UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
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December 12, 2013

Mr. Scott Guilliams
Water Permits Division Administrator
Louisiana Department of Environmental Quality
P.O. Box 4313
Baton Rouge, LA 70821-4313

Dear Mr. Guilliams:

We have reviewed the revised Quality Assurance Project Plan (QAPP) entitled "*Ambient Water Quality Network*" for Cooperative Agreement # BG-986403-14. I am pleased to inform you that it was approved on December 9, 2013.

The revised QAPP will expire on December 9, 2014. Please submit a revised/updated QAPP at least 60 days prior to that expiration date. If no substantive technical or programmatic changes have occurred in the project, submit a letter stating that no changes are needed. The letter is also due at least 60 days prior to the expiration date.

Attached are the completed QAPP signature pages for your records. In any future correspondence relating to this QAPP, please reference QTRAK #14-029. If you have any questions, you may contact me at (214) 665-2773.

Sincerely,

Leslie C. Rauscher

Leslie Rauscher
Project Officer
State/Tribal Programs Section

Sent via email with attachment

QUALITY ASSURANCE PROJECT PLAN

FOR THE

AMBIENT WATER QUALITY MONITORING NETWORK

Prepared by

Louisiana Department of Environmental Quality
602 N. Fifth Street
Baton Rouge, LA 70802

Office of Environmental Services (OES)
Water Permits Division (WPD)

and

Office of Environmental Compliance (OEC)
Inspection Division (ID)

Prepared for

U.S. Environmental Protection Agency
Region 6
October 14, 2013
Revision: 7

Document Review and Revision Record

Note: Actions older than 5 years may be removed from this record

Approval Date	Revision No.	Record of Activity
8/29/2001	0	Initial document developed as an OEC Surveillance Division sampling QAPP; previous plans had included OEA Planning information. USEPA approval granted on 8/28/01.
5/7/03	1	Revised document with minor changes as an OEC Surveillance Division sampling QAPP was submitted to USEPA. Provisional approval was granted by USEPA to allow time for revision to be drafted to include OEA planning and data management aspects.
9/2/2004	2	Revisions throughout the document, including: updating the organizational charts; adding more detailed language regarding decisions that will be made based on the data; updating the sampling schedule; removing quality control (QC) sampling requirements for metals and organic compounds; and outlining data evaluation protocols being reviewed by LDEQ.
5/21/2007	3	Updated organizational information to reflect new structure at LDEQ; updated parameter charts to outline uses of the data; added data flow chart; reformatted portions of the document to reference new tables.
1/5/2010	4	Updated organizational information to reflect new structure at LDEQ; changed references to LDEQ laboratory and contract laboratory; added references to continuous monitoring protocols; updated collection of tapedown measurement requirements; updated chain of custody and water quality sample report forms; updated quality assurance/quality control language; updated sample handling protocol; removed field duplicate requirements
8/29/2011	5	Updated organizational information to reflect new structure at LDEQ; minor changes to data handling routines; removed two semivolatile organic parameters and raised minimum detection levels on two conventional parameters; removed references to metals sampling (per USEPA's request to work on determining targeted monitoring based on predictive modeling, with support from USEPA on modeling)
11/7/2012	6	Updating organization structure and names; laboratory methods; references to contract laboratories; included recording of flow severity; and added Secchi disk for lake monitoring
12/12/13	7	Updated organization structure and names; monitoring site maps and lists; restart of metals sampling; restart of lakes sampling

A PROJECT MANAGEMENT

A.1 Title and Approvals

QUALITY ASSURANCE PROJECT PLAN FOR THE
AMBIENT WATER QUALITY MONITORING NETWORK

Name: Scott Guilliams Signature: Scott Guilliams
Title: Administrator, Office of Environmental Services (OES), Water Permits Division (WPD) Date: 10/24/13

Name: Tom Killeen Signature: Tom Killeen
Title: Administrator, Office of Environmental Compliance (OEC), Inspection Division (ID) Date: 10/24/2013

Name: Jenniffer Sheppard Signature: Jenniffer Sheppard
Title: Environmental Scientist Manager, OEC, WPD Date: 10/14/13

Name: Dwight Bradshaw Signature: Dwight W. Bradshaw
Title: ES Senior, OEC, ID Field Activities Project Manager Date: 10-24-13

Name: Albert E. Hindrichs Signature: Albert E. Hindrichs
Title: ES Senior , OEC, WPD Assessments Project Manager Date: 10/14/13

Name: Jamie Phillippe Signature:
Title: ES Supervisor , OEC, WPD Assessment Unit Supervisor Date: 10/14/13

Name: Sandy Bateman Signature: Sandy Bateman
Title: ES Senior, OEC, ID Quality Assurance Manager Date: 10/15/13

Name: Leslie Rauscher Signature: Leslie C. Rauscher
Title: Project Officer, U.S. Environmental Protection Agency (USEPA) Region 6 (R6) Date: 12/9/13

Name: Curry Jones Signature: Curry D. Jones
Title: Section Chief, State Tribal Programs, USEPA R6 Date: 12/9/13

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A.3 Distribution List

An electronic copy of this Quality Assurance Project Plan (QAPP) will be maintained on the Department's (Quality Assurance (QA) Intranet at: http://intranet/sop/index/index.htm, where it will be available to all Louisiana Department of Environmental Quality (LDEQ) personnel. The following individuals will be notified of the QA Intranet postings:

Louisiana Department of Environmental Quality

1. Scott Guilliams, Administrator, OES, WPD
2. Tom Killeen, Administrator, OEC, ID
3. Jenniffer Sheppard, ES Manager, OES, WPD, (Water Quality Section (WQS)
4. Albert Hindrichs, ES Senior, Project Manager, OES, WPD
5. Jamie Phillippe, ES Supervisor, OES, WPD, WQS
6. Dwight Bradshaw, ES Senior, OEC, ID
7. David Greenwood, ES Manager, OEC, Water Surveys Section
8. Sandy Bateman, ES Senior, OEC, ID, Quality Assurance Manager
9. Robin St. Pierre, Environmental Program Analyst 3, OEC, ID
10. Heather Toney, Environmental Program Analyst 3, OEC ID
11. Bobby Mayweather, Regional Manager, OEC, ID, Capital Regional Office (CRO)
12. Larry Baldwin, Regional M5anager, OEC, ID, Northeast Regional Office (NERO), Northwest Regional Office (NWRO), Kisatchie Central Regional Office (KCRO)
13. Mike Algero, Regional Manager, OEC, ID, Southeast Regional Office (SERO)
14. Billy Eakin, Regional Manager, OEC, ID, Southwest Regional Office (SWRO), Acadiana Regional Office (ARO)

USEPA Region 6

1. Leslie Rauscher, USEPA Region 6, Project Officer
2. Curry Jones, USEPA Region 6, Section Chief, State Tribal Programs Section

A.4 Project Organization

The organizational structure for this program is depicted in figure 1. The Ambient Water Quality Monitoring Network (AWQMN) Program is primarily the responsibility of the Water Permits Division (WPD), Water Quality Section (WQS) of the Office of Environmental Services (OES), and the Inspection Division (ID) including the Laboratory Contract Management Section in the Office of Environmental Compliance (OEC). Support of grants, reporting program activities and status to the U.S. Environmental Protection Agency (USEPA) is accomplished through coordination with Office of Management and Finance (OMF), Accounts Payable Grant Section.

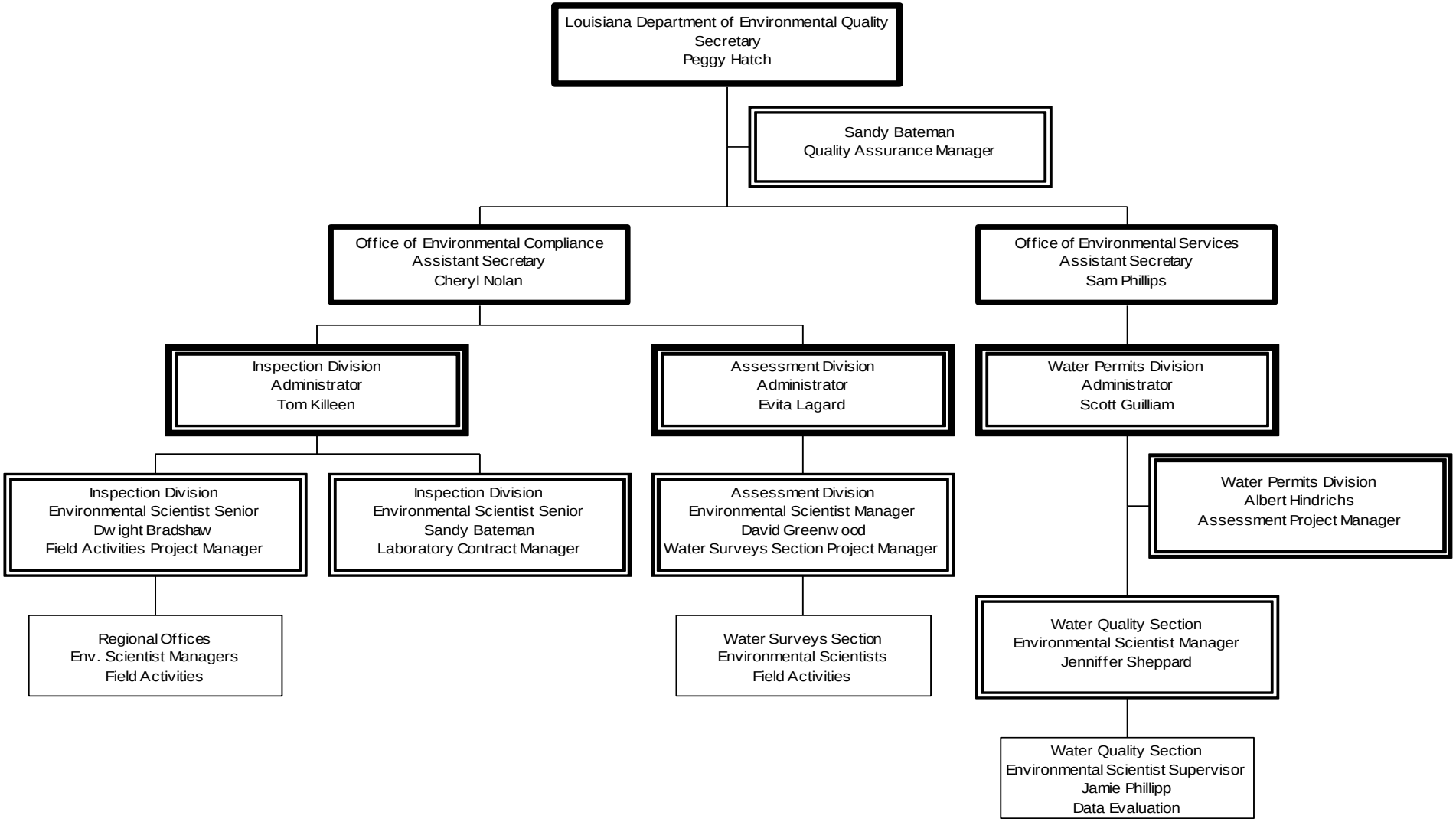
The WPD Administrator oversees the primary use of data from the network for water quality assessments. The division has a manager and supervisor responsible for overseeing the management, evaluation, and use of data for water quality assessments. The WPD also has an Environmental Scientist (ES) Senior assigned as project manager for the management and use of the data from the AWQMN and support in other project assessment processes. The WPD project manager is responsible for having a thorough knowledge of the project, monitoring project timelines and effectiveness, annual reviews of the plan including coordinating planning sessions, and updating the QAPP, if needed.

The ID Administrator oversees field and contract laboratory management activities. The division has managers and supervisors responsible for routine program activities in six (6) regional offices (Appendix A). In addition to the regional field staff, the Water Surveys Section (WSS) within the Assessment Division is based at LDEQ headquarters but operates statewide as needed. Two sub-regions are also staffed by ID personnel for water quality sampling activities under the direction of a regional office manager. The AWQMN samples to be analyzed by contract laboratory will be shipped to or picked up by the contract laboratory depending on conditions of laboratory contract. All ambient water quality samples will be delivered in a timely manner in order to meet all applicable holding times.

The field activities project manager for the AWQMN Program, an ES Senior in the ID, reports to the ID Administrator. The field activities project manager is responsible for having a thorough knowledge of the project, overseeing and monitoring effectiveness of field activities, maintaining communications with division administrators, field staff personnel and the WPD project manager, and participating in planning sessions related to this project.

The LDEQ contract laboratories analyze the samples for most parameters. For parameters that cannot be analyzed by a standard AWQMN contract laboratory, LDEQ will acquire specialized contract laboratory services. LDEQ's Laboratory Contract Management Section (LCMS) works closely with contract laboratories to coordinate contractual issues, and manage data deliverables to LDEQ. All commercial laboratories used by the LDEQ must be accredited by the Louisiana Environmental Laboratory Accreditation Program (LELAP) and conform to all conditions associated with that

Figure 1. Louisiana Department of Environmental Quality, ambient water quality monitoring project organizational chart.



accreditation in accordance with Louisiana Revised Statutes (LRS) 30:2011.D.22 and Louisiana Administrative Code (LAC) 33:I.4501-5915. LELAP is administered by LDEQ's Office of Environmental Services, Public Participation and Permit Support Division. Contract laboratories are subject to change pending development of new Requests for Proposal (RFP) and other contractual issues. New contract laboratories will be subject to the requirements of this QAPP and any other contractual requirements established by LDEQ.

A.5 Background

LDEQ is the state's primary agency responsible for environmental protection and regulation. The Federal Clean Water Act, §305(b), requires states to monitor and report on water quality conditions. The LDEQ ID and its predecessors have been monitoring water quality across the state since the late 1950's. The purpose of this monitoring program has been to characterize ambient surface water quality conditions and collect data to make water quality standards attainment decisions. The monitoring program has consisted of collecting monthly samples at designated locations on streams, lakes, and bays statewide. In some cases, historical sampling locations were selected to monitor the effects of point source discharges.

In 1990, the ambient monitoring program was reviewed and modified to attain a broader coverage of the state's waters. Some sampling sites were discontinued, the sampling frequency at some sites was changed from monthly to bimonthly, and new sites were added. Some new sites were located in "reference" (least impacted) streams, and others were located to monitor potential nonpoint sources of water pollution. While the overall objective of the ambient monitoring program has remained the same, more effort was made to describe the objectives for each individual sampling site.

The ambient monitoring program was reviewed again in 1997, and some changes in strategy were implemented. The agency identified the need to address data-gaps in water quality monitoring data. Historically, monitoring data have not been collected from all water subsegments within the state. Subsegments with no monitoring data have been evaluated for standards attainment by relying on various types of information other than monitoring data collected by LDEQ. To better address water quality conditions within the state, LDEQ adopted an approach to collect water quality monitoring data in nearly all subsegments (subsegments are listed in LAC 33:IX, Chapter 11 Surface Water Quality Standards); some subsegments cannot be monitored due to site access issues.

Prior to 2001 it was determined by U.S. Geological Survey (USGS) and other water quality monitoring programs that metals analysis was highly susceptible to sample contamination during collection, transport, and laboratory analysis. Therefore, in order to accurately assess metals concentrations in Louisiana's ambient waters, LDEQ discontinued traditional sampling techniques in the routine ambient program and phased in implementation of clean techniques for sampling beginning in 2001. In 2001, LDEQ implemented a tiered approach to metals sampling and assessment. All metals samples were analyzed by laboratories using clean techniques; however, due to the highly resource-intensive nature of ultra-clean metals sampling, a modified sampling

method was developed for the routine monitoring program. The modified sampling technique significantly reduced the chance for sample contamination, but not to the extent of the ultra-clean metals sampling method. If data from the modified sampling technique runs indicated potential impairment, ultra-clean samples were collected to either confirm or refute the impairment. At the suggestion of USEPA Region 6, LDEQ discontinued all metals sampling in October 2011 in order to allow USEPA Region 6 to undertake land use and discharger modeling to identify water bodies with a potential for metals contamination. USEPA and LDEQ were unable to reach an agreement on water bodies to be sampled based on USEPA's effort. Therefore, beginning in April 2013 LDEQ resumed ultra-clean metals sampling at selected sites across the state. Sites were selected based on previous Water Quality Integrated Report (IR) assessments showing impairment for one or more metals. Ultra-clean metals sampling is conducted by the Water Surveys Section under QAPP_1031_00. The QAPP is available on the LDEQ QAPP/SOP Intranet at: http://intranet/sop/index/index.htm.

Dissolved oxygen (DO) continuous monitoring (DOCM) on selected water bodies was initiated in 1998. DOCM is used as a follow-up to findings of single data points of low DO in the routine monthly AWQMN samples. This follow-up is used to collect diurnal data at targeted sites to determine if DO levels are less than criteria more than 10% of the time in a 24-hour period, thus indicating impairment. The WPD and ID target sites for DOCM follow-up monitoring by evaluating historical data, impairment status and ongoing pollution control strategies. More information on this process can be found in section B.1.

In 2009 LDEQ discontinued operation of the department's laboratory and moved to the use of contract laboratories for all ambient water quality sample analysis. Also, in 2009, LDEQ temporarily suspended routine monitoring of lakes in order to re-evaluate monitoring and assessment methods. LDEQ resumed monitoring of lakes according to the routine ambient monitoring QAPP beginning October 2012.

A.6 Project Description

The primary use of data from the AWQMN is to determine if water quality standards are being attained. To accomplish this, core indicators are monitored and used to determine designated use support (Table 1). Data may also be used for/by other programs within LDEQ (e.g. standards/criteria determination, modeling, permitting, project planning) and external entities.

