.00	9.71	0.00	0.60	0.30	0.89	1.80	0.63	1.82	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00

20	2.100	24.26	0.00	4107.43	0.00	4.59	11.37	0.00	11.69	0.00	0.75	0.21	0.71	1.66	0.77	1.69	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 3 WofFortyArpentCanalToV4 Basline Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
21	UPR RCH	0.05666	24.26	0.00	4107.43	0.00	4.59	11.37	0.00	11.69	0.00	0.75	0.21	0.71	0.00	3.00	0.00	0.00
EACH	INCR	-0.00283																

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	CUM 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
21	2.10	2.00	0.05383	0.1	0.00094	1.23	32.91	1.07	53.45	5719.15	5345.00	57.19	587.95	0.000	20.000	0.001
22	2.00	1.90	0.05100	0.1	0.00089	1.30	34.20	1.07	53.45	5719.15	5345.00	57.19	1175.90	0.001	20.000	0.001
23	1.90	1.80	0.04817	0.1	0.00084	1.37	35.58	1.07	53.45	5719.15	5345.00	57.19	1763.85	0.001	20.000	0.002
24	1.80	1.70	0.04534	0.1	0.00079	1.46	37.04	1.07	53.45	5719.15	5345.00	57.19	2351.80	0.002	20.000	0.002
25	1.70	1.60	0.04251	0.1	0.00074	1.56	38.60	1.07	53.45	5719.15	5345.00	57.19	2939.75	0.002	20.000	0.002
26	1.60	1.50	0.03968	0.1	0.00069	1.67	40.26	1.07	53.45	5719.15	5345.00	57.19	3527.70	0.003	20.000	0.003
27	1.50	1.40	0.03685	0.1	0.00064	1.80	42.06	1.07	53.45	5719.15	5345.00	57.19	4115.65	0.003	20.000	0.003
28	1.40	1.30	0.03402	0.1	0.00059	1.95	44.01	1.07	53.45	5719.15	5345.00	57.19	4703.60	0.004	20.000	0.004
29	1.30	1.20	0.03119	0.1	0.00055	2.12	46.13	1.07	53.45	5719.15	5345.00	57.19	5291.55	0.004	20.000	0.004
30	1.20	1.10	0.02836	0.1	0.00050	2.33	48.46	1.07	53.45	5719.15	5345.00	57.19	5879.50	0.005	20.000	0.005
TOT						16.79				57191.50	53450.00					
AVG					0.0007			1.07	53.45			57.19				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
21	2.000	8.40	0.71	0.06	0.10	0.00	0.00	0.00	0.00	0.00	2.17	2.17	2.17	0.13	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00
22	1.900	8.42	0.71	0.06	0.10	0.00	0.00	0.00	0.00	0.00	2.16	2.16	2.16	0.13	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00
23	1.800	8.44	0.70	0.06	0.10	0.00	0.00	0.00	0.00	0.00	2.14	2.14	2.14	0.13	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
24	1.700	8.47	0.70	0.06	0.10	0.00	0.00	0.00	0.00	0.00	2.12	2.12	2.12	0.13	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
25	1.600	8.50	0.70	0.06	0.10	0.00	0.00	0.00	0.00	0.00	2.09	2.09	2.09	0.13	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00
26	1.500	8.53	0.70	0.06	0.10	0.00	0.00	0.00	0.00	0.00	2.07	2.07	2.07	0.13	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00
27	1.400	8.57	0.69	0.06	0.10	0.00	0.00	0.00	0.00	0.00	2.04	2.04	2.04	0.13	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00
28	1.300	8.61	0.69	0.06	0.10	0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	0.13	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00
29	1.200	8.66	0.69	0.06	0.10	0.00	0.00	0.00	0.00	0.00	1.97	1.97	1.97	0.13	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00
30	1.100	8.71	0.68	0.06	0.10	0.00	0.00	0.00	0.00	0.00	1.93	1.93	1.93	0.13	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.65	0.05	0.01	0.00	0.00	0.00	0.00	0.00	1.68			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
21	2.000	24.08	0.00	4143.48	0.00	4.56	11.48	0.00	11.81	0.00	0.76	0.20	0.70	1.66	0.78	1.68	0.00	0.00	0.00	0.00	0.00	3.1	0.0	0.	0.00
22	1.900	23.97	0.00	4162.07	0.00	4.55	11.55	0.00	11.89	0.00	0.76	0.20	0.69	1.65	0.79	1.68	0.00	0.00	0.00	0.00	0.00	3.2	0.0	0.	0.00
23	1.800	23.83	0.00	4180.74	0.00	4.53	11.63	0.00	11.98	0.00	0.77	0.20	0.69	1.65	0.79	1.68	0.00	0.00	0.00	0.00	0.00	3.3	0.0	0.	0.00
24	1.700	23.67	0.00	4199.50	0.00	4.51	11.72	0.00	12.08	0.00	0.77	0.19	0.68	1.65	0.80	1.68	0.00	0.00	0.00	0.00	0.00	3.4	0.0	0.	0.00
25	1.600	23.49	0.00	4218.34	0.00	4.48	11.82	0.00	12.20	0.00	0.78	0.19	0.68	1.64	0.81	1.67	0.00	0.00	0.00	0.00	0.00	3.5	0.0	0.	0.00
26	1.500	23.28	0.00	4237.25	0.00	4.46	11.94	0.00	12.32	0.00	0.79	0.18	0.67	1.64	0.82	1.67	0.00	0.00	0.00	0.00	0.00	3.6	0.0	0.	0.00
27	1.400	23.05	0.00	4256.23	0.00	4.43	12.06	0.00	12.46	0.00	0.79	0.17	0.67	1.64	0.83	1.67	0.00	0.00	0.00	0.00	0.00	3.7	0.0	0.	0.00
28	1.300	22.79	0.00	4275.28	0.00	4.40	12.20	0.00	12.61	0.00	0.80	0.17	0.66	1.63	0.84	1.67	0.00	0.00	0.00	0.00	0.00	3.8	0.0	0.	0.00
29	1.200	22.51	0.00	4294.39	0.00	4.37	12.35	0.00	12.77	0.00	0.81	0.16	0.66	1.63	0.85	1.66	0.00	0.00	0.00	0.00	0.00	3.9	0.0	0.	0.00
30	1.100	22.21	0.00	4313.56	0.00	4.34	12.51	0.00	12.94	0.00	0.82	0.15	0.65	1.63	0.86	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 4 V4ToV5endofsubseg Basline Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
31	UPR RCH	0.02836	22.21	0.00	4313.56	0.00	4.34	12.51	0.00	12.94	0.00	0.82	0.15	0.65	0.00	4.00	0.00	0.00
EACH	INCR	-0.00257																

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	CUM TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
31	1.10	1.00	0.02579	0.1	0.00039	2.96	51.42	0.95	69.49	6601.55	6949.00	66.02	7408.28	0.005	50.000	0.005
32	1.00	0.90	0.02321	0.1	0.00035	3.29	54.72	0.95	69.49	6601.55	6949.00	66.02	8937.06	0.006	50.000	0.006
33	0.90	0.80	0.02064	0.1	0.00031	3.70	58.42	0.95	69.49	6601.55	6949.00	66.02	10465.84	0.007	50.000	0.007
34	0.80	0.70	0.01807	0.1	0.00027	4.23	62.65	0.95	69.49	6601.55	6949.00	66.02	11994.62	0.008	50.000	0.008
35	0.70	0.60	0.01550	0.1	0.00023	4.93	67.58	0.95	69.49	6601.55	6949.00	66.02	13523.40	0.009	50.000	0.009
36	0.60	0.50	0.01292	0.1	0.00020	5.91	73.49	0.95	69.49	6601.55	6949.00	66.02	15052.18	0.011	50.000	0.011
37	0.50	0.40	0.01035	0.1	0.00016	7.38	80.87	0.95	69.49	6601.55	6949.00	66.02	16580.96	0.012	50.000	0.012
38	0.40	0.30	0.00778	0.1	0.00012	9.82	90.69	0.95	69.49	6601.55	6949.00	66.02	18109.74	0.013	50.000	0.013
39	0.30	0.20	0.00521	0.1	0.00008	14.68	105.37	0.95	69.49	6601.55	6949.00	66.02	19638.52	0.014	50.000	0.014
40	0.20	0.10	0.00263	0.1	0.00004	29.02	134.39	0.95	69.49	6601.55	6949.00	66.02	21167.30	0.015	50.000	0.015
41	0.10	0.00	0.00006	0.1	0.00000	1273.44	1407.83	0.95	69.49	6601.55	6949.00	66.02	22696.08	0.016	50.000	0.016
TOT						1359.37				72617.05	76439.00					
AVG					0.0000			0.95	69.49			66.02				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
31	1.000	8.74	0.77	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.91	1.91	1.91	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00
32	0.900	8.76	0.76	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.90	1.90	1.90	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00
33	0.800	8.78	0.76	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.88	1.88	1.88	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00
34	0.700	8.81	0.76	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.86	1.86	1.86	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00
35	0.600	8.83	0.76	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.84	1.84	1.84	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00
36	0.500	8.86	0.76	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.82	1.82	1.82	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00
37	0.400	8.90	0.75	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.80	1.80	1.80	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00
38	0.300	8.93	0.75	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.78	1.78	1.78	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00
39	0.200	8.97	0.75	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.76	1.76	1.76	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00
40	0.100	9.01	0.74	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.73	1.73	1.73	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
41	0.000	9.05	0.74	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.71	1.71	1.71	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.74	0.05	0.01	0.00	0.00	0.00	0.00	0.00	1.68			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
31	1.000	22.04	0.00	4323.45	0.00	4.31	12.60	0.00	13.02	0.00	0.83	0.15	0.65	1.63	0.86	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
32	0.900	21.91	0.00	4330.12	0.00	4.30	12.66	0.00	13.09	0.00	0.83	0.15	0.65	1.63	0.87	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
33	0.800	21.78	0.00	4336.79	0.00	4.28	12.73	0.00	13.16	0.00	0.84	0.14	0.65	1.62	0.87	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
34	0.700	21.63	0.00	4343.47	0.00	4.26	12.80	0.00	13.23	0.00	0.84	0.14	0.65	1.62	0.87	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
35	0.600	21.47	0.00	4350.15	0.00	4.24	12.88	0.00	13.31	0.00	0.84	0.13	0.64	1.62	0.88	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
36	0.500	21.29	0.00	4356.84	0.00	4.21	12.97	0.00	13.39	0.00	0.85	0.13	0.64	1.62	0.88	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
37	0.400	21.11	0.00	4363.53	0.00	4.18	13.06	0.00	13.48	0.00	0.85	0.13	0.64	1.62	0.89	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
38	0.300	20.91	0.00	4370.22	0.00	4.15	13.15	0.00	13.58	0.00	0.86	0.12	0.64	1.62	0.89	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
39	0.200	20.70	0.00	4376.91	0.00	4.12	13.25	0.00	13.68	0.00	0.86	0.12	0.64	1.62	0.90	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
40	0.100	20.48	0.00	4383.61	0.00	4.08	13.35	0.00	13.78	0.00	0.87	0.11	0.64	1.62	0.90	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
41	0.000	20.25	0.00	4390.30	0.00	4.04	13.46	0.00	13.89	0.00	0.88	0.11	0.63	1.62	0.91	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00

LA-QUAL Model for Violet Canal
Basline Simulation

REACH SUMMARY REPORT: Violet-1

RCH NO.	REACH NAME	BEGIN DIST	ENDING DIST	REACH LENGTH	TRAVEL TIME	FLOW AT RCH END	AVG VELO	AVG DEPTH	AVG WIDTH	FLOW AT RCH END	AVG VELO	AVG DEPTH	AVG WIDTH

		km	km	km	days	m3/s	m/s	m	m	cfs	fps	ft	ft
1	MissSiphonToHwy38V1_V2	4.10	3.10	1.00	18.39	0.02836	0.00063	1.680	26.82	1.001	0.002	5.512	88.00
2	Hwy38ToWofFortyArpentCanalV2_V3	3.10	2.10	1.00	13.29	0.05666	0.00087	1.070	45.47	2.001	0.003	3.511	149.19
3	WofFortyArpentCanalToV4	2.10	1.10	1.00	16.79	0.02836	0.00069	1.070	53.45	1.001	0.002	3.511	175.37
4	V4ToV5endofsubseg	1.10	0.00	1.10	1359.37	0.00006	0.00001	0.950	69.49	0.002	0.000	3.117	228.00

LA-QUAL Model for Violet Canal
Basline Simulation

STREAM SUMMARY REPORT: Violet-1

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 TRAVEL TIME       =        1407.83 DAYS
 MAXIMUM EFFLUENT  =           0.21 PERCENT

 FLOW              =   0.00006 TO    0.05666   m³/s
 DISPERSION        =   0.5000  TO   50.0000    m²/s
 VELOCITY          =   0.00000 TO    0.00116   m/s
 DEPTH             =   0.95    TO    1.68      m
 WIDTH             =  26.82    TO   69.49      m

 BOD DECAY         =    0.05   TO    0.09      per day
 NH3 DECAY         =    0.02   TO    0.05      per day
 SOD               =    0.92   TO    2.17      g/m²/d
 NH3 SED SOURCE    =    0.00   TO    0.00      g/m²/d
 PO4 SED SOURCE    =    0.00   TO    0.00      g/m²/d
 REAERATION        =    0.50   TO    0.82      per day
 BOD SETTLING      =    0.07   TO    0.13      per day
 ORG-N DECAY       =    0.12   TO    0.15      per day
 ORG-N SETTLING    =    0.00   TO    0.00      per day

 TEMPERATURE       =   20.25   TO   32.87      deg C
 DISSOLVED OXYGEN  =    4.04   TO    5.34      mg/L
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LA-QUAL Model for Violet Canal
Basline Simulation

INPUT/OUTPUT LOADING SUMMARY

	FLOW m³/s	DO kg/d	BOD1 kg/d	BOD2 kg/d	ORG-N kg/d	NH3-N kg/d	NO3-N kg/d	ORG-P kg/d	PO4-P kg/d	CHL A	PERIP	NCM
HEADWATER FLOW	0.02830	12.71	31.00	0.00	2.87	0.24	3.55	0.00	0.00	0.00		0.00
INCREMENTAL INFLOW	0.02830	13.45	58.68	0.00	1.78	0.24	4.01	0.00	0.00	0.00		0.00
INCREMENTAL OUTFLOW	-0.05660	-21.18	-60.93	0.00	-4.00	-0.76	-3.22	0.00	0.00	0.00		0.00
WASTELOADS	0.00006	0.01	0.54	0.00	0.04	0.08	0.01	0.00	0.00	0.00		0.00
WITHDRAWLS	0.00000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
FLOW THRU LOWER BNDRY	-0.00006	-0.02	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
DISPERSION THRU LOWER BNDRY		-122.38	322.73	0.00	17.90	-15.92	-4.29	0.00	0.00	0.00		0.00
DISPERSION THRU HDWTR BNDRY		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
NON-POINT INPUT		0.00	0.00	0.00	0.00			0.00				0.00
NATURAL REAERATION		557.97										
DAM REAERATION		0.00										
SOD BACKGROUND		-350.82										
BOD1 DECAY		-129.62	-129.62									
BOD1 SETTLING		0.00	-222.36									
ANAEROBIC BOD1 DECAY			0.00									
BOD2 DECAY		0.00		0.00								
BOD2 SETTLING		0.00		0.00								
ANAEROBIC BOD2 DECAY				0.00								
BOD2 HYDROLYSIS			0.00	0.00								
ORG-N DECAY		0.00			-18.59	18.59						
ORG-N SETTLING					0.00	0.00						
NH3-N DECAY (NITRIFICATION)		-10.70				-2.47	2.47					
NH3-N BACKGROUND SEDIMENT SOURCE						0.00						
DENITRIFICATION			0.00				0.00					
ORG-P HYDROLYSIS								0.00	0.00			
ORG-P SETTLING								0.00	0.00			
PO4-P BACKGROUND SEDIMENT SOURCE									0.00			
PHYTOPLANKTON GROWTH/PHOTOSYNTHESIS		50.59				0.00	-2.53		0.00	0.00		
PHYTOPLANKTON RESPIRATION/EXCRETION		0.00				0.00			0.00	0.00		
PHYTOPLANKTON SETTLING		0.00				0.00			0.00	0.00		
PHYTOPLANKTON DEATH			0.00	0.00	0.00			0.00		0.00		
PERIPHYTON GROWTH/PHOTOSYNTHESIS		0.00				0.00	0.00		0.00		0.00	

PERIPHYTON RESPIRATION/EXCRETION		0.00				0.00			0.00		0.00	
PERIPHYTON DEATH			0.00	0.00	0.00			0.00			0.00	
NCM DECAY		0.00										0.00
NCM SETTLING		0.00										0.00
TOTAL INPUTS	0.05666	634.74	412.95	0.00	22.59	19.16	10.04	0.00	0.00	0.00	0.00	0.00
TOTAL OUTPUTS	-0.05666	-634.72	-412.98	0.00	-22.59	-19.15	-10.04	0.00	0.00	0.00	0.00	0.00
NET CONVERGENCE ERROR	0.00000	0.02	-0.03	0.00	0.00	0.01	-0.01	0.00	0.00	0.00	0.00	0.00

.....EXECUTION COMPLETED

APPENDIX I:
Model TMDL Output Files

Summer LA-QUAL model TMDL output I-1
Winter LA-QUAL model TMDL output I-15

Summer LA-QUAL model TMDL output

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LA-QUAL Version 9.05
Louisiana Department of Environmental Quality

Input file is E:\EPA_R06\LA TMDL 2006\Phase IV (Lake P)\DO Models\041805(Violet)\Violet_TMDL_DO2.txt
Running in steady-state mode using LA defaults
Output produced at 15:54 on 11/15/2011

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

CARD TYPE       CONTROL TITLES

TITLE01         LA-QUAL Model for Violet Canal
TITLE02         TMDL Simulation
CONTROL   YES   METRIC UNITS
ENDATA01

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

CARD TYPE       MODEL OPTION

MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL #1   CONDUCTIVITY          UNITS = umhos/cm Conduct
MODOPT04   NO   CONSERVATIVE MATERIAL #2                         UNITS =
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BOD1 BIOCHEMICAL OXYGEN DEMAND #1
MODOPT07   NO   BOD2 BIOCHEMICAL OXYGEN DEMAND #2
MODOPT08  YES   NITROGEN SERIES
MODOPT09   NO   PHOSPHORUS
MODOPT10   NO   CHLOROPHYLL A
MODOPT11   NO   MACROPHYTES
MODOPT12   NO   COLIFORMS
MODOPT13   NO   NONCONSERVATIVE MATERIAL                         UNITS =
ENDATA02

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

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

PROGRAM         HYDRAULIC CALCULATION METHOD       =         2.00000 (widths and depths)
PROGRAM         INHIBITION CONTROL VALUE           =         3.00000 (inhibit all rates but SOD)
PROGRAM         OCEAN EXCHANGE RATIO               =         0.50000
PROGRAM         TIDE HEIGHT                        =         0.22000 meters
PROGRAM         TIDAL PERIOD                       =        12.00000 hours
PROGRAM         PERIOD OF TIDAL RISE               =         6.00000 hours
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

$$$ DATA TYPE 6 (PHYTOPLANKTON CONSTANTS) $$$

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA06

$$$ DATA TYPE 7 (PERIPHYTON CONSTANTS) $$$

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA07

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

CARD TYPE	REACH	ID	NAME	BEGIN REACH km		END REACH km	ELEM LENGTH km	REACH LENGTH km	ELEMS PER RCH	BEGIN ELEM NUM	END ELEM NUM
REACH ID	1	V2	MissSiphonToHwy38V1_V2	4.10	TO	3.10	0.1000	1.00	10	1	10
REACH ID	2	V3	Hwy38ToWofFortyArpentCanalV2_V3	3.10	TO	2.10	0.1000	1.00	10	11	20
REACH ID	3	V4	WofFortyArpentCanalToV4	2.10	TO	1.10	0.1000	1.00	10	21	30
REACH ID	4	V5	V4ToV5endofsubseg	1.10	TO	0.00	0.1000	1.10	11	31	41

ENDATA08

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

CARD TYPE	REACH	ID	WIDTH "A"	WIDTH "B"	WIDTH "C"	DEPTH "D"	DEPTH "E"	DEPTH "F"	SLOPE	MANNINGS "N"
HYDR-1	1	V2	0.000	0.000	26.820	0.000	0.000	1.680	0.00010	0.000
HYDR-1	2	V3	0.000	0.000	45.470	0.000	0.000	1.070	0.00010	0.000
HYDR-1	3	V4	0.000	0.000	53.450	0.000	0.000	1.070	0.00010	0.000
HYDR-1	4	V5	0.000	0.000	69.490	0.000	0.000	0.950	0.00010	0.000

ENDATA09

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

CARD TYPE	REACH	ID	TIDAL RANGE	DISPERSION "A"	DISPERSION "B"	DISPERSION "C"	DISPERSION "D"
HYDR	1	V2	0.00	0.500	0.000	0.000	0.000
HYDR	2	V3	0.00	0.500	0.000	0.000	0.000
HYDR	3	V4	0.50	20.000	0.000	0.000	0.000
HYDR	4	V5	1.00	50.000	0.000	0.000	0.000

ENDATA10

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

CARD TYPE	REACH	ID	TEMP deg C	SALIN ppt	DO mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	PERIP g/m²	BOD1 mg/L	BOD2 mg/L	ORG-N mg/L	ORG-P mg/L	COLI #/100mL	NCM	Conduct umhos/cm	CM-2
INITIAL	1	V2	30.60	0.00	5.30	0.10	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INITIAL	2	V3	30.70	0.00	5.50	0.10	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INITIAL	3	V4	30.90	0.00	4.90	0.10	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INITIAL	4	V5	30.20	0.00	4.40	0.10	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

ENDATA11

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

CARD TYPE	RCH NUM	RCH ID	K2 OPT	K2 "A"	K2 "B"	K2 "C"	BKGRND SOD g/m²/d	AEROB BOD DECAY per day	BOD SETT m/d	SETTLD SOD AVAIL frac	ANAER BOD DECAY per day	AEROB BOD2 DECAY per day	BOD2 SETT m/d	ANAER BOD2 DECAY per day	BOD2 HYDR TO BOD1 per day
COEFF-1	1	V2	3 OCONNER-DOBB	0.000	0.000	0.000	0.500	0.050	0.100	0.000	0.000	0.000	0.000	0.000	0.000
COEFF-1	2	V3	3 OCONNER-DOBB	0.000	0.000	0.000	0.500	0.050	0.100	0.000	0.000	0.000	0.000	0.000	0.000
COEFF-1	3	V4	3 OCONNER-DOBB	0.000	0.000	0.000	1.200	0.050	0.100	0.000	0.000	0.000	0.000	0.000	0.000
COEFF-1	4	V5	3 OCONNER-DOBB	0.000	0.000	0.000	1.200	0.050	0.100	0.000	0.000	0.000	0.000	0.000	0.000

ENDATA12

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

CARD TYPE	REACH	ID	ORG-N DECA per day	ORG-N SETT m/d	SETTLD ORGN AVAIL frac	NH3 DECA per day	BKGRND NH3 SRCE g/m²/d	BKGRND PO4 SRCE g/m²/d	DENIT RATE per day	ORGP DECA per day	ORGP SETT m/d	SETTLD ORGP AVAIL frac
COEFF-2	1	V2	0.120	0.000	0.000	0.020	0.000	0.000	0.020	0.000	0.000	0.000
COEFF-2	2	V3	0.120	0.000	0.000	0.020	0.000	0.000	0.020	0.000	0.000	0.000
COEFF-2	3	V4	0.120	0.000	0.000	0.020	0.000	0.000	0.020	0.000	0.000	0.000
COEFF-2	4	V5	0.120	0.000	0.000	0.020	0.000	0.000	0.020	0.000	0.000	0.000

ENDATA13

$$$ DATA TYPE 14 (ALGAE PHYTOPLANKTON AND PERIPHYTON COEFFICIENTS) $$$

CARD TYPE	REACH	ID	SECCHI DEPTH m	CHL A: ALGAE frac	PHYTO SETT m/d	PHYTO DEATH per day	MAX PHYTO GROW per day	PHYTO RESP per day	PERIP DEATH per day	MAX PERIP GROW per day	PERIP RESP per day	BANK SHADING frac

ENDATA14

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

CARD TYPE      REACH  ID    COLIFORM       NCM       NCM
                            DIE-OFF     DECAY      SETT
                            per day   per day       m/d

ENDATA15

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

CARD TYPE      REACH  ID       OUTFLOW      INFLOW      TEMP     SALIN   Conduct      CM-2   IN/DIST  OUT/DIST
                                  m³/s        m³/s     deg C       ppt  umhos/cm

INCR-1           1   V2       0.00000     0.00000      0.00      0.00      0.00      0.00   0.00000   0.00000
INCR-1           2   V3       0.00000     0.00283     30.00      0.00    391.00      0.00   0.00283   0.00000
INCR-1           3   V4      -0.00283     0.00000     30.70      0.00    391.00      0.00   0.00000  -0.00283
INCR-1           4   V5      -0.00283     0.00000     30.70      0.00    391.00      0.00   0.00000  -0.00257
ENDATA16

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

CARD TYPE      REACH  ID          DO      BOD1     ORG-N     NH3-N     NO3-N      BOD2
                                 mg/L      mg/L      mg/L      mg/L      mg/L      mg/L

INCR-2           1   V2        0.00      0.00      0.00      0.00      0.00      0.00
INCR-2           2   V3        5.50     12.24      0.73      0.10      1.64      0.00
INCR-2           3   V4        5.50     14.00      0.78      0.10      1.64      0.00
INCR-2           4   V5        5.50     14.00      0.78      0.10      1.64      0.00
ENDATA17

$$$ DATA TYPE 18 (INCREMENTAL DATA FOR PHOSPHORUS, PHYTOPLANKTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                         PHYTO
 CARD TYPE      REACH  ID        PO4     CHL A      COLI       NCM      ORGP
                                 mg/L      µg/L   #/100mL                mg/L

ENDATA18

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

CARD TYPE      REACH  ID        BOD1     ORG-N      COLI       NCM        DO      BOD2     ORG-P
                                 kg/d      kg/d     #/day                kg/d      kg/d      kg/d