Data will be collected systematically to obtain water quality monitoring data on accessible water subsegments defined in the Surface Water Quality Standards (LAC 33:IX Chapter 11). The current approach to ambient surface water monitoring consists of a four-year rotating sampling plan with approximately one-fourth of the selected subsegments in the state sampled each year. Long-term monitoring sites are located in 10 of the 12 basins and are sampled every year throughout the four-year cycle. Under this plan LDEQ conducts a complete census of accessible subsegments identified in LAC 33:IX.1123, Table 3 during the four-year rotation. The limited-access subsegments will be evaluated individually to determine what type of monitoring and assessment can best be performed to assess the water quality of that subsegment.

Table 1. Designated uses for Louisiana water bodies and the core indicators used to determine water quality standards attainment.

Designated Use	Core Indicators	Basis for Use Support Decision[3]
Fish and Wildlife Propagation and the subcategory of Limited Fish and Wildlife Use	Dissolved Oxygen (mg/L) (Routine grab ambient)	No more than 10% of samples may exceed criterion[1]
	Dissolved Oxygen (mg/L) (Continuous Monitoring)	No more than 10% of samples may exceed criterion[1]
	Temperature	No more than 30% of samples may exceed criterion
	pH	No more than 30% of samples may exceed criterion
	Chloride	No more than 30% of samples may exceed criterion
	Sulfate	No more than 30% of samples may exceed criterion
	Total Dissolved Solids	No more than 30% of samples may exceed criterion
	Turbidity	No more than 30% of samples may exceed criterion
	Toxic Substances	Less than 2 exceedances in 3 years[2]
Primary Contact Recreation (PCR)	Fecal Coliform	No more than 25% of samples may exceed criterion (Only during PCR swimming season of May – October)
	Temperature	No more than 30% of samples may exceed criterion
	Toxic Substances	Less than 2 exceedances in 3 years[2]
Secondary Contact Recreation	Fecal Coliform	No more than 25% of samples may exceed criterion (Year-round)
	Toxic Substances	Less than 2 exceedances in 3 years[2]
Drinking Water Supply	Color	No more than 30% of samples may exceed criterion
	Fecal Coliform	No more than 30% of samples may exceed criterion (Year-round)
	Toxic Substances	Less than 2 exceedances in 3 years[2]

Table 1. Designated uses for Louisiana water bodies and the core indicators used to determine water quality standards attainment.

Designated Use	Core Indicators	Basis for Use Support Decision[3]
Outstanding Natural Resource Waters	Turbidity	No more than 10% of samples may exceed criterion
Agriculture	None (indicated by support of other designated uses)	
Oyster Propagation	Fecal Coliform	Median fecal coliform $\leq$ 14 MPN/100 mL; and $\leq$ 10% of samples > 43 MPN/100 mL (Year-round)

1. LDEQ's AWQMN DO routine grab samples are used as a first level of DO criteria assessments. In the event the criterion is not met for a given sample result then continuous monitoring for DO may be initiated. Integrated Report assessments are conducted using ambient data points found to be below criteria. However, dissolved oxygen continuous monitoring (DOCM) data may be used to confirm or refute initial assessments of impairment based on grab data point. This approach is described in more detail in Section B.1.
2. Beginning in April 2013 LDEQ resumed ultra-clean metals sampling at selected sites across the state. Sites were selected based on previous Water Quality IR assessments showing impairment for one or more metals. Ultra-clean metals sampling is conducted by the Water Surveys Section under QAPP_1031_00. The QAPP is available on the LDEQ QAPP/SOP Intranet at: http://intranet/sop/index/index.htm.
3. Inclusion of use support assessment procedures in the form of Louisiana's percent exceedance rules for water quality assessment does not imply USEPA approval of Louisiana's water quality assessment procedures. It is only a reflection of the need to describe data end use requirements

The ID personnel will conduct the ambient network sampling. At each sampling site, the sample collector will take *in situ* field measurements outlined in table 2 and collect water samples for analysis of parameters outlined in table 3.

A.7 Quality Objectives and Criteria for Measurement Data

The goal of the AWQMN is to sample all named water bodies representative of the regulatory subsegments defined in the Surface Water Quality Standards and use the data to determine whether water quality standards are attained (LAC 33:IX,Chapter11-http://www.deq.louisiana.gov/portal/tabid/1674/Default.aspx). Water quality standards attainment decisions are based on comparing ambient monitoring results to established numerical criteria to determine designated use support. Field observations may also be used to determine general narrative criteria support. For example, the presence or absence of oil sheens noted in the field directly supports attainment determinations for a portion of the aesthetics general criteria statement. Table 1 outlines the core indicators used to determine designated use support; these parameters are critical to the success of this program. Tables 2 and 3 further define requirements and uses of resulting data collected. Section D.1 outlines criteria used to evaluate the quality of data collected.

Samples will be collected according to the *Standard Operating Procedures for Water Sample Collection, Preservation, Documentation and Shipping* (Standard Operating Procedure (SOP) #1134). *In situ* field data are collected according to the sonde specific SOPs and the sonde deployment SOP. These SOPs are available on the LDEQ SOP Intranet at http://intranet/sop/index/index.htm. The use of these SOPs helps to minimize bias, maximize accuracy and comparability, and prevent sample contamination. Laboratories use approved methods with appropriate reporting levels for sample analysis, as outlined in the SOPs and listed in table 3. Laboratory data qualifiers will be provided with the data to indicate laboratory quality control information. Data qualifiers will be located in the analysis reports included with the Electronic Data Deliverables (EDD) provided by all laboratories. If the minimum quality control (QC) requirements associated with an analysis are not met, the laboratory will add a statement to the report that lists the concerns. Reporting limits are outlined in table 3. All laboratories are expected to be able to report below the lowest expected criterion for each parameter and at least to the maximum if a range is provided (This is not possible for some risk-based criteria for toxic substances that are below technologically achievable reporting limits.). Accuracy and precision data will also be included with the analysis reports and can be utilized as tools in evaluating data.

Table 2. *In situ* field measurements, methods and uses of the data.

Parameter and Units	Location and Frequency	Method/Reference	Data Use
Sample Depth (m)	All Sites – Monthly	Portable Meter – Manufacturer's Operation Manual	Verification of proper sampling procedure
Water Body Depth (m)	All Sites – Monthly (Only if depth is < 1 meter)	Portable Meter – Manufacturer's Operation Manual	Verification of proper sampling procedure
Specific Conductivity (µmhos/cm)	All Sites – Monthly	Portable Meter – *Methods for the Analysis of Water and Wastewater* ("USEPA") Method 120.1 (Rev. 1982) or ASTM Standards D1125-95 (99)(A) or *Standard Methods for the Examination of Water and Wastewater* ("SM") 2510 B	Conservative parameter used in quality control reviews
pH (standard units)	All Sites – Monthly	Portable Meter – ASTM Standards D1293-84(90), 99 (A or B) or SM 4500-H^+B	Assess criteria and attainment of fish and wildlife propagation use
Temperature (°C)	All Sites – Monthly	Portable Meter or Thermometer – SM 2550 B	Assess criteria and attainment of fish and wildlife propagation and primary contact recreation uses
Dissolved Oxygen (mg/L) – Grab	All Sites – Monthly	Portable Meter -- USEPA, Method 360.1, SM 4500-O G; Manufacturer's Operation Manual	Assess criteria and attainment of fish and wildlife propagation and limited aquatic life uses
Dissolved Oxygen (mg/L) – Continuous Monitoring	After AWQMN DO readings found to be below criteria, deployment subject to judgment of WPD and ID project managers	Portable Meter -- USEPA, Method 360.1, SM 4500-O G; Manufacturer's Operation Manual	Assess criteria and attainment of fish and wildlife propagation and limited aquatic life uses

Table 2. *In situ* field measurements, methods and uses of the data.

Parameter and Units	Location and Frequency	Method/Reference	Data Use
Dissolved Oxygen Saturation (%)	All Sites – Monthly	Portable Meter -- USEPA, Method 360.1, SM 4500-O G; Manufacturer's Operation Manual	Not currently used for water quality assessments or in data review procedures
Salinity (parts per thousand)	All Sites – Monthly	Portable Meter – *Methods for the Analysis of Water and Wastewater* ("USEPA") Method 120.1 (Rev. 1982) or ASTM Standards D1125-95 (99)(A) or Standard Methods for the Examination of Water and Wastewater ("SM") 2510 B	Used to determine whether to apply freshwater or marine water criteria. Also used to evaluate conditions such as drought, saltwater intrusion, etc.
Oil and Grease (yes/no)	All Sites – Monthly	Visual observation	Used to evaluate attainment of narrative criteria
Gage Height (where possible) and/or Tapedown (ft in 1/10th of a foot increments)	All Sites – Monthly (Where appropriate as defined under "Method/Reference" column)	U.S. Geological Survey gage reading and/or steel measuring tape (At a minimum tapedown measurements shall be conducted on all unidirectional flow streams sampled from a suitable bridge or other fixed structure with a fixed tapedown location suitably marked.	Planned use is to determine whether water systems are at or above critical flow (standards do not apply below critical flow)
Flow Severity	All Stream Sites – Monthly (Where appropriate as defined under "Method/Reference" column	Flow severity is estimated at all unidirectional flow streams sampled from a suitable bridge or other fixed structure and recorded on the AWQSIS based on ratings found in Table 4.	Planned use is to determine whether water systems are at or above critical flow (standards do not apply below critical flow). Used until stage/discharge relationships can be determined.

Table 2. *In situ* field measurements, methods and uses of the data.

Parameter and Units	Location and Frequency	Method/Reference	Data Use
Secchi Disk (inches)	Lakes Only – Monthly	LDEQ SOP_1982_R00, Secchi Depth Measurement	Possible future use for nutrient criteria development

Table 3. Parameters for laboratory analysis, methods, and data uses.

Parameter and Reporting Units	Location and Frequency	Methods[(1)]	Laboratory	Lower Reporting Limit	Most Stringent Criterion or Range	Primary Data Use/ Comments
Conventional Parameters						
Alkalinity (mg/L)	All Sites Monthly	Field: (3) Lab: USEPA Method 310.2 or Standard Methods (SM) 2320B	Contract Lab[(2)]	2.0 mg/L[(4)]	N/A	May be used with hardness, sodium, chlorides, and sulfates to check ion balance to make sure chlorides and sulfates are correct. Used for determination of TDS ion components
Ammonia Nitrogen (mg/L)	All Sites Monthly	Field: (3) Lab: SM 4500 NH3 B&D or SM4500-NH3-C	Contract Lab[(2)]	0.1 mg/L	N/A	One of two major components of nitrogenous oxygen demand (NBOD) and allows the calculation of organic nitrogen (N) from ultimate NBOD (UNBOD). Organic N and ammonia nitrogen (NH_3-N) used in the calibration when the nitrogen series is simulated.
Chloride (mg/L)	All Sites Monthly	Field: (3) Lab: USEPA Method 300 or SM4500-Cl-E	Contract Lab[(2)]	1.25 mg/L	10 – 5055 mg/L	Assess criteria and attainment of fish and wildlife propagation use. Used for determination of TDS ion components

Table 3. Parameters for laboratory analysis, methods, and data uses.

Parameter and Reporting Units	Location and Frequency	Methods[1]	Laboratory	Lower Reporting Limit	Most Stringent Criterion or Range	Primary Data Use/ Comments
Color (Platinum Cobalt Units (PCU))	Sites on Drinking Water Supplies Monthly	Field: (3) Request analysis on Drinking Water Supplies only. Lab: SM 2120B	Contract Lab[2]	5 PCU	75 PCU	Assess criteria and attainment of drinking water supply use
Fluoride	Sites with TDS Criteria Monthly	Lab: USEPA Method 300	Contract Lab[2]	4 mg/L	N/A	Used for determination of TDS ion components *(note – if sufficient TDS ion component information is available from other sources such as USGS, collection of these samples may not be needed)*.
Hardness (mg/L CaCO3)	All Sites Monthly	Field: (3) Lab: SM 2340C	Contract Lab[2]	5 mg/L	N/A	To calculate dissolved metals criteria and may be used with alkalinity, sodium, chlorides, and sulfates to check ion balance to make sure chlorides and sulfates are correct. Used for determination of TDS ion components
Total Kjeldahl Nitrogen (mg/L)	All Sites Monthly	Field: (3) Lab: USEPA Method 351.2 or SM4500-NH3-C	Contract Lab[2]	0.1 mg/L	N/A	Used in water quality standards development and modeling projects for waste-load allocations and total maximum daily loads (TMDLs)

Table 3. Parameters for laboratory analysis, methods, and data uses.

Parameter and Reporting Units	Location and Frequency	Methods[1]	Laboratory	Lower Reporting Limit	Most Stringent Criterion or Range	Primary Data Use/ Comments
Dissolved Minerals (Mg, K, Na, Ca, Mn, Si, Fe)	Sites with TDS Criteria Monthly	Methods for the Determination of Metals in the Environmental Samples-Supplement 1, USEPA 600/R-94-111, USEPA 200.7	Contract Lab[2]	1.0 mg/L	N/A	Used for determination of TDS ion components *(note – if sufficient TDS ion component information is available from other sources such as USGS, collection of these samples may not be needed)*.
Nitrate-Nitrite Nitrogen (mg/L)	All Sites Monthly	Field: (3) Lab: SM 4500-NO3-F or SM4500-NO3-E	Contract Lab[2]	0.05 mg/L	N/A	Used in water quality standards development and modeling projects for waste-load allocations and total maximum daily loads (TMDLs)
Total Phosphorus (mg/L)	All Sites Monthly	Field: (3) USEPA Method 365.4 or SM4500-P-E	Contract Lab[2]	0.05 mg/L 0.004 mg/L [5]	N/A	Used in water quality standards development and modeling projects for waste-load allocations and total maximum daily loads (TMDLs). Used for determination of TDS ion components
Residue TDS (mg/L)	All Sites Monthly	Field: (3) Lab: SM 2540C	Contract Lab[2]	10 mg/L	55 – 10,000 mg/L	Assess criteria and attainment of fish and wildlife propagation use. Used for determination of TDS ion components

Table 3. Parameters for laboratory analysis, methods, and data uses.

Parameter and Reporting Units	Location and Frequency	Methods[1]	Laboratory	Lower Reporting Limit	Most Stringent Criterion or Range	Primary Data Use/ Comments
Residue TSS (mg/L)	All Sites Monthly	Field: (3) Lab: SM2540D	Contract Lab[2]	4 mg/L	N/A	May be used to identify turbid waters where algal growth is unlikely or to identify a siltation/sedimentation problem
Sulfate (mg/L)	All Sites Monthly	Field: (3) Lab: USEPA Method 300 or ASTM D516-90	Contract Lab[2]	5 mg/L[5]	5 – 775 mg/L	Assess criteria and attainment of fish and wildlife propagation use. Used for determination of TDS ion components
Turbidity Nephelometric Turbidity Units (NTU)	All Sites Monthly	Field: (3) Lab: SM 2130B or USEPA 180.1	Contract Lab[2]	1 NTU	25 – 150 NTU	Assess criteria and attainment of fish and wildlife propagation and outstanding natural resource water uses.
Bacterial Parameter						
Fecal Coliform (colonies/100 mL)	All Sites Monthly	Field: (3) Lab: SM 9222 D	Contract Lab[2]	Varies among Laboratories (TNTC (To Numerous To Count) not considered valid data)	43 – 2,000 Col/100 mL	Assess criteria and attainment of primary and secondary contact recreation, drinking water supply uses, and oyster propagation

Table 3. Parameters for laboratory analysis, methods, and data uses.

Parameter and Reporting Units	Location and Frequency	Methods[1]	Laboratory	Lower Reporting Limit	Most Stringent Criterion or Range	Primary Data Use/ Comments
Trace Metal Parameters [6]						
Dissolved Arsenic (µg/L)	Selected Sites Frequency based on QAPP_1031_00	Field: (3) Lab: Freshwater: USEPA Method 1638 Saltwater: USEPA Method 1640	Contract Lab[2]	0.20 µg/L	10 µg/L	Assess criteria and attainment of fish and wildlife propagation, and drinking water supply uses
Dissolved Cadmium (µg/L)	Selected Sites Frequency based on QAPP_1031_00	Field: (3) Lab: Freshwater: USEPA Method 1638 Saltwater: USEPA Method 1640	Contract Lab[2]	0.02 µg/L	0.37 µg/L	Assess criteria and attainment of fish and wildlife propagation, and drinking water supply uses
Dissolved Chromium (µg/L)	Selected Sites Frequency based on QAPP_1031_00	Field: (3) Lab: Freshwater: USEPA Method 1638 Saltwater: USEPA Method 1640	Contract Lab[2]	0.20 µg/L	10.58 µg/L	Assess criteria and attainment of fish and wildlife propagation, and drinking water supply uses

Table 3. Parameters for laboratory analysis, methods, and data uses.

Parameter and Reporting Units	Location and Frequency	Methods[1]	Laboratory	Lower Reporting Limit	Most Stringent Criterion or Range	Primary Data Use/ Comments
Dissolved Copper (µg/L)	Selected Sites Frequency based on QAPP_1031_00	Field: (3) Lab: Freshwater: USEPA Method 1638 Saltwater: USEPA Method 1640	Contract Lab[2]	0.20 µg/L	3.63 µg/L	Assess criteria and attainment of fish and wildlife propagation, and drinking water supply uses
Dissolved Lead (µg/L)	Selected Sites Frequency based on QAPP_1031_00	Field: (3) Lab: Freshwater: USEPA Method 1638 Saltwater: USEPA Method 1640	Contract Lab[2]	0.05 µg/L	0.54 µg/L	Assess criteria and attainment of fish and wildlife propagation, and drinking water supply uses
Dissolved Nickel (µg/L)	Selected Sites Frequency based on QAPP_1031_00	Field: (3) Lab: Freshwater: USEPA Method 1638 Saltwater: USEPA Method 1640	Contract Lab[2]	0.20 – 0.30 µg/L	8.2 µg/L	Assess criteria and attainment of fish and wildlife propagation, and drinking water supply uses

Table 3. Parameters for laboratory analysis, methods, and data uses.