NONPOINT         1   V2        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT         2   V3        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT         3   V4        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT         4   V5        0.00      0.00      0.00      0.00      0.00      0.00      0.00
ENDATA19

$$$ DATA TYPE 20 (HEADWATER FOR FLOW, TEMPERATURE, SALINITY AND CONSERVATIVES) $$$
                                                                                                      HDW DISP
CARD TYPE     ELEMENT   NAME                  UNIT     FLOW       FLOW    TEMP    SALIN   Conduct      CM-2     EXCHG
                                                        m³/s        cfs   deg C      ppt  umhos/cm                frac

HDWTR-1          1     Violet-1                0   0.00283    0.09993   30.10     0.00   392.000     0.000     0.000
ENDATA20

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

CARD TYPE     ELEMENT   NAME                        DO     BOD#1     ORG-N     NH3-N     NO3-N      BOD2
                                                  mg/L      mg/L      mg/L      mg/L      mg/L      mg/L

HDWTR-2          1     Violet-1                  5.20      6.63      1.20      0.10      1.45      0.00
ENDATA21

$$$ DATA TYPE 22 (HEADWATER DATA FOR PHOSPHORUS, PHYTOPLANKTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                                          PHYTO
CARD TYPE     ELEMENT   NAME                       PO4-P     CHL A      COLI       NCM     ORG-P
                                                    mg/L      µg/L   #/100mL                mg/L

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   Conduct      CM-2
                                                       m³/s        cfs      MGD   deg C     ppt  umhos/cm

WSTLD-1        1       4.10  LAG531277              0.00006    0.00212    0.001   30.00     0.00     0.000     0.000
ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$
                                                                  % BOD                                  %
CARD TYPE     ELEMENT   NAME                            DO       BOD      RMVL     ORG-N     NH3-N    NITRIF     NO3-N      BOD2
                                                     mg/L      mg/L                mg/L      mg/L                mg/L      mg/L

WSTLD-2           1     LAG531277                   2.00    103.50      0.00      7.50     15.00      0.00      2.00      0.00
ENDATA25

$$$ DATA TYPE 26 (WASTELOAD DATA FOR PHOSPHORUS, PHYTOPLANTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                                          PHYTO
CARD TYPE     ELEMENT   NAME                         PO4-P     CHL A      COLI       NCM     ORG-P
                                                     mg/L      µg/L   #/100mL                mg/L

ENDATA26

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

CARD TYPE    CONSTITUENT                    CONCENTRATION

LOWER BC     TEMPERATURE                          30.200     deg C
LOWER BC     SALINITY                       =      0.000     ppt
LOWER BC     CONSERVATIVE MATERIAL I        =   4397.000     umhos/cm
LOWER BC     DISSOLVED OXYGEN                      4.000     mg/L
LOWER BC     BOD1 BIOCHEMICAL OXYGEN DEMAND       14.000     mg/L
LOWER BC     ORGANIC NITROGEN                      0.917     mg/L
LOWER BC     AMMONIA NITROGEN                      0.100     mg/L
LOWER BC     NITRATE NITROGEN                      0.633     mg/L
LOWER BC     CHLOROPHYLL A                         4.000     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 =   4
PLOT RCH  1  2  3  4
ENDATA30

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

OVERLAY 1 Violet.ovl                      :Violet Canal Overlay File
ENDATA31

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

INTERMEDIATE REPORT
Dissolved Oxygen
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	6.47	6.48	6.48	6.48	6.47	6.46	6.44	6.41	6.37	6.33
V3	2	11	6.28	6.22	6.14	6.04	5.91	5.74	5.51	5.20	4.77	4.18
V4	3	21	4.14	4.13	4.11	4.10	4.09	4.08	4.07	4.06	4.05	4.04
V5	4	31	4.03	4.03	4.03	4.02	4.02	4.02	4.01	4.01	4.01	4.01
V5	4	41	4.00									

INTERMEDIATE REPORT
Effective BOD1
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.23	1.17	1.14	1.14	1.17	1.22	1.32	1.45	1.62	1.85
V3	2	11	2.12	2.46	2.89	3.43	4.12	4.99	6.08	7.46	9.20	11.39
V4	3	21	11.51	11.60	11.69	11.80	11.92	12.06	12.21	12.37	12.55	12.74
V5	4	31	12.84	12.92	13.00	13.08	13.17	13.27	13.38	13.49	13.61	13.73
V5	4	41	13.86									

INTERMEDIATE REPORT
Biochemical Oxygen Demand
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.91	0.85	0.82	0.82	0.85	0.90	1.00	1.13	1.30	1.53
V3	2	11	1.80	2.14	2.57	3.11	3.80	4.67	5.76	7.14	8.88	11.07
V4	3	21	11.18	11.26	11.34	11.44	11.55	11.68	11.81	11.97	12.13	12.31
V5	4	31	12.41	12.49	12.57	12.65	12.75	12.85	12.95	13.06	13.18	13.30
V5	4	41	13.44									

INTERMEDIATE REPORT
Organic Nitrogen
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.12	0.11	0.10	0.09	0.09	0.09	0.10	0.11	0.12	0.14
V3	2	11	0.16	0.18	0.22	0.25	0.30	0.36	0.43	0.52	0.62	0.75
V4	3	21	0.76	0.76	0.77	0.77	0.78	0.79	0.79	0.80	0.81	0.82
V5	4	31	0.83	0.83	0.83	0.84	0.84	0.85	0.85	0.86	0.86	0.87
V5	4	41	0.88									

INTERMEDIATE REPORT
Effective Organic Nitrogen
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.14	0.13	0.12	0.12	0.12	0.12	0.13	0.13	0.15	0.16
V3	2	11	0.18	0.21	0.24	0.28	0.33	0.39	0.46	0.54	0.65	0.78
V4	3	21	0.79	0.79	0.80	0.80	0.81	0.82	0.83	0.83	0.84	0.85
V5	4	31	0.86	0.86	0.87	0.87	0.88	0.88	0.89	0.89	0.90	0.90
V5	4	41	0.91									

INTERMEDIATE REPORT
Ammonia Nitrogen
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.40	0.40
V3	2	11	0.40	0.40	0.40	0.40	0.39	0.38	0.36	0.32	0.27	0.20
V4	3	21	0.20	0.20	0.19	0.19	0.19	0.18	0.17	0.17	0.16	0.15
V5	4	31	0.15	0.15	0.14	0.14	0.14	0.13	0.13	0.12	0.12	0.11
V5	4	41	0.11									

INTERMEDIATE REPORT
Nitrate+Nitrite Nitrogen

LA-QUAL Model for Violet Canal

mg/L

TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.02	1.01	1.01	1.00	0.99	0.97	0.96	0.95	0.93	0.92
V3	2	11	0.90	0.88	0.86	0.83	0.81	0.78	0.75	0.71	0.68	0.64
V4	3	21	0.64	0.64	0.64	0.64	0.64	0.64	0.63	0.63	0.63	0.63
V5	4	31	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
V5	4	41	0.63									

INTERMEDIATE REPORT
Total Nitrogen
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.52	1.51	1.49	1.48	1.47	1.46	1.45	1.45	1.45	1.46
V3	2	11	1.46	1.47	1.48	1.49	1.50	1.52	1.53	1.55	1.57	1.60
V4	3	21	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.61	1.61	1.61
V5	4	31	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61
V5	4	41	1.62									

INTERMEDIATE REPORT
Effective Total Nitrogen
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.55	1.53	1.52	1.50	1.49	1.48	1.48	1.48	1.48	1.48
V3	2	11	1.49	1.49	1.50	1.51	1.53	1.54	1.56	1.58	1.60	1.62
V4	3	21	1.63	1.63	1.63	1.63	1.63	1.63	1.64	1.64	1.64	1.64
V5	4	31	1.64	1.64	1.64	1.64	1.64	1.65	1.65	1.65	1.65	1.65
V5	4	41	1.65									

INTERMEDIATE REPORT
Chlorophyll a
µg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
V3	2	11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
V4	3	21	3.10	3.20	3.30	3.40	3.50	3.60	3.70	3.80	3.90	4.00
V5	4	31	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
V5	4	41	4.00									

INTERMEDIATE REPORT
Temperature
deg C

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	30.61	30.62	30.63	30.64	30.65	30.66	30.67	30.68	30.69	30.70
V3	2	11	30.72	30.74	30.76	30.78	30.80	30.82	30.84	30.86	30.88	30.90
V4	3	21	30.83	30.76	30.69	30.62	30.55	30.48	30.41	30.34	30.27	30.20
V5	4	31	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20	30.20
V5	4	41	30.20									

INTERMEDIATE REPORT
Salinity
ppt

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
V3	2	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
V4	3	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
V5	4	31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
V5	4	41	0.00									

INTERMEDIATE REPORT
CONDUCTIVITY UNIT
umhos/cm

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	3379.73	3418.16	3457.09	3496.51	3536.44	3576.88	3617.84	3659.32	3701.34	3743.89
V3	2	11	3785.34	3829.70	3878.63	3932.32	3990.95	4054.74	4123.93	4198.76	4279.51	4366.51
V4	3	21	4370.40	4372.39	4374.39	4376.38	4378.37	4380.37	4382.36	4384.35	4386.35	4388.35
V5	4	31	4389.37	4390.06	4390.76	4391.45	4392.14	4392.83	4393.53	4394.22	4394.91	4395.61
V5	4	41	4396.30									

INTERMEDIATE REPORT
River Distance
km

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	4.	4.	4.	4.	4.	4.	3.	3.	3.	3.
V3	2	11	3.	3.	3.	3.	3.	3.	2.	2.	2.	2.
V4	3	21	2.	2.	2.	2.	2.	1.	1.	1.	1.	1.
V5	4	31	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
V5	4	41	0.									

INTERMEDIATE REPORT
Flow
m^3/s

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V3	2	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V4	3	21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	41	0.0									

INTERMEDIATE REPORT
Dispersion
m^2/s

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
V3	2	11	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
V4	3	21	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
V5	4	31	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
V5	4	41	50.0									

INTERMEDIATE REPORT
Depth
m

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
V3	2	11	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
V4	3	21	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
V5	4	31	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
V5	4	41	0.9									

INTERMEDIATE REPORT
Width
m

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8
V3	2	11	45.5	45.5	45.5	45.5	45.5	45.5	45.5	45.5	45.5	45.5
V4	3	21	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5
V5	4	31	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5
V5	4	41	69.5									

INTERMEDIATE REPORT
Advective Velocity
m/s

LA-QUAL Model for Violet Canal
TMDL Simulation

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

V2	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V3	2	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V4	3	21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	41	0.0									

INTERMEDIATE REPORT
Mean Velocity
m/s

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V3	2	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V4	3	21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	41	0.0									

INTERMEDIATE REPORT
Cross-Sectional Area
m^2

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	45.1	45.1	45.1	45.1	45.1	45.1	45.1	45.1	45.1	45.1
V3	2	11	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7	48.7
V4	3	21	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.2
V5	4	31	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
V5	4	41	66.0									

INTERMEDIATE REPORT
Reaeration Rate
per day

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.507	0.507	0.507	0.507	0.507	0.507	0.507	0.507	0.507	0.507
V3	2	11	0.797	0.797	0.797	0.798	0.798	0.798	0.798	0.799	0.799	0.799
V4	3	21	0.798	0.797	0.796	0.795	0.794	0.793	0.792	0.792	0.791	0.790
V5	4	31	0.889	0.889	0.889	0.889	0.889	0.889	0.889	0.889	0.889	0.889
V5	4	41	0.889									

INTERMEDIATE REPORT
BOD1 Decay Rate
per day

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V3	2	11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V4	3	21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	41	0.									

INTERMEDIATE REPORT
BOD1 Settling Rate
m/d

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V3	2	11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V4	3	21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	41	0.									

INTERMEDIATE REPORT
Ammonia Nitrogen Decay Rate
per day

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V3	2	11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

V4	3	21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	41	0.									

INTERMEDIATE REPORT
Sediment Oxygen Demand
g/m²/d

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
V3	2	11	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
V4	3	21	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
V5	4	31	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
V5	4	41	2.									

CAPSULE SUMMARY FOR Violet-1

IOR	REACH	DIST km	FLOW m³/s	TEMP deg C	SALN ppt	DO mg/L	BOD1 mg/L	BOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	ORG-P mg/L	PO4-P 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	0.003	30.10	0.0	5.20	6.31	0.00	1.17	0.10	1.45	2.72	0.00	0.00	3.0													
	WASTELOAD # 001 (LAG531277) ENTERS HERE																											
1	V2 1	4.00	0.003	30.61	0.0	6.47	0.91	0.00	0.12	0.39	1.02	1.52	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.479	0.507	0.08	0.08	0.00	0.00	0.04	0.98
2	V2 1	3.90	0.003	30.62	0.0	6.48	0.85	0.00	0.11	0.39	1.01	1.51	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.478	0.507	0.08	0.08	0.00	0.00	0.04	0.98
3	V2 1	3.80	0.003	30.63	0.0	6.48	0.82	0.00	0.10	0.39	1.01	1.49	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.477	0.507	0.08	0.08	0.00	0.00	0.04	0.98
4	V2 1	3.70	0.003	30.64	0.0	6.48	0.82	0.00	0.09	0.39	1.00	1.48	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.475	0.507	0.08	0.08	0.00	0.00	0.04	0.98
5	V2 1	3.60	0.003	30.65	0.0	6.47	0.85	0.00	0.09	0.39	0.99	1.47	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.474	0.507	0.08	0.08	0.00	0.00	0.04	0.98
6	V2 1	3.50	0.003	30.66	0.0	6.46	0.90	0.00	0.09	0.39	0.97	1.46	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.473	0.507	0.08	0.08	0.00	0.00	0.04	0.98
7	V2 1	3.40	0.003	30.67	0.0	6.44	1.00	0.00	0.10	0.39	0.96	1.45	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.472	0.507	0.08	0.08	0.00	0.00	0.04	0.98
8	V2 1	3.30	0.003	30.68	0.0	6.41	1.13	0.00	0.11	0.39	0.95	1.45	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.471	0.507	0.08	0.08	0.00	0.00	0.04	0.98
9	V2 1	3.20	0.003	30.69	0.0	6.37	1.30	0.00	0.12	0.40	0.93	1.45	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.469	0.507	0.08	0.08	0.00	0.00	0.04	0.98
10	V2 1	3.10	0.003	30.70	0.0	6.33	1.53	0.00	0.14	0.40	0.92	1.46	0.00	0.00	3.0	0.5	1.68	26.8	0.000	0.000	7.468	0.507	0.08	0.08	0.00	0.00	0.04	0.98
11	V3 2	3.00	0.003	30.72	0.0	6.28	1.80	0.00	0.16	0.40	0.90	1.46	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.465	0.797	0.08	0.12	0.00	0.00	0.04	0.98
12	V3 2	2.90	0.003	30.74	0.0	6.22	2.14	0.00	0.18	0.40	0.88	1.47	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.463	0.797	0.08	0.12	0.00	0.00	0.04	0.98
13	V3 2	2.80	0.004	30.76	0.0	6.14	2.57	0.00	0.22	0.40	0.86	1.48	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.461	0.797	0.08	0.12	0.00	0.00	0.04	0.98
14	V3 2	2.70	0.004	30.78	0.0	6.04	3.11	0.00	0.25	0.40	0.83	1.49	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.458	0.798	0.08	0.12	0.00	0.00	0.04	0.99
15	V3 2	2.60	0.004	30.80	0.0	5.91	3.80	0.00	0.30	0.39	0.81	1.50	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.455	0.798	0.08	0.12	0.00	0.00	0.04	0.99
16	V3 2	2.50	0.005	30.82	0.0	5.74	4.67	0.00	0.36	0.38	0.78	1.52	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.452	0.798	0.08	0.12	0.00	0.00	0.04	0.99
17	V3 2	2.40	0.005	30.84	0.0	5.51	5.76	0.00	0.43	0.36	0.75	1.53	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.450	0.798	0.08	0.12	0.00	0.00	0.04	0.99
18	V3 2	2.30	0.005	30.86	0.0	5.20	7.14	0.00	0.52	0.32	0.71	1.55	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.448	0.799	0.08	0.12	0.00	0.00	0.04	0.99
19	V3 2	2.20	0.005	30.88	0.0	4.77	8.88	0.00	0.62	0.27	0.68	1.57	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.445	0.799	0.08	0.12	0.00	0.00	0.04	0.99
20	V3 2	2.10	0.006	30.90	0.0	4.18	11.07	0.00	0.75	0.20	0.64	1.60	0.00	0.00	3.0	0.5	1.07	45.5	0.000	0.000	7.443	0.799	0.08	0.12	0.00	0.00	0.04	0.99
21	V4 3	2.00	0.005	30.83	0.0	4.14	11.18	0.00	0.76	0.20	0.64	1.60	0.00	0.00	3.1	20.0	1.07	53.5	0.000	0.000	7.451	0.798	0.08	0.12	0.00	0.00	0.04	2.37
22	V4 3	1.90	0.005	30.76	0.0	4.13	11.26	0.00	0.76	0.20	0.64	1.60	0.00	0.00	3.2	20.0	1.07	53.5	0.000	0.001	7.461	0.797	0.08	0.12	0.00	0.00	0.04	2.36
23	V4 3	1.80	0.005	30.69	0.0	4.11	11.34	0.00	0.77	0.19	0.64	1.60	0.00	0.00	3.3	20.0	1.07	53.5	0.000	0.001	7.469	0.796	0.08	0.12	0.00	0.00	0.04	2.35
24	V4 3	1.70	0.005	30.62	0.0	4.10	11.44	0.00	0.77	0.19	0.64	1.60	0.00	0.00	3.4	20.0	1.07	53.5	0.000	0.002	7.478	0.795	0.08	0.12	0.00	0.00	0.04	2.34
25	V4 3	1.60	0.004	30.55	0.0	4.09	11.55	0.00	0.78	0.19	0.64	1.60	0.00	0.00	3.5	20.0	1.07	53.5	0.000	0.002	7.488	0.794	0.08	0.12	0.00	0.00	0.04	2.33
26	V4 3	1.50	0.004	30.48	0.0	4.08	11.68	0.00	0.79	0.18	0.64	1.60	0.00	0.00	3.6	20.0	1.07	53.5	0.000	0.003	7.496	0.793	0.08	0.12	0.00	0.00	0.04	2.32
27	V4 3	1.40	0.004	30.41	0.0	4.07	11.81	0.00	0.79	0.17	0.63	1.60	0.00	0.00	3.7	20.0	1.07	53.5	0.000	0.003	7.505	0.792	0.08	0.12	0.00	0.00	0.04	2.31
28	V4 3	1.30	0.003	30.34	0.0	4.06	11.97	0.00	0.80	0.17	0.63	1.61	0.00	0.00	3.8	20.0	1.07	53.5	0.000	0.004	7.514	0.792	0.08	0.12	0.00	0.00	0.04	2.30
29	V4 3	1.20	0.003	30.27	0.0	4.05	12.13	0.00	0.81	0.16	0.63	1.61	0.00	0.00	3.9	20.0	1.07	53.5	0.000	0.004	7.523	0.791	0.08	0.12	0.00	0.00	0.04	2.29
30	V4 3	1.10	0.003	30.20	0.0	4.04	12.31	0.00	0.82	0.15	0.63	1.61	0.00	0.00	4.0	20.0	1.07	53.5	0.000	0.005	7.532	0.790	0.08	0.12	0.00	0.00	0.04	2.28
31	V5 4	1.00	0.003	30.20	0.0	4.03	12.41	0.00	0.83	0.15	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.005	7.532	0.889	0.08	0.13	0.00	0.00	0.04	2.28
32	V5 4	0.90	0.002	30.20	0.0	4.03	12.49	0.00	0.83	0.15	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.006	7.532	0.889	0.08	0.13	0.00	0.00	0.04	2.28
33	V5 4	0.80	0.002	30.20	0.0	4.03	12.57	0.00	0.83	0.14	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.007	7.532	0.889	0.08	0.13	0.00	0.00	0.04	2.28
34	V5 4	0.70	0.002	30.20	0.0	4.02	12.65	0.00	0.84	0.14	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.008	7.532	0.889	0.08	0.13	0.00	0.00	0.04	2.28
35	V5 4	0.60	0.002	30.20	0.0	4.02	12.75	0.00	0.84	0.14	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.009	7.532	0.889	0.08	0.13	0.00	0.00	0.04	2.28
36	V5 4	0.50	0.001	30.20	0.0	4.02	12.85	0.00	0.85	0.13	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.011	7.532	0.889	0.08	0.13	0.00	0.00	0.04	2.28
37	V5 4	0.40	0.001	30.20	0.0	4.01	12.95	0.00	0.85	0.13	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.012	7.532	0.889	0.08	0.13	0.00	0.00	0.04	2.28
38	V5 4	0.30	0.001	30.20	0.0	4.01	13.06	0.00	0.86	0.12	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.013	7.532	0.889	0.08	0.13	0.00	0.00	0.04	2.28
39	V5 4	0.20	0.001	30.20	0.0	4.01	13.18	0.00	0.86	0.12	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.014	7.532	0.889	0.08	0.13	0.00	0.00	0.04	2.28
40	V5 4	0.10	0.000	30.20	0.0	4.01	13.30	0.00	0.87	0.11	0.63	1.61	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.015	7.532	0.889	0.08	0.13	0.00	0.00	0.04	2.28
41	V5 4	0.00	0.000	30.20	0.0	4.00	13.44	0.00	0.88	0.11	0.63	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.016	7.532	0.889	0.08	0.13	0.00	0.00	0.04	2.28

FINAL REPORT Violet-1
REACH NO. 1 MissSiphonToHwy38V1_V2

LA-QUAL Model for Violet Canal
TMDL Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
1	HDWTR	0.00283	30.10	0.00	392.00	0.00	5.20	6.31	0.00	6.63	0.00	1.20	0.10	1.45	0.00	3.00	0.00	0.00

1	WSTLD	0.00006	30.00	0.00	0.00	0.00	2.00	103.50	0.00	103.50	0.00	7.50	15.00	2.00	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	CUM 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	4.10	4.00	0.00289	2.1	0.00006	18.04	18.04	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
2	4.00	3.90	0.00289	2.1	0.00006	18.04	36.09	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
3	3.90	3.80	0.00289	2.1	0.00006	18.04	54.13	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
4	3.80	3.70	0.00289	2.1	0.00006	18.04	72.18	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
5	3.70	3.60	0.00289	2.1	0.00006	18.04	90.22	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
6	3.60	3.50	0.00289	2.1	0.00006	18.04	108.27	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
7	3.50	3.40	0.00289	2.1	0.00006	18.04	126.31	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
8	3.40	3.30	0.00289	2.1	0.00006	18.04	144.36	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
9	3.30	3.20	0.00289	2.1	0.00006	18.04	162.40	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
10	3.20	3.10	0.00289	2.1	0.00006	18.04	180.45	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.000
TOT						180.45				45057.59	26820.00					
AVG					0.0001			1.68	26.82			45.06				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
1	4.000	7.48	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.98	0.98	0.98	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
2	3.900	7.48	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.98	0.98	0.98	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
3	3.800	7.48	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.98	0.98	0.98	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
4	3.700	7.48	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.98	0.98	0.98	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
5	3.600	7.47	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.98	0.98	0.98	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
6	3.500	7.47	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.98	0.98	0.98	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
7	3.400	7.47	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.98	0.98	0.98	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
8	3.300	7.47	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.98	0.98	0.98	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
9	3.200	7.47	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.98	0.98	0.98	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
10	3.100	7.47	0.51	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.98	0.98	0.98	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.42	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.50			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
1	4.000	30.61	0.00	3379.73	0.00	6.47	0.91	0.00	1.23	0.00	0.12	0.39	1.02	1.52	0.14	1.55	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
2	3.900	30.62	0.00	3418.16	0.00	6.48	0.85	0.00	1.17	0.00	0.11	0.39	1.01	1.51	0.13	1.53	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
3	3.800	30.63	0.00	3457.09	0.00	6.48	0.82	0.00	1.14	0.00	0.10	0.39	1.01	1.49	0.12	1.52	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
4	3.700	30.64	0.00	3496.51	0.00	6.48	0.82	0.00	1.14	0.00	0.09	0.39	1.00	1.48	0.12	1.50	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
5	3.600	30.65	0.00	3536.44	0.00	6.47	0.85	0.00	1.17	0.00	0.09	0.39	0.99	1.47	0.12	1.49	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
6	3.500	30.66	0.00	3576.88	0.00	6.46	0.90	0.00	1.22	0.00	0.09	0.39	0.97	1.46	0.12	1.48	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
7	3.400	30.67	0.00	3617.84	0.00	6.44	1.00	0.00	1.32	0.00	0.10	0.39	0.96	1.45	0.13	1.48	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
8	3.300	30.68	0.00	3659.32	0.00	6.41	1.13	0.00	1.45	0.00	0.11	0.39	0.95	1.45	0.13	1.48	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
9	3.200	30.69	0.00	3701.34	0.00	6.37	1.30	0.00	1.62	0.00	0.12	0.40	0.93	1.45	0.15	1.48	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
10	3.100	30.70	0.00	3743.89	0.00	6.33	1.53	0.00	1.85	0.00	0.14	0.40	0.92	1.46	0.16	1.48	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 2 Hwy38ToWofFortyArpentCanalV2_V3 TMDL Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
11	UPR RCH	0.00289	30.70	0.00	3743.89	0.00	6.33	1.53	0.00	1.85	0.00	0.14	0.40	0.92	0.00	3.00	0.00	0.00
EACH	INCR	0.00028	30.00	0.00	391.00	0.00	5.50	12.24	0.00			0.73	0.10	1.64	0.00	0.00	0.00	

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

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

	km	km	m³/s		m/s	days	days	m	m	m³	m²	m²	m³	m/s	m²/s	m/s
11	3.10	3.00	0.00317	1.9	0.00007	17.75	198.20	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
12	3.00	2.90	0.00346	1.7	0.00007	16.29	214.49	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
13	2.90	2.80	0.00374	1.6	0.00008	15.06	229.55	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
14	2.80	2.70	0.00402	1.5	0.00008	14.00	243.55	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
15	2.70	2.60	0.00430	1.4	0.00009	13.08	256.63	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
16	2.60	2.50	0.00459	1.3	0.00009	12.27	268.91	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
17	2.50	2.40	0.00487	1.2	0.00010	11.56	280.47	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
18	2.40	2.30	0.00515	1.2	0.00011	10.93	291.39	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
19	2.30	2.20	0.00544	1.1	0.00011	10.36	301.75	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
20	2.20	2.10	0.00572	1.0	0.00012	9.84	311.59	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.000
TOT						131.14				48652.90	45470.00					
AVG					0.0001			1.07	45.47			48.65				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
11	3.000	7.47	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.98	0.98	0.98	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
12	2.900	7.46	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.98	0.98	0.98	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
13	2.800	7.46	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.98	0.98	0.98	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
14	2.700	7.46	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.99	0.99	0.99	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
15	2.600	7.46	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.99	0.99	0.99	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
16	2.500	7.45	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.99	0.99	0.99	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
17	2.400	7.45	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.99	0.99	0.99	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
18	2.300	7.45	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.99	0.99	0.99	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
19	2.200	7.45	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.99	0.99	0.99	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
20	2.100	7.44	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	0.99	0.99	0.99	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.65	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.50			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
11	3.000	30.72	0.00	3785.34	0.00	6.28	1.80	0.00	2.12	0.00	0.16	0.40	0.90	1.46	0.18	1.49	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
12	2.900	30.74	0.00	3829.70	0.00	6.22	2.14	0.00	2.46	0.00	0.18	0.40	0.88	1.47	0.21	1.49	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
13	2.800	30.76	0.00	3878.63	0.00	6.14	2.57	0.00	2.89	0.00	0.22	0.40	0.86	1.48	0.24	1.50	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
14	2.700	30.78	0.00	3932.32	0.00	6.04	3.11	0.00	3.43	0.00	0.25	0.40	0.83	1.49	0.28	1.51	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
15	2.600	30.80	0.00	3990.95	0.00	5.91	3.80	0.00	4.12	0.00	0.30	0.39	0.81	1.50	0.33	1.53	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
16	2.500	30.82	0.00	4054.74	0.00	5.74	4.67	0.00	4.99	0.00	0.36	0.38	0.78	1.52	0.39	1.54	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
17	2.400	30.84	0.00	4123.93	0.00	5.51	5.76	0.00	6.08	0.00	0.43	0.36	0.75	1.53	0.46	1.56	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
18	2.300	30.86	0.00	4198.76	0.00	5.20	7.14	0.00	7.46	0.00	0.52	0.32	0.71	1.55	0.54	1.58	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
19	2.200	30.88	0.00	4279.51	0.00	4.77	8.88	0.00	9.20	0.00	0.62	0.27	0.68	1.57	0.65	1.60	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
20	2.100	30.90	0.00	4366.51	0.00	4.18	11.07	0.00	11.39	0.00	0.75	0.20	0.64	1.60	0.78	1.62	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 3 WofFortyArpentCanalToV4 TMDL Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
21	UPR RCH	0.00572	30.90	0.00	4366.51	0.00	4.18	11.07	0.00	11.39	0.00	0.75	0.20	0.64	0.00	3.00	0.00	0.00
EACH	INCR	-0.00028																

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	CUM 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
21	2.10	2.00	0.00544	1.0	0.00010	12.17	323.77	1.07	53.45	5719.15	5345.00	57.19	587.95	0.000	20.000	0.000
22	2.00	1.90	0.00515	1.0	0.00009	12.84	336.61	1.07	53.45	5719.15	5345.00	57.19	1175.90	0.001	20.000	0.001
23	1.90	1.80	0.00487	1.0	0.00009	13.59	350.20	1.07	53.45	5719.15	5345.00	57.19	1763.85	0.001	20.000	0.001
24	1.80	1.70	0.00459	1.0	0.00008	14.43	364.63	1.07	53.45	5719.15	5345.00	57.19	2351.80	0.002	20.000	0.002

25	1.70	1.60	0.00430	1.0	0.00008	15.38	380.00	1.07	53.45	5719.15	5345.00	57.19	2939.75	0.002	20.000	0.002
26	1.60	1.50	0.00402	1.0	0.00007	16.46	396.46	1.07	53.45	5719.15	5345.00	57.19	3527.70	0.003	20.000	0.003
27	1.50	1.40	0.00374	1.0	0.00007	17.70	414.17	1.07	53.45	5719.15	5345.00	57.19	4115.65	0.003	20.000	0.003
28	1.40	1.30	0.00346	1.0	0.00006	19.15	433.32	1.07	53.45	5719.15	5345.00	57.19	4703.60	0.004	20.000	0.004
29	1.30	1.20	0.00317	1.0	0.00006	20.86	454.18	1.07	53.45	5719.15	5345.00	57.19	5291.55	0.004	20.000	0.004
30	1.20	1.10	0.00289	1.0	0.00005	22.90	477.09	1.07	53.45	5719.15	5345.00	57.19	5879.50	0.005	20.000	0.005
TOT						165.49				57191.50	53450.00					
AVG					0.0001			1.07	53.45			57.19				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
21	2.000	7.45	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	2.37	2.37	2.37	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
22	1.900	7.46	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	2.36	2.36	2.36	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00
23	1.800	7.47	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	2.35	2.35	2.35	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00
24	1.700	7.48	0.80	0.08	0.12	0.00	0.00	0.00	0.00	0.00	2.34	2.34	2.34	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00
25	1.600	7.49	0.79	0.08	0.12	0.00	0.00	0.00	0.00	0.00	2.33	2.33	2.33	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00
26	1.500	7.50	0.79	0.08	0.12	0.00	0.00	0.00	0.00	0.00	2.32	2.32	2.32	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00
27	1.400	7.51	0.79	0.08	0.12	0.00	0.00	0.00	0.00	0.00	2.31	2.31	2.31	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00
28	1.300	7.51	0.79	0.08	0.12	0.00	0.00	0.00	0.00	0.00	2.30	2.30	2.30	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00
29	1.200	7.52	0.79	0.08	0.12	0.00	0.00	0.00	0.00	0.00	2.29	2.29	2.29	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00
30	1.100	7.53	0.79	0.08	0.12	0.00	0.00	0.00	0.00	0.00	2.28	2.28	2.28	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.65	0.05	0.01	0.00	0.00	0.00	0.00	0.00	1.20			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m^2	COLI #/100mL	NCM
21	2.000	30.83	0.00	4370.40	0.00	4.14	11.18	0.00	11.51	0.00	0.76	0.20	0.64	1.60	0.79	1.63	0.00	0.00	0.00	0.00	0.00	3.1	0.0	0.	0.00
22	1.900	30.76	0.00	4372.39	0.00	4.13	11.26	0.00	11.60	0.00	0.76	0.20	0.64	1.60	0.79	1.63	0.00	0.00	0.00	0.00	0.00	3.2	0.0	0.	0.00
23	1.800	30.69	0.00	4374.39	0.00	4.11	11.34	0.00	11.69	0.00	0.77	0.19	0.64	1.60	0.80	1.63	0.00	0.00	0.00	0.00	0.00	3.3	0.0	0.	0.00
24	1.700	30.62	0.00	4376.38	0.00	4.10	11.44	0.00	11.80	0.00	0.77	0.19	0.64	1.60	0.80	1.63	0.00	0.00	0.00	0.00	0.00	3.4	0.0	0.	0.00
25	1.600	30.55	0.00	4378.37	0.00	4.09	11.55	0.00	11.92	0.00	0.78	0.19	0.64	1.60	0.81	1.63	0.00	0.00	0.00	0.00	0.00	3.5	0.0	0.	0.00
26	1.500	30.48	0.00	4380.37	0.00	4.08	11.68	0.00	12.06	0.00	0.79	0.18	0.64	1.60	0.82	1.63	0.00	0.00	0.00	0.00	0.00	3.6	0.0	0.	0.00
27	1.400	30.41	0.00	4382.36	0.00	4.07	11.81	0.00	12.21	0.00	0.79	0.17	0.63	1.60	0.83	1.64	0.00	0.00	0.00	0.00	0.00	3.7	0.0	0.	0.00
28	1.300	30.34	0.00	4384.35	0.00	4.06	11.97	0.00	12.37	0.00	0.80	0.17	0.63	1.61	0.83	1.64	0.00	0.00	0.00	0.00	0.00	3.8	0.0	0.	0.00
29	1.200	30.27	0.00	4386.35	0.00	4.05	12.13	0.00	12.55	0.00	0.81	0.16	0.63	1.61	0.84	1.64	0.00	0.00	0.00	0.00	0.00	3.9	0.0	0.	0.00
30	1.100	30.20	0.00	4388.35	0.00	4.04	12.31	0.00	12.74	0.00	0.82	0.15	0.63	1.61	0.85	1.64	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 4 V4ToV5endofsubseg TMDL Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
31	UPR RCH	0.00289	30.20	0.00	4388.35	0.00	4.04	12.31	0.00	12.74	0.00	0.82	0.15	0.63	0.00	4.00	0.00	0.00
EACH	INCR	-0.00026																

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m^3/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	CUM TIME days	DEPTH m	WIDTH m	VOLUME m^3	SURFACE AREA m^2	X-SECT AREA m^2	TIDAL PRISM m^3	TIDAL VELO m/s	DISPRSN m^2/s	MEAN VELO m/s
31	1.10	1.00	0.00263	1.0	0.00004	29.02	506.11	0.95	69.49	6601.55	6949.00	66.02	7408.28	0.005	50.000	0.005
32	1.00	0.90	0.00238	1.0	0.00004	32.17	538.27	0.95	69.49	6601.55	6949.00	66.02	8937.06	0.006	50.000	0.006
33	0.90	0.80	0.00212	1.0	0.00003	36.07	574.34	0.95	69.49	6601.55	6949.00	66.02	10465.84	0.007	50.000	0.007
34	0.80	0.70	0.00186	1.0	0.00003	41.06	615.40	0.95	69.49	6601.55	6949.00	66.02	11994.62	0.008	50.000	0.008
35	0.70	0.60	0.00160	1.0	0.00002	47.65	663.05	0.95	69.49	6601.55	6949.00	66.02	13523.40	0.009	50.000	0.009
36	0.60	0.50	0.00135	1.0	0.00002	56.75	719.80	0.95	69.49	6601.55	6949.00	66.02	15052.18	0.011	50.000	0.011
37	0.50	0.40	0.00109	1.0	0.00002	70.16	789.96	0.95	69.49	6601.55	6949.00	66.02	16580.96	0.012	50.000	0.012
38	0.40	0.30	0.00083	1.0	0.00001	91.86	881.81	0.95	69.49	6601.55	6949.00	66.02	18109.74	0.013	50.000	0.013
39	0.30	0.20	0.00057	1.0	0.00001	132.99	1014.80	0.95	69.49	6601.55	6949.00	66.02	19638.52	0.014	50.000	0.014
40	0.20	0.10	0.00032	1.0	0.00000	240.82	1255.62	0.95	69.49	6601.55	6949.00	66.02	21167.30	0.015	50.000	0.015

41	0.10	0.00	0.00006	1.0	0.00000	1273.46	2529.08	0.95	69.49	6601.55	6949.00	66.02	22696.08	0.016	50.000	0.016											
TOT						2051.99				72617.05	76439.00																
AVG					0.0000			0.95	69.49			66.02															

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
31	1.000	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	2.28	2.28	2.28	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
32	0.900	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	2.28	2.28	2.28	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
33	0.800	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	2.28	2.28	2.28	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
34	0.700	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	2.28	2.28	2.28	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
35	0.600	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	2.28	2.28	2.28	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
36	0.500	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	2.28	2.28	2.28	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
37	0.400	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	2.28	2.28	2.28	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
38	0.300	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	2.28	2.28	2.28	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
39	0.200	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	2.28	2.28	2.28	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
40	0.100	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	2.28	2.28	2.28	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
41	0.000	7.53	0.89	0.08	0.13	0.00	0.00	0.00	0.00	0.00	2.28	2.28	2.28	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.74	0.05	0.01	0.00	0.00	0.00	0.00	0.00	1.20			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
31	1.000	30.20	0.00	4389.37	0.00	4.03	12.41	0.00	12.84	0.00	0.83	0.15	0.63	1.61	0.86	1.64	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
32	0.900	30.20	0.00	4390.06	0.00	4.03	12.49	0.00	12.92	0.00	0.83	0.15	0.63	1.61	0.86	1.64	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
33	0.800	30.20	0.00	4390.76	0.00	4.03	12.57	0.00	13.00	0.00	0.83	0.14	0.63	1.61	0.87	1.64	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
34	0.700	30.20	0.00	4391.45	0.00	4.02	12.65	0.00	13.08	0.00	0.84	0.14	0.63	1.61	0.87	1.64	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
35	0.600	30.20	0.00	4392.14	0.00	4.02	12.75	0.00	13.17	0.00	0.84	0.14	0.63	1.61	0.88	1.64	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
36	0.500	30.20	0.00	4392.83	0.00	4.02	12.85	0.00	13.27	0.00	0.85	0.13	0.63	1.61	0.88	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
37	0.400	30.20	0.00	4393.53	0.00	4.01	12.95	0.00	13.38	0.00	0.85	0.13	0.63	1.61	0.89	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
38	0.300	30.20	0.00	4394.22	0.00	4.01	13.06	0.00	13.49	0.00	0.86	0.12	0.63	1.61	0.89	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
39	0.200	30.20	0.00	4394.91	0.00	4.01	13.18	0.00	13.61	0.00	0.86	0.12	0.63	1.61	0.90	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
40	0.100	30.20	0.00	4395.61	0.00	4.01	13.30	0.00	13.73	0.00	0.87	0.11	0.63	1.61	0.90	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
41	0.000	30.20	0.00	4396.30	0.00	4.00	13.44	0.00	13.86	0.00	0.88	0.11	0.63	1.62	0.91	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00

LA-QUAL Model for Violet Canal
TMDL Simulation

REACH SUMMARY REPORT: Violet-1

RCH NO.	REACH NAME	BEGIN DIST km	ENDING DIST km	REACH LENGTH km	TRAVEL TIME days	FLOW AT RCH END m3/s	AVG VELO m/s	AVG DEPTH m	AVG WIDTH m	FLOW AT RCH END cfs	AVG VELO fps	AVG DEPTH ft	AVG WIDTH ft
1	MissSiphonToHwy38V1_V2	4.10	3.10	1.00	180.45	0.00289	0.00006	1.680	26.82	0.102	0.000	5.512	88.00
2	Hwy38ToWofFortyArpentCanalV2_V3	3.10	2.10	1.00	131.14	0.00572	0.00009	1.070	45.47	0.202	0.000	3.511	149.19
3	WofFortyArpentCanalToV4	2.10	1.10	1.00	165.49	0.00289	0.00007	1.070	53.45	0.102	0.000	3.511	175.37
4	V4ToV5endofsubseg	1.10	0.00	1.10	2051.99	0.00006	0.00001	0.950	69.49	0.002	0.000	3.117	228.00

LA-QUAL Model for Violet Canal
TMDL Simulation

STREAM SUMMARY REPORT: Violet-1

TRAVEL TIME = 2529.08 DAYS
MAXIMUM EFFLUENT = 2.08 PERCENT

FLOW	=	0.00006	TO	0.00572	m³/s
DISPERSION	=	0.5000	TO	50.0000	m²/s
VELOCITY	=	0.00000	TO	0.00012	m/s
DEPTH	=	0.95	TO	1.68	m
WIDTH	=	26.82	TO	69.49	m
BOD DECAY	=	0.08	TO	0.08	per day
NH3 DECAY	=	0.04	TO	0.04	per day

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SOD               =    0.98   TO    2.37      g/m²/d
NH3 SED SOURCE    =    0.00   TO    0.00      g/m²/d
PO4 SED SOURCE    =    0.00   TO    0.00      g/m²/d
REAERATION        =    0.51   TO    0.89      per day
BOD SETTLING      =    0.08   TO    0.13      per day
ORG-N DECAY       =    0.15   TO    0.15      per day
ORG-N SETTLING    =    0.00   TO    0.00      per day

TEMPERATURE       =   30.20   TO   30.90      deg C
DISSOLVED OXYGEN  =    4.00   TO    6.48      mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation
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INPUT/OUTPUT LOADING SUMMARY

	FLOW m³/s	DO kg/d	BOD1 kg/d	BOD2 kg/d	ORG-N kg/d	NH3-N kg/d	NO3-N kg/d	ORG-P kg/d	PO4-P kg/d	CHL A	PERIP	NCM
HEADWATER FLOW	0.00283	1.27	1.54	0.00	0.29	0.02	0.35	0.00	0.00	0.00		0.00
INCREMENTAL INFLOW	0.00283	1.34	2.99	0.00	0.18	0.02	0.40	0.00	0.00	0.00		0.00
INCREMENTAL OUTFLOW	-0.00566	-1.98	-6.00	0.00	-0.40	-0.08	-0.31	0.00	0.00	0.00		0.00
WASTELOADS	0.00006	0.01	0.54	0.00	0.04	0.08	0.01	0.00	0.00	0.00		0.00
WITHDRAWLS	0.00000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
FLOW THRU LOWER BNDRY	-0.00006	-0.02	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
DISPERSION THRU LOWER BNDRY		-7.93	392.75	0.00	19.06	-16.89	0.36	0.00	0.00	0.00		0.00
DISPERSION THRU HDWTR BNDRY		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
NON-POINT INPUT		0.00	0.00	0.00	0.00			0.00				0.00
NATURAL REAERATION		477.43										
DAM REAERATION		0.00										
SOD BACKGROUND		-369.89										
BOD1 DECAY		-152.86	-152.86									
BOD1 SETTLING		0.00	-238.83									
ANAEROBIC BOD1 DECAY			0.00									
BOD2 DECAY		0.00		0.00								
BOD2 SETTLING		0.00		0.00								
ANAEROBIC BOD2 DECAY				0.00								
BOD2 HYDROLYSIS			0.00	0.00								
ORG-N DECAY		0.00			-19.16	19.16						
ORG-N SETTLING					0.00	0.00						
NH3-N DECAY (NITRIFICATION)		-10.10				-2.33	2.33					
NH3-N BACKGROUND SEDIMENT SOURCE						0.00						
DENITRIFICATION			0.00				0.00					
ORG-P HYDROLYSIS								0.00	0.00			
ORG-P SETTLING								0.00	0.00			
PO4-P BACKGROUND SEDIMENT SOURCE									0.00			
PHYTOPLANKTON GROWTH/PHOTOSYNTHESIS		62.66				0.00	-3.13		0.00	0.00		
PHYTOPLANKTON RESPIRATION/EXCRETION		0.00				0.00			0.00	0.00		
PHYTOPLANKTON SETTLING		0.00				0.00			0.00	0.00		
PHYTOPLANKTON DEATH			0.00	0.00	0.00			0.00		0.00		
PERIPHYTON GROWTH/PHOTOSYNTHESIS		0.00				0.00	0.00		0.00		0.00	
PERIPHYTON RESPIRATION/EXCRETION		0.00				0.00			0.00		0.00	
PERIPHYTON DEATH			0.00	0.00	0.00			0.00			0.00	
NCM DECAY		0.00										0.00
NCM SETTLING		0.00										0.00
TOTAL INPUTS	0.00572	542.72	397.82	0.00	19.57	19.29	3.46	0.00	0.00	0.00	0.00	0.00
TOTAL OUTPUTS	-0.00572	-542.78	-397.76	0.00	-19.57	-19.30	-3.45	0.00	0.00	0.00	0.00	0.00
NET CONVERGENCE ERROR	0.00000	-0.06	0.06	0.00	0.00	-0.01	0.01	0.00	0.00	0.00	0.00	0.00

.....EXECUTION COMPLETED

Winter LA-QUAL model TMDL output

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LA-QUAL Version 9.05
Louisiana Department of Environmental Quality

Input file is E:\EPA_R06\LA TMDL 2006\Phase IV (Lake P)\DO Models\041805(Violet)\Violet_TMDL_winter_DO2.txt
Running in steady-state mode using LA defaults
Output produced at 13:28 on 11/16/2011

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

CARD TYPE       CONTROL TITLES

TITLE01         LA-QUAL Model for Violet Canal
TITLE02         TMDL Simulation
CONTROL   YES   METRIC UNITS
ENDATA01

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

CARD TYPE       MODEL OPTION

MODOPT01   NO   TEMPERATURE
MODOPT02   NO   SALINITY
MODOPT03  YES   CONSERVATIVE MATERIAL #1   CONDUCTIVITY          UNITS = umhos/cm Conduct
MODOPT04   NO   CONSERVATIVE MATERIAL #2                         UNITS =
MODOPT05  YES   DISSOLVED OXYGEN
MODOPT06  YES   BOD1 BIOCHEMICAL OXYGEN DEMAND #1
MODOPT07   NO   BOD2 BIOCHEMICAL OXYGEN DEMAND #2
MODOPT08  YES   NITROGEN SERIES
MODOPT09   NO   PHOSPHORUS
MODOPT10   NO   CHLOROPHYLL A
MODOPT11   NO   MACROPHYTES
MODOPT12   NO   COLIFORMS
MODOPT13   NO   NONCONSERVATIVE MATERIAL                         UNITS =
ENDATA02

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

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

PROGRAM         HYDRAULIC CALCULATION METHOD       =         2.00000 (widths and depths)
PROGRAM         INHIBITION CONTROL VALUE           =         3.00000 (inhibit all rates but SOD)
PROGRAM         OCEAN EXCHANGE RATIO               =         0.50000
PROGRAM         TIDE HEIGHT                        =         0.22000 meters
PROGRAM         TIDAL PERIOD                       =        12.00000 hours
PROGRAM         PERIOD OF TIDAL RISE               =         6.00000 hours
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

$$$ DATA TYPE 6 (PHYTOPLANKTON CONSTANTS) $$$

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA06

$$$ DATA TYPE 7 (PERIPHYTON CONSTANTS) $$$

CARD TYPE       DESCRIPTION OF CONSTANT                        VALUE

ENDATA07

$$$ DATA TYPE 8 (REACH IDENTIFICATION DATA) $$$
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                                                   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   V2  MissSiphonToHwy38V1_V2         4.10  TO   3.10  0.1000    1.00       10     1    10
REACH ID     2   V3  Hwy38ToWofFortyArpentCanalV2_V3 3.10  TO   2.10  0.1000    1.00       10    11    20
REACH ID     3   V4  WofFortyArpentCanalToV4        2.10  TO   1.10  0.1000    1.00       10    21    30
REACH ID     4   V5  V4ToV5endofsubseg              1.10  TO   0.00  0.1000    1.10       11    31    41
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   V2      0.000      0.000     26.820      0.000      0.000      1.680   0.00010   0.000
HYDR-1       2   V3      0.000      0.000     45.470      0.000      0.000      1.070   0.00010   0.000
HYDR-1       3   V4      0.000      0.000     53.450      0.000      0.000      1.070   0.00010   0.000
HYDR-1       4   V5      0.000      0.000     69.490      0.000      0.000      0.950   0.00010   0.000
ENDATA09

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

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

HYDR         1   V2      0.00       0.500          0.000          0.000          0.000
HYDR         2   V3      0.00       0.500          0.000          0.000          0.000
HYDR         3   V4      0.50      20.000          0.000          0.000          0.000
HYDR         4   V5      1.00      50.000          0.000          0.000          0.000
ENDATA10

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

CARD TYPE      REACH  ID     TEMP    SALIN      DO    NH3-N    NO3-N    PO4-P    CHL A    PERIP     BOD1     BOD2    ORG-N    ORG-P     COLI      NCM  Conduct     CM-2
                            deg C      ppt    mg/L     mg/L     mg/L     mg/L      µg/L     g/m²     mg/L     mg/L     mg/L     mg/L  #/100mL           umhos/cm

INITIAL          1   V2    20.00     0.00    5.30     0.10     0.00     0.00     3.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
INITIAL          2   V3    20.00     0.00    5.50     0.10     0.00     0.00     3.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
INITIAL          3   V4    20.00     0.00    4.90     0.10     0.00     0.00     3.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
INITIAL          4   V5    20.00     0.00    4.40     0.10     0.00     0.00     4.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
ENDATA11

$$$ DATA TYPE 12 (REAERATION, SEDIMENT OXYGEN DEMAND, BOD COEFFICIENTS) $$$
                                                                    AEROB                SETTLD    ANAER    AEROB                          ANAER     BOD2
CARD     RCH  RCH  K2                    K2        K2        K2   BKGRND      BOD       BOD      SOD      BOD     BOD2      BOD2                BOD2   HYDR TO
TYPE     NUM   ID  OPT                  "A"       "B"       "C"      SOD    DECAY      SETT    AVAIL    DECAY    DECAY      SETT               DECAY     BOD1
                                                                   g/m²/d  per day       m/d     frac  per day  per day       m/d             per day  per day

COEFF-1    1   V2   3 OCONNER-DOBB    0.000     0.000     0.000    0.700    0.050     0.100    0.000    0.000    0.000     0.000               0.000    0.000
COEFF-1    2   V3   3 OCONNER-DOBB    0.000     0.000     0.000    0.700    0.050     0.100    0.000    0.000    0.000     0.000               0.000    0.000
COEFF-1    3   V4   3 OCONNER-DOBB    0.000     0.000     0.000    1.680    0.050     0.100    0.000    0.000    0.000     0.000               0.000    0.000
COEFF-1    4   V5   3 OCONNER-DOBB    0.000     0.000     0.000    1.680    0.050     0.100    0.000    0.000    0.000     0.000               0.000    0.000
ENDATA12

$$$ DATA TYPE 13 (NITROGEN AND PHOSPHORUS COEFFICIENTS) $$$
                                                SETTLD              BKGRND    BKGRND                                  SETTLD
CARD TYPE      REACH  ID      ORG-N    ORG-N     ORGN      NH3       NH3       PO4     DENIT     ORGP     ORGP     ORGP
                             DECA     SETT    AVAIL     DECA      SRCE      SRCE      RATE     DECA     SETT    AVAIL
                          per day      m/d     frac  per day   g/m²/d   g/m²/d  per day  per day      m/d     frac

COEFF-2          1   V2     0.120    0.000    0.000    0.020     0.000     0.000    0.020    0.000    0.000    0.000
COEFF-2          2   V3     0.120    0.000    0.000    0.020     0.000     0.000    0.020    0.000    0.000    0.000
COEFF-2          3   V4     0.120    0.000    0.000    0.020     0.000     0.000    0.020    0.000    0.000    0.000
COEFF-2          4   V5     0.120    0.000    0.000    0.020     0.000     0.000    0.020    0.000    0.000    0.000
ENDATA13

$$$ DATA TYPE 14 (ALGAE PHYTOPLANKTON AND PERIPHYTON COEFFICIENTS) $$$
                                                                MAX                          MAX
CARD TYPE      REACH  ID     SECCHI    CHL A:    PHYTO    PHYTO    PHYTO    PHYTO    PERIP    PERIP    PERIP     BANK
                            DEPTH     ALGAE     SETT    DEATH     GROW     RESP    DEATH     GROW     RESP  SHADING
                                m      frac      m/d  per day  per day  per day  per day  per day  per day     frac