Parameter and Reporting Units	Location and Frequency	Methods[1]	Laboratory	Lower Reporting Limit	Most Stringent Criterion or Range	Primary Data Use/ Comments
Dissolved Zinc (µg/L)	Selected Sites Frequency based on QAPP_1031_00	Field: (3) Lab: Freshwater: USEPA Method 1638 Saltwater: USEPA Method 1640	Contract Lab[2]	0.75 – 1.5 µg/L	32.29 µg/L	Assess criteria and attainment of fish and wildlife propagation, and drinking water supply uses
Organic, Pesticide and PCB Parameters						
Volatile Organic Compounds (µg/L)	Mississippi River Sites – Monthly; All Other Sites- Quarterly	Field: VOA Vials Lab: USEPA Method 601 + 602 or 624	Contract Lab[2]	0.5 µg/L	See chronic criteria for toxic substances; table 1 in the Surface Water Quality Standards	Assess criteria and attainment of fish and wildlife propagation, contact recreation and drinking water supply uses
Semi Volatile Organic Compounds (µg/L)	Mississippi River Sites Only – Monthly	Field: ABN Bottle USEPA Method 625	Contract Lab[2]	Compound Specific 10-75 µg/l		Assess criteria and attainment of fish and wildlife propagation, contact recreation and drinking water supply uses

Table 3. Parameters for laboratory analysis, methods, and data uses.

Parameter and Reporting Units	Location and Frequency	Methods[1]	Laboratory	Lower Reporting Limit	Most Stringent Criterion or Range	Primary Data Use/ Comments
Phenols (µg/L)	Mississippi River Sites Only – Monthly	Field: Phenols Bottle Lab: USEPA Method 420.1	Contract Lab[2]	5 µg/l	See chronic criteria for toxic substances; table 1 in the Surface Water Quality Standards	Assess criteria and attainment of fish and wildlife propagation, contact recreation and drinking water supply uses
Pesticides and PCBs (µg/L)	Mississippi River Sites Only – Monthly	Field: (C) USEPA Method 608	Contract Lab[2]	Compound Specific		Assess criteria and attainment of fish and wildlife propagation, contact recreation and drinking water supply uses

1. See Section B2 and table 5 for more details on sample handling and processing; other comparable, department-approved methods may be used if they meet minimum quality criteria outlined in the QAPP.
2. Contract laboratories are not specified in this QAPP. They will vary with the terms of the contract and requirements of the sample analysis.
3. Preservation and containers determined by contract lab.
4. WQS allows an exception to report at 5.0 mg/L for one contract lab.
5. Lower Reporting limit based on those of contract laboratories performing sample analysis. Changes (i.e., increase) in reporting limits may affect data usability.
6. Beginning in April 2013 LDEQ resumed ultra-clean metals sampling at selected sites across the state. Sites were selected based on previous Water Quality IR assessments showing impairment for one or more metals. Ultra-clean metals sampling is conducted by the Water Surveys Section under QAPP_1031_00. The QAPP is available on the LDEQ QAPP/SOP Intranet at: http://intranet/sop/index/index.htm.

Performance or acceptance criteria (Data Quality Indicators) such as precision, bias, and accuracy are described in the WQS, Data Evaluation and Reporting (DEAR) unit's SOP *Standard Operating Procedures for Data Evaluation Assessment and Reporting (SOP 1976)*. These procedures are used in reviewing water quality data collected under this QAPP. Table 3 contains required laboratory sensitivity levels that allow for data points to be assessed against water quality criteria.

A.8 Special Training Requirements

The ID personnel receive training on proper sampling techniques and performing *in situ* measurements by following the SOPs mentioned above. Training will include sample collection, handling, preservation, delivery, and holding as well as training in the operation, maintenance, and calibration of electronic *in situ* instruments.

A.9 Documentation and Records

The USEPA-approved version of this QAPP and any associated LDEQ-approved SOPs will be made available to all personnel via electronic format. The assessment project manager is responsible for distributing the approved QAPP via email to all on the distribution list (Section A.3), submitting all QAPP correspondence and the approved QAPP to LDEQ's Electronic Document Management System (EDMS), and ensuring the updated QAPP and assessment SOPs are available on the LDEQ Intranet at http://intranet/sop/index/index.htm. The field activities project manager will follow-up with all regional managers to ensure the latest QAPP and SOPs are being used by the regions. Regional managers will ensure all appropriate personnel performing ambient surface water monitoring have received the documents.

Field data are collected following procedures outlined in the *SOP for Water Sample Collection, Preservation, Documentation and Shipping* (SOP #1134). Field data are recorded at the time of sample collection on the LDEQ Surface Water Quality Field Measurements (SWQFM) form or the Ambient Water Quality Site Information Sheet (AWQSIS). Examples and directions for use of these forms can be found on the LDEQ Intranet (http://intranet/sop/index/index.htm). Field data include date, collection time, sampling location, collector's name, gage height (if the site has a USGS water level gage), and/or tapedown measurement. The ID is responsible for submitting field data to the Louisiana Environmental Analytical Data Management System (LEADMS) and field records to EDMS. The WPD is responsible for entering field data into Louisiana's Environmental Assessment (LEAU) database.

An LDEQ chain of custody (COC) must also be completed and accompany all water quality samples sent to contract laboratories. An example of the LDEQ COC can be found on the LDEQ Intranet at http://intranet/sop/index/index.htm. See figure 2 for routing and filing of documents and entry of data into LEAU. LEAU is an Oracle based database designed to store water quality data and is maintained by the WPD, WQS.

Laboratories are required to produce analytical data narrative reports in PDF format and EDDs in the LEADMS format. The deliverables include analytes, sample date, methods of analysis, date of analyses, chemists performing the analyses, reporting limits, quality control information, and the results associated with the sample. The PDF reports are automatically uploaded to EDMS. EDDs and PDF reports are transmitted to LDEQs LCMS for initial quality control review and then forwarded to WPD, WQS in the form of emails. WQS DEAR unit reviews the laboratory deliverables for quality assurance and either requests additional information from the laboratories or forwards the laboratory deliverables to WQS data management personnel for entry into LEAU.

B MEASUREMENT/DATA ACQUISITION

B.1 Sampling Process Design

The ambient monitoring network is based upon a targeted approach for assessments with selected sampling sites that will support Clean Water Act IR (§305(b) and §303(d)) assessments located on the water bodies. Stream sampling sites are ideally located at or near the downstream end of a subsegment. When this is not possible due to limited-access to the water body, a determination is made in conjunction with WQS as to the best alternative sample site for the water body. Sampling sites in bays, estuaries, wetlands, lakes and open ocean areas have been situated to be representative of ambient conditions for the water body type and of surrounding uses and/or impacts. However, the design supports the collection of representative data. Any deviations from the procedure are documented on the SWQFM or AWQSIS field data form. Any changes in sample site location must be coordinated with WQS and reflected in updates to LEAU.

The frequency and location of collection for each set of parameters is outlined in tables 2 and 3, and may be monthly (routine parameters), quarterly (organics), or as needed and resources allow (metals, follow-up DOCM). Additionally, the infrequent occurrence of volatile organic compounds in ambient water justifies the use of quarterly data to screen for attainment of uses on most water bodies. Semi-volatile and volatile organic compound data, along with pesticide and PCB data are collected monthly on the Mississippi River to monitor potential impacts from industries discharging to the river. Color analyses will be conducted for drinking water supply water bodies only.

Data collected at sites located at or near interstate borders will not be used for IR water quality assessment purposes. Any impairments identified at these sites would be from out-of-state sources and, therefore, not within LDEQ’s jurisdiction. Data will be forwarded to USEPA or neighboring state as needed to address any concerns identified with the sampling.

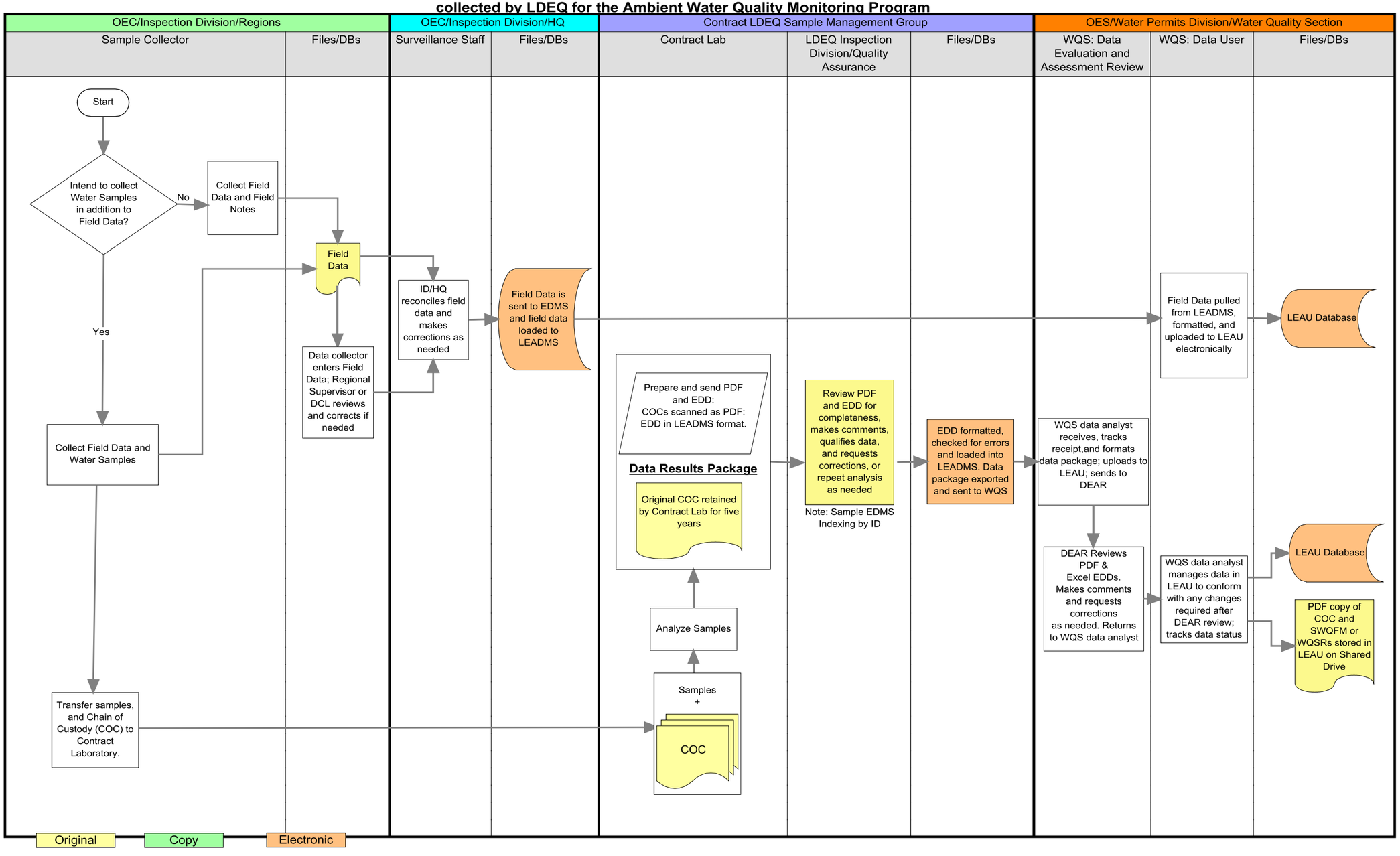
A screening approach for organics is used for water quality assessments. Water quality criteria for organics are in the parts per billion range and lower, requiring sampling and/or analysis protocols that can provide results in these ranges. The analytical sensitivity levels required from laboratories for organic compounds requires routine

implementation of rigorous protocols and, therefore, contamination issues at the laboratory are addressed to the maximum extent practicable. For organic compounds, sample contamination during collection and transport is less of a concern than with metals and, therefore, sampling protocols have not been modified. In the rare event a potential impairment is indicated with the ambient data collected for organic compounds, a follow-up investigation will be implemented. If additional organic compound samples are collected during the investigation, the original sample results will be maintained and used for IR assessment purposes according to routine IR assessment protocols.

Beginning in April 2013 LDEQ resumed ultra-clean metals sampling at selected sites across the state. Sites were selected based on previous Water Quality IR assessments showing impairment for one or more metals. Ultra-clean metals sampling is conducted by the Water Surveys Section under QAPP_1031_00. The QAPP is available on the LDEQ QAPP/SOP Intranet at: http://intranet/sop/index/index.htm.

Follow-up dissolved oxygen continuous monitoring sampling is conducted as needed at targeted sites and as resources allow when AWQMN grab sample results for DO are below the applicable criterion for a water body. The decision to deploy DOCM monitoring is made in consultation with regional staff that collected the grab sample and with the ID and WPD project managers. If the AWQMN sampler records grab data for DO below the criteria, DOCM data collection should be initiated within two weeks after the grab data were collected provided environmental conditions are similar to those encountered during grab data collection. Integrated Report assessments are conducted using ambient data points found to be below criteria for DO; however, DOCM data are used to confirm or refute initial assessments of impairment based on grab data points. Current DOCM collection protocols are documented in *SOP #1134 for Water Sample Collection, Preservation, Documentation and Shipping*. If follow-up DOCM data is not collected to override grab data exceedances, the routine ambient grab data points will provide the basis for water quality assessments and reporting.

Figure 2: Routing of surface water quality data and documents collected by LDEQ for the Ambient Water Quality Monitoring Program



B.2 Sampling Methods Requirements

Sampling methods for *in situ*, Secchi depth, and water samples are outlined in tables 2 and 3 and detailed in SOPs #1134 and #1982 (Secchi depth measurement), which are available on the LDEQ Intranet at http://intranet/sop/index/index.htm. Data and samples collected from a water body are intended to be representative of that water body and corresponding subsegment. For clearly defined streams a representative sample consists of a single in-stream measurement for *in situ* and a single grab sample for laboratory analysis taken near the center of the main flow (thalweg) of the stream and at one-half the total depth of the stream when the stream is less than two meters deep, or at one-meter depth when the stream is over two meters depth. For lakes, estuaries and wetlands a sample is collected at a point considered representative of the water body as determined by ID and WQS. Depth of sample is determined as noted for streams. Prior to collecting an ambient water sample, the equipment is rinsed with the subject ambient water according to SOP #1134.

Where appropriate, the water sampler used is an indiscrete, flow-through stainless steel container that prevents aeration of the sample as it is taken. In some situations (i.e. shallow streams) samples may be collected directly in the sample container according to SOP #1134. A boat or other specialized equipment may be required to collect samples from the appropriate depths and locations. If the needed equipment is not available, discretion and professional judgment is relied upon in the collection of representative samples. Any deviations from the procedure are documented on the SWQFM or AWQSIS field data form.

Sample containers used for the purposes of this program are certified as USEPA Level 1 cleaned containers. Suitable sample containers are provided by the contract laboratory. When a sample is transferred to the appropriate containers for shipment to the laboratory, care must be taken to ensure that the sample is uniform and homogenous.

Visual observations for the presence of oil and grease in the water body are made at the time of the sampling event. The absence or presence of oily sheens, grease balls or other oils is recorded on the field data sheet along with field parameters collected *in-situ*. Reporting situations for oil and grease are described in SOP #1134.

Physical data (i.e., water level) are collected indirectly in water bodies with positive, unidirectional flow. At least one of two methods shall be used whenever possible. The first is using established USGS stream gages (when present). The second is by establishing a permanent, fixed point location or bar on a stationary object (typically a bridge) and measuring the distance from the fixed point to the water surface with a graduated, stainless steel tape. This process is called a tapedown measurement.

Suitable locations include bridges or other fixed structures in non-tidal areas with a unidirectional flow water body. If the site is on a suitable location, tapedown measurements will be taken and recorded on the SWQFM or AWQSIS. Where possible,

USGS stream gage readings will also be taken until such time as an acceptable stream rating can be determined using the tapedown location.

In all cases where tapedowns can be taken the measurement shall be conducted and recorded on the SWQFM or AWQSIS. If a USGS stream gage station is available, and until fixed location bars have been put in place, then both the tapedown and gage station reading shall be recorded on the SWQFM or AWQSIS. The information can be used later to calculate the discharge of the stream once the stream is "rated". A stream is "rated" when a stage/discharge relationship is established according to *Measurement and Computation of Streamflow (*USGS Water-Supply Paper 2175. 1982). The process of establishing a stage/discharge relationship will most likely only occur when more intensive stream surveys can be conducted. Tapedown measurements on rated streams can then be used to determine critical flow for streams as it relates to the applicability of water sample results to water quality standards.

Until such time as stage/discharge relationships can be determined, flow severity will be estimated. Determinations will be made for suitable streams based on flow classifications found in table 4. Flow severity rating will be included on the AWQSIS. Rating will then be recorded in the LEAU database for inclusion with LDEQ's ambient data submittal to USEPA's Water Quality Exchange.

Table 4. Flow severity ratings for suitable streams in Ambient Water Quality Monitoring Network

LDEQ Flow Code	LDEQ Flow Description
0 = Not Applicable	Used for lakes, estuaries, bays with no normal flow or only tidal flows.
1 = Dry	Streambed is completely dry with no visible pools.
2 = Intermittent	Streambed has water visible in naturally occurring isolated pools.
3 = No Flow	Streambed has water from bank to bank but flow is not detectable.
4 = Low Flow	Flows are detectable.
5 = Normal Flow	Flows greater than low flow but stay within the stream channel.
6 = High Flow	Flows that leave the normal stream channel but stay within the stream banks.
7 = Flood	Flows that leave the normal confines of the stream channel and move out on to the flood plain over the stream bank (either side of the stream).

Sampling equipment is decontaminated according to procedures in SOP #1134 after each day's sampling, unless obvious fouling from in-stream pollution is noticed. If obvious fouling of the equipment occurs in sampling, the equipment will be placed out of service until proper cleaning can be accomplished. Normal washing and scrubbing of the sampling equipment is accomplished with phosphate free, laboratory-grade detergent and repeated rinsing with tap water. The equipment is then thoroughly rinsed three times with distilled water and allowed to air dry.

Situations could develop that would render the sample collection or analysis invalid. Samples may leak, be dropped or lost, or otherwise not be adequately collected. Sufficient time is allocated within the data collection schedule to allow for re-sampling. After reviewing the data, the project managers may decide that re-sampling is required of all parameters, or only those parameters for which the sample collection and/or analysis has been compromised.

B.3 Sample Transfer and Custody Requirements

At the time of collection, all water samples to be removed from a collection site must be assigned a unique identifier that describes the site (by number), the date and time of collection, and sample batch (by preservative). Any sample for analysis by contract laboratory must have a completed Chain of Custody form. An example can be found on the LDEQ Intranet at http://intranet/sop/index/index.htm.

Once the samples are collected, they must be protected. Before delivery or shipment, the samples should be within sight of the person bearing responsibility for their maintenance, or locked in a place where access is limited and controlled. All AWQMN samples are to be picked up by or in some cases shipped to the contract laboratory in a timely manner in order to meet required holding times. Samples will be stored and transported in an ice chest sealed with chain of custody tape.

All contract laboratories shall follow sample handling and analytical procedures which ensure the integrity of all samples and the accuracy of all results provided to LDEQ. At a minimum these procedures shall include placement of samples in a secure, access-controlled room under the physical handling conditions required by the contract laboratory and standard analytical methods. The chemist shall maintain the integrity of the samples by adhering to quality assurance/quality control measures established under LELAP and standard laboratory practices. Similarly, all analyses must be carried out and reported according to LELAP procedures and the methods specified in table 3. Sample disposal practices shall follow the contract laboratory's Quality Assurance Manual and/or SOPs.

The contract laboratory designates a sample receiving area where all samples are logged in. Sample number, sample location, analyses desired, and dates received are entered into the laboratories sample management data system. The person receiving samples will place them in a refrigerator or designated room. The room will be access-controlled at all times except when samples are being handled by laboratory personnel.

The chemist shall maintain the integrity of the sample by adherence to procedures prescribed in the Laboratory Quality Manual and its subordinate SOPs. Similarly, all analyses must be carried out and reported according to the Laboratory Quality Manual and subordinate SOPs. All of those methods are incorporated into this document by reference.

B.4 Analytical Methods Requirements

The state monitors surface waters on a continuing basis through the AWQMN. The state has standardized the analytical methods to be used for each constituent that is to be measured. The analytical methods and requirements for the AWQMN are outlined in table 3. The LDEQ Request for Proposal (RFP), which is provided to prospective contract laboratories, includes the expected methods and reporting limits, which are based on surface water quality monitoring program data quality needs. Contract laboratory Quality Assurance Manuals (QAM) and SOP's will include the Quality Control (QC) for each method including duplicates, spikes, instrument calibration, and acceptance criteria.

B.5 Quality Control Requirements

Quality control is the system of technical activities used to measure the performance of the processes implemented for the AWQMN. Sufficient quality control activities will occur throughout the program to ensure that complete and representative data are collected. Contract laboratories are required to meet or exceed the quality assurance/quality control requirements outlined in this section and throughout the QAPP in order to ensure sample results that meet the expected analytical sensitivity levels and accuracy required for the AWQMN.

Routine quality control is accomplished through the implementation of defined procedures. Representative, quality data will be produced if procedures are followed. The following summarizes the quality control measures:

B.5.1 Inspection Division

The ID personnel are trained to collect representative samples according to standard operating procedures. The SOPs dictate how samples are collected, preserved, handled, transported, and how information will be documented.

The ID personnel routinely prepare and/or collect blank samples. The different types of blank samples and how to collect each are defined in the sampling SOP (#1134). The type of blank sample prepared or collected will be determined by a number of factors, including the ability to run blank water through a piece of equipment and/or to prepare a blank in the field. The type of blank used for the AWQMN program is a Field Equipment Blank (FEB). Field Equipment Blanks are assigned a unique identifier (Sample #) as outlined in SOP #1134. This will enable laboratories to code sample result records correctly in the laboratory deliverables and allow the data users to understand potential

sources of contamination. Samples are labeled and submitted for analysis based on the sample rates found in table 5. Sample label numbers shall include “H” in order to ensure clarity of sample type at the laboratory and by the data users. “Sample Type” will be labeled “EB” on the department wide Chain of Custody Record form.

The ID staff members are assigned multiple sites for ambient water sampling; the number of sites per staff member varies slightly but ranges from one to six sites per day. An ambient “run” is defined as a staff member sampling all assigned sites quarterly for volatile organic compounds, and monthly for all other parameters. Mississippi River volatile, semi-volatile, pesticide, total phenolics, and PCB compounds are also sampled monthly. Sample collection and Field Equipment Blank collection shall be conducted for all AWQMN runs based on table 5. Ultra-clean metals sampling is conducted by Water Surveys Section at selected sites according to QAPP_1031_00. The QAPP is available on the LDEQ QAPP/SOP Intranet at: http://intranet/sop/index/index.htm.

There is no requirement for trip blanks since QC samples are not collected for quarterly organic compounds as described below; trip blanks are typically associated with volatile compound sampling. QC samples are not collected for organic compounds and field data for the following reasons:

- Quality of field data is checked and controlled through the use of calibrated instruments and post-calibration procedures to ensure the meters remained in calibration throughout the sampling run.

- High levels of precision for organic compounds, calculated using field duplicates, cannot be expected when the levels being measured are in the low part per billion (ppb), even part per trillion (ppt), range.

- In the rare event a potential impairment is indicated with the ambient data collected for organic compounds, a follow-up investigation will be implemented. If additional organic compound samples are collected during the investigation, the original sample results will be maintained and used for IR assessment purposes according to routine IR assessment protocols.

Table 5. Water quality sample collection schedule for ambient samples and quality assurance blanks.

Sample Bottles Collected	**Ambient Water Quality Sample Collection Schedule [1. 2.]** (X indicates sample collection) **2013 - 2014**											
	OCT	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**
Unpreserved ("A Bottle") *(Turbidity, Color [(3)], TSS, TDS, Alkalinity, Chlorides, Sulfates)*	X	X	X	X	X	X	X	X	X	X	X	X
Unpreserved ("A Bottle") **Field Equipment Blank ("H Bottle")**		X	X		X	X		X	X		X	X
Preserved ("C Bottle") *(TKN, NO3NO2, Ammonia, Phosphorus, Hardness)*	X	X	X	X	X	X	X	X	X	X	X	X
Preserved ("C Bottle") **Field Equipment Blank ("H Bottle")**		X	X		X	X		X	X		X	X
Unpreserved ("D Bottle") for Minerals and Fluoride (TDS Criteria sites only)	X	X	X	X	X	X	X	X	X	X	X	X
Bacteria	X	X	X	X	X	X	X	X	X	X	X	X
Volatiles	X			X			X			X		
Volatiles (Mississippi River)	X	X	X	X	X	X	X	X	X	X	X	X
Phenol (Mississippi River only)	X	X	X	X	X	X	X	X	X	X	X	X
Pesticides/PCBs (Mississippi River only)	X	X	X	X	X	X	X	X	X	X	X	X
Semi-volatiles (ABNs) (Mississippi River only)	X	X	X	X	X	X	X	X	X	X	X	X

1. It is preferable to collect quarterly samples in October, January, April, and July; however a different quarterly schedule is acceptable.
2. This schedule will be repeated in subsequent monitoring years (October-September) until changed by future QAPPs.
3. Color analysis is only performed at sites with a designated use of Drinking Water Supply.

B.5.2 Contract Laboratories

Contract laboratory personnel are trained to implement procedures according to their respective internal quality manuals and SOPs. The manual and associated SOPs describe how laboratory quality controls are implemented including: analyses of spikes and duplicates, calibration, data acceptance criteria reviews, appropriate documentation, and data transfer. All data must be reviewed and qualified by contract laboratory personnel, and LDEQ's LCMS. Data are also reviewed for accuracy and completeness by WQS's DEAR unit according to *Standard Operating Procedures for Data Evaluation Assessment and Reporting (SOP 1976)*. QC data must be maintained by the laboratory. DEAR QC information is maintained by WQS. Analytical data from contract laboratories includes qualifiers assigned by the laboratory and agreed upon by LDEQ. Additionally, QC data from the contract laboratories are included in all EDDs provided to the WPD. Any analysis conducted by a commercial laboratory is subject to the requirements of the LELAP.

B.5.3 Water Permits Division

The WPD, WQS has SOPs for data management, including quality control measures (SOPs 1480 (Surface Water Data Management), and 1976). Personnel are trained to capture data in electronic format, review data quality prior to permanent storage, assess completeness of data prior to use for water quality assessments, and present data and assessments according to the requirements of the Clean Water Act (Sections 305(b) and 303(d)). Additionally quality control measures implemented by the data entry personnel during data management include site number completeness review; range checking pH; range checking for conventional parameters (within expected average range); checking for manual data entry errors; and researching questionable data with the laboratory.

B.6 Instrument Inspection and Maintenance

All field equipment used in the project will be inspected for acceptable working order prior to embarking upon a data-gathering event. Electronic equipment that has not been recently operated (in storage) will undergo an operational check-out according to manufacturer specifications. Precursory to both procedures is calibration of the unit. Calibration procedures will be accomplished according to the SOPs and based on manufacturer's protocol.

Contract laboratory equipment and instrumentation will be maintained and calibrated according to protocols specified in each laboratory's SOPs. Contract laboratory SOPs shall be made available to WPD, WQS in order to ensure they conform to the protocols specified here. At a minimum, contract laboratory SOPs shall adhere to the following protocols. The acceptance/performance criteria for each meter, probe, balance, etc. are specified in SOPs. Instruments are maintained according to manufacturer's suggestions. Maintenance logbooks are kept for each piece of equipment. They are used to document comments concerning equipment as well as routine maintenance and

repairs. Unacceptable or suspect data (quality assurance or sample) may indicate a deficiency in the instrumentation. With each occurrence of unacceptable or suspect data, a full investigation is initiated. If a deficiency in the instrumentation is discovered, the equipment is removed from operation until a satisfactory corrective action is completed. Prior to placing instrumentation back in service, quality assurance samples will be evaluated to ensure resolution of the problem.

Whenever internal quality assurance procedures or performance audits indicate a system failure, corrective action is taken immediately. A laboratory analysis is considered deficient when specific control limits are unacceptable. The chemist or field staff member using the equipment is responsible for detecting the deficiency, terminating the analysis, and investigating the problem. After the problem is identified and corrected, quality control samples are analyzed to ensure success. If the samples fall within the specified control limits, analyses may continue. All data and actions taken are documented on data sheets, in logbooks, etc. A laboratory supervisor and manager/scientist will review all data and approve specific Laboratory Corrective Action Plans (CAP). If any reported analysis is associated with unacceptable quality control data, a narrative will be provided in the PDF report.

The managers of each laboratory are responsible for ensuring that the instrumentation operated by their respective personnel is repaired or replaced in a timely manner. Maintenance and repairs must be in accordance with the manufacturer's requirements and the laboratory QA/QC documents. All maintenance and repairs are recorded in the instrument's logbook.

B.7 Instrument Calibration and Frequency

Procedures for field operations will be followed as stated in the instrument-related SOPs developed by the LDEQ. Field instrumentation used for the direct collection of water quality data includes chemical monitoring devices that measure pH, DO, specific conductivity/salinity, and temperature. Laboratory instrumentation used in the data collection process includes analytical balances, pH meters, DO meters, conductivity meters, turbidimeters, the flow-injection analyzer, the inductively-coupled plasma/mass spectrophotometer, gas chromatographs, gas chromatograph/mass spectrometer, the total organic carbon analyzer, the ion chromatograph and the auto-titrator.

Every instrument, such as those listed above, is subject to the provisions of this chapter and is uniquely identified by model, and serial number. A logbook is assigned to each instrument and is labeled with the unique identifiers. The logbooks contain all information on the instrument relative to standards, checks, calibration efforts and resulting adjustments, maintenance records, repair information and any other pertinent information. Data are recorded chronologically. All calibration and standard check procedures are in accordance with the manufacturer's operation and maintenance manual. Any deviations from those procedures will be documented in the subject logbook. Equipment is calibrated using National Institute of Standards and Technology (NIST) traceable standards where appropriate. Calibration techniques utilized are

referenced in the SOPs for each instrument. Calibration shall be performed as often as necessary to ensure that sample readings are within the specified tolerances. For field operations, meters will be calibrated before and after each sampling run. The frequency of calibrations for laboratory instrumentation is defined in laboratory SOPs for each analysis. All contract laboratories shall adhere to procedures similar to those specified above in order to ensure the accuracy of data provided to LDEQ.

B.8 Inspection/Acceptance Requirements for Supplies and Consumables

The ID staff order needed supplies and consumables. Supplies are inspected by ID staff prior to use. Containers for samples to be analyzed by contract laboratories shall be provided by the laboratory. Any sample containers that are not certified Level 1 clean will not be used. Preservatives, standards and buffers will not be used past the expiration date and will be discarded when expired or when contamination is suspected.

B.9 Indirect Data Acquisition Requirements

The LDEQ AWQMN generates new data for use in water quality assessments. However, data generated from outside sources will be considered for water quality assessment purposes, if the data collection effort was conducted in accordance with quality control/quality assurance procedures comparable to this QAPP.

B.10 Data Management

Data management processes for the ambient water quality program are outlined in figure 2. Additional details are provided in the following subsections.

B.10.1 *In Situ* Field Data from Field Data Forms

Field measurements and observations are recorded on the appropriate SWQFM or AWQSIS field data form at the time of sample site visit. Examples of these forms can be found on the LDEQ Intranet at http://intranet/sop/index/index.htm. The ID staff enters field data (data collected using *in situ* instruments) into a preliminary holding database from the SWQFM or AWQSIS field data forms. Procedures are in place to limit data entry errors. Field data is electronically reviewed in the regions by ID designee for completeness, accuracy and appropriateness of the data entered. Following regional review the field data is reconciled at LDEQ headquarters, by ID QA/QC reviewers and uploaded to LEADMS. Upon completion, the SWQFM or AWQSIS field data forms are sent to Electronic Data Management System (EDMS).

When water samples are collected in addition to *in situ* field data (the normal condition) the field data management process follows two tracks. 1) Field data from the SWQFM or AWQSIS field data forms are processed according to the procedures described immediately above. 2) COC forms are scanned by the contract laboratory and the originals retained for five years. PDF versions of the COC are forwarded back to LCMS along with the sample laboratory deliverables (report and EDD). The PDF report is

automatically submitted to EDMS. LCMS forwards all of the information to WQS via email for use in the data review and entry process.

If no water sample is collected but field measurements and observations are recorded on the appropriate SWQFM or AWQSIS field data forms the process then continues as noted above in the first paragraph of this section.

B.10.2 Laboratory Water Quality Data

Contract laboratories are required to provide analytical data to LDEQ LCMS in the form of narrative PDF reports and EDDs. EDDs are submitted via email. LCMS then reviews the data, uploads it into LEADMS, and forwards the data packages to WQS for entry into LEAU. After data is initially placed in LEAU by the WQS analyst, the DEAR unit reviews the data packages for additional QA/QC requirements and usability (SOP #1976). If DEAR identifies problems with a data package, changes are made by deleting original SDG and replacing with version edited by DEAR. Data management is conducted according to SOP #1480.

Data from LEAU are submitted by WQS to USEPA's Water Quality Exchange (WQX) data warehouse through the WQX Web tool. LEAU data is formatted to meet WQX data requirements through a series of queries and cross-walk tables. Two files, one containing laboratory results and the other containing field results are submitted to WQX in monthly batches. All data are available to interested parties and can be obtained by following Public Records Request procedures as stated in LDEQ Policy 0005-90.

C ASSESSMENT/OVERSIGHT

C.1 Assessments and Response Actions

The field activities project manager and assessment project manager, along with supervisors and managers of the AWQMN process, provide oversight and direction to the sampling staff and the data management and assessment staff. Planning meetings will be coordinated by the assessment and field activities project managers and conducted with the ambient sampling team prior to initiation of sampling in a new year. The purpose of these meetings is to finalize selection of sampling site locations and sampling frequency and to discuss logistics with team members. Periodic meetings will be conducted as needed to discuss concerns, problems, solutions or corrective actions to be taken and milestone achievement.

Senior and staff scientists will assist with assessments of monitoring and water quality assessment procedures. These assessments may include reviews of: procedures used in the collection of water samples and field data; documentation associated with sample collection; the calibration and maintenance log books used for the various instruments (sondes) used in collecting data; sample collection and data collection process; data management processes and records; and data quality. Results of assessment reviews are typically handled through informal mechanisms such as internal meetings and other

forms of communication. Formal reports may be developed if informal mechanisms do not resolve identified issues. The formal reports are sent to the two project managers (field activities and assessments), supervisor(s) and managers involved in the processes where issues were identified. Formal reports will be addressed with written responses addressing the issues and any corrective actions taken.

C.2 Reports to Management

The field activities project manager sends a quarterly status report to the ID Administrator. The report contains information relative to the status of the project. The number of water bodies monitored is represented in the report by a percentage of the total to be monitored in the four-year cycle. Semi-annual reports are provided through reporting to USEPA for the Performance Partnership Grant.