ENDATA14
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$$$ DATA TYPE 15 (COLIFORM AND NONCONSERVATIVE COEFFICIENTS) $$$

CARD TYPE      REACH  ID    COLIFORM       NCM       NCM
                            DIE-OFF     DECAY      SETT
                            per day   per day       m/d

ENDATA15

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

CARD TYPE      REACH  ID       OUTFLOW      INFLOW      TEMP     SALIN   Conduct      CM-2   IN/DIST  OUT/DIST
                                  m³/s        m³/s     deg C       ppt  umhos/cm

INCR-1           1   V2       0.00000     0.00000      0.00      0.00      0.00      0.00   0.00000   0.00000
INCR-1           2   V3       0.00000     0.02830     20.00      0.00    391.00      0.00   0.02830   0.00000
INCR-1           3   V4      -0.02830     0.00000     20.00      0.00    391.00      0.00   0.00000  -0.02830
INCR-1           4   V5      -0.02830     0.00000     20.00      0.00    391.00      0.00   0.00000  -0.02573
ENDATA16

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

CARD TYPE      REACH  ID          DO      BOD1     ORG-N     NH3-N     NO3-N      BOD2
                                 mg/L      mg/L      mg/L      mg/L      mg/L      mg/L

INCR-2           1   V2        0.00      0.00      0.00      0.00      0.00      0.00
INCR-2           2   V3        5.50     24.00      0.73      0.10      1.64      0.00
INCR-2           3   V4        5.50     14.00      0.78      0.10      1.64      0.00
INCR-2           4   V5        5.50     14.00      0.78      0.10      1.64      0.00
ENDATA17

$$$ DATA TYPE 18 (INCREMENTAL DATA FOR PHOSPHORUS, PHYTOPLANKTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                         PHYTO
 CARD TYPE      REACH  ID         PO4     CHL A      COLI       NCM      ORGP
                                 mg/L      µg/L   #/100mL                 mg/L

ENDATA18

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

CARD TYPE      REACH  ID        BOD1     ORG-N      COLI       NCM        DO      BOD2     ORG-P
                                kg/d      kg/d     #/day                kg/d      kg/d      kg/d

NONPOINT         1   V2        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT         2   V3        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT         3   V4        0.00      0.00      0.00      0.00      0.00      0.00      0.00
NONPOINT         4   V5        0.00      0.00      0.00      0.00      0.00      0.00      0.00
ENDATA19

$$$ DATA TYPE 20 (HEADWATER FOR FLOW, TEMPERATURE, SALINITY AND CONSERVATIVES) $$$
                                                                                                   HDW DISP
CARD TYPE     ELEMENT   NAME                  UNIT     FLOW       FLOW    TEMP    SALIN   Conduct      CM-2     EXCHG
                                                        m³/s        cfs   deg C      ppt  umhos/cm                frac

HDWTR-1          1     Violet-1                0   0.02830    0.99929   20.00     0.00   392.000     0.000     0.000
ENDATA20

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

CARD TYPE     ELEMENT   NAME                        DO     BOD#1     ORG-N     NH3-N     NO3-N      BOD2
                                                  mg/L      mg/L      mg/L      mg/L      mg/L      mg/L

HDWTR-2          1     Violet-1                  5.20     13.00      1.20      0.10      1.45      0.00
ENDATA21

$$$ DATA TYPE 22 (HEADWATER DATA FOR PHOSPHORUS, PHYTOPLANKTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                                          PHYTO
CARD TYPE     ELEMENT   NAME                       PO4-P     CHL A      COLI       NCM     ORG-P
                                                    mg/L      µg/L   #/100mL                mg/L

ENDATA22

$$$ DATA TYPE 23 (JUNCTION DATA) $$$
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```
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   Conduct      CM-2
                                                       m³/s        cfs      MGD   deg C     ppt  umhos/cm

WSTLD-1        1       4.10  LAG531277              0.00006    0.00212    0.001   20.00     0.00     0.000     0.000
ENDATA24

$$$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) $$$
                                                                  % BOD                                  %
CARD TYPE     ELEMENT   NAME                            DO       BOD      RMVL     ORG-N     NH3-N    NITRIF     NO3-N      BOD2
                                                     mg/L      mg/L                mg/L      mg/L                mg/L      mg/L

WSTLD-2           1     LAG531277                   2.00    103.50      0.00      7.50     15.00      0.00      2.00      0.00
ENDATA25

$$$ DATA TYPE 26 (WASTELOAD DATA FOR PHOSPHORUS, PHYTOPLANTON, COLIFORM, AND NONCONSERVATIVES) $$$
                                                          PHYTO
CARD TYPE     ELEMENT   NAME                         PO4-P     CHL A      COLI       NCM     ORG-P
                                                     mg/L      µg/L   #/100mL                mg/L

ENDATA26

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

CARD TYPE    CONSTITUENT                    CONCENTRATION

LOWER BC     TEMPERATURE                          20.000     deg C
LOWER BC     SALINITY                       =      0.000     ppt
LOWER BC     CONSERVATIVE MATERIAL I        =   4397.000     umhos/cm
LOWER BC     DISSOLVED OXYGEN                      4.000     mg/L
LOWER BC     BOD1 BIOCHEMICAL OXYGEN DEMAND       14.000     mg/L
LOWER BC     ORGANIC NITROGEN                      0.917     mg/L
LOWER BC     AMMONIA NITROGEN                      0.100     mg/L
LOWER BC     NITRATE NITROGEN                      0.633     mg/L
LOWER BC     CHLOROPHYLL A                         4.000     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 =   4
PLOT RCH  1  2  3  4
ENDATA30

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

OVERLAY 1 Violet.ovl                      :Violet Canal Overlay File
ENDATA31

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

INTERMEDIATE REPORT
Dissolved Oxygen
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	6.92	7.08	7.21	7.32	7.41	7.47	7.52	7.56	7.58	7.59
V3	2	11	7.58	7.56	7.51	7.45	7.35	7.20	6.96	6.59	6.01	5.08
V4	3	21	5.02	4.98	4.94	4.90	4.85	4.80	4.74	4.68	4.61	4.54
V5	4	31	4.50	4.47	4.43	4.40	4.36	4.32	4.27	4.22	4.17	4.12
V5	4	41	4.06									

INTERMEDIATE REPORT
Effective BOD1
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	7.20	6.62	6.13	5.72	5.40	5.17	5.03	4.99	5.06	5.27
V3	2	11	5.61	5.94	6.28	6.65	7.09	7.63	8.31	9.19	10.37	11.96
V4	3	21	12.06	12.13	12.21	12.29	12.39	12.50	12.62	12.75	12.89	13.04
V5	4	31	13.12	13.17	13.23	13.30	13.37	13.45	13.53	13.61	13.70	13.80
V5	4	41	13.90									

INTERMEDIATE REPORT
Biochemical Oxygen Demand
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	6.88	6.30	5.81	5.40	5.08	4.85	4.71	4.67	4.74	4.95
V3	2	11	5.29	5.62	5.96	6.33	6.77	7.31	7.99	8.87	10.05	11.64
V4	3	21	11.73	11.79	11.85	11.93	12.02	12.12	12.22	12.34	12.47	12.61
V5	4	31	12.69	12.75	12.81	12.87	12.94	13.02	13.10	13.19	13.27	13.37
V5	4	41	13.47									

INTERMEDIATE REPORT
Organic Nitrogen
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.59	0.53	0.48	0.44	0.40	0.37	0.34	0.32	0.31	0.31
V3	2	11	0.31	0.32	0.33	0.35	0.37	0.41	0.46	0.53	0.63	0.76
V4	3	21	0.77	0.77	0.77	0.78	0.79	0.79	0.80	0.81	0.82	0.83
V5	4	31	0.83	0.83	0.84	0.84	0.85	0.85	0.86	0.86	0.87	0.87
V5	4	41	0.88									

INTERMEDIATE REPORT
Effective Organic Nitrogen
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.62	0.56	0.51	0.46	0.43	0.39	0.37	0.35	0.34	0.33
V3	2	11	0.34	0.34	0.36	0.37	0.40	0.44	0.49	0.56	0.65	0.78
V4	3	21	0.79	0.80	0.80	0.81	0.82	0.82	0.83	0.84	0.85	0.86
V5	4	31	0.86	0.87	0.87	0.88	0.88	0.88	0.89	0.89	0.90	0.91
V5	4	41	0.91									

INTERMEDIATE REPORT
Ammonia Nitrogen
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.55	0.59	0.62	0.65	0.67	0.68	0.68	0.69	0.68	0.67
V3	2	11	0.65	0.63	0.61	0.59	0.56	0.52	0.48	0.41	0.33	0.22
V4	3	21	0.21	0.20	0.20	0.20	0.19	0.18	0.18	0.17	0.16	0.15
V5	4	31	0.15	0.15	0.14	0.14	0.13	0.13	0.13	0.12	0.12	0.11
V5	4	41	0.11									

INTERMEDIATE REPORT

Nitrate+Nitrite Nitrogen
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.45	1.45	1.45	1.45	1.44	1.44	1.43	1.42	1.41	1.39
V3	2	11	1.38	1.35	1.32	1.29	1.24	1.17	1.09	0.99	0.86	0.70
V4	3	21	0.69	0.69	0.68	0.68	0.67	0.67	0.66	0.66	0.66	0.65
V5	4	31	0.65	0.65	0.65	0.64	0.64	0.64	0.64	0.64	0.64	0.64
V5	4	41	0.63									

INTERMEDIATE REPORT
Total Nitrogen
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	2.59	2.57	2.55	2.53	2.51	2.48	2.46	2.43	2.40	2.37
V3	2	11	2.34	2.31	2.27	2.22	2.17	2.11	2.03	1.94	1.82	1.67
V4	3	21	1.66	1.66	1.66	1.65	1.65	1.65	1.64	1.64	1.63	1.63
V5	4	31	1.63	1.63	1.63	1.62	1.62	1.62	1.62	1.62	1.62	1.62
V5	4	41	1.62									

INTERMEDIATE REPORT
Effective Total Nitrogen
mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	2.62	2.60	2.58	2.56	2.53	2.51	2.48	2.46	2.43	2.40
V3	2	11	2.36	2.33	2.29	2.25	2.20	2.13	2.06	1.96	1.85	1.70
V4	3	21	1.69	1.69	1.68	1.68	1.68	1.68	1.67	1.67	1.67	1.66
V5	4	31	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.65	1.65	1.65
V5	4	41	1.65									

INTERMEDIATE REPORT
Chlorophyll a
µg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
V3	2	11	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
V4	3	21	3.10	3.20	3.30	3.40	3.50	3.60	3.70	3.80	3.90	4.00
V5	4	31	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
V5	4	41	4.00									

INTERMEDIATE REPORT
Temperature
deg C

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
V3	2	11	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
V4	3	21	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
V5	4	31	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
V5	4	41	20.00									

INTERMEDIATE REPORT
Salinity
ppt

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
V3	2	11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
V4	3	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
V5	4	31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
V5	4	41	0.00									

INTERMEDIATE REPORT
CONDUCTIVITY UNIT
umhos/cm

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	659.58	693.37	731.41	774.24	822.46	876.75	937.88	1006.70	1084.19	1171.43
V3	2	11	1265.88	1378.03	1516.05	1686.45	1897.74	2161.02	2490.89	2906.68	3434.07	4107.43
V4	3	21	4143.48	4162.07	4180.74	4199.50	4218.34	4237.25	4256.23	4275.28	4294.39	4313.56
V5	4	31	4323.45	4330.12	4336.79	4343.47	4350.15	4356.84	4363.53	4370.22	4376.91	4383.61
V5	4	41	4390.30									

INTERMEDIATE REPORT
River Distance
km

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	4.	4.	4.	4.	4.	4.	3.	3.	3.	3.
V3	2	11	3.	3.	3.	3.	3.	3.	2.	2.	2.	2.
V4	3	21	2.	2.	2.	2.	2.	1.	1.	1.	1.	1.
V5	4	31	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
V5	4	41	0.									

INTERMEDIATE REPORT
Flow
m^3/s

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V3	2	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
V4	3	21	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V5	4	41	0.0									

INTERMEDIATE REPORT
Dispersion
m^2/s

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
V3	2	11	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
V4	3	21	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
V5	4	31	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
V5	4	41	50.0									

INTERMEDIATE REPORT
Depth
m

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
V3	2	11	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
V4	3	21	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
V5	4	31	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
V5	4	41	0.9									

INTERMEDIATE REPORT
Width
m

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8
V3	2	11	45.5	45.5	45.5	45.5	45.5	45.5	45.5	45.5	45.5	45.5
V4	3	21	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5
V5	4	31	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5
V5	4	41	69.5									

INTERMEDIATE REPORT
Advective Velocity
m/s

LA-QUAL Model for Violet Canal
TMDL Simulation

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

```
  V2     1     1         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
  V3     2    11         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
  V4     3    21         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
  V5     4    31         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
  V5     4    41         0.0

INTERMEDIATE REPORT
 Mean Velocity                                                    LA-QUAL Model for Violet Canal
     m/s                                                          TMDL Simulation

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

  V2     1     1         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
  V3     2    11         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
  V4     3    21         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
  V5     4    31         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
  V5     4    41         0.0

INTERMEDIATE REPORT
 Cross-Sectional Area                                             LA-QUAL Model for Violet Canal
     m²                                                           TMDL Simulation

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

  V2     1     1        45.1      45.1      45.1      45.1      45.1      45.1      45.1      45.1      45.1      45.1
  V3     2    11        48.7      48.7      48.7      48.7      48.7      48.7      48.7      48.7      48.7      48.7
  V4     3    21        57.2      57.2      57.2      57.2      57.2      57.2      57.2      57.2      57.2      57.2
  V5     4    31        66.0      66.0      66.0      66.0      66.0      66.0      66.0      66.0      66.0      66.0
  V5     4    41        66.0

INTERMEDIATE REPORT
 Reaeration Rate                                                  LA-QUAL Model for Violet Canal
     per day                                                      TMDL Simulation

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

  V2     1     1       0.417     0.417     0.417     0.417     0.417     0.417     0.417     0.417     0.417     0.417
  V3     2    11       0.654     0.654     0.654     0.654     0.654     0.654     0.654     0.654     0.654     0.654
  V4     3    21       0.654     0.654     0.654     0.654     0.654     0.654     0.654     0.654     0.654     0.654
  V5     4    31       0.737     0.737     0.737     0.737     0.737     0.737     0.737     0.737     0.737     0.737
  V5     4    41       0.737

INTERMEDIATE REPORT
 BOD1 Decay Rate                                                  LA-QUAL Model for Violet Canal
     per day                                                      TMDL Simulation

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

  V2     1     1         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V3     2    11         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V4     3    21         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V5     4    31         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V5     4    41         0.

INTERMEDIATE REPORT
 BOD1 Settling Rate                                               LA-QUAL Model for Violet Canal
     m/d                                                          TMDL Simulation

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

  V2     1     1         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V3     2    11         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V4     3    21         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V5     4    31         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
  V5     4    41         0.

INTERMEDIATE REPORT
 Ammonia Nitrogen Decay Rate                                      LA-QUAL Model for Violet Canal
     per day                                                      TMDL Simulation

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

  V2     1     1         0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
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V3	2	11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V4	3	21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
V5	4	41	0.									

INTERMEDIATE REPORT
Sediment Oxygen Demand
g/m²/d

LA-QUAL Model for Violet Canal
TMDL Simulation

ID	RCH	ELEM	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
V2	1	1	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
V3	2	11	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
V4	3	21	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
V5	4	31	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
V5	4	41	2.									

CAPSULE SUMMARY FOR Violet-1

IOR	REACH	DIST km	FLOW m³/s	TEMP deg C	SALN ppt	DO mg/L	BOD1 mg/L	BOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	ORG-P mg/L	PO4-P 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	0.028	20.00	0.0	5.20	12.68	0.00	1.17	0.10	1.45	2.72	0.00	0.00	3.0													
	WASTELOAD # 001 (LAG531277) ENTERS HERE																											
1	V2 1	4.00	0.028	20.00	0.0	6.92	6.88	0.00	0.59	0.55	1.45	2.59	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	9.092	0.417	0.05	0.06	0.00	0.00	0.02	0.70
2	V2 1	3.90	0.028	20.00	0.0	7.08	6.30	0.00	0.53	0.59	1.45	2.57	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	9.092	0.417	0.05	0.06	0.00	0.00	0.02	0.70
3	V2 1	3.80	0.028	20.00	0.0	7.21	5.81	0.00	0.48	0.62	1.45	2.55	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	9.092	0.417	0.05	0.06	0.00	0.00	0.02	0.70
4	V2 1	3.70	0.028	20.00	0.0	7.32	5.40	0.00	0.44	0.65	1.45	2.53	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	9.092	0.417	0.05	0.06	0.00	0.00	0.02	0.70
5	V2 1	3.60	0.028	20.00	0.0	7.41	5.08	0.00	0.40	0.67	1.44	2.51	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	9.092	0.417	0.05	0.06	0.00	0.00	0.02	0.70
6	V2 1	3.50	0.028	20.00	0.0	7.47	4.85	0.00	0.37	0.68	1.44	2.48	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	9.092	0.417	0.05	0.06	0.00	0.00	0.02	0.70
7	V2 1	3.40	0.028	20.00	0.0	7.52	4.71	0.00	0.34	0.68	1.43	2.46	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	9.092	0.417	0.05	0.06	0.00	0.00	0.02	0.70
8	V2 1	3.30	0.028	20.00	0.0	7.56	4.67	0.00	0.32	0.69	1.42	2.43	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	9.092	0.417	0.05	0.06	0.00	0.00	0.02	0.70
9	V2 1	3.20	0.028	20.00	0.0	7.58	4.74	0.00	0.31	0.68	1.41	2.40	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	9.092	0.417	0.05	0.06	0.00	0.00	0.02	0.70
10	V2 1	3.10	0.028	20.00	0.0	7.59	4.95	0.00	0.31	0.67	1.39	2.37	0.00	0.00	3.0	0.5	1.68	26.8	0.001	0.001	9.092	0.417	0.05	0.06	0.00	0.00	0.02	0.70
11	V3 2	3.00	0.031	20.00	0.0	7.58	5.29	0.00	0.31	0.65	1.38	2.34	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	9.092	0.654	0.05	0.09	0.00	0.00	0.02	0.70
12	V3 2	2.90	0.034	20.00	0.0	7.56	5.62	0.00	0.32	0.63	1.35	2.31	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	9.092	0.654	0.05	0.09	0.00	0.00	0.02	0.70
13	V3 2	2.80	0.037	20.00	0.0	7.51	5.96	0.00	0.33	0.61	1.32	2.27	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	9.092	0.654	0.05	0.09	0.00	0.00	0.02	0.70
14	V3 2	2.70	0.040	20.00	0.0	7.45	6.33	0.00	0.35	0.59	1.29	2.22	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	9.092	0.654	0.05	0.09	0.00	0.00	0.02	0.70
15	V3 2	2.60	0.043	20.00	0.0	7.35	6.77	0.00	0.37	0.56	1.24	2.17	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	9.092	0.654	0.05	0.09	0.00	0.00	0.02	0.70
16	V3 2	2.50	0.045	20.00	0.0	7.20	7.31	0.00	0.41	0.52	1.17	2.11	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	9.092	0.654	0.05	0.09	0.00	0.00	0.02	0.70
17	V3 2	2.40	0.048	20.00	0.0	6.96	7.99	0.00	0.46	0.48	1.09	2.03	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	9.092	0.654	0.05	0.09	0.00	0.00	0.02	0.70
18	V3 2	2.30	0.051	20.00	0.0	6.59	8.87	0.00	0.53	0.41	0.99	1.94	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	9.092	0.654	0.05	0.09	0.00	0.00	0.02	0.70
19	V3 2	2.20	0.054	20.00	0.0	6.01	10.05	0.00	0.63	0.33	0.86	1.82	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	9.092	0.654	0.05	0.09	0.00	0.00	0.02	0.70
20	V3 2	2.10	0.057	20.00	0.0	5.08	11.64	0.00	0.76	0.22	0.70	1.67	0.00	0.00	3.0	0.5	1.07	45.5	0.001	0.001	9.092	0.654	0.05	0.09	0.00	0.00	0.02	0.70
21	V4 3	2.00	0.054	20.00	0.0	5.02	11.73	0.00	0.77	0.21	0.69	1.66	0.00	0.00	3.1	20.0	1.07	53.5	0.001	0.001	9.092	0.654	0.05	0.09	0.00	0.00	0.02	1.68
22	V4 3	1.90	0.051	20.00	0.0	4.98	11.79	0.00	0.77	0.20	0.69	1.66	0.00	0.00	3.2	20.0	1.07	53.5	0.001	0.001	9.092	0.654	0.05	0.09	0.00	0.00	0.02	1.68
23	V4 3	1.80	0.048	20.00	0.0	4.94	11.85	0.00	0.77	0.20	0.68	1.66	0.00	0.00	3.3	20.0	1.07	53.5	0.001	0.002	9.092	0.654	0.05	0.09	0.00	0.00	0.02	1.68
24	V4 3	1.70	0.045	20.00	0.0	4.90	11.93	0.00	0.78	0.20	0.68	1.65	0.00	0.00	3.4	20.0	1.07	53.5	0.001	0.002	9.092	0.654	0.05	0.09	0.00	0.00	0.02	1.68
25	V4 3	1.60	0.043	20.00	0.0	4.85	12.02	0.00	0.79	0.19	0.67	1.65	0.00	0.00	3.5	20.0	1.07	53.5	0.001	0.002	9.092	0.654	0.05	0.09	0.00	0.00	0.02	1.68
26	V4 3	1.50	0.040	20.00	0.0	4.80	12.12	0.00	0.79	0.18	0.67	1.65	0.00	0.00	3.6	20.0	1.07	53.5	0.001	0.003	9.092	0.654	0.05	0.09	0.00	0.00	0.02	1.68
27	V4 3	1.40	0.037	20.00	0.0	4.74	12.22	0.00	0.80	0.18	0.66	1.64	0.00	0.00	3.7	20.0	1.07	53.5	0.001	0.003	9.092	0.654	0.05	0.09	0.00	0.00	0.02	1.68
28	V4 3	1.30	0.034	20.00	0.0	4.68	12.34	0.00	0.81	0.17	0.66	1.64	0.00	0.00	3.8	20.0	1.07	53.5	0.001	0.004	9.092	0.654	0.05	0.09	0.00	0.00	0.02	1.68
29	V4 3	1.20	0.031	20.00	0.0	4.61	12.47	0.00	0.82	0.16	0.66	1.63	0.00	0.00	3.9	20.0	1.07	53.5	0.001	0.004	9.092	0.654	0.05	0.09	0.00	0.00	0.02	1.68
30	V4 3	1.10	0.028	20.00	0.0	4.54	12.61	0.00	0.83	0.15	0.65	1.63	0.00	0.00	4.0	20.0	1.07	53.5	0.000	0.005	9.092	0.654	0.05	0.09	0.00	0.00	0.02	1.68
31	V5 4	1.00	0.026	20.00	0.0	4.50	12.69	0.00	0.83	0.15	0.65	1.63	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.005	9.092	0.737	0.05	0.11	0.00	0.00	0.02	1.68
32	V5 4	0.90	0.023	20.00	0.0	4.47	12.75	0.00	0.83	0.15	0.65	1.63	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.006	9.092	0.737	0.05	0.11	0.00	0.00	0.02	1.68
33	V5 4	0.80	0.021	20.00	0.0	4.43	12.81	0.00	0.84	0.14	0.65	1.63	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.007	9.092	0.737	0.05	0.11	0.00	0.00	0.02	1.68
34	V5 4	0.70	0.018	20.00	0.0	4.40	12.87	0.00	0.84	0.14	0.64	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.008	9.092	0.737	0.05	0.11	0.00	0.00	0.02	1.68
35	V5 4	0.60	0.015	20.00	0.0	4.36	12.94	0.00	0.85	0.13	0.64	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.009	9.092	0.737	0.05	0.11	0.00	0.00	0.02	1.68
36	V5 4	0.50	0.013	20.00	0.0	4.32	13.02	0.00	0.85	0.13	0.64	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.011	9.092	0.737	0.05	0.11	0.00	0.00	0.02	1.68
37	V5 4	0.40	0.010	20.00	0.0	4.27	13.10	0.00	0.86	0.13	0.64	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.012	9.092	0.737	0.05	0.11	0.00	0.00	0.02	1.68
38	V5 4	0.30	0.008	20.00	0.0	4.22	13.19	0.00	0.86	0.12	0.64	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.013	9.092	0.737	0.05	0.11	0.00	0.00	0.02	1.68
39	V5 4	0.20	0.005	20.00	0.0	4.17	13.27	0.00	0.87	0.12	0.64	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.014	9.092	0.737	0.05	0.11	0.00	0.00	0.02	1.68
40	V5 4	0.10	0.003	20.00	0.0	4.12	13.37	0.00	0.87	0.11	0.64	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.015	9.092	0.737	0.05	0.11	0.00	0.00	0.02	1.68
41	V5 4	0.00	0.000	20.00	0.0	4.06	13.47	0.00	0.88	0.11	0.63	1.62	0.00	0.00	4.0	50.0	0.95	69.5	0.000	0.016	9.092	0.737	0.05	0.11	0.00	0.00	0.02	1.68

FINAL REPORT Violet-1
REACH NO. 1 MissSiphonToHwy38V1_V2

LA-QUAL Model for Violet Canal
TMDL Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM

1	HDWTR	0.02830	20.00	0.00	392.00	0.00	5.20	12.68	0.00	13.00	0.00	1.20	0.10	1.45	0.00	3.00	0.00	0.00
1	WSTLD	0.00006	20.00	0.00	0.00	0.00	2.00	103.50	0.00	103.50	0.00	7.50	15.00	2.00	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	CUM 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	4.10	4.00	0.02836	0.2	0.00063	1.84	1.84	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
2	4.00	3.90	0.02836	0.2	0.00063	1.84	3.68	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
3	3.90	3.80	0.02836	0.2	0.00063	1.84	5.52	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
4	3.80	3.70	0.02836	0.2	0.00063	1.84	7.36	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