D DATA VALIDATION AND USABILITY

D.1 Data Review, Validation, and Verification Requirements

All sampling will be conducted according to the LDEQ *Standard Operating Procedures for Water Sample Collection, Preservation, Documentation and Shipping* and the quality assurance and control procedures referenced in this QAPP. Deviations from the procedures and requirements in the SOPs or the QAPP will be documented in field logbooks, in the project narrative generated by the contract laboratory, and/or in LEAU comment fields. Any events that occur during sample handling that may affect the integrity of the data will be noted on the WQMNS field data sheet and on the laboratory data forms. Deviations and events will be reviewed to determine if the impact causes a sample or resulting data to be invalid. Any change in AWQMN sample collection points from the original agreed upon locations will be documented and discussed with the field activities project manager and the assessment project manager. Changes in sample collection point not agreed upon by both the field activities project manager and the assessment project manager ***prior to*** *sample collection* may result in rejection of water quality data by WQS.

The goal for completeness is 100% for all types of samples. For metals and organic compounds water quality assessments will not be done with less than three data points per four-year assessment period. As resources allow, re-sampling for metals and organic compounds will occur in the same quarter as the missing result, or as soon as possible after notification by sample collectors of the missing sample is obtained and in consultation with the WQS. If only two data points are available for metals or organics assessments, and *both* samples exceed the applicable criterion, then an impairment will be reported in the IR even in the absence of three or more data points.

For other types of samples (other than metals and organic compounds), a minimum of five samples is required for the four-year assessment period. For fecal coliform and temperature measurements, the five samples must be during the six month summer swimming season (May – October) to determine support of primary contact recreation.

In some cases fewer than five samples for a parameter may be collected but still indicate impairment by that parameter. This occurs if a sufficient number of results exceed the criterion such that the routine assessment percentages (10%, 25%, or 30% depending on the criteria) for full support would be exceeded even if a full 6 or 12 samples (per QAPP requirement) had been collected. In these cases an IR impairment will be reported. To account for this situation, all instances of insufficient data for a parameter reported during routine IR SAS assessments will be followed up with a closer review of the data. This will be done to determine if impairment has occurred despite a routine determination of insufficient data in the automated SAS assessment process.[1]

Contract laboratories shall operate under a Quality System that helps to ensure the quality of the data utilized in the AWQMN. Contract laboratories shall participate in performance evaluation testing as necessary to ensure quality data. Laboratory quality control practices (spikes, duplicates, standards, adherence to holding times, proper preservation, etc.) are used to determine if data analyzed are accepted or rejected. In some cases, data are reported and qualified. For instance, if the maximum holding time for analyses was exceeded, the sample will be rejected. All contract laboratories shall adhere to QA/QC procedures designed to ensure the accuracy of data provided to LDEQ.

Review of field and laboratory blank data is critical to prevent false positive errors (i.e., assessing a water body as not meeting uses when it is). Protocols for qualification of data based on blank contamination are outlined in the DEAR SOP (#1976).

D.2 Validation and Verification Methods

The chemist who conducts the analysis first must review the ambient surface water quality data resulting from this monitoring program. The chemist will note any suspected problems with the sample quality or laboratory procedure that may invalidate the results. If laboratory QC is questionable and if the holding time for the analysis has not expired, the chemist will re-analyze the sample before reporting results. Analysis of samples out of hold time shall not be performed. Appropriate data review is conducted at the laboratory prior to issuance of the final report in accordance with the laboratory QAM and LELAP requirements. At least 3 levels of data review are required. Any data that does not meet QC requirements must be qualified with an attached explanation in the data report and EDD. Values outside the expected range for each parameter are flagged and reported in the data report and EDD.

The WQS will compare analytical sensitivity levels to the in-stream criteria and communicate to LCMS when reporting levels are not adequate for water quality

[1] For example, only four TDS samples were successfully collected and analyzed instead of the normal 12 for a monitoring cycle. All four samples exceeded the TDS criterion for the water body. Routine IR SAS assessment for the parameter would indicate insufficient data; however, 4/12=33.3%, which is above the 30% assessment threshold for full support of secondary parameters such as TDS. A similar protocol would be used for parameters associated with 10% and 25% assessment rules. The minimum number of samples required for the exceedance percentage calculation would vary with the assessment rule percentage.

assessment purposes (expect for risk-based toxic criteria as outlined previously, where technology is not available to report to such trace levels). The WQS will also evaluate blank sample data results and qualify according to the criteria outlined above and in the DEAR SOP (#1976). If anomalies are detected, follow-up investigation will be initiated.

D.3 Reconciliation with Data Quality Objectives

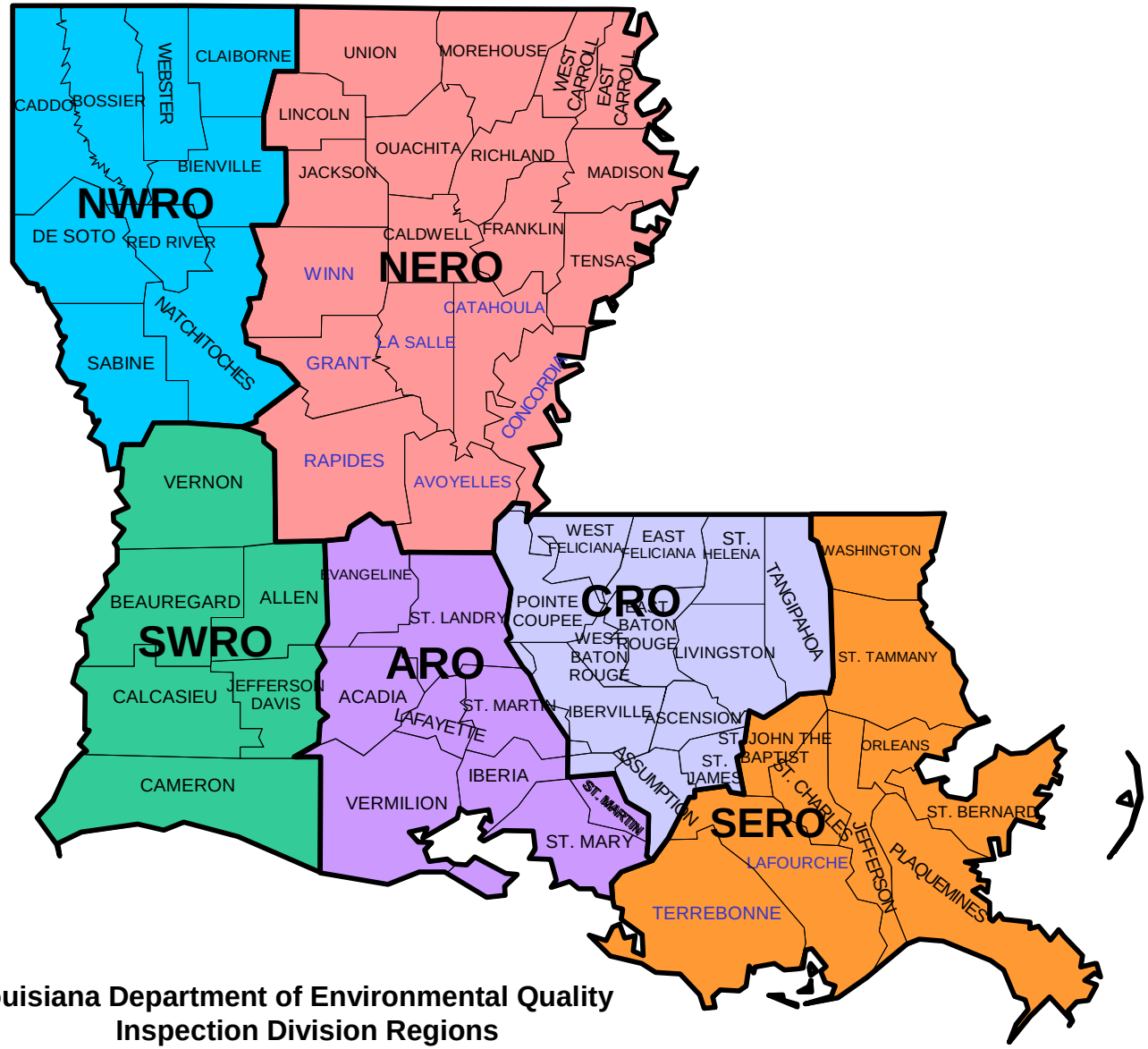
The WQS determines suitability of the data by reviewing evaluations performed by the DEAR unit procedures and other data validation elements. Data will be reported with qualifiers when laboratory quality control checks do not meet method requirements. Field quality control data will be reported with analysis results, allowing any user to determine if the data is suitable for their intended purpose.

The goal of the program is to have 100% of planned data available for water quality assessments; however, because deficiencies will occur (lost sample, invalid data, etc.), data completeness of less than 100% will not invalidate assessments. For organic compounds water quality assessments will not be done with less than three data points per four-year assessment period. The completeness requirement for other parameters is five data points for water quality assessments, as defined in Section D.1. Rejected (“R”, “RA,” etc.) data will not be used for assessments. Qualified data, as identified by ID, contract laboratory, or DEAR unit will be evaluated for its usability based on criteria outlined in Section D.1 and otherwise on a case-by-case basis until routine algorithms and management processes can be established to handle these occurrences.

APPENDIX A

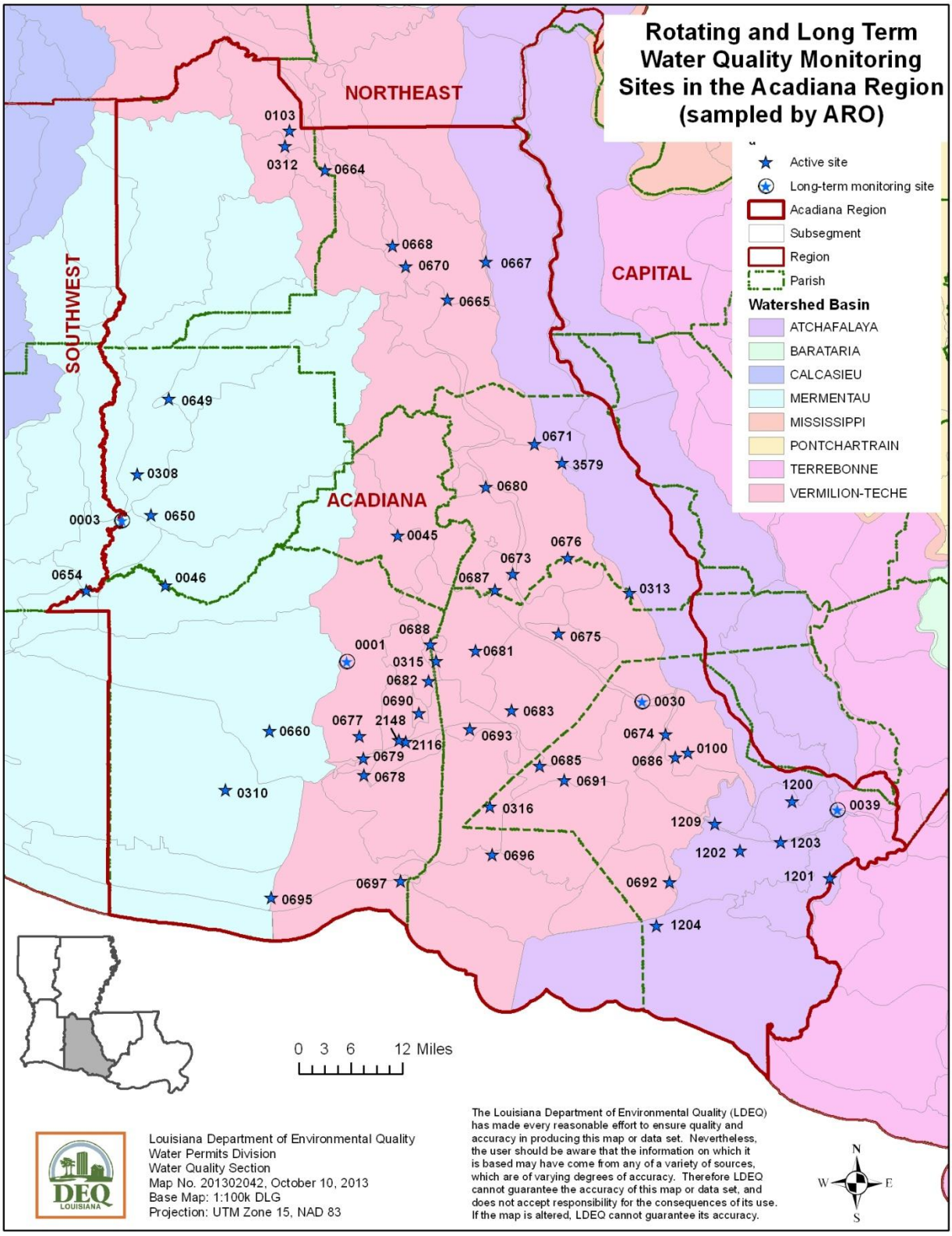
Map of LDEQ Regions and

Regional Sampling Site Maps



Louisiana Department of Environmental Quality
Inspection Division Regions

1/2003


Rotating and Long Term Water Quality Monitoring Sites in the Acadiana Region (sampled by ARO)
NORTHEAST
CAPITAL
SOUTHWEST
ACADIANA
Active site
Long-term monitoring site
Acadiana Region
Subsegment
Region
Parish
Watershed Basin
ATCHAFALAYA
BARATARIA
CALCASIEU
MERMENTAU
MISSISSIPPI
PONTCHARTRAIN
TERREBONNE
VERMILION-TECHE
0103
0312
0664
0668
0670
0667
0665
0649
0308
0003
0650
0654
0046
0045
0671
3579
0680
0673
0676
0687
0313
0688
0001
0315
0681
0675
0682
0690
0683
0030
0677
2148
2116
0693
0660
0679
0678
0674
0100
0686
0685
0691
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0039
1209
1203
1202
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1201
0697
0692
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0 3 6 12 Miles
Louisiana Department of Environmental Quality
Water Permits Division
Water Quality Section
Map No. 201302042, October 10, 2013
Base Map: 1:100k DLG
Projection: UTM Zone 15, NAD 83
The Louisiana Department of Environmental Quality (LDEQ) has made every reasonable effort to ensure quality and accuracy in producing this map or data set. Nevertheless, the user should be aware that the information on which it is based may have come from any of a variety of sources, which are of varying degrees of accuracy. Therefore LDEQ cannot guarantee the accuracy of this map or data set, and does not accept responsibility for the consequences of its use. If the map is altered, LDEQ cannot guarantee its accuracy.
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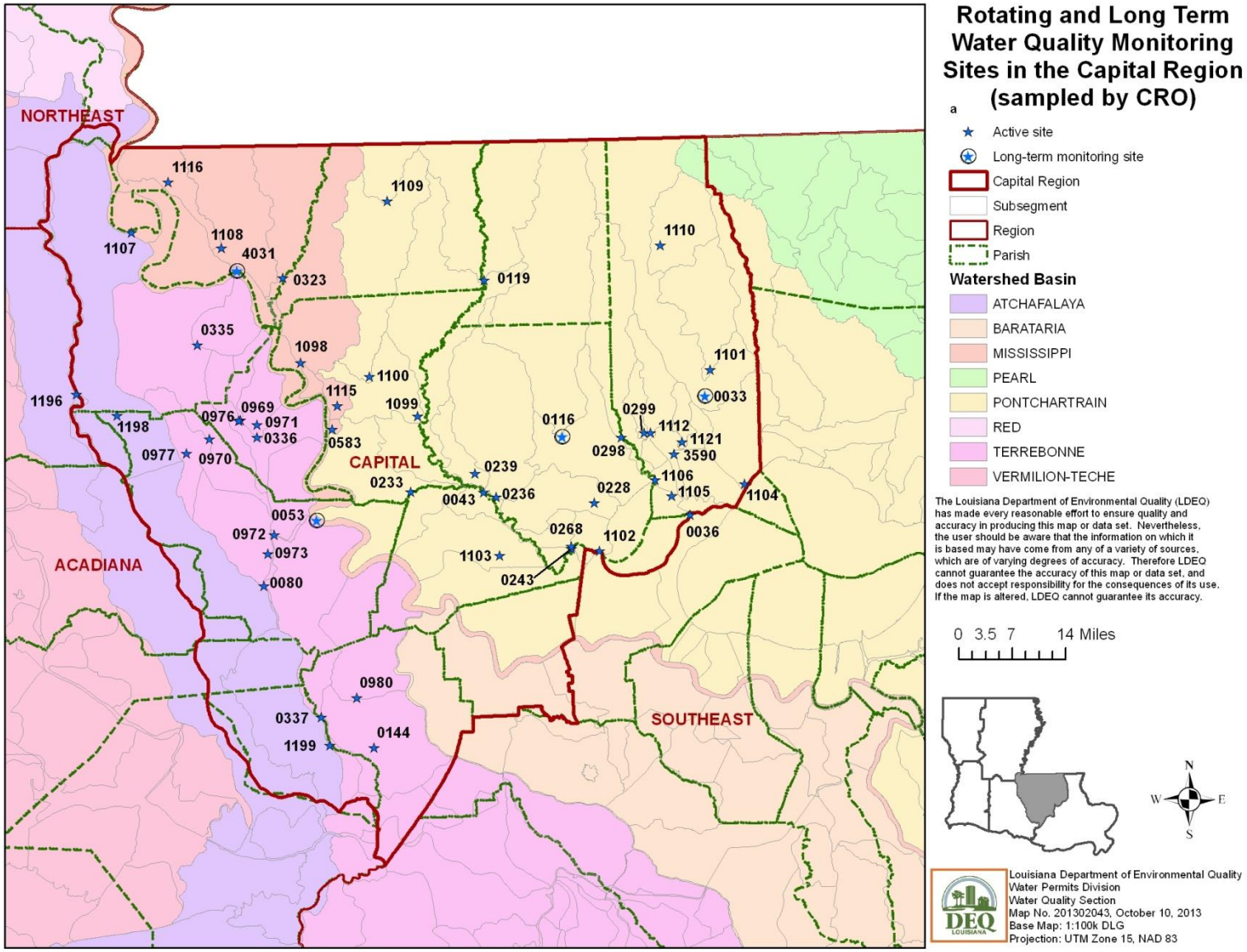

Rotating and Long Term Water Quality Monitoring Sites in the Capital Region (sampled by CRO)

a

- Active site
- Long-term monitoring site
- Capital Region
- Subsegment
- Region
- Parish

Watershed Basin

- ATCHAFALAYA
- BARATARIA
- MISSISSIPPI
- PEARL
- PONTCHARTRAIN
- RED
- TERREBONNE
- VERMILION-TECHE

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

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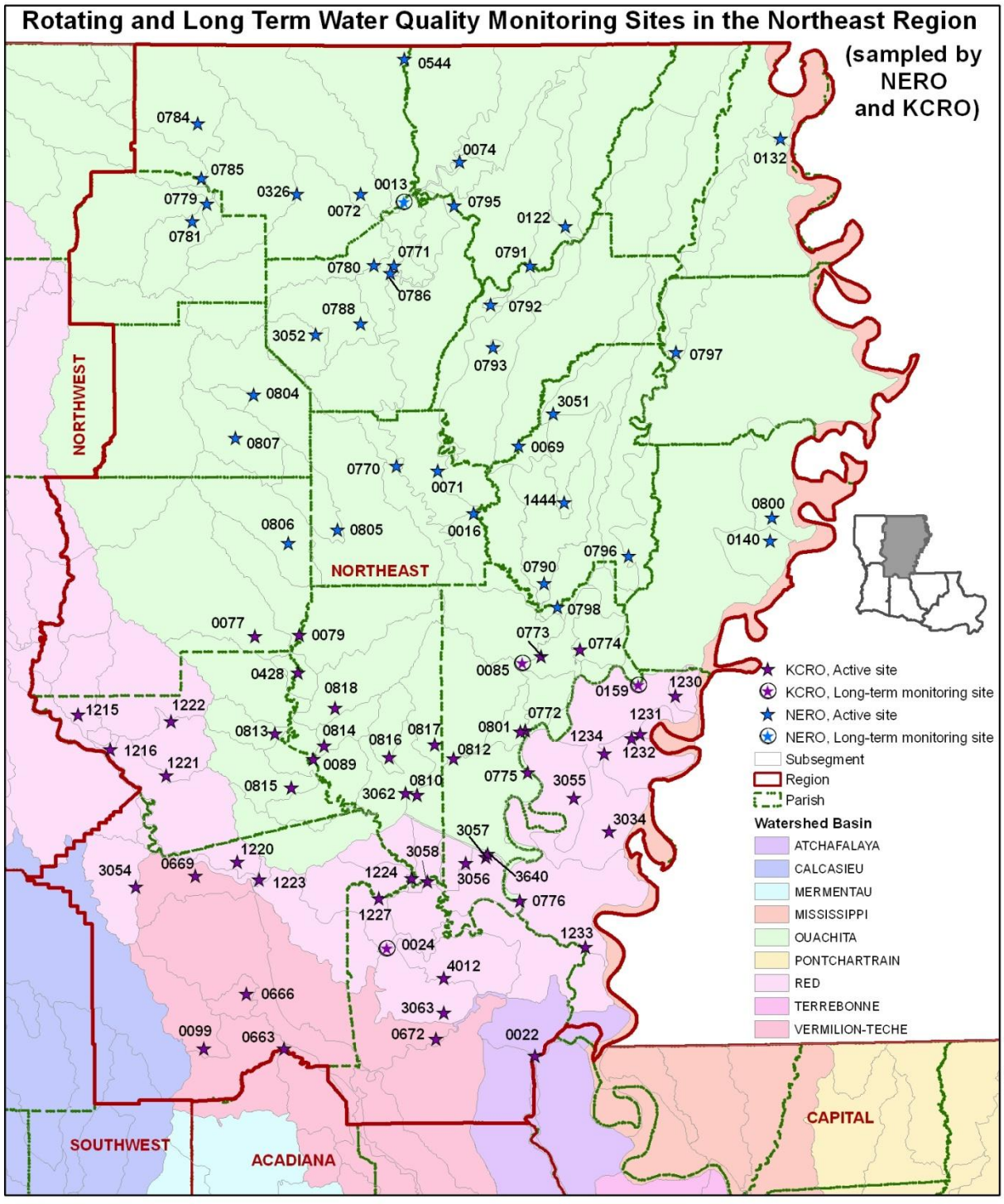
Louisiana Department of Environmental Quality
Water Permits Division
Water Quality Section
Map No. 201302043, October 10, 2013
Base Map: 1:100k DLG
Projection: UTM Zone 15, NAD 83



Louisiana Department of Environmental Quality
Water Permits Division
Water Quality Section
Map No. 201302044, October 10, 2013
Base Map: 1:100k DLG
Projection: UTM Zone 15, NAD 83

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N W E S

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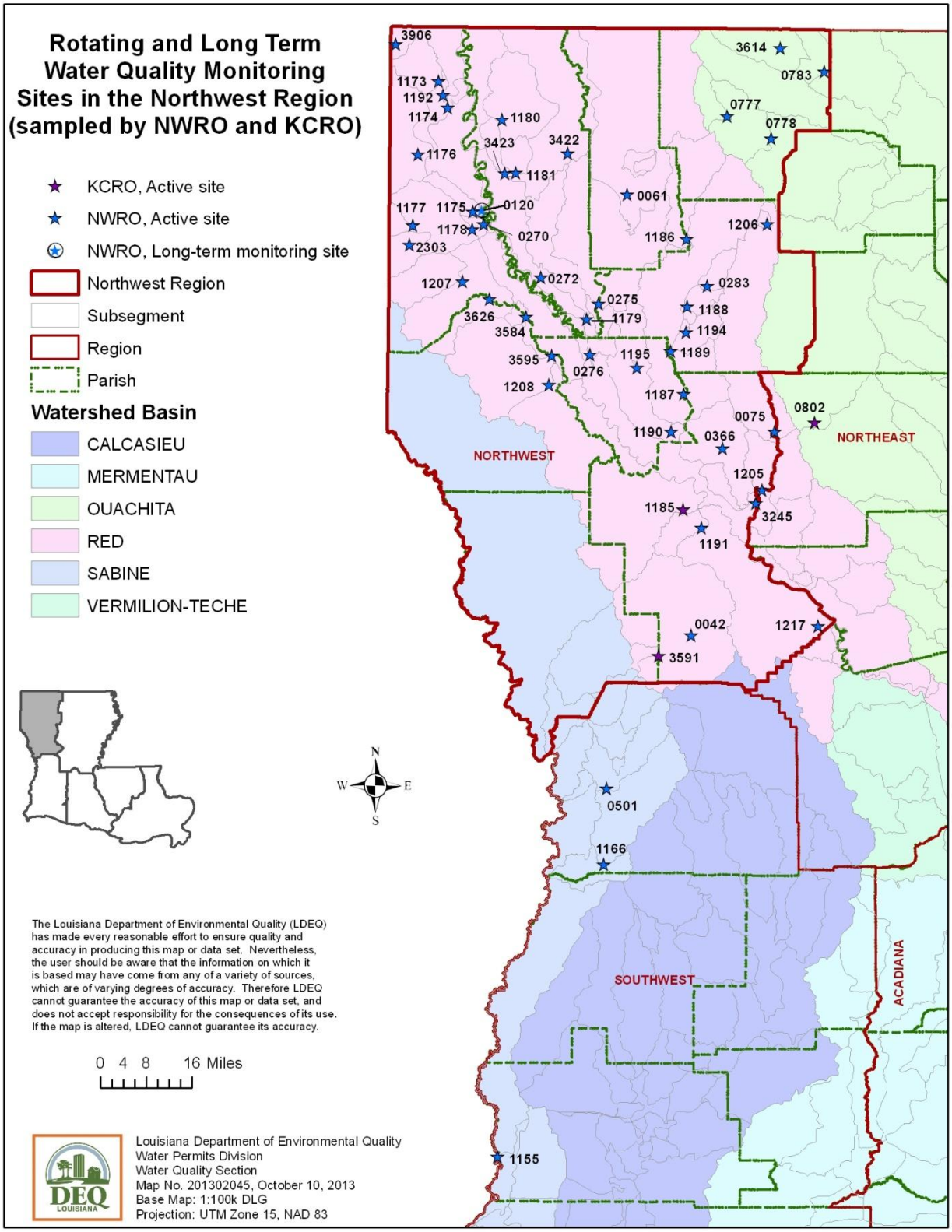
Rotating and Long Term Water Quality Monitoring Sites in the Northwest Region (sampled by NWRO and KCRO)
KCRO, Active site
NWRO, Active site
NWRO, Long-term monitoring site
Northwest Region
Subsegment
Region
Parish
Watershed Basin
CALCASIEU
MERMENTAU
OUACHITA
RED
SABINE
VERMILION-TECHE
3906
1173
1192
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0270
2303
0061
1186
1206
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0272
0283
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0276
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0802
0075
1190
0366
NORTHWEST
NORTHEAST
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SOUTHWEST
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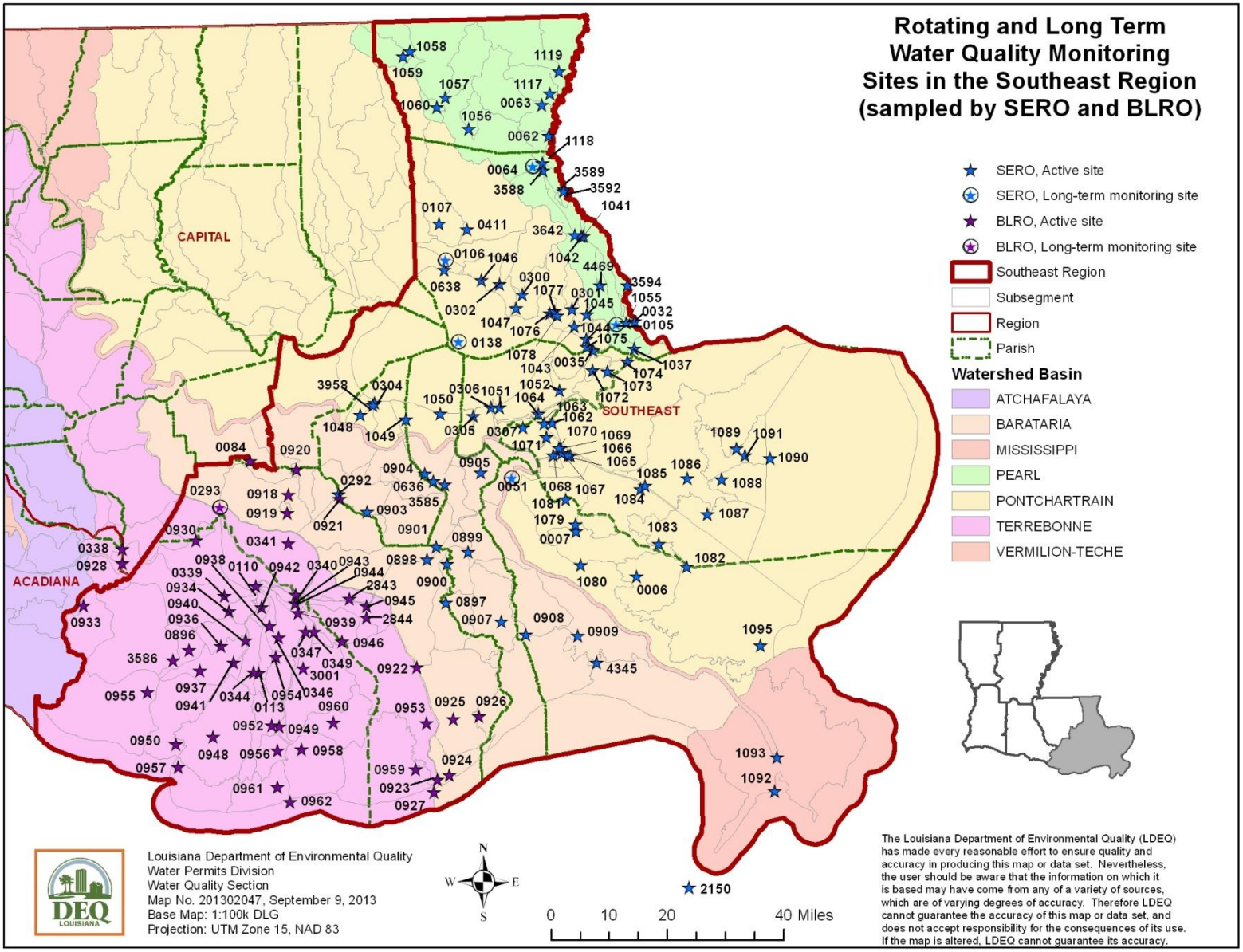
The Louisiana Department of Environmental Quality (LDEQ) has made every reasonable effort to ensure quality and accuracy in producing this map or data set. Nevertheless, the user should be aware that the information on which it is based may have come from any of a variety of sources, which are of varying degrees of accuracy. Therefore LDEQ cannot guarantee the accuracy of this map or data set, and does not accept responsibility for the consequences of its use. If the map is altered, LDEQ cannot guarantee its accuracy.
DEQ
LOUISIANA
Louisiana Department of Environmental Quality
Water Permits Division
Water Quality Section
Map No. 201302045, October 10, 2013
Base Map: 1:100k DLG
Projection: UTM Zone 15, NAD 83


Rotating and Long Term
Water Quality Monitoring
Sites in the Southeast Region
(sampled by SERO and BLRO)
SERO, Active site
SERO, Long-term monitoring site
BLRO, Active site
BLRO, Long-term monitoring site
Southeast Region
Subsegment
Region
Parish
Watershed Basin
ATCHAFALAYA
BARATARIA
MISSISSIPPI
PEARL
PONTCHARTRAIN
TERREBONNE
VERMILION-TECHE
CAPITAL
SOUTHEAST
ACADIANA
Louisiana Department of Environmental Quality
Water Permits Division
Water Quality Section
Map No. 201302047, September 9, 2013
Base Map: 1:100k DLG
Projection: UTM Zone 15, NAD 83
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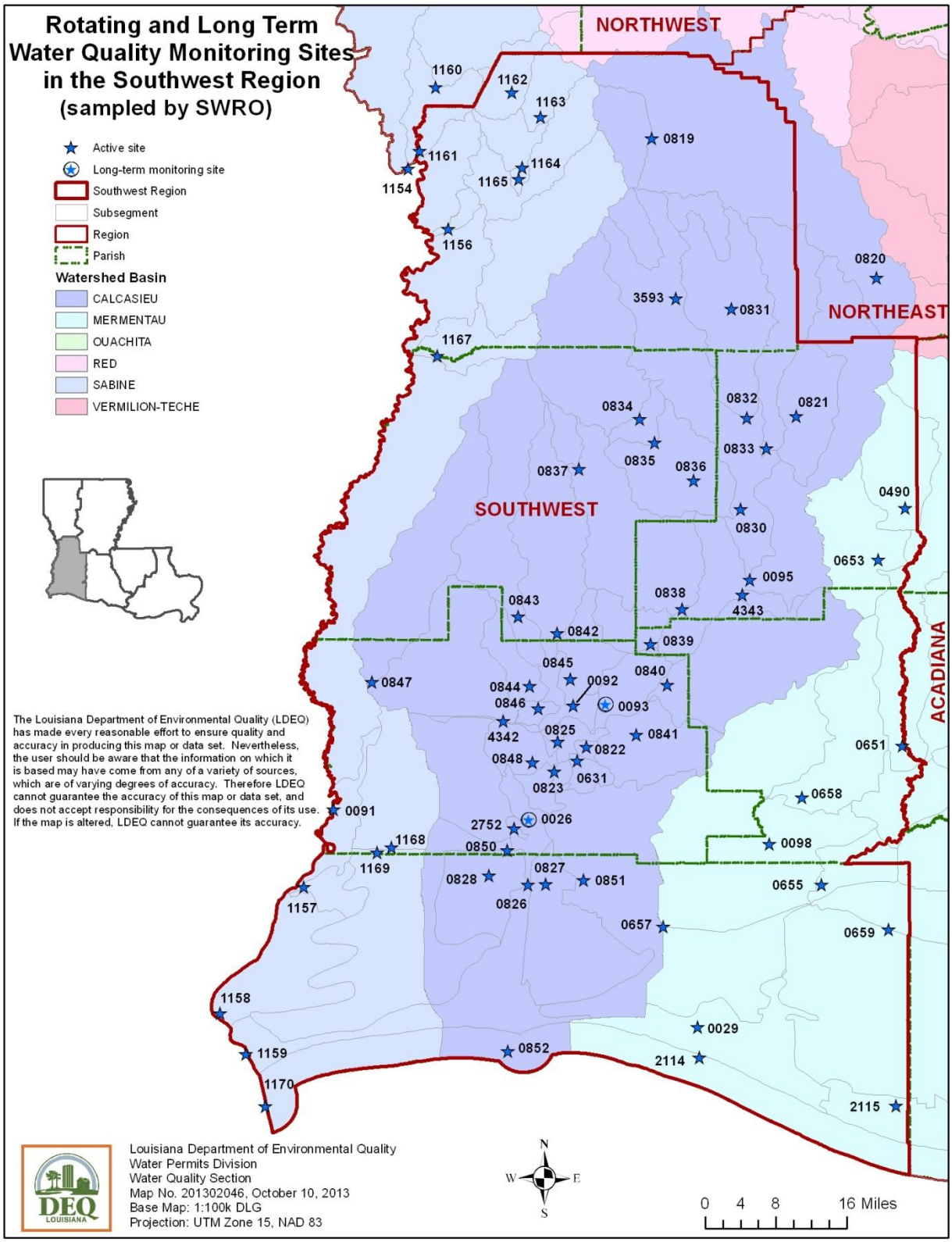
The Louisiana Department of Environmental Quality (LDEQ) has made every reasonable effort to ensure quality and accuracy in producing this map or data set. Nevertheless, the user should be aware that the information on which it is based may have come from any of a variety of sources, which are of varying degrees of accuracy. Therefore LDEQ cannot guarantee the accuracy of this map or data set, and does not accept responsibility for the consequences of its use. If the map is altered, LDEQ cannot guarantee its accuracy.