5	3.70	3.60	0.02836	0.2	0.00063	1.84	9.19	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
6	3.60	3.50	0.02836	0.2	0.00063	1.84	11.03	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
7	3.50	3.40	0.02836	0.2	0.00063	1.84	12.87	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
8	3.40	3.30	0.02836	0.2	0.00063	1.84	14.71	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
9	3.30	3.20	0.02836	0.2	0.00063	1.84	16.55	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
10	3.20	3.10	0.02836	0.2	0.00063	1.84	18.39	1.68	26.82	4505.76	2682.00	45.06	0.00	0.000	0.500	0.001
TOT						18.39				45057.59	26820.00					
AVG					0.0006			1.68	26.82			45.06				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
1	4.000	9.09	0.42	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
2	3.900	9.09	0.42	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
3	3.800	9.09	0.42	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
4	3.700	9.09	0.42	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
5	3.600	9.09	0.42	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
6	3.500	9.09	0.42	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
7	3.400	9.09	0.42	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
8	3.300	9.09	0.42	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
9	3.200	9.09	0.42	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
10	3.100	9.09	0.42	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.42	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.70			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
1	4.000	20.00	0.00	659.58	0.00	6.92	6.88	0.00	7.20	0.00	0.59	0.55	1.45	2.59	0.62	2.62	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
2	3.900	20.00	0.00	693.37	0.00	7.08	6.30	0.00	6.62	0.00	0.53	0.59	1.45	2.57	0.56	2.60	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
3	3.800	20.00	0.00	731.41	0.00	7.21	5.81	0.00	6.13	0.00	0.48	0.62	1.45	2.55	0.51	2.58	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
4	3.700	20.00	0.00	774.24	0.00	7.32	5.40	0.00	5.72	0.00	0.44	0.65	1.45	2.53	0.46	2.56	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
5	3.600	20.00	0.00	822.46	0.00	7.41	5.08	0.00	5.40	0.00	0.40	0.67	1.44	2.51	0.43	2.53	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
6	3.500	20.00	0.00	876.75	0.00	7.47	4.85	0.00	5.17	0.00	0.37	0.68	1.44	2.48	0.39	2.51	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
7	3.400	20.00	0.00	937.88	0.00	7.52	4.71	0.00	5.03	0.00	0.34	0.68	1.43	2.46	0.37	2.48	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
8	3.300	20.00	0.00	1006.70	0.00	7.56	4.67	0.00	4.99	0.00	0.32	0.69	1.42	2.43	0.35	2.46	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
9	3.200	20.00	0.00	1084.19	0.00	7.58	4.74	0.00	5.06	0.00	0.31	0.68	1.41	2.40	0.34	2.43	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
10	3.100	20.00	0.00	1171.43	0.00	7.59	4.95	0.00	5.27	0.00	0.31	0.67	1.39	2.37	0.33	2.40	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 2 Hwy38ToWofFortyArpentCanalV2_V3 TMDL Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
11	UPR RCH	0.02836	20.00	0.00	1171.43	0.00	7.59	4.95	0.00	5.27	0.00	0.31	0.67	1.39	0.00	3.00	0.00	0.00
EACH	INCR	0.00283	20.00	0.00	391.00	0.00	5.50	24.00	0.00			0.73	0.10	1.64	0.00	0.00	0.00	

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

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

NO.	DIST km	DIST km	m³/s	EFF	VELO m/s	TIME days	TIME days	m	m	m³	AREA m²	AREA m²	PRISM m³	VELO m/s	m²/s	VELO m/s
11	3.10	3.00	0.03119	0.2	0.00064	1.81	20.19	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
12	3.00	2.90	0.03402	0.2	0.00070	1.66	21.85	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
13	2.90	2.80	0.03685	0.2	0.00076	1.53	23.38	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
14	2.80	2.70	0.03968	0.2	0.00082	1.42	24.80	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
15	2.70	2.60	0.04251	0.1	0.00087	1.32	26.12	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
16	2.60	2.50	0.04534	0.1	0.00093	1.24	27.36	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
17	2.50	2.40	0.04817	0.1	0.00099	1.17	28.53	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
18	2.40	2.30	0.05100	0.1	0.00105	1.10	29.64	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
19	2.30	2.20	0.05383	0.1	0.00111	1.05	30.68	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
20	2.20	2.10	0.05666	0.1	0.00116	0.99	31.68	1.07	45.47	4865.29	4547.00	48.65	0.00	0.000	0.500	0.001
TOT						13.29				48652.90	45470.00					
AVG					0.0009			1.07	45.47			48.65				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
11	3.000	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
12	2.900	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
13	2.800	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
14	2.700	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
15	2.600	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
16	2.500	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
17	2.400	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
18	2.300	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
19	2.200	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
20	2.100	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.70	0.70	0.70	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.65	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.70			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
11	3.000	20.00	0.00	1265.88	0.00	7.58	5.29	0.00	5.61	0.00	0.31	0.65	1.38	2.34	0.34	2.36	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
12	2.900	20.00	0.00	1378.03	0.00	7.56	5.62	0.00	5.94	0.00	0.32	0.63	1.35	2.31	0.34	2.33	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
13	2.800	20.00	0.00	1516.05	0.00	7.51	5.96	0.00	6.28	0.00	0.33	0.61	1.32	2.27	0.36	2.29	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
14	2.700	20.00	0.00	1686.45	0.00	7.45	6.33	0.00	6.65	0.00	0.35	0.59	1.29	2.22	0.37	2.25	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
15	2.600	20.00	0.00	1897.74	0.00	7.35	6.77	0.00	7.09	0.00	0.37	0.56	1.24	2.17	0.40	2.20	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
16	2.500	20.00	0.00	2161.02	0.00	7.20	7.31	0.00	7.63	0.00	0.41	0.52	1.17	2.11	0.44	2.13	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
17	2.400	20.00	0.00	2490.89	0.00	6.96	7.99	0.00	8.31	0.00	0.46	0.48	1.09	2.03	0.49	2.06	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
18	2.300	20.00	0.00	2906.68	0.00	6.59	8.87	0.00	9.19	0.00	0.53	0.41	0.99	1.94	0.56	1.96	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
19	2.200	20.00	0.00	3434.07	0.00	6.01	10.05	0.00	10.37	0.00	0.63	0.33	0.86	1.82	0.65	1.85	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00
20	2.100	20.00	0.00	4107.43	0.00	5.08	11.64	0.00	11.96	0.00	0.76	0.22	0.70	1.67	0.78	1.70	0.00	0.00	0.00	0.00	0.00	3.0	0.0	0.	0.00

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 3 WofFortyArpentCanalToV4 TMDL Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
21	UPR RCH	0.05666	20.00	0.00	4107.43	0.00	5.08	11.64	0.00	11.96	0.00	0.76	0.22	0.70	0.00	3.00	0.00	0.00
EACH	INCR	-0.00283																

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	CUM 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
21	2.10	2.00	0.05383	0.1	0.00094	1.23	32.91	1.07	53.45	5719.15	5345.00	57.19	587.95	0.000	20.000	0.001
22	2.00	1.90	0.05100	0.1	0.00089	1.30	34.20	1.07	53.45	5719.15	5345.00	57.19	1175.90	0.001	20.000	0.001
23	1.90	1.80	0.04817	0.1	0.00084	1.37	35.58	1.07	53.45	5719.15	5345.00	57.19	1763.85	0.001	20.000	0.002

24	1.80	1.70	0.04534	0.1	0.00079	1.46	37.04	1.07	53.45	5719.15	5345.00	57.19	2351.80	0.002	20.000	0.002
25	1.70	1.60	0.04251	0.1	0.00074	1.56	38.60	1.07	53.45	5719.15	5345.00	57.19	2939.75	0.002	20.000	0.002
26	1.60	1.50	0.03968	0.1	0.00069	1.67	40.26	1.07	53.45	5719.15	5345.00	57.19	3527.70	0.003	20.000	0.003
27	1.50	1.40	0.03685	0.1	0.00064	1.80	42.06	1.07	53.45	5719.15	5345.00	57.19	4115.65	0.003	20.000	0.003
28	1.40	1.30	0.03402	0.1	0.00059	1.95	44.01	1.07	53.45	5719.15	5345.00	57.19	4703.60	0.004	20.000	0.004
29	1.30	1.20	0.03119	0.1	0.00055	2.12	46.13	1.07	53.45	5719.15	5345.00	57.19	5291.55	0.004	20.000	0.004
30	1.20	1.10	0.02836	0.1	0.00050	2.33	48.46	1.07	53.45	5719.15	5345.00	57.19	5879.50	0.005	20.000	0.005
TOT						16.79				57191.50	53450.00					
AVG					0.0007			1.07	53.45			57.19				

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
21	2.000	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00
22	1.900	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00
23	1.800	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00
24	1.700	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00
25	1.600	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00
26	1.500	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00
27	1.400	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00
28	1.300	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00
29	1.200	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
30	1.100	9.09	0.65	0.05	0.09	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.65	0.05	0.01	0.00	0.00	0.00	0.00	0.00	1.68			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
21	2.000	20.00	0.00	4143.48	0.00	5.02	11.73	0.00	12.06	0.00	0.77	0.21	0.69	1.66	0.79	1.69	0.00	0.00	0.00	0.00	0.00	3.1	0.0	0.	0.00
22	1.900	20.00	0.00	4162.07	0.00	4.98	11.79	0.00	12.13	0.00	0.77	0.20	0.69	1.66	0.80	1.69	0.00	0.00	0.00	0.00	0.00	3.2	0.0	0.	0.00
23	1.800	20.00	0.00	4180.74	0.00	4.94	11.85	0.00	12.21	0.00	0.77	0.20	0.68	1.66	0.80	1.68	0.00	0.00	0.00	0.00	0.00	3.3	0.0	0.	0.00
24	1.700	20.00	0.00	4199.50	0.00	4.90	11.93	0.00	12.29	0.00	0.78	0.20	0.68	1.65	0.81	1.68	0.00	0.00	0.00	0.00	0.00	3.4	0.0	0.	0.00
25	1.600	20.00	0.00	4218.34	0.00	4.85	12.02	0.00	12.39	0.00	0.79	0.19	0.67	1.65	0.82	1.68	0.00	0.00	0.00	0.00	0.00	3.5	0.0	0.	0.00
26	1.500	20.00	0.00	4237.25	0.00	4.80	12.12	0.00	12.50	0.00	0.79	0.18	0.67	1.65	0.82	1.68	0.00	0.00	0.00	0.00	0.00	3.6	0.0	0.	0.00
27	1.400	20.00	0.00	4256.23	0.00	4.74	12.22	0.00	12.62	0.00	0.80	0.18	0.66	1.64	0.83	1.67	0.00	0.00	0.00	0.00	0.00	3.7	0.0	0.	0.00
28	1.300	20.00	0.00	4275.28	0.00	4.68	12.34	0.00	12.75	0.00	0.81	0.17	0.66	1.64	0.84	1.67	0.00	0.00	0.00	0.00	0.00	3.8	0.0	0.	0.00
29	1.200	20.00	0.00	4294.39	0.00	4.61	12.47	0.00	12.89	0.00	0.82	0.16	0.66	1.63	0.85	1.67	0.00	0.00	0.00	0.00	0.00	3.9	0.0	0.	0.00
30	1.100	20.00	0.00	4313.56	0.00	4.54	12.61	0.00	13.04	0.00	0.83	0.15	0.65	1.63	0.86	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00

FINAL REPORT Violet-1 LA-QUAL Model for Violet Canal
REACH NO. 4 V4ToV5endofsubseg TMDL Simulation

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

ELEM NO.	TYPE	FLOW	TEMP deg C	SALN ppt	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	PO4-P mg/L	CHL A µg/L	COLI #/100mL	NCM
31	UPR RCH	0.02836	20.00	0.00	4313.56	0.00	4.54	12.61	0.00	13.04	0.00	0.83	0.15	0.65	0.00	4.00	0.00	0.00
EACH	INCR	-0.00257																

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

ELEM NO.	BEGIN DIST km	ENDING DIST km	FLOW m³/s	PCT EFF	ADVCTV VELO m/s	TRAVEL TIME days	CUM TIME days	DEPTH m	WIDTH m	VOLUME m³	SURFACE AREA m²	X-SECT AREA m²	TIDAL PRISM m³	TIDAL VELO m/s	DISPRSN m²/s	MEAN VELO m/s
31	1.10	1.00	0.02579	0.1	0.00039	2.96	51.42	0.95	69.49	6601.55	6949.00	66.02	7408.28	0.005	50.000	0.005
32	1.00	0.90	0.02321	0.1	0.00035	3.29	54.72	0.95	69.49	6601.55	6949.00	66.02	8937.06	0.006	50.000	0.006
33	0.90	0.80	0.02064	0.1	0.00031	3.70	58.42	0.95	69.49	6601.55	6949.00	66.02	10465.84	0.007	50.000	0.007
34	0.80	0.70	0.01807	0.1	0.00027	4.23	62.65	0.95	69.49	6601.55	6949.00	66.02	11994.62	0.008	50.000	0.008
35	0.70	0.60	0.01550	0.1	0.00023	4.93	67.58	0.95	69.49	6601.55	6949.00	66.02	13523.40	0.009	50.000	0.009
36	0.60	0.50	0.01292	0.1	0.00020	5.91	73.49	0.95	69.49	6601.55	6949.00	66.02	15052.18	0.011	50.000	0.011
37	0.50	0.40	0.01035	0.1	0.00016	7.38	80.87	0.95	69.49	6601.55	6949.00	66.02	16580.96	0.012	50.000	0.012
38	0.40	0.30	0.00778	0.1	0.00012	9.82	90.69	0.95	69.49	6601.55	6949.00	66.02	18109.74	0.013	50.000	0.013
39	0.30	0.20	0.00521	0.1	0.00008	14.68	105.37	0.95	69.49	6601.55	6949.00	66.02	19638.52	0.014	50.000	0.014

40	0.20	0.10	0.00263	0.1	0.00004	29.02	134.39	0.95	69.49	6601.55	6949.00	66.02	21167.30	0.015	50.000	0.015									
41	0.10	0.00	0.00006	0.1	0.00000	1273.44	1407.83	0.95	69.49	6601.55	6949.00	66.02	22696.08	0.016	50.000	0.016									
TOT						1359.37				72617.05	76439.00														
AVG					0.0000			0.95	69.49			66.02													