Rotating and Long Term Water Quality Monitoring Sites in the Southwest Region (sampled by SWRO)
Active site
Long-term monitoring site
Southwest Region
Subsegment
Region
Parish
Watershed Basin
CALCASIEU
MERMENTAU
OUACHITA
RED
SABINE
VERMILION-TECHE
NORTHWEST
NORTHEAST
SOUTHWEST
ACADIANA
1160
1162
1163
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4342
0825
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0848
0631
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0651
0658
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2752
0026
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1169
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0828
0851
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1157
0826
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0029
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0852
2114
1170
2115
The Louisiana Department of Environmental Quality (LDEQ) has made every reasonable effort to ensure quality and accuracy in producing this map or data set. Nevertheless, the user should be aware that the information on which it is based may have come from any of a variety of sources, which are of varying degrees of accuracy. Therefore LDEQ cannot guarantee the accuracy of this map or data set, and does not accept responsibility for the consequences of its use. If the map is altered, LDEQ cannot guarantee its accuracy.
Louisiana Department of Environmental Quality
Water Permits Division
Water Quality Section
Map No. 201302046, October 10, 2013
Base Map: 1:100k DLG
Projection: UTM Zone 15, NAD 83
N
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0 4 8 16 Miles

APPENDIX B

List of Ambient

Water Quality Monitoring Network

Sampling Sites and

Long-Term Monitoring Stations

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Atchafalaya Basin					
Atchafalaya River at Simmesport, Louisiana	LA010101_00	LA010101_00	0022	Active	
Atchafalaya River at Krotz Springs, Louisiana	LA010201_00	LA010201_00	1196	Active	
Henderson Lake at Butte La Rose pontoon bridge, Butte La Rose, Louisiana	LA010301_00	LA010301_00	3579	Active	
Alabama Bayou west of Maringouin, Louisiana	LA010401_00	LA010401_00	1198	Active	
Atchafalaya River at Morgan City, Louisiana	LA010501_00	LA010501_00	0039	Long-term	Yes
ICWW south of Belle River, Louisiana	LA010502_00	LA010502_00	1199	Active	Yes
Bayou Blue at North Bend Pumping Station, North Bend, Louisiana	LA010601_00	LA010601_00	1209	Active	
Bayou Teche at Patterson, Louisiana	LA010701_00	LA010701_00	1200	Active	Yes
Lower Atchafalaya River near Bateman Island, Louisiana	LA010801_00	LA010801_00	1201	Active	
Wax Lake Outlet southwest of Patterson, Louisiana	LA010802_00	LA010802_00	1202	Active	
ICWW south of Patterson, Louisiana	LA010803_00	LA010803_00	1203	Active	
Atchafalaya Bay south of Burns, Louisiana	LA010901_00	LA010901_00	1204	Active	
Barataria Basin					
Bayou Chevreuil near Chegby (Chackbay), Louisiana	LA020101_00	LA020101_00	0084	Active	
Bayou Boeuf at Halpin Canal, Louisiana	LA020102_00	LA020102_00	0918	Active	
Lake Boeuf north of Theriot Canal, Louisiana	LA020103_00	LA020103_00	0919	Active	
Bayou Des Allemands at Des Allemands, Louisiana	LA020201_00	LA020201_00	0292	Active	
Lac Des Allemands north of Bayou Boeuf, Louisiana	LA020202_00	LA020202_00	0920	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Bayou Des Allemands 0.5 mile south of Hwy 90 bridge in Des Allemands, LA	LA020301_00	LA020301_00	0921	Active	
Bayou Gauche northwest of Carmadelle, Louisiana	LA020302_00	LA020302_00	0903	Active	
Lake Cataouatche South of Avondale, Louisiana	LA020303_00	LA020303_00	0636	Active	
Lake Salvador northeast of Point Chicot, Louisiana	LA020304_00	LA020304_00	0901	Active	
Bayou Lafourche at Thibodaux, Louisiana	LA020401_00	LA020401_00	0293	Long-term	Yes
Bayou Lafourche at Golden Meadow, Louisiana	LA020402_00	LA020402_00	0922	Active	
Bayou Lafourche at Belle Pass, Louisiana	LA020403_00	LA020403_00	0923	Active	
Main Canal, 2.1 miles south of Hwy 90 at water control structure	LA020501_00	LA020501_00	0904	Active	
Harvey Canal at Lapalco Blvd (east side of canal) south of Harvey, Louisiana	LA020601_00	LA020601_00	0905	Active	
Bayou Segnette northeast of Lake Cataouatche, Louisiana	LA020701_00	LA020701_00	3585	Active	
Intracoastal Waterway southwest of Bayou Perot, Louisiana	LA020801_00	LA020801_00	0898	Active	
Barataria Waterway Lafitte northeast of Lafitte, Louisiana	LA020802_00	LA020802_00	0899	Active	
Bayou Perot southwest of Barataria, Louisiana	LA020901_00	LA020901_00	0900	Active	
Little Lake south of Bayou Perot, Louisiana	LA020902_00	LA020902_00	0897	Active	
Barataria Waterway south-southeast of Lafitte, Louisiana	LA020903_00	LA020903_00	0907	Active	
Wilkinson Bayou north of Barataria Bay, Louisiana	LA020904_00	LA020904_00	0908	Active	
Unnamed canal between Pass Fourchon and Bay Champagne, Louisiana	LA020905_00	LA020905_00	0924	Active	
Southwestern Louisiana Canal at North Lake, Louisiana	LA020906_00	LA020906_00	0925	Active	
Bayou Dulac west of Bay Sanbois, Louisiana	LA020907_00	LA020907_00	0909	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Pipeline canal at end of Rattlesnake Bayou, 0.25 mile SW Freeport Sulphur Canal	LA021001_00	LA021001_00	4345	Active	
Bay Lizette east of Leeville, Louisiana	LA021101_00	LA021101_00	0926	Active	
Gulf of Mexico south of Belle Pass, Louisiana	LA021102_00	LA021102_00	0927	Active	
Calcasieu Basin					
Calcasieu River northeast of Slagle, Louisiana	LA030102_00	LA030101_00	0819	Active	
Calcasieu River east of Union Hill, Louisiana	LA030102_00	LA030102_00	0820	Active	
Calcasieu River near Kinder, Louisiana	LA030103_00	LA030103_00	0095	Active	
Kinder Ditch at Highway 383 bridge	LA030103_04075	LA030103_04075	4343	Active	
Mill Creek Southwest of Elizabeth, Louisiana	LA030104_00	LA030104_00	0821	Active	
Calcasieu River at Moss Bluff, Louisiana	LA030201_00	LA030201_00	0093	Long-term	
Lake Charles at the City of Lake Charles, Louisiana	LA030302_00	LA030302_00	0822	Active	
Prien Lake southwest of the City of Lake Charles, Louisiana	LA030303_00	LA030303_00	0823	Active	
Calcasieu River at Burton Landing, Louisiana	LA030401_00	LA030304_00	0026	Long-term	
Contraband Bayou at Lake Charles, Louisiana	LA030305_00	LA030305_00	0631	Active	
Bayou Verdine west of Westlake, Louisiana	LA030306_00	LA030306_00	0825	Active	
Calcasieu River in Hackberry, Louisiana	LA030401_00	LA030401_00	0826	Active	
Calcasieu Lake west of Hebert's Landing, Louisiana	LA030402_00	LA030402_00	0827	Active	
Black Lake west of Hackberry, Louisiana	LA030403_00	LA030403_00	0828	Active	
Whiskey Chitto Creek west of Cravens, Louisiana	LA030502_00	LA030501_00	3593	Active	
Whiskey Chitto Creek northwest of Kinder, Louisiana	LA030502_00	LA030502_00	0830	Active	
Six Mile Creek northwest of Pitkin, Louisiana	LA030504_00	LA030503_00	0831	Active	
Six Mile Creek north of Mittie, Louisiana	LA030504_00	LA030504_00	0832	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Ten Mile Creek northeast of Mittie, Louisiana	LA030505_00	LA030505_00	0833	Active	
Bundicks Creek northwest of Bundicks Lake	LA030507_00	LA030506_00	0834	Active	
Bundicks Lake northwest of Dry Creek, Louisiana	LA030507_00	LA030507_00	0835	Active	
Bundicks Creek Southeast of Dry Creek, Louisiana	LA030508_00	LA030508_00	0836	Active	
Barnes Creek north of Longville, Louisiana	LA030601_00	LA030601_00	0837	Active	
Barnes Creek south of Reeves, Louisiana	LA030602_00	LA030602_00	0838	Active	
Marsh Bayou southeast of Topsy, Louisiana	LA030603_00	LA030603_00	0839	Active	
Bayou Serpent southeast of Hecker, Louisiana	LA030701_00	LA030701_00	0840	Active	
English Bayou north of Chloe', Louisiana	LA030702_00	LA030702_00	0841	Active	
Calcasieu River (West Fork) near Lake Charles, Louisiana	LA030801_00	LA030801_00	0092	Active	
Hickory Branch east southeast of DeQuincy, Louisiana	LA030802_00	LA030802_00	0842	Active	
Beckwith Creek east of DeQuincy, Louisiana	LA030803_00	LA030803_00	0843	Active	
Little River east of Buhler, Louisiana	LA030804_00	LA030804_00	0844	Active	
Indian Bayou at Moss Bluff, Louisiana	LA030805_00	LA030805_00	0845	Active	
Houston River northeast of Sulphur, Louisiana	LA030806_00	LA030806_00	0846	Active	
Houston River Canal – SRA Control Gate #2	LA030806_554700	LA030806_554700	4342	Active	Yes
Bear Head Creek northeast of Starks, Louisiana	LA030807_00	LA030807_00	0847	Active	
Bayou D'Inde south of Sulphur, Louisiana	LA030901_00	LA030901_00	0848	Active	
Bayou Choupique south of Sulphur, Louisiana	LA031001_00	LA031001_00	2752	Active	
Intracoastal Waterway northwest of Hackberry, Louisiana	LA031002_00	LA031002_00	0850	Active	
Intracoastal Waterway west of Boones Corner, Louisiana	LA031101_00	LA031101_00	0851	Active	
Calcasieu River Coastal Waters Southeast of Cameron Jetties, Louisiana	LA031201_00	LA031201_00	0852	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Pontchartrain Basin					
Comite River at Wilson-Clinton Rd. Bridge	LA040101_00	LA040101_00	1109	Active	
Comite River near Comite Drive Bridge	LA040102_00	LA040102_00	1100	Active	
Comite River near Stevendale Road train bridge	LA040103_00	LA040103_00	1099	Active	
Bayou Manchac SE of Baton Rouge, Louisiana	LA040201_00	LA040201_00	0233	Active	
Amite River at Grangeville, Louisiana	LA040301_00	LA040301_00	0119	Active	
Amite River at Port Vincent, Louisiana	LA040302_00	LA040302_00	0043	Active	
Amite River at mile 6.5, at Clio, Louisiana	LA040303_00	LA040303_00	0228	Active	
Gray's Creek north of Port Vincent, Louisiana	LA040304_00	LA040304_00	0239	Active	
Colyell Bay near Port Vincent, Louisiana	LA040305_00	LA040305_00	0236	Active	
Blind River near confluence with Lake Maurepas	LA040401_00	LA040401_00	1102	Active	
Amite River Diversion Canal north of Gramercy, Louisiana	LA040402_00	LA040402_00	0268	Active	
Blind River east of Gonzales, Louisiana	LA040403_00	LA040403_00	0243	Active	
New River near Hwy. 937 bridge	LA040404_00	LA040404_00	1103	Active	
Tickfaw River at Springville, Louisiana	LA040501_00	LA040501_00	0116	Long-term	
Tickfaw River near Lake Maurepas	LA040502_00	LA040502_00	1106	Active	
Natalbany River west of Ponchatoula, Louisiana	LA040503_00	LA040503_00	0298	Active	
Yellow Water River west of Ponchatoula, Louisiana	LA040504_00	LA040504_00	0299	Active	
Ponchatoula Creek at Hwy. 22	LA040505_00	LA040505_00	1112	Active	
Pass Manchac at Manchac, Louisiana	LA040601_00	LA040601_00	0036	Active	
Lake Maurepas	LA040602_00	LA040602_00	1105	Active	
Selsers Creek at Weinberger Road, southeast of Ponchatoula, Louisiana	LA040603_00	LA040603_00	1121	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
I-55 Borrow Canal, south of Ponchatoula, Louisiana	LA040604_00	LA040604_00	3590	Active	
Tangipahoa River west of Robert, Louisiana	LA040701_00	LA040701_00	0033	Long-term	
Tangipahoa River near Lake Pontchartrain	LA040702_00	LA040702_00	1104	Active	
Big Creek near Roseland, Louisiana	LA040703_00	LA040703_00	1110	Active	
Chappepeela Creek at Chappepeela Rd. Bridge	LA040704_00	LA040704_00	1101	Active	
Tchefuncte River west of Covington, Louisiana	LA040801_00	LA040801_00	0107	Active	
Tchefuncte River at Madisonville, Louisiana	LA040802_00	LA040802_00	0106	Long-term	
Tchefuncte River south of Madisonville, Louisiana	LA040803_00	LA040803_00	0638	Active	
Bogue Falaya at Covington, Louisiana	LA040804_00	LA040804_00	0411	Active	
Bayou Lacombe below Highway 190, west of Slidell, Louisiana	LA040901_00	LA040901_00	0300	Active	
Bayou Lacombe at Hwy. 434 Bridge	LA040902_00	LA040902_00	1047	Active	
Cane Bayou east of Mandeville, Louisiana	LA040903_00	LA040903_00	0302	Active	
Bayou Castine at Prieto Marina	LA040904_00	LA040904_00	1046	Active	
Bayou Liberty at Hwy. 433 Bridge	LA040905_00	LA040905_00	1077	Active	
Bayou Liberty at Bayou Paquet	LA040906_00	LA040906_00	1076	Active	
Bayou Bonfouca at Slidell, Louisiana	LA040907_00	LA040907_00	0301	Active	
Bayou Bonfouca, 3.2 miles South of Hwy. 433	LA040908_00	LA040908_00	1078	Active	
W-14 Canal at Voters Road Bridge, Slidell, Louisiana	LA040909_00	LA040909_00	1045	Active	
Salt Bayou at Hwy. 433 boat launch	LA040910_00	LA040910_00	1044	Active	
Unnamed Canal at 450 Eden Isles Drive, Slidell, Louisiana	LA040911_00	LA040911_00	1043	Active	
Lake Pontchartrain (Causeway Crossover #4) near Metairie, Louisiana	LA041001_00	LA041001_00	0138	Long-term	
Lake Pontchartrain south of Treasure Isle channel marker #6	LA041002_00	LA041002_00	1075	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Bonne Carre Spillway boat launch	LA041101_00	LA041101_00	1048	Active	
Bayou La Branche north of Norco, Louisiana	LA041201_00	LA041201_00	0304	Active	
Bayou Trepagnier east of Laplace, Louisiana	LA041202_00	LA041202_00	3958	Active	
Duncan Canal at I-10 mile marker 221, Kenner, Louisiana	LA041203_00	LA041203_00	1049	Active	
Bayou Saint John at New Orleans, Louisiana	LA041301_00	LA041301_00	0305	Active	
Suburban Canal near pumping station #2, Avron Drive, Metairie, Louisiana	LA041302_00	LA041302_00	1050	Active	
St. Charles Canal at Morrison Rd., New Orleans, Louisiana	LA041401_00	LA041401_00	1051	Active	
Inner Harbor Navigation Canal at New Orleans, Louisiana	LA041501_00	LA041501_00	0306	Active	
Intracoastal Waterway at New Orleans Public Service gas pipeline crossing	LA041601_00	LA041601_00	1064	Active	
Pass Rigolets (The Rigolets) southeast of Slidell, Louisiana	LA041701_00	LA041701_00	0035	Active	
Bayou Sauvage at Lombards boat launch, Hwy. 90	LA041702_00	LA041702_00	1052	Active	
Intracoastal Waterway at intersection with unknown pass	LA041703_00	LA041703_00	1073	Active	
Lake St. Catherine, Louisiana	LA041704_00	LA041704_00	1072	Active	
Bayou Bienvenue north of Chalmette, Louisiana	LA041801_00	LA041801_00	0307	Active	
Bayou Chaperon near Bayou Bienvenue	LA041802_00	LA041802_00	1071	Active	
Bayou Bashman near Bayou Dupre	LA041803_00	LA041803_00	1070	Active	
Bayou Dupre adjacent to Toca loading dock	LA041804_00	LA041804_00	1069	Active	
Violet Canal near New Canal	LA041805_00	LA041805_00	1068	Active	
Bayou Pirogue near New Canal	LA041806_00	LA041806_00	1066	Active	
Bayou Terre Beau near New Canal, Louisiana	LA041807_00	LA041807_00	1067	Active	