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

ELEM NO.	ENDING DIST	SAT D.O. mg/L	REAER RATE 1/da	BOD1 DECAY 1/da	BOD1 SETT 1/da	ABOD1 DECAY 1/da	BOD1 HYDR 1/da	BOD2 DECAY 1/da	BOD2 SETT 1/da	ABOD2 DECAY 1/da	BKGD SOD *	FULL SOD *	CORR SOD *	ORG-N HYDR 1/da	ORG-N SETT 1/da	NH3-N DECAY 1/da	NH3-N SRCE *	DENIT RATE 1/da	ORG-P HYDR 1/da	ORG-P SETT 1/da	PO4 SRCE *	PHYTO PROD **	PERIP PROD **	COLI DECAY 1/da	NCM DECAY 1/da	NCM SETT 1/da
31	1.000	9.09	0.74	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
32	0.900	9.09	0.74	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
33	0.800	9.09	0.74	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
34	0.700	9.09	0.74	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
35	0.600	9.09	0.74	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
36	0.500	9.09	0.74	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
37	0.400	9.09	0.74	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
38	0.300	9.09	0.74	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
39	0.200	9.09	0.74	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
40	0.100	9.09	0.74	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
41	0.000	9.09	0.74	0.05	0.11	0.00	0.00	0.00	0.00	0.00	1.68	1.68	1.68	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
AVG 20 DEG C RATE			0.74	0.05	0.01	0.00	0.00	0.00	0.00	0.00	1.68			0.12	0.00	0.02	0.00	0.02	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	Conduct umhos/cm	CM-2	DO mg/L	BOD1 mg/L	BOD2 mg/L	EBOD1 mg/L	EBOD2 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	TOT-N mg/L	EORG-N mg/L	ETOT-N mg/L	ORG-P mg/L	PO4-P mg/L	TOT-P mg/L	EORG-P mg/L	ETOT-P mg/L	CHL A µg/L	PERIP g/m²	COLI #/100mL	NCM
31	1.000	20.00	0.00	4323.45	0.00	4.50	12.69	0.00	13.12	0.00	0.83	0.15	0.65	1.63	0.86	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
32	0.900	20.00	0.00	4330.12	0.00	4.47	12.75	0.00	13.17	0.00	0.83	0.15	0.65	1.63	0.87	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
33	0.800	20.00	0.00	4336.79	0.00	4.43	12.81	0.00	13.23	0.00	0.84	0.14	0.65	1.63	0.87	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
34	0.700	20.00	0.00	4343.47	0.00	4.40	12.87	0.00	13.30	0.00	0.84	0.14	0.64	1.62	0.88	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
35	0.600	20.00	0.00	4350.15	0.00	4.36	12.94	0.00	13.37	0.00	0.85	0.13	0.64	1.62	0.88	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
36	0.500	20.00	0.00	4356.84	0.00	4.32	13.02	0.00	13.45	0.00	0.85	0.13	0.64	1.62	0.88	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
37	0.400	20.00	0.00	4363.53	0.00	4.27	13.10	0.00	13.53	0.00	0.86	0.13	0.64	1.62	0.89	1.66	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
38	0.300	20.00	0.00	4370.22	0.00	4.22	13.19	0.00	13.61	0.00	0.86	0.12	0.64	1.62	0.89	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
39	0.200	20.00	0.00	4376.91	0.00	4.17	13.27	0.00	13.70	0.00	0.87	0.12	0.64	1.62	0.90	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
40	0.100	20.00	0.00	4383.61	0.00	4.12	13.37	0.00	13.80	0.00	0.87	0.11	0.64	1.62	0.91	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00
41	0.000	20.00	0.00	4390.30	0.00	4.06	13.47	0.00	13.90	0.00	0.88	0.11	0.63	1.62	0.91	1.65	0.00	0.00	0.00	0.00	0.00	4.0	0.0	0.	0.00

LA-QUAL Model for Violet Canal
TMDL Simulation

REACH SUMMARY REPORT: Violet-1

RCH NO.	REACH NAME	BEGIN DIST km	ENDING DIST km	REACH LENGTH km	TRAVEL TIME days	FLOW AT RCH END m3/s	AVG VELO m/s	AVG DEPTH m	AVG WIDTH m	FLOW AT RCH END cfs	AVG VELO fps	AVG DEPTH ft	AVG WIDTH ft
1	MissSiphonToHwy38V1_V2	4.10	3.10	1.00	18.39	0.02836	0.00063	1.680	26.82	1.001	0.002	5.512	88.00
2	Hwy38ToWofFortyArpentCanalV2_V3	3.10	2.10	1.00	13.29	0.05666	0.00087	1.070	45.47	2.001	0.003	3.511	149.19
3	WofFortyArpentCanalToV4	2.10	1.10	1.00	16.79	0.02836	0.00069	1.070	53.45	1.001	0.002	3.511	175.37
4	V4ToV5endofsubseg	1.10	0.00	1.10	1359.37	0.00006	0.00001	0.950	69.49	0.002	0.000	3.117	228.00

LA-QUAL Model for Violet Canal
TMDL Simulation

STREAM SUMMARY REPORT: Violet-1

TRAVEL TIME = 1407.83 DAYS
MAXIMUM EFFLUENT = 0.21 PERCENT

FLOW	=	0.00006	TO	0.05666	m³/s
DISPERSION	=	0.5000	TO	50.0000	m²/s
VELOCITY	=	0.00000	TO	0.00116	m/s
DEPTH	=	0.95	TO	1.68	m
WIDTH	=	26.82	TO	69.49	m
BOD DECAY	=	0.05	TO	0.05	per day

NH3 DECAY	=	0.02	TO	0.02	per day
SOD	=	0.70	TO	1.68	g/m²/d
NH3 SED SOURCE	=	0.00	TO	0.00	g/m²/d
PO4 SED SOURCE	=	0.00	TO	0.00	g/m²/d
REAERATION	=	0.42	TO	0.74	per day
BOD SETTLING	=	0.06	TO	0.11	per day
ORG-N DECAY	=	0.12	TO	0.12	per day
ORG-N SETTLING	=	0.00	TO	0.00	per day
TEMPERATURE	=	20.00	TO	20.00	deg C
DISSOLVED OXYGEN	=	4.06	TO	7.59	mg/L

LA-QUAL Model for Violet Canal
TMDL Simulation

INPUT/OUTPUT LOADING SUMMARY

	FLOW m³/s	DO kg/d	BOD1 kg/d	BOD2 kg/d	ORG-N kg/d	NH3-N kg/d	NO3-N kg/d	ORG-P kg/d	PO4-P kg/d	CHL A	PERIP	NCM
HEADWATER FLOW	0.02830	12.71	31.00	0.00	2.87	0.24	3.55	0.00	0.00	0.00		0.00
INCREMENTAL INFLOW	0.02830	13.45	58.68	0.00	1.78	0.24	4.01	0.00	0.00	0.00		0.00
INCREMENTAL OUTFLOW	-0.05660	-22.27	-61.50	0.00	-4.02	-0.77	-3.21	0.00	0.00	0.00		0.00
WASTELOADS	0.00006	0.01	0.54	0.00	0.04	0.08	0.01	0.00	0.00	0.00		0.00
WITHDRAWLS	0.00000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
FLOW THRU LOWER BNDRY	-0.00006	-0.02	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
DISPERSION THRU LOWER BNDRY		-173.51	297.03	0.00	17.01	-16.13	-3.77	0.00	0.00	0.00		0.00
DISPERSION THRU HDWTR BNDRY		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
NON-POINT INPUT		0.00	0.00	0.00	0.00			0.00				0.00
NATURAL REAERATION		517.99										
DAM REAERATION		0.00										
SOD BACKGROUND		-268.82										
BOD1 DECAY		-112.46	-112.46									
BOD1 SETTLING		0.00	-213.22									
ANAEROBIC BOD1 DECAY			0.00									
BOD2 DECAY		0.00		0.00								
BOD2 SETTLING		0.00		0.00								
ANAEROBIC BOD2 DECAY				0.00								
BOD2 HYDROLYSIS			0.00	0.00								
ORG-N DECAY		0.00			-17.68	17.68						
ORG-N SETTLING					0.00	0.00						
NH3-N DECAY (NITRIFICATION)		-5.98				-1.38	1.38					
NH3-N BACKGROUND SEDIMENT SOURCE						0.00						
DENITRIFICATION			0.00				0.00					
ORG-P HYDROLYSIS								0.00	0.00			
ORG-P SETTLING								0.00	0.00			
PO4-P BACKGROUND SEDIMENT SOURCE									0.00			
PHYTOPLANKTON GROWTH/PHOTOSYNTHESIS		38.73				0.00	-1.94		0.00	0.00		
PHYTOPLANKTON RESPIRATION/EXCRETION		0.00				0.00			0.00	0.00		
PHYTOPLANKTON SETTLING		0.00				0.00			0.00	0.00		
PHYTOPLANKTON DEATH			0.00	0.00	0.00			0.00		0.00		
PERIPHYTON GROWTH/PHOTOSYNTHESIS		0.00				0.00	0.00		0.00		0.00	
PERIPHYTON RESPIRATION/EXCRETION		0.00				0.00			0.00		0.00	
PERIPHYTON DEATH			0.00	0.00	0.00			0.00			0.00	
NCM DECAY		0.00										0.00
NCM SETTLING		0.00										0.00
TOTAL INPUTS	0.05666	582.90	387.25	0.00	21.71	18.25	8.95	0.00	0.00	0.00	0.00	0.00
TOTAL OUTPUTS	-0.05666	-583.05	-387.25	0.00	-21.71	-18.28	-8.91	0.00	0.00	0.00	0.00	0.00
NET CONVERGENCE ERROR	0.00000	-0.15	0.00	0.00	0.00	-0.03	0.03	0.00	0.00	0.00	0.00	0.00

.....EXECUTION COMPLETED

APPENDIX J:
Baseline Water Quality Plots

Figure J-1. Summer DO baseline results for subsegment 041805. ..... J-1
Figure J-2. Summer $CBOD_u$ baseline results for subsegment 041805. ..... J-1
Figure J-3. Summer ammonia baseline results for subsegment 041805. ..... J-2
Figure J-4. Summer organic nitrogen baseline results for subsegment 041805. ..... J-2
Figure J-5. Summer nitrate+nitrite baseline results for subsegment 041805. ..... J-3
Figure J-6. Winter DO baseline results for subsegment 041805. ..... J-3
Figure J-7. Winter $CBOD_u$ baseline results for subsegment 041805. ..... J-4
Figure J-8. Winter ammonia baseline results for subsegment 041805. ..... J-4
Figure J-9. Winter organic nitrogen baseline results for subsegment 041805. ..... J-5
Figure J-10. Winter nitrate+nitrite baseline results for subsegment 041805. ..... J-5

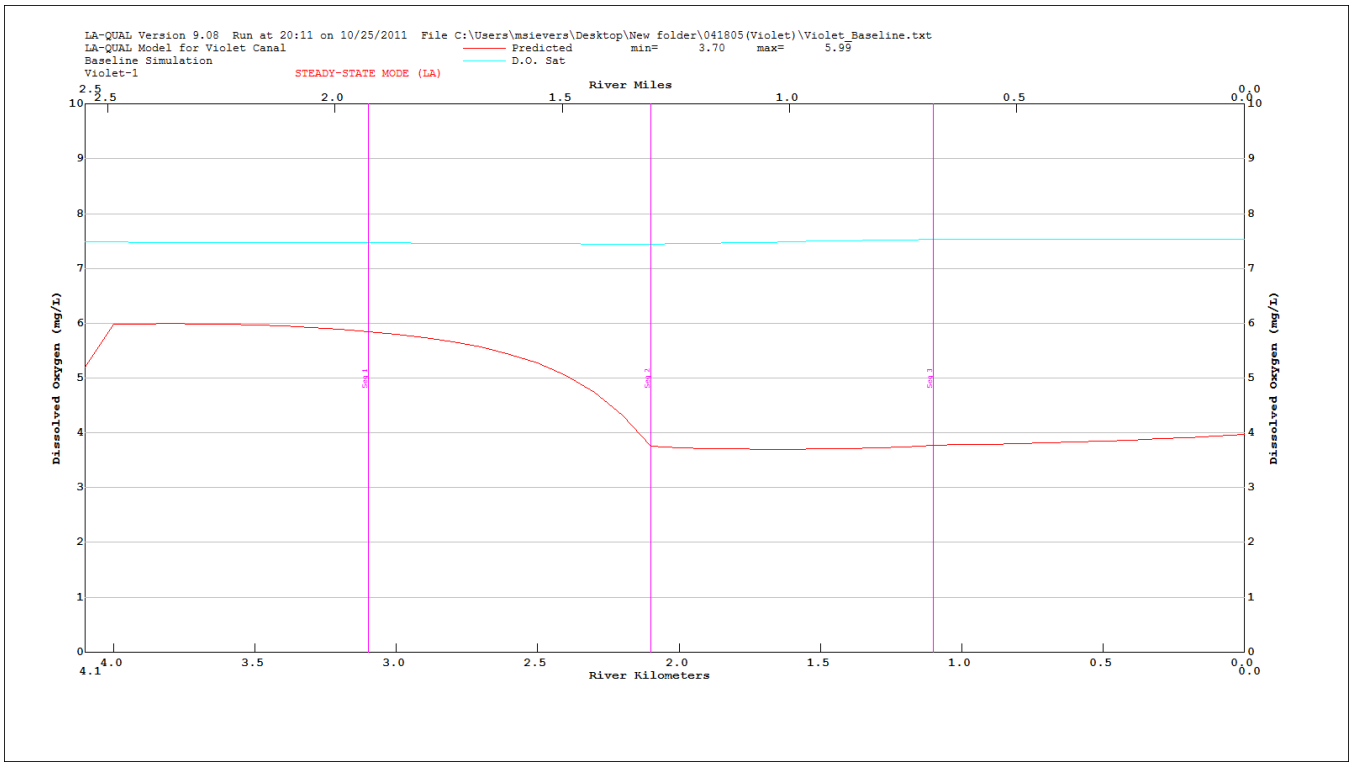

Figure J-1. Summer DO baseline results for subsegment 041805.

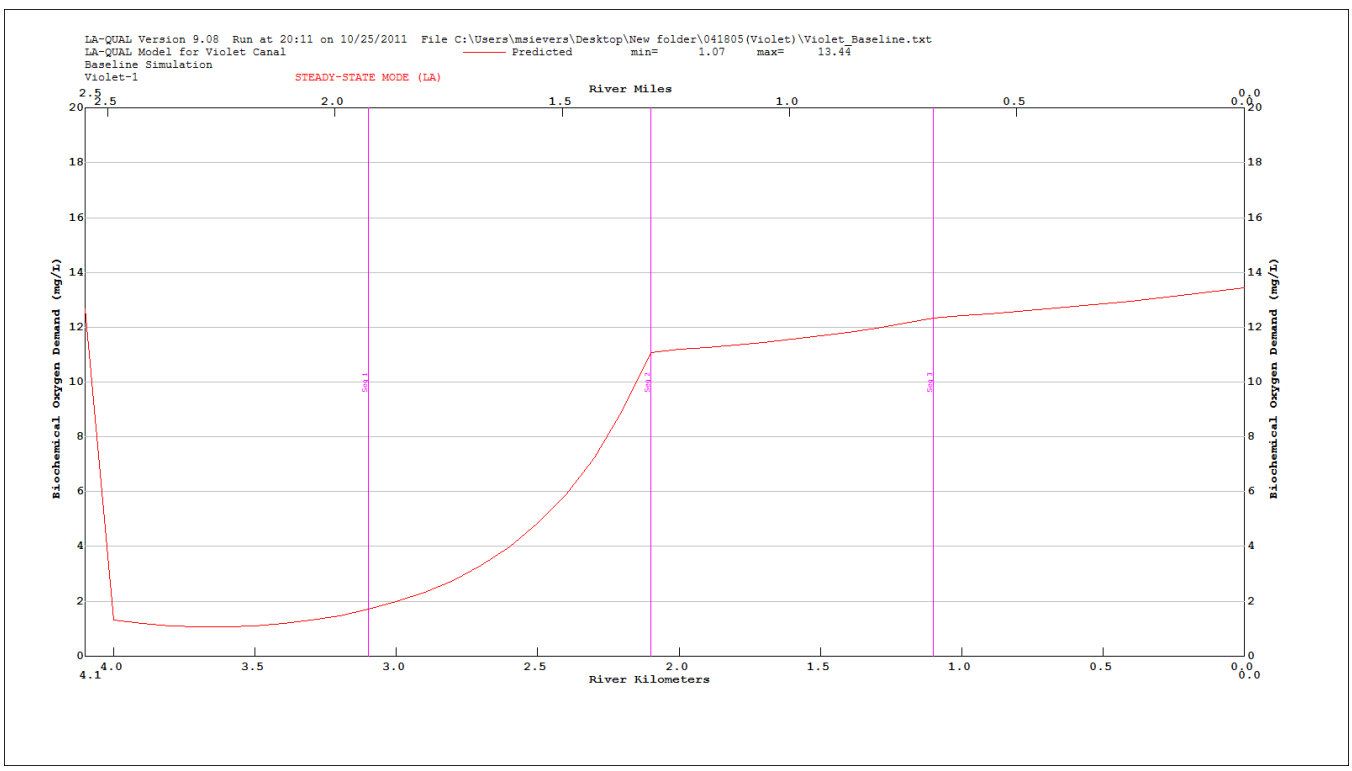

Figure J-2. Summer $CBOD_u$ baseline results for subsegment 041805.

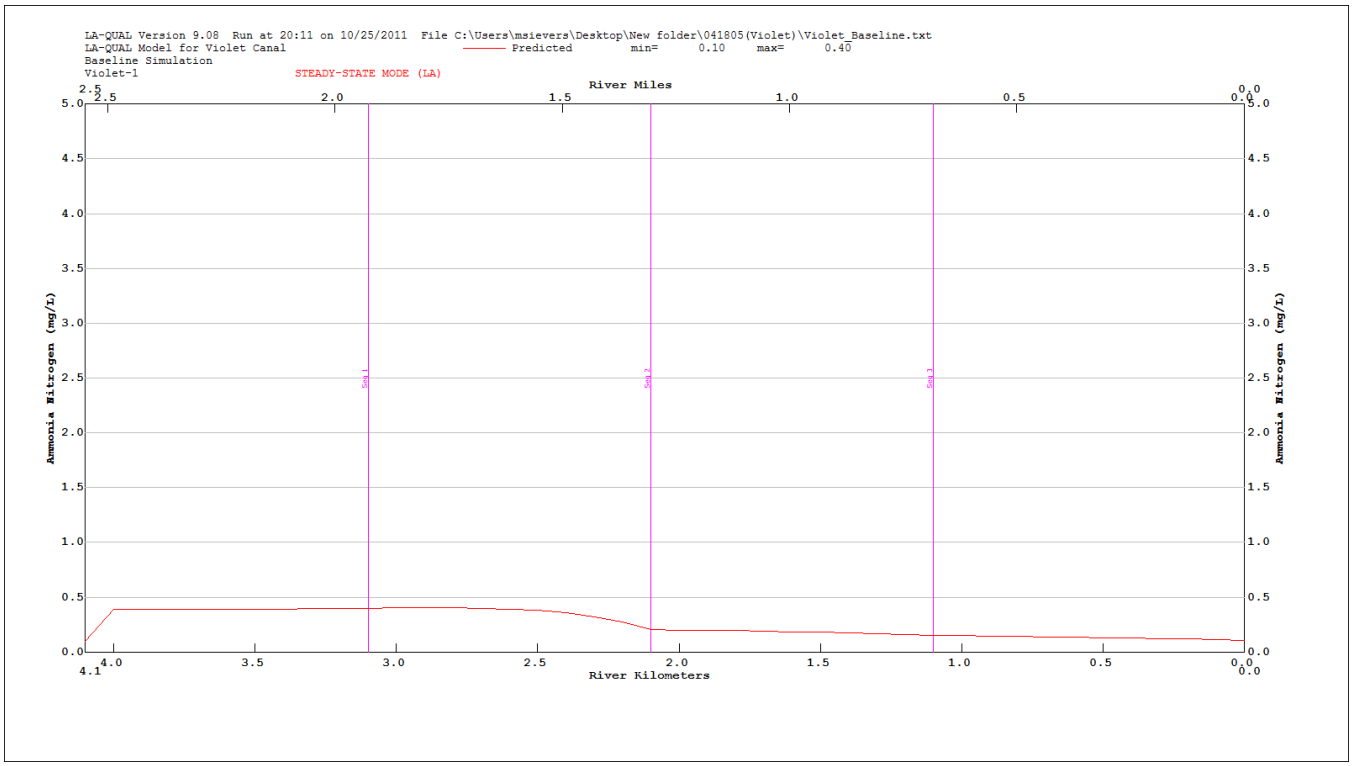

Figure J-3. Summer ammonia baseline results for subsegment 041805.

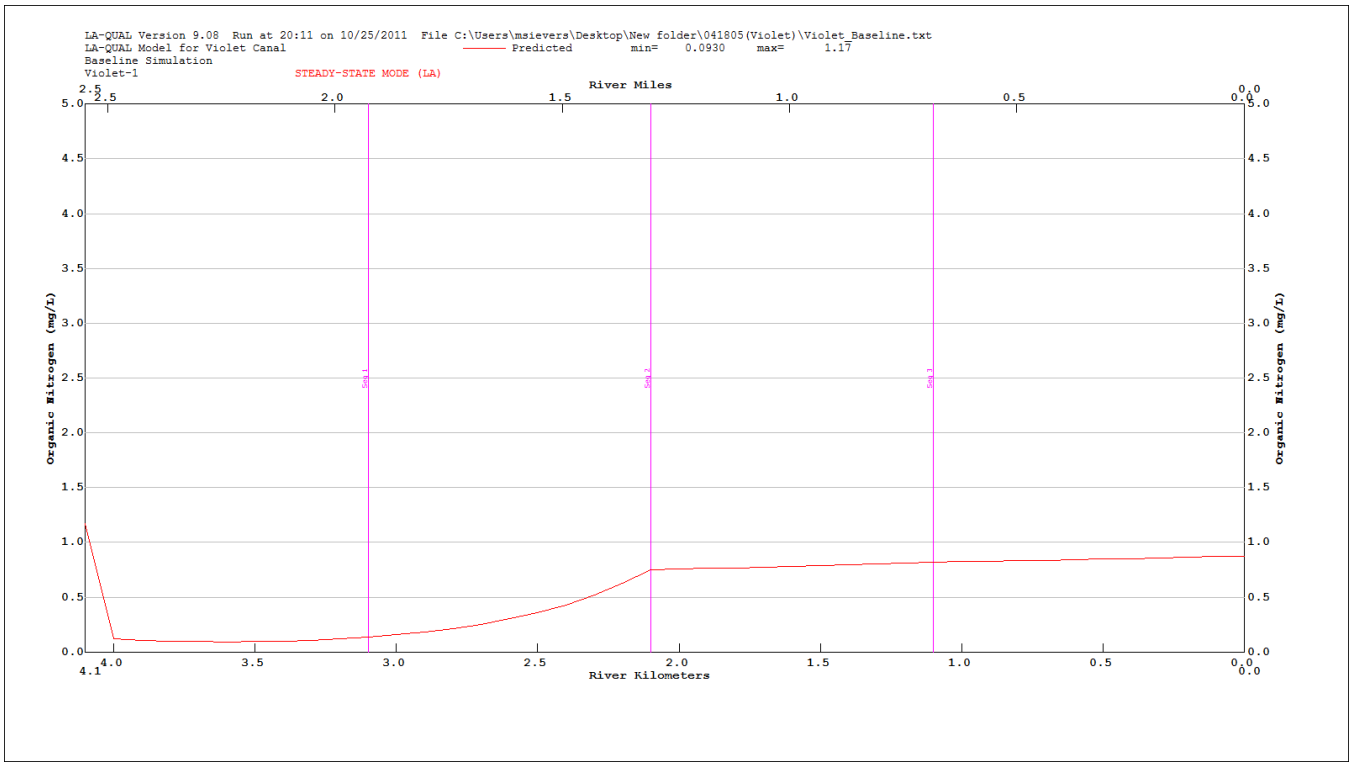

Figure J-4. Summer organic nitrogen baseline results for subsegment 041805.

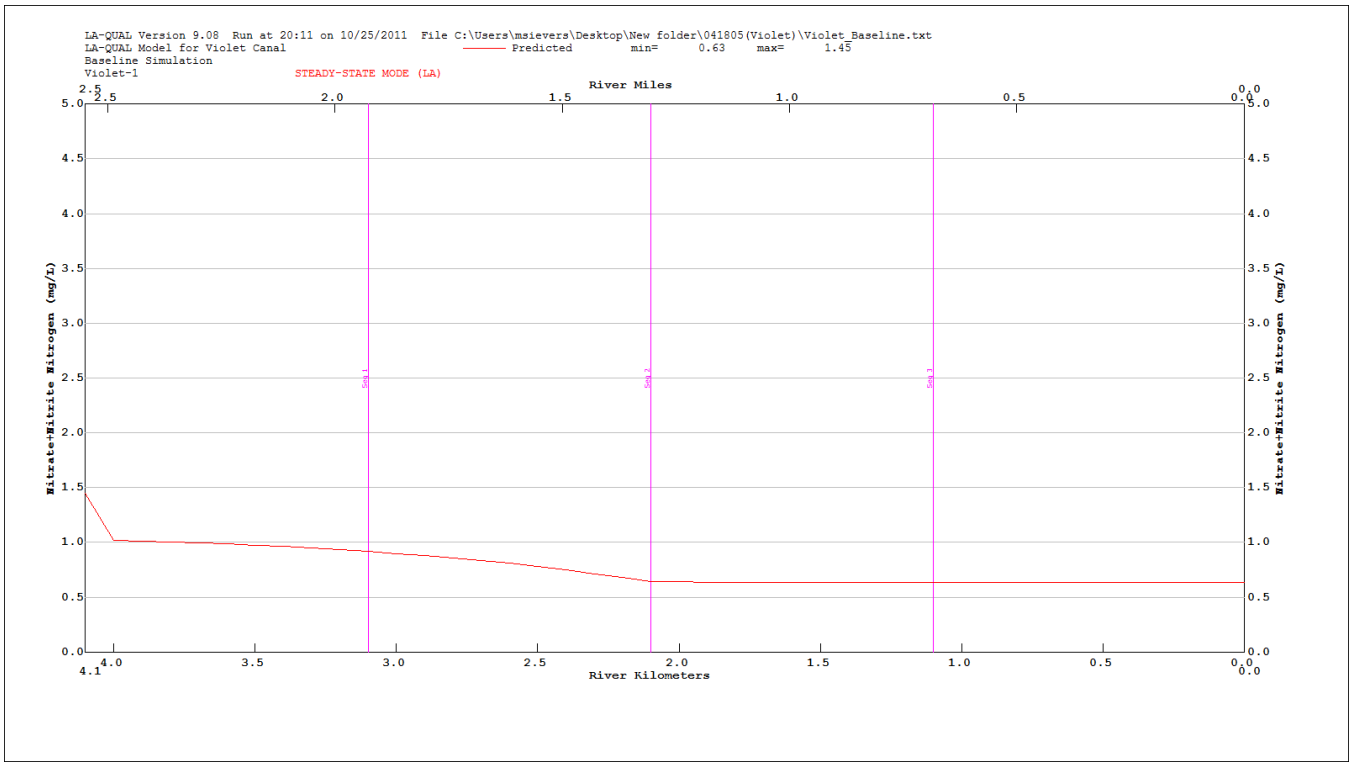

Figure J-5. Summer nitrate+nitrite baseline results for subsegment 041805.

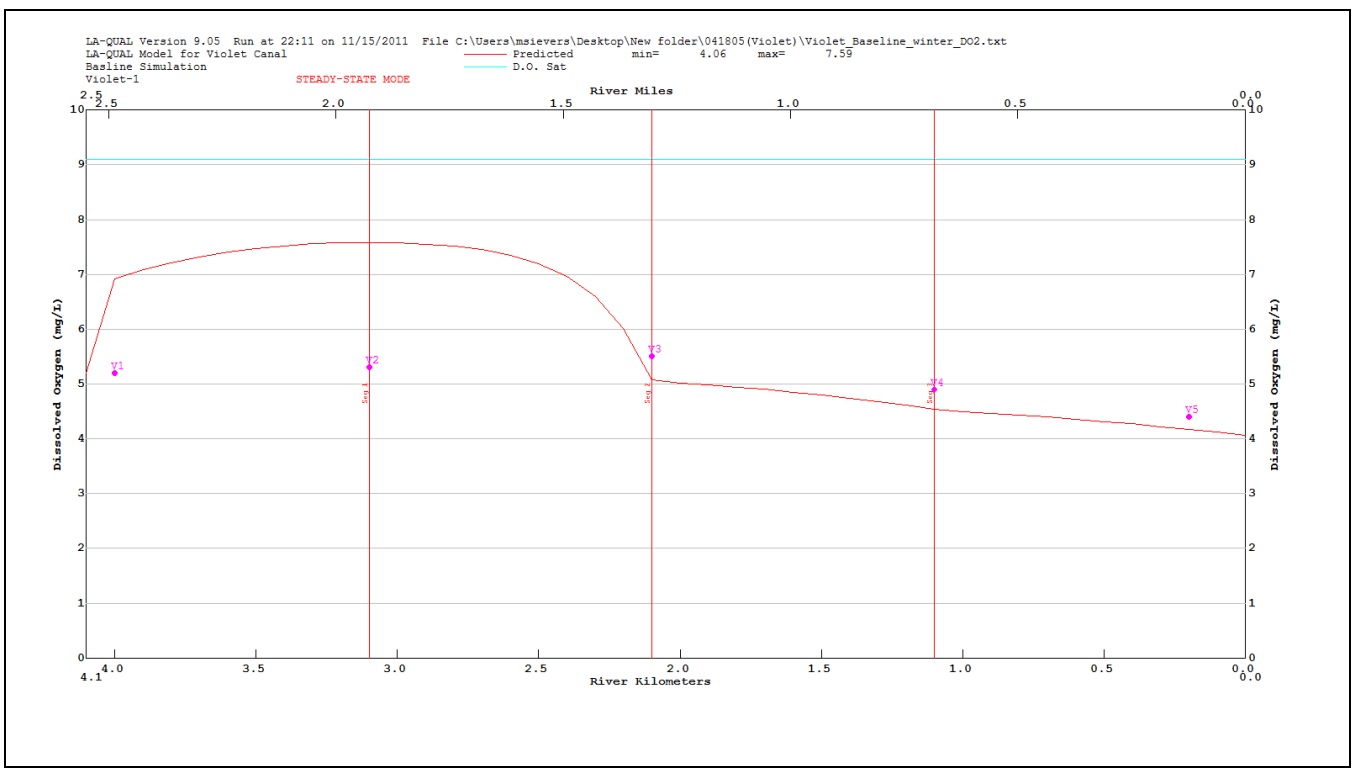

Figure J-6. Winter DO baseline results for subsegment 041805.

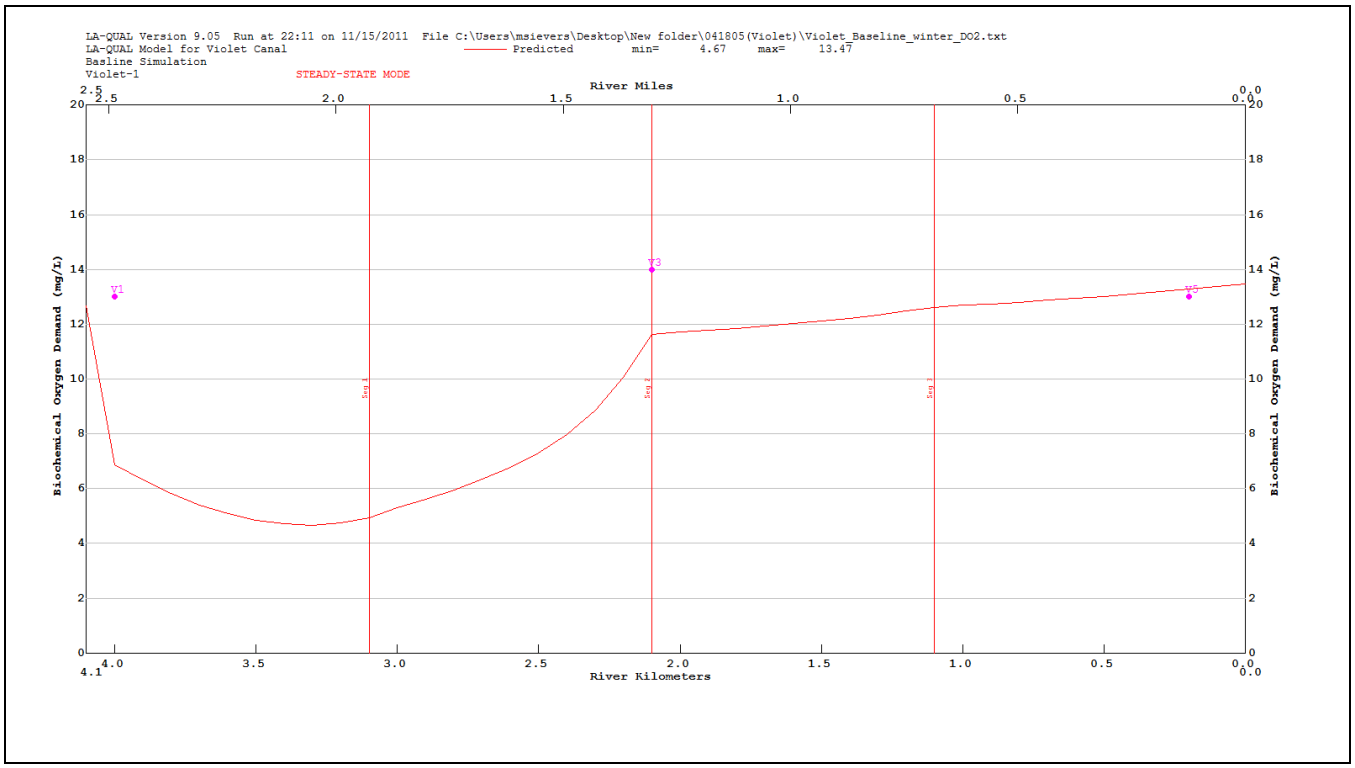

Figure J-7. Winter $CBOD_u$ baseline results for subsegment 041805.

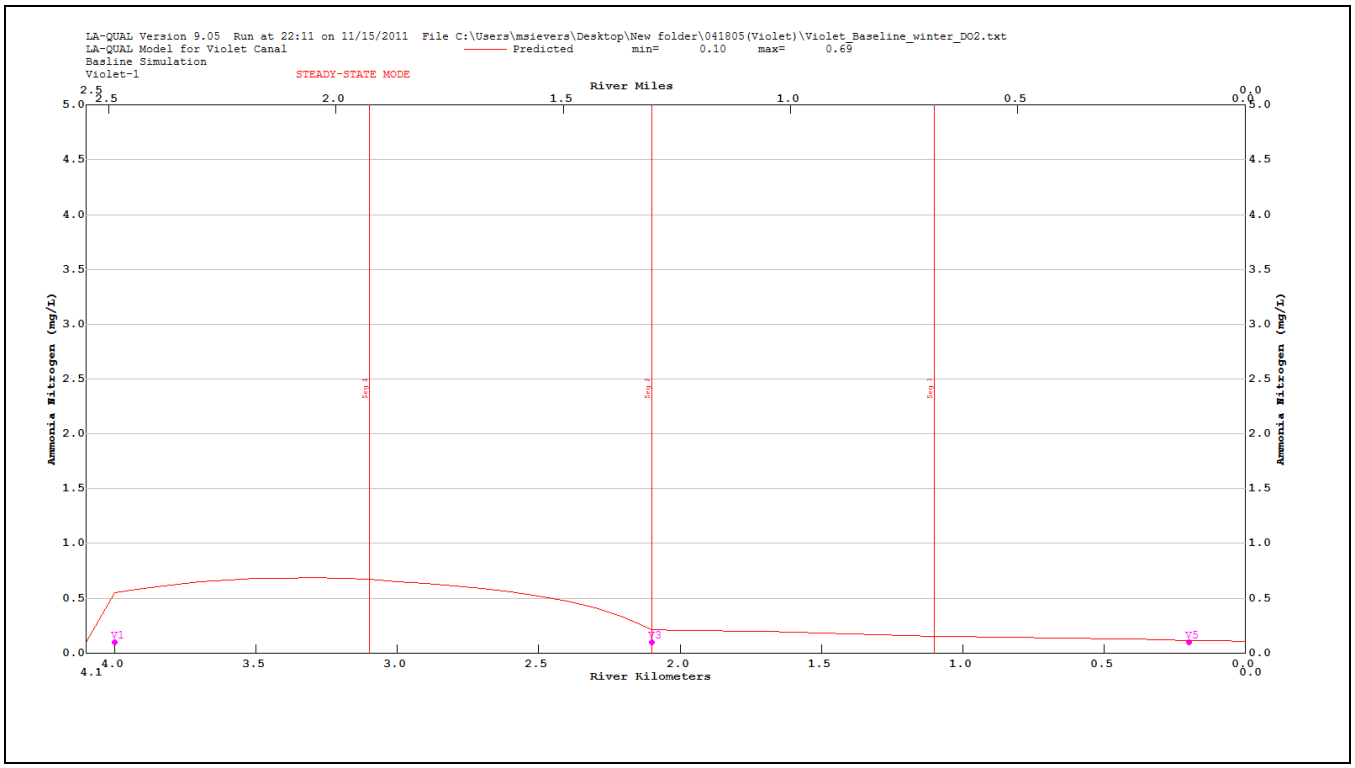

Figure J-8. Winter ammonia baseline results for subsegment 041805.

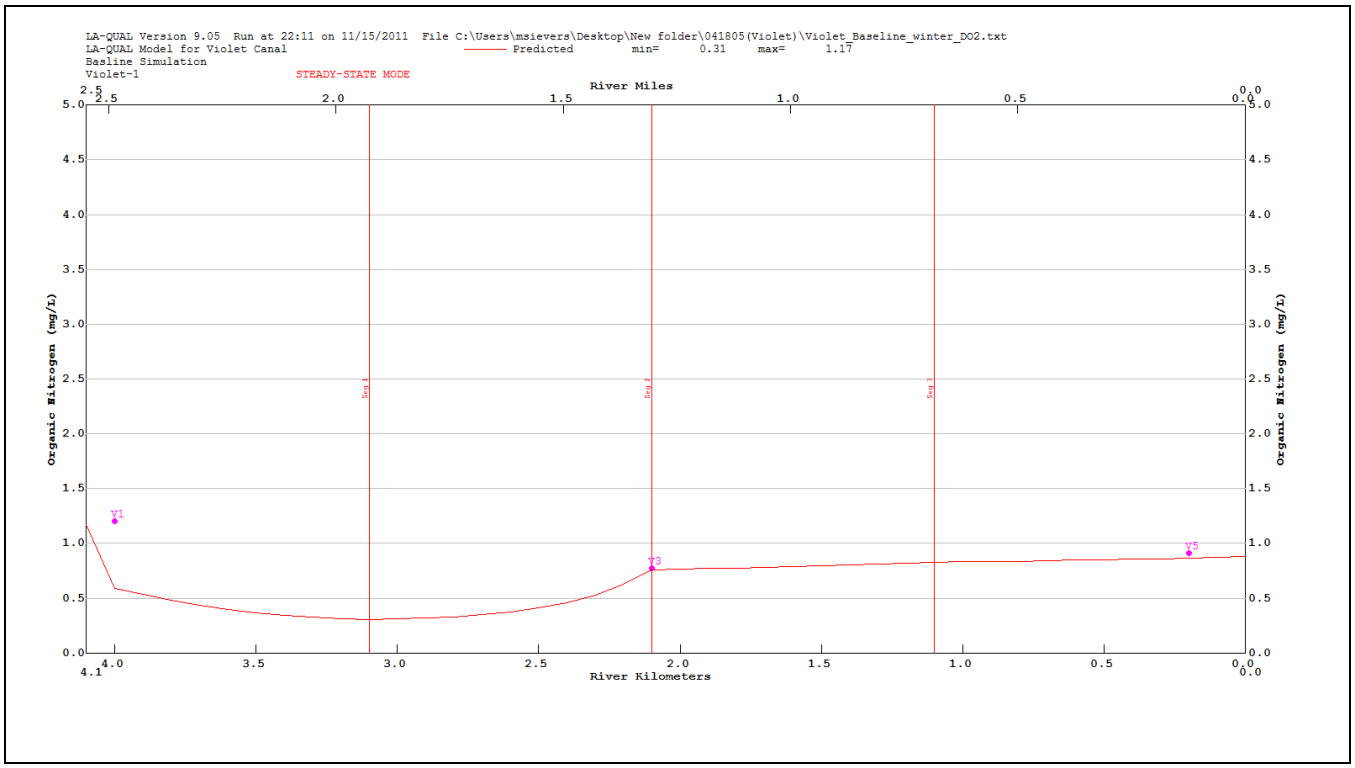

Figure J-9. Winter organic nitrogen baseline results for subsegment 041805.

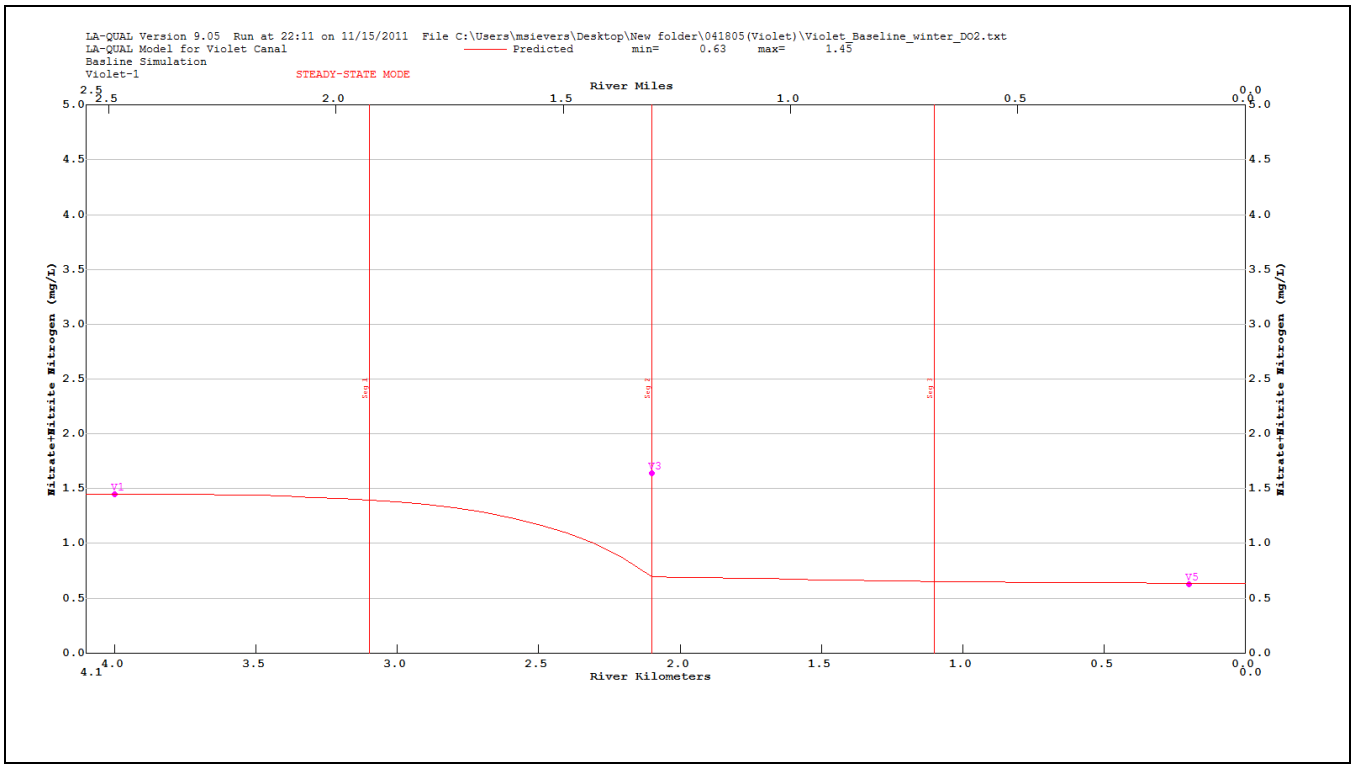

Figure J-10. Winter nitrate+nitrite baseline results for subsegment 041805.

APPENDIX K:
TMDL Water Quality Plots

Figure K-1. Summer DO TMDL results for subsegment 041805. .....K-1
Figure K-2. Summer $CBOD_u$ TMDL results for subsegment 041805. .....K-1
Figure K-3. Summer ammonia TMDL results for subsegment 041805. .....K-2
Figure K-4. Summer organic nitrogen TMDL results for subsegment 041805. .....K-2
Figure K-5. Summer nitrate+nitrite TMDL results for subsegment 041805. .....K-3
Figure K-6. Winter DO TMDL results for subsegment 041805. .....K-3
Figure K-7. Winter $CBOD_u$ TMDL results for subsegment 041805. .....K-4
Figure K-8. Winter ammonia TMDL results for subsegment 041805. .....K-4
Figure K-9. Winter organic nitrogen TMDL results for subsegment 041805. .....K-5
Figure K-10. Winter nitrate+nitrite TMDL results for subsegment 041805. .....K-5

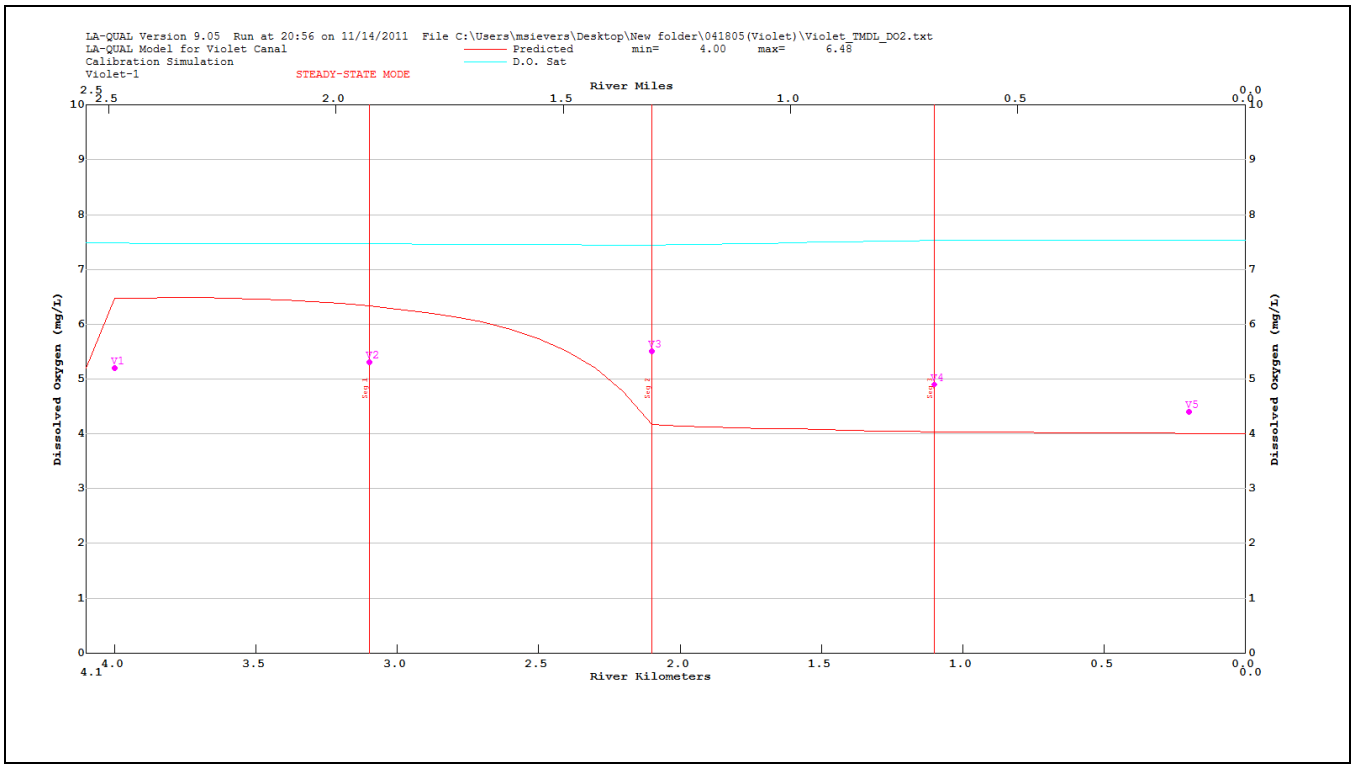

Figure K-1. Summer DO TMDL results for subsegment 041805.

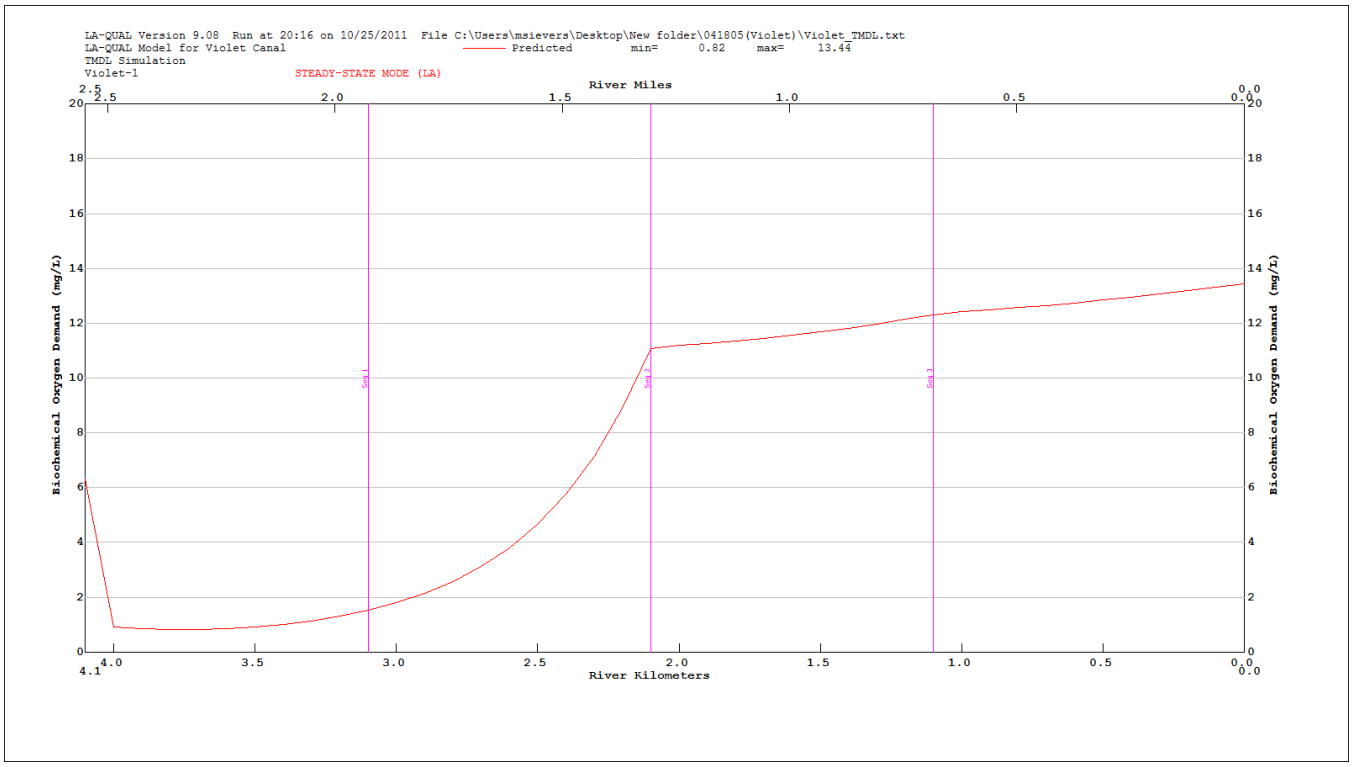

Figure K-2. Summer $CBOD_u$ TMDL results for subsegment 041805.

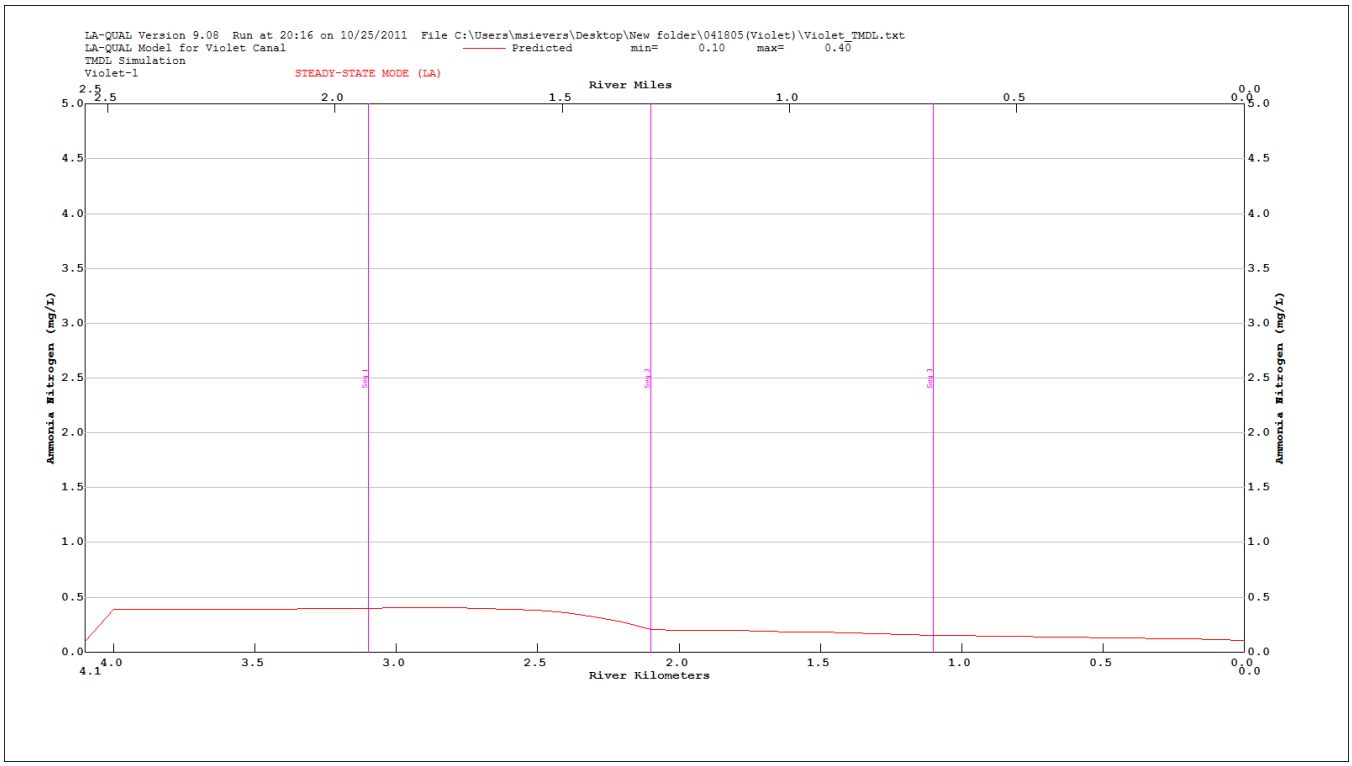

Figure K-3. Summer ammonia TMDL results for subsegment 041805.

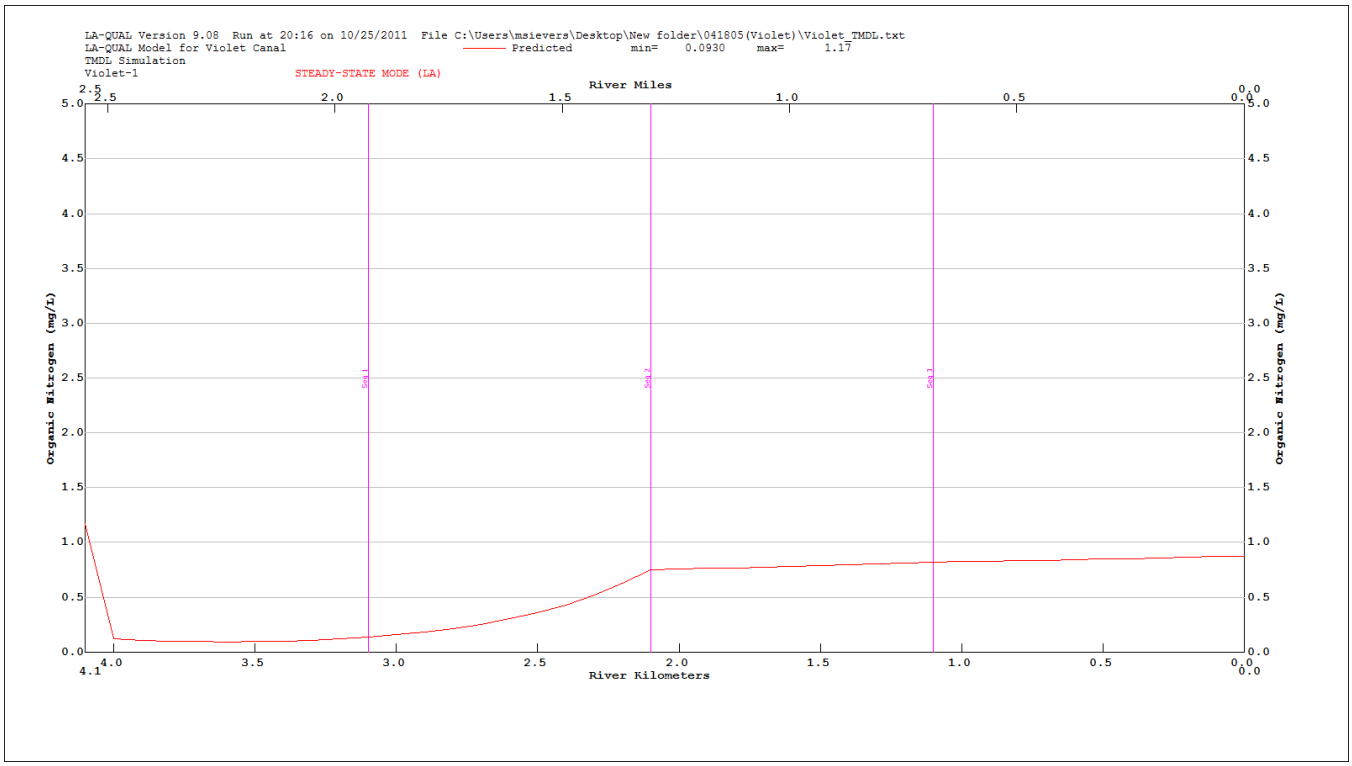

Figure K-4. Summer organic nitrogen TMDL results for subsegment 041805.

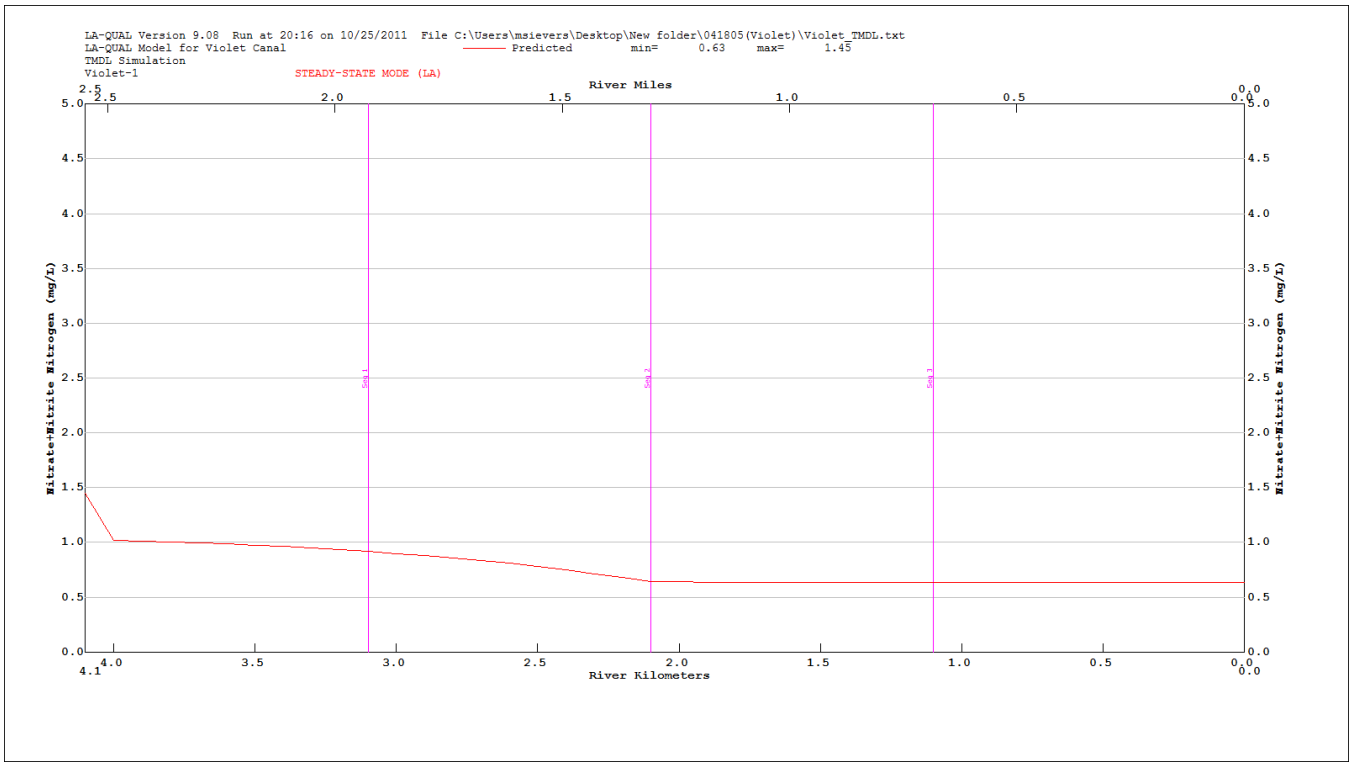

Figure K-5. Summer nitrate+nitrite TMDL results for subsegment 041805.

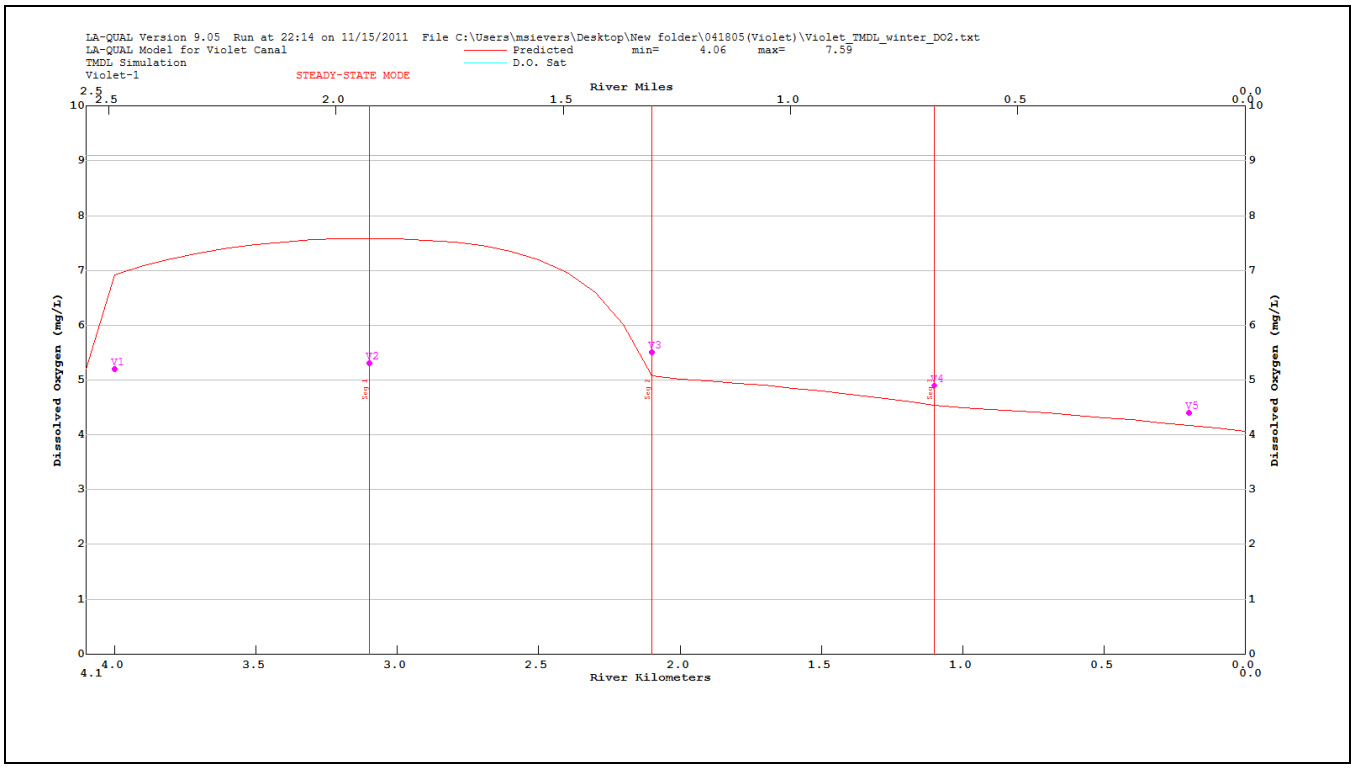

Figure K-6. Winter DO TMDL results for subsegment 041805.

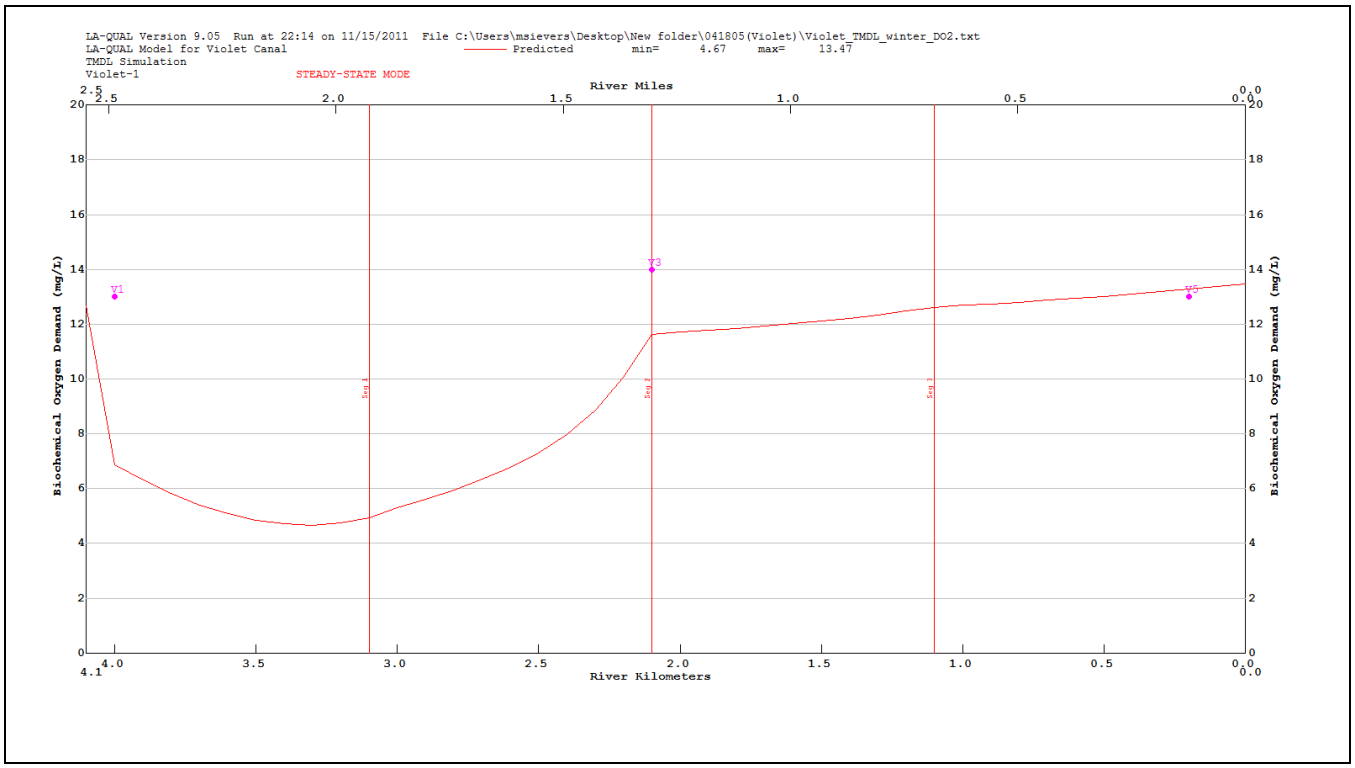

Figure K-7. Winter $CBOD_u$ TMDL results for subsegment 041805.

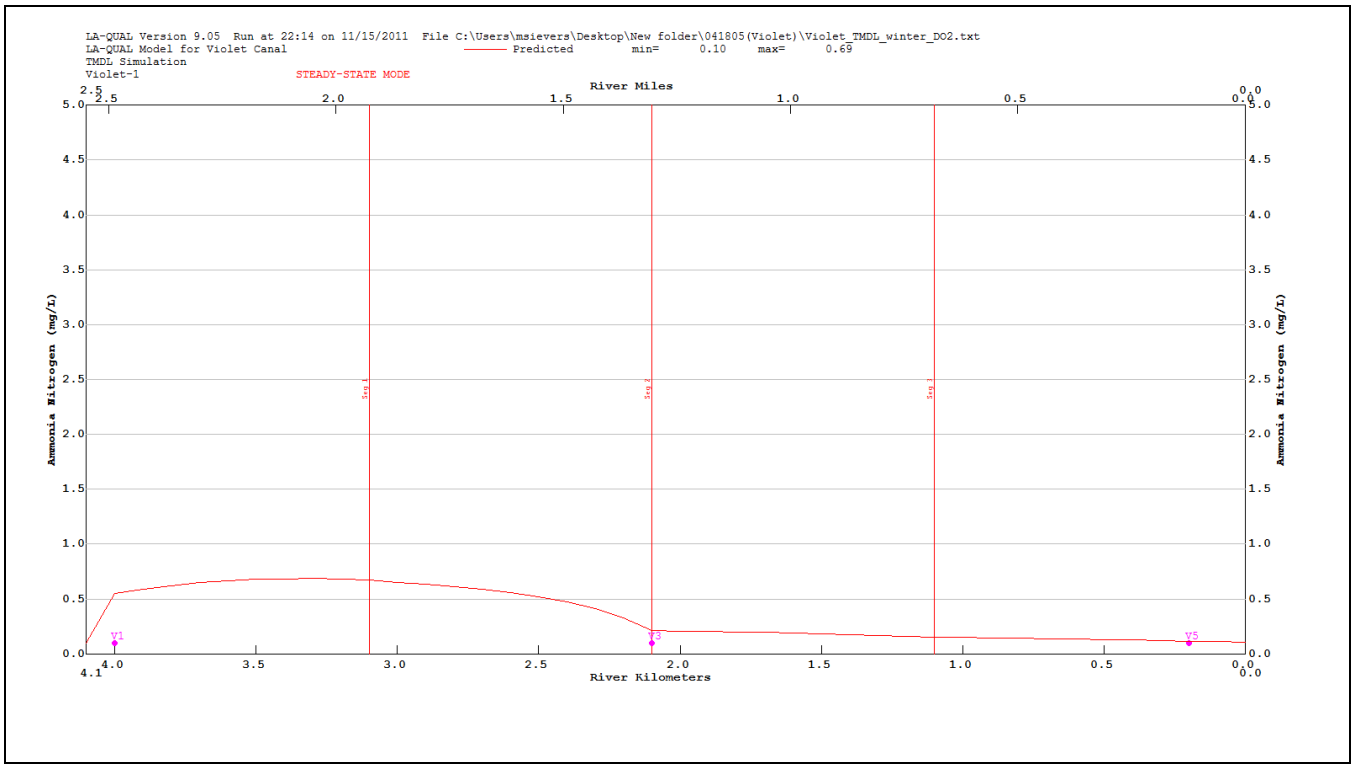

Figure K-8. Winter ammonia TMDL results for subsegment 041805.

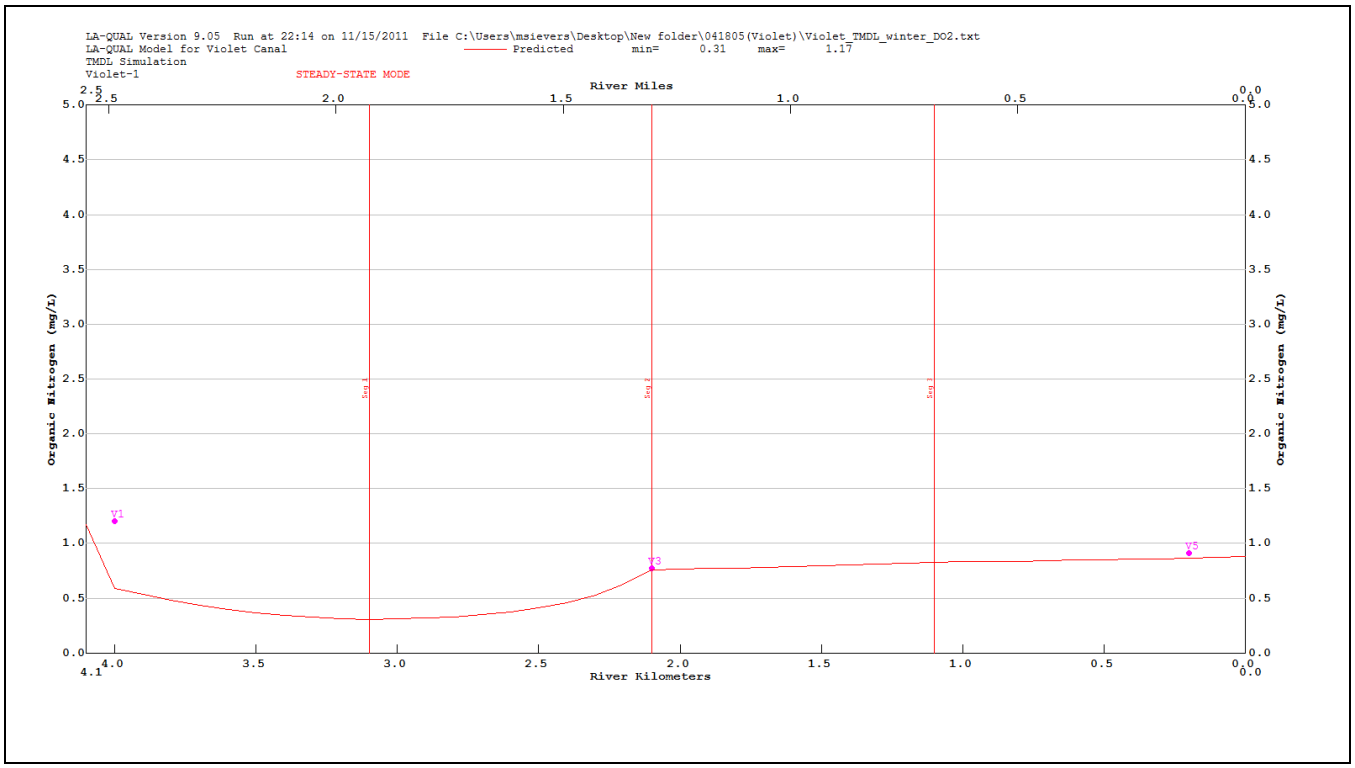

Figure K-9. Winter organic nitrogen TMDL results for subsegment 041805.

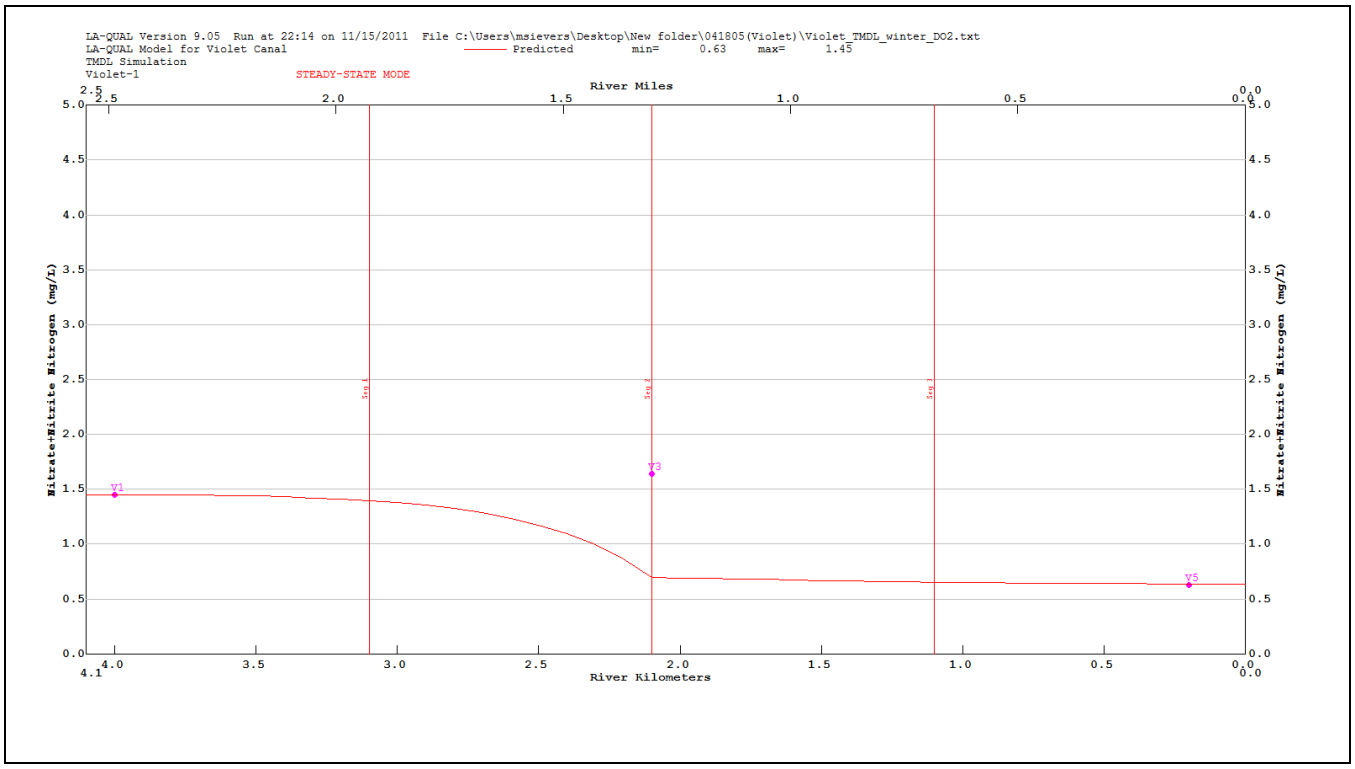

Figure K-10. Winter nitrate+nitrite TMDL results for subsegment 041805.

APPENDIX L:
Original Public Comment Letters

BOBBY JINDAL
GOVERNOR

PEGGY M. HATCH
SECRETARY

State of Louisiana

DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL SERVICES

January 11, 2012

Ms. Diane Smith (6WQ)
Water Quality Protection Division
U. S. Environmental Protection Agency, Region 6
1445 Ross Avenue
Dallas, TX 75202-2733

RE: Comments on Federal Register: December 6, 2011 (Volume 76, Number 234) [FRC-9505-4] Clean Water Act Section 303(d): TMDLs for Dissolved Oxygen for Selected Subsegments in the Lake Pontchartrain Basin

Dear Ms. Smith:

The Louisiana Department of Environmental Quality hereby submits comments on the TMDLs prepared for EPA Region 6 for TMDLs for dissolved oxygen in Selected Subsegments in the Lake Pontchartrain Basin, Louisiana (Subsegments 040505, 041201, and 041805).

LDEQ appreciates the opportunity that EPA provided for review of these draft TMDLs.

If you have any questions or comments, please contact me at 225-219-3366.

Sincerely,

William C. Berger, Jr.

William C. Berger, Jr., P.E.
TMDL/Water Quality Manager
Attachment

Ec with attachment:
Melvin Mitchell, LDEQ
Yvonne Baker, LDEQ
Claudia Hosch, EPA (6WQ)
Richard Wooster, EPA (6SF)
Brian Mueller, EPA (6WQ)

LDEQ Comments Concerning the following TMDLs submitted to EPA by Tetra Tech:

TMDL for Dissolved Oxygen for Bayou Labranche (Subsegment 041201)

By – Tetra Tech, Inc., November 18, 2011

General Comments

The 2010 303(d) list is now final. The report should be adjusted accordingly.

The report states that a 27 day carbonaceous BOD analysis was utilized for this TMDL. In this case, the 27 day BOD value was assumed to be equivalent to the ultimate BOD. In addition, the nitrogenous BOD typically begins to exert itself after about 7 – 10 days. The report should state whether or not a nitrogen suppressant was used. If it was not used, the measured carbonaceous BOD as noted in the report may actually include some of the nitrogenous BOD, making the modeling inaccurate and misrepresentative of the conditions. In addition, both the carbonaceous BOD1 and BOD2 values for the headwater of Cross Bayou Canal were set to 39 mg/L. The BOD2 value for Cross Bayou Canal should be 0.0 mg/L.

This TMDL included the modeling of nutrients and algae. As of the 2010 303(d) list, both EPA and LDEQ agreed that all nutrient impairments would receive a listing category of 3 (insufficient data). LDEQ believes that is not appropriate to conduct nutrient modeling at this time.

LDEQ feels that the model input does not achieve an adequate calibration for many of the parameters.

LDEQ has begun the practice of placing final public comments and responses to the appendices of the final TMDL report. LDEQ suggests that EPA do the same.

Table A-1 in Appendix 1 is confusing because it lists all dischargers. LDEQ requests that the discharger table clearly state those that are allocated to in this TMDL and those that were not.

Specific Comments

- Executive Summary should include percent reduction for projections and reductions to point sources should be stated.
- Section 2.5.1 Point Sources, page 2-4, paragraph 1: The paragraphs states that 25 permitted point source dischargers were located within subsegment 041201. However, Section 6.2 indicates that only one facility was provided with a WLA. This can be confusing. LDEQ requests that Section 2.5.1 clearly indicate that 25 permitted dischargers were located within the subsegment, but only one facility was provided with a WLA.

- Section 4.1, page 4-1, paragraph 4 states that the delta method presented by Di Toro was used to depict the diurnal swing. LDEQ recognized that the Di Toro method is an acceptable method, however, LDEQ standard practice is to calibrate to 1+DOmin for a diurnal swing of >2 and <9 mg/L. LDEQ would prefer that our standard practice be followed for this TMDL.
- Section 4.9, page 4-5, paragraph 1 states that the DO was set to 5.0 for point sources. This indicates post aeration will be required and that a limit for DO will be placed in the permits. LDEQ standard practice is to set DO to 2.0 for point sources unless post aeration is required in order to meet the water quality criterion for dissolved oxygen in the stream. Otherwise reaeration may be recommended. This must be clearly indicated in the TMDL report. Additionally, LDEQ standard practice is to use expected flow rather than design flow where applicable.
- Section 5.1, page 5-1, paragraph 1 states that for tidal creeks, on-third of flow under calibration condition was considered as the background flow for baseline conditions. This is a simplification of what the LTP actually states. The LTP states that the *critical* flow for tidal streams is 1/3 of the average or typical flow averaged over one tidal cycle irrespective of flow direction. If the flow is a one time measurement and not measurements done through a complete tidal cycle, it is not considered an acceptable *critical* flow for baseline conditions. LDEQ requests that the documentation for this flow calculation be provided in the report for verification.
- LDEQ requests that all phased approach language be deleted from this TMDL because as stated in Section 6.1.1, paragraph 3, Page 6-2, "The point source did not need to be reduced".

TMDL for Dissolved Oxygen for Ponchatoula Creek and Ponchatoula River (Subsegment 040505)

By – Tetra Tech, Inc., November 30, 2011

General Comments:

The 2010 list is now final and the report should be adjusted accordingly.

The report states that a 27-day carbonaceous BOD analysis was utilized for this TMDL. LDEQ prefers to use a 60 day BOD analysis (Method 5210 C in Standard Methods) which would produce a UCBOD and UNBOD. In this case, the 27 day BOD value was assumed to be equivalent to the ultimate BOD. In addition, the nitrogenous BOD typically begins to exert itself after about 7 – 10 days. The report should state whether or not a nitrogen suppressant was used. If it was not used, the measured carbonaceous BOD as noted in the report may actually include some of the nitrogenous BOD, making the modeling inaccurate and misrepresentative of the conditions. In addition, LDEQ has learned that the nitrogen suppressant can fail, producing erroneous results.

Specific Comments:

- Executive Summary, sixth paragraph, page I and Table ES-2: LDEQ disagrees with the development of TMDLs for SOD, ammonia, and organic nitrogen.
- Section 6.1.1, Wasteload Allocation, page 6-1 and 6-2 and Table 6-2, page 6-2 and 6-3: As previously stated, nutrient impairment listings were changed to Category 3 (insufficient data) for the draft 2010 303(d) list. This TMDL report is intended to address dissolved oxygen. Ammonia typically represents the primary oxygen-demanding load in the nitrogen series. Therefore, LDEQ feels that it is inappropriate to develop WLAs for organic nitrogen and requests the removal of these WLAs. This comment also applies to the DO TMDL reports developed by EPA for subsegments 041201, 041805, and 041401.
- In Section 7.2.2, Page 7-3, please remove the following:

"If new criteria are not developed and promulgated within five years from the TMDL approval date, LDEQ intends to proceed in the following manner:

Case 1: The UAA study indicates that the current DO criterion is appropriate the TMDL will be fully implemented based on the existing DO criteria.

Case 2: The UAA is not likely to be completed and/or approved the TMDL will be fully implemented based on the existing DO criteria.

Case 3: The UAA is in process and is expected to be approved – Phase II of the TMDL will be postponed for a maximum period of 2 years. If the UAA has not been completed at the end of this period, the UAA status will be reviewed again according Cases 1 – 3."

and replace with:

"These new criteria are expected to be developed and promulgated no later than five (5) years after the TMDL approval date."

DRAFT TMDL for Dissolved Oxygen for Violet Canal (Subsegments 041805)

By – Tetra Tech, Inc., November 30, 2011

General Comments

The 2010 303(d) list is now final. The report should be adjusted accordingly.

LDEQ will be responsible for the implementation of this TMDL and future updates to this TMDL. Therefore, LDEQ requests that complete documentation, including all appendices be provided to LDEQ upon approval of the TMDL.

The report states that a 27 day carbonaceous BOD analysis was utilized for this TMDL. In this case, the 27 day BOD value was assumed to be equivalent to the ultimate BOD. In addition, the nitrogenous BOD typically begins to exert itself after about 7 – 10 days. The report should state whether or not a nitrogen suppressant was used. If it was not

used, the measured carbonaceous BOD as noted in the report may actually include some of the nitrogenous BOD, making the modeling inaccurate and misrepresentative of the conditions. In addition, both the carbonaceous BOD1 and BOD2 values for the headwater of Cross Bayou Canal were set to 39 mg/L. The BOD2 value for Cross Bayou Canal should be 0.0 mg/L.

This TMDL included the modeling of nutrients and algae. As of the Draft 2010 303(d) list, both EPA and LDEQ agreed that all nutrient impairments would receive a listing category of 3 (insufficient data). LDEQ believes that it is not appropriate to conduct nutrient modeling at this time.

Adequate calibrations were not achieved for the CBOD, Organic Nitrogen, Nitrate+Nitrite nitrogen. A more robust calibration might be achieved by modeling CBOD and NBOD.

LDEQ has begun the practice of placing all public comments and responses to comments in the appendices of the final TMDL report. LDEQ suggests that EPA contractors do the same.

Table A-1 in Appendix 1 is confusing because it lists all dischargers. LDEQ requests that the discharger table clearly indicate those that are allocated to in this TMDL and those that were not.

Specific Comments:

- Section 2.3, page 2-1, paragraph 1 sites personal communication from Max Forbes. A copy of this communication should be placed in the appendices.
- Section 6.1.1, Paragraph 1, Page 6-2 states that there were no reductions in point sources. Therefore, LDEQ requests that all language referring to a phased approach should be removed.

APPENDIX M:
EPA Responses to Public Comments

Table M-1. EPA responses to public comments received from Louisiana Department of Environmental Quality M-1

NOTE: Full public comment letters are included in Appendix L.

Table M-1. EPA responses to public comments received from Louisiana Department of Environmental Quality

#	Comment	EPA response
General comments		
1	The 2010 303(d) list is now final. The report should be adjusted accordingly.	The report will be updated accordingly.
2	LDEQ will be responsible for the implementation of this TMDL and future updates to this TMDL. Therefore, LDEQ requests that complete documentation, including all appendices, be provided to LDEQ upon approval of the TMDL	EPA will provide LDEQ with the documentation once the TMDL has been finalized and approved.
3	The report states that a 27-day CBOD analysis was used for this TMDL. In this case, the 27-day BOD value was assumed to be equivalent to the ultimate BOD. In addition, the NBOD typically begins to exert itself after about 7–10 days. The report should state whether a nitrogen suppressant was used. If it was not used, the measured CBOD as noted in the report may actually include some of the NBOD, making the modeling inaccurate and misrepresentative of the conditions. In addition, both the CBOD1 and CBOD2 values for the headwater of Cross Bayou Canal were set to 39 mg/L. The BOD2 value for Cross Bayou Canal should be 0.0 mg/L.	As stated in Section 3.1, a nitrogen suppressant was used. Cross Bayou Canal is not included in this model. It was included in the TMDL for subsegment 041201.
4	This TMDL included the modeling of nutrients and algae. As of the 2010 303(d) list, both EPA and LDEQ agreed that all nutrient impairments would receive a listing category of 3 (insufficient data). LDEQ believes that is not appropriate to conduct nutrient modeling at this time.	Observed water quality data, especially the continuous DO data, reveal that the violation of DO criteria is caused by an excessive level of algae. Without modeling nutrients and algae, the minimum DO will not be captured.
5	Adequate calibrations were not achieved for the CBOD, organic nitrogen, and nitrate+nitrite nitrogen. A more robust calibration might be achieved by modeling CBOD and NBOD.	Comment noted. Calibration is not data-matching. The magnitudes and spatial trends are all captured with reasonable assignment of kinetic rates. In addition, EPA does not purposely change rates in each reach to match the data. Data were not available to perform calibration on CBOD and NBOD, whereas data were available for BOD, organic nitrogen, and nitrate+nitrite.
6	LDEQ has begun the practice of placing final public comments and responses in the appendices of the final TMDL report. LDEQ suggests that EPA do the same.	As stated in Section 8 of the draft TMDL report, "All comments and EPA responses will be included in an appendix to the final TMDL document."
7	Table A-1 in Appendix A is confusing because it lists all dischargers. LDEQ requests that the discharger table clearly state those that receive an allocation in this TMDL and those that do not.	Appendix A contains water quality information, not permit information. No appendix contains permit information.
Specific comments		
1	Section 2.3, page 2-1, paragraph 1, cites a personal communication from Max Forbes. A copy of this communication should be placed in the appendices.	The personal communication with Max Forbes will be added in a new appendix.
2	Section 6.1.1, paragraph 1, page 6-2, states that there were no reductions in point sources. Therefore, LDEQ requests that all language referring to a phased approach be removed.	Section 7.2 regarding the phases approach was added verbatim, with minor editorial changes, at LDEQ's request. It will be removed.