New Canal near Bayou Pirogue, Louisiana	LA041808_00	LA041808_00	1065	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Mississippi River Gulf Outlet at marker #94	LA041901_00	LA041901_00	1085	Active	
Lake Borgne near mouth of Blind Rigolets	LA042001_00	LA042001_00	1074	Active	
Bayou Bienvenue, Louisiana	LA042002_00	LA042002_00	1062	Active	
Bayou Loutre near Mississippi River Gulf Outlet	LA042003_00	LA042003_00	1086	Active	
Bayou Bienvenue, Louisiana	LA042004_00	LA042004_00	1063	Active	
Bayou Loutre at Breton Sound Marina	LA042101_00	LA042101_00	1084	Active	
Oak River at Koch Gateway pipeline crossing	LA042102_00	LA042102_00	1080	Active	
Bayou Gentilly near Lake Petit, Louisiana	LA042103_00	LA042103_00	1079	Active	
Petit Lake south of Delacroix, Louisiana	LA042104_00	LA042104_00	0007	Active	
Lake Lery	LA042105_00	LA042105_00	1081	Active	
Point Lydia, Louisiana	LA042201_00	LA042201_00	1090	Active	
Breton Sound near Mozambique Point	LA042202_00	LA042202_00	1082	Active	
Bay Boudreau 5.18 nautical miles from Morgan Harbor	LA042203_00	LA042203_00	1089	Active	
Drum Bay, Louisiana	LA042204_00	LA042204_00	1091	Active	
Morgan Harbor, Louisiana	LA042205_00	LA042205_00	1088	Active	
Eloi Bay near Mississippi River Gulf Outlet marker #76, Louisiana	LA042206_00	LA042206_00	1087	Active	
Lake Calebasse	LA042207_00	LA042207_00	1083	Active	
Bay Gardene (Bayou Lost) East of Pointe a la Hache, Louisiana	LA042208_00	LA042208_00	0006	Active	
Breton Sound near LLOG well head	LA042202_00	LA042209_00	1095	Active	
Mermentau Basin					
Bayou Des Cannes northeast of Jennings, Louisiana	LA050101_00	LA050101_00	0308	Active	
Bayou Mallet north of Iota, Louisiana	LA050103_00	LA050103_00	0649	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Bayou Plaquemine Brule southwest of Egan, Louisiana	LA050201_00	LA050201_00	0650	Active	
Bayou Nezpique east of Jennings, Louisiana	LA050301_00	LA050301_00	0651	Active	
Castor Creek east of Oberlin, Louisiana	LA050303_00	LA050303_00	0490	Active	
Bayou Blue south of Soileau, Louisiana	LA050304_00	LA050304_00	0653	Active	
Mermentau River at Mermentau, Louisiana	LA050401_00	LA050401_00	0003	Long-term	
Mermentau River at Lake Arthur, Louisiana	LA050401_00	LA050401_00	0654	Active	
Mermentau River (lower) at Lacassine National Wildlife Refuge, Louisiana	LA050402_00	LA050402_00	0655	Active	
Bayou Queue de Tortue north of Gueydan, Louisiana	LA050501_00	LA050501_00	0046	Active	
Bayou Lacassine near Lake Arthur, Louisiana	LA050601_00	LA050601_00	0098	Active	
Intracoastal Waterway SSW of Iowa, Louisiana	LA050602_00	LA050602_00	0657	Active	
Bayou Chene south of Welsh, Louisiana	LA050603_00	LA050603_00	0658	Active	
Grand Lake near Talen's Landing, Louisiana	LA050701_00	LA050701_00	0659	Active	
Intracoastal Waterway at Mile 170, Louisiana	LA050702_00	LA050702_00	0660	Active	
White Lake southwest of Abbeville, Louisiana	LA050703_00	LA050703_00	0310	Active	
Mermentau River near Grand Cheniere, Louisiana	LA050801_00	LA050801_00	0029	Active	
Big Constance Lake	LA050802_00	LA050802_00	2115	Active	
Gulf of Mexico southwest of Grand Chenier, Louisiana	LA050901_00	LA050901_00	2114	Active	
Vermilion-Teche Basin					
Spring Creek near Glenmora, Louisiana	LA060101_00	LA060101_00	0099	Active	
Cocodrie Lake north of Clearwater, Louisiana	LA060102_00	LA060102_00	0663	Active	
Bayou Cocodrie at St. Landry, Louisiana	LA060201_00	LA060201_00	0103	Active	
Bayou Cocodrie Diversion Canal at Highway 29, Louisiana	LA060202_00	LA060202_00	0664	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Lake Chicot north of Ville Platte, Louisiana	LA060203_00	LA060203_00	0312	Active	
Bayou Courtableau in Port Barre, Louisiana	LA060204_00	LA060204_00	0665	Active	
Indian Creek Reservoir southeast of Woodworth, Louisiana	LA060206_00	LA060206_00	0666	Active	
Bayou des Glaises Diversion Channel east of Washington, Louisiana	LA060207_00	LA060207_00	0667	Active	
Bayou Boeuf north of Washington, Louisiana	LA060208_00	LA060208_00	0668	Active	
Irish Ditch/Big Bayou southeast of Boyce, Louisiana	LA060209_00	LA060209_00	0669	Active	
Bayou Carron east of Washington, Louisiana	LA060210_00	LA060210_00	0670	Active	
West Atchafalaya Borrow Pit Canal northeast of Breaux Bridge, Louisiana	LA060211_00	LA060211_00	0671	Active	
Bayou des Glaises near Long Bridge, Louisiana	LA060212_00	LA060212_00	0672	Active	
Bayou Teche 1.9 miles south of St. Martinville, LA	LA060301_00	LA060301_00	0673	Active	
Bayou Teche at Adeline, Louisiana	LA060401_00	LA060401_00	0030	Long-term	
Bayou Teche at Franklin, Louisiana	LA060501_00	LA060501_00	0100	Active	Yes
Charenton Canal south of Baldwin, Louisiana	LA060601_00	LA060601_00	0674	Active	Yes
Tete Bayou east of New Iberia, Louisiana	LA060701_00	LA060701_00	0675	Active	
Lake Fausse Pointe east of New Iberia, Louisiana	LA060702_00	LA060702_00	0313	Active	
Bayou du Portage south of Coteau Holmes, Louisiana	LA060703_00	LA060703_00	0676	Active	
Vermilion River near Lafayette, Louisiana	LA060801_00	LA060801_00	0045	Active	
Ruth Canal	LA060801_00	LA060805_00	0680	Active	
Vermilion River at Perry, Louisiana	LA060802_00	LA060802_00	0001	Long-term	
Vermilion River North of Intracoastal City, Louisiana	LA060802_00	LA060802_00	0677	Active	
Vermilion River Cutoff southwest of Abbeville, Louisiana	LA060803_00	LA060803_00	0678	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Intracoastal Waterway southwest of Abbeville, Louisiana	LA060804_00	LA060804_00	0679	Active	
Bayou Petite Anse east of Delcambre, Louisiana	LA060901_00	LA060901_00	0681	Active	
Delcambre Canal east of Abbeville, Louisiana	LA060902_00	LA060902_00	0315	Active	
Bayou Tigre south of Delcambre, Louisiana	LA060903_00	LA060903_00	0682	Active	
New Iberia Southern Drainage Canal south of New Iberia, Louisiana	LA060904_00	LA060904_00	0683	Active	
Intracoastal Waterway at Cypremort Point Drawbridge, Louisiana	LA060906_00	LA060906_00	0685	Active	
Franklin Canal in Franklin, Louisiana	LA060501_00	LA060907_00	0686	Active	
Spanish Lake southwest of Delacroix, Louisiana	LA060908_00	LA060908_00	0687	Active	
Lake Peigneur west of Jefferson Island, Louisiana	LA060909_00	LA060909_00	0688	Active	
Boston Canal/ICWW north of ICWW at 2nd oilfield canal	LA060910_00	LA060910_00	2148	Active	
Dugas Canal by Tiger Lagoon Oil and Gas Field southeast of Boston, Louisiana	LA060911_00	LA060911_00	0690	Active	
West Cote Blanche Bay southeast of Cypremort, Louisiana	LA061001_00	LA061001_00	0691	Active	
East Cote Blanche Bay south of Franklin, Louisiana	LA061002_00	LA061002_00	0692	Active	
Bayou Petite Anse southeast of Abbeville, Louisiana	LA061102_00	LA061101_00	0693	Active	
Intracoastal Waterway southwest of Avery Island, Louisiana	LA061102_00	LA061102_00	2116	Active	
Freshwater Bayou Canal south of Kaplan, Louisiana	LA061103_00	LA061103_00	0695	Active	
Vermilion Bay south of New Iberia, Louisiana	LA061104_00	LA061104_00	0316	Active	
Bird Island Bayou at North end of Marsh Island, Louisiana	LA061105_00	LA061105_00	0696	Active	
Gulf of Mexico Southwest Pass of Vermilion Bay	LA061201_00	LA061201_00	0697	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Mississippi River Basin					
Mississippi River at USACE Mat Casting Dock	LA070201_00	LA070201_00	4031	Long-term	Yes
Old River Lake at Old River Landing	LA070202_00	LA070202_00	1107	Active	
Bayou Baton Rouge	LA070203_00	LA070203_00	1098	Active	
Mississippi River at Belle Chasse, Louisiana	LA070301_00	LA070301_00	0051	Active	Yes
Mississippi River at Plaquemine, Louisiana	LA070301_00	LA070301_00	0053	Active	Yes
South Pass at Head of Passes	LA070401_00	LA070401_00	1093	Active	
Bayou Sara at Tunica St. Bridge	LA070501_00	LA070501_00	1108	Active	
Thompsons Creek east of Saint Francisville, Louisiana	LA070502_00	LA070502_00	0323	Active	
Capitol Lake at Baton Rouge, Louisiana	LA070503_00	LA070503_00	0583	Active	
Monte Sano Bayou south of Scotlandville, Louisiana	LA070504_00	LA070504_00	1115	Active	
Tunica Bayou near Tunica, Louisiana	LA070505_00	LA070505_00	1116	Active	
East Bay near Joseph Bayou	LA070601_00	LA070601_00	1092	Active	
Ouachita Basin					
Ouachita River at Sterlington, Louisiana	LA080101_00	LA080101_00	0013	Long-term	Yes
Ouachita River at Columbia Lock and Dam near Riverton, Louisiana	LA080101_00	LA080101_00	0770	Active	Yes
Ouachita River near Louisiana State Line	LA080101_00	LA080101_00	0544	Active	Yes
Bayou Chauvin at control structure on Ouachita River Levee N of Monroe, La.	LA080102_00	LA080102_00	0771	Active	
Ouachita River at Harrisonburg, Louisiana	LA080201_00	LA080201_00	0085	Long-term	
Ouachita River near Jonesville, Louisiana	LA080201_00	LA080201_00	0772	Active	
Bayou Louis East of Harrisonburg, Louisiana	LA080202_00	LA080202_00	0773	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Lake Louis West of Sicily Island, Louisiana	LA080203_00	LA080203_00	0774	Active	
Black River south of Jonesville, Louisiana	LA080301_00	LA080301_00	0775	Active	
Black River South of Book, Louisiana	LA080302_00	LA080302_00	0776	Active	
Bayou Bartholomew near Bastrop, Louisiana	LA080401_00	LA080401_00	0074	Active	
Bayou De L'Outre near Monroe, Louisiana	LA080501_00	LA080501_00	0072	Active	
Bayou D'Arbonne near Homer, Louisiana	LA080601_00	LA080601_00	0777	Active	
Lake Claiborne at Spillway, Louisiana	LA080602_00	LA080602_00	0778	Active	Yes
Bayou D'Arbonne East of Dubach, Louisiana	LA080603_00	LA080603_00	0779	Active	
Lake D'Arbonne at Farmerville, Louisiana	LA080604_00	LA080604_00	0326	Active	
Bayou D'Arbonne in West Monroe, Louisiana	LA080605_00	LA080605_00	0780	Active	
Cypress Creek East of Unionville, Louisiana	LA080606_00	LA080606_00	0781	Active	
Corney Bayou at Cupps Crossing Road	LA080607_00	LA080607_00	3614	Active	
Corney Lake at Spillway, Louisiana	LA080608_00	LA080608_00	0783	Active	
Corney Bayou East of Bernice, Louisiana	LA080609_00	LA080609_00	0784	Active	
Middle Fork Bayou D'Arbonne northeast of Dubach, Louisiana	LA080610_00	LA080610_00	0785	Active	
Bayou Desiard at control structure in Monroe, Louisiana	LA080701_00	LA080701_00	0786	Active	Yes
Cheniere Creek south of Mount Pleasant, Louisiana	LA080801_00	LA080801_00	3052	Active	
Cheniere Brake Lake south of West Monroe, Louisiana	LA080802_00	LA080802_00	0788	Active	
Boeuf River near Fort Necessity, Louisiana	LA080901_00	LA080901_00	0016	Active	
Bayou Bonne Idee Northeast of Oak Ridge, Louisiana	LA080902_00	LA080902_00	0122	Active	
Big Creek near Winnsboro, Louisiana	LA080903_00	LA080903_00	0069	Active	
Bayou Lafourche Canal near Columbia, Louisiana	LA080904_00	LA080904_00	0071	Active	
Turkey Creek northeast of Baskin, Louisiana	LA080905_00	LA080905_00	3051	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Turkey Creek southwest of Chase, Louisiana	LA080906_00	LA080906_00	1444	Active	
Turkey Creek Lake near Extension, Louisiana	LA080907_00	LA080907_00	0790	Active	
Lake Lafourche north of Rayville, Louisiana	LA080908_00	LA080908_00	0791	Active	
Crew Lake near Start, Louisiana	LA080909_00	LA080909_00	0792	Active	
Clear Lake near Rhymes, Louisiana	LA080910_00	LA080910_00	0793	Active	
Little Bayou Boeuf west of Collinston, Louisiana	LA080904_00	LA080912_00	0795	Active	
Bayou Macon east of Wisner, Louisiana	LA081001_00	LA081001_00	0796	Active	
Joe's Bayou southeast of Delhi, Louisiana	LA081002_00	LA081002_00	0797	Active	
Deer Creek southwest of Holly Grove, Louisiana	LA081003_00	LA081003_00	0798	Active	
Lake Providence at Tensas Bayou near Lake Providence, Louisiana	LA081101_00	LA081101_00	0132	Active	
Tensas River at Clayton, Louisiana	LA081201_00	LA081201_00	0159	Long-term	
Lake St. Joseph in Newellton, Louisiana	LA081202_00	LA081202_00	0800	Active	
Lake Bruin at North end near Newellton, Louisiana	LA081203_00	LA081203_00	0140	Active	Yes
Little River in Jonesville, Louisiana	LA081301_00	LA081301_00	0801	Active	
Little River southwest of Jonesville, Louisiana	LA081301_00	LA081605_00	0812	Active	
Dugdemona River southwest of Dodson, Louisiana	LA081401_00	LA081401_00	0802	Active	
Dugdemona River near Rochelle, Louisiana	LA081402_00	LA081402_00	0077	Active	
Castor Creek near Tullos, Louisiana	LA081501_00	LA081501_00	0079	Active	
Chatham Lake in Chatham, Louisiana	LA081502_00	LA081502_00	0804	Active	
Beaucoup Creek west of Clarks, Louisiana	LA081503_00	LA081503_00	0805	Active	
Flat Creek southeast of Sikes, Louisiana	LA081504_00	LA081504_00	0806	Active	
Caney Lake near Chatham, Louisiana	LA081505_00	LA081505_00	0807	Active	
Little River, Hwy. 500 Bridge, Zenoria, Station #5, Louisiana	LA081601_00	LA081601_00	0428	Active	
Little River southwest of Jena, Louisiana	LA081602_00	LA081602_00	0089	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Catahoula Lake east of Big Point, Louisiana	LA081605_00	LA081603_00	0810	Active	
Catahoula Lake south of Jena, Louisiana	LA081603_00	LA081603_00	3062	Active	
Catahoula Lake Diversion Canal north of Larto, Louisiana	LA081604_00	LA081604_00	3640	Active	
Fish Creek south of Lincecum, Louisiana	LA081606_00	LA081606_00	0813	Active	
Trout Creek Northwest of White Sulfur Springs, Louisiana	LA081607_00	LA081607_00	0814	Active	
Big Creek near Fishville, Louisiana	LA081608_00	LA081608_00	0815	Active	Yes
Hemphill Creek east of Nebo, Louisiana	LA081609_00	LA081609_00	0816	Active	
Old River west of Archie, Louisiana	LA081610_00	LA081610_00	0817	Active	
Bayou Funny Louis southwest of Searcy, Louisiana	LA081611_00	LA081611_00	0818	Active	
Pearl River Basin					
Pearl River at Pools Bluff, Louisiana	LA090101_00	LA090101_00	0062	Active	
East Pearl River at Curtis Johnson boat launch (Stennis)	LA090102_00	LA090102_00	3594	Active	
Pearl River (East) at Pearlington, Mississippi	LA090103_00	LA090103_00	0032	Active	
Peters Creek at Highway 21, Louisiana	LA090104_00	LA090104_00	1117	Active	
Pearl River Navigation Canal at Lock No. 3, Louisiana	LA090105_00	LA090105_00	1118	Active	
Holmes Bayou at West Pearl River	LA090106_00	LA090106_00	1041	Active	
Pearl River 1/4 mile upstream of Wilson Slough, northeast of Bush, Louisiana	LA090107_00	LA090107_00	3589	Active	
West Pearl River upstream from Pearl River Barge Canal Lock No. 1	LA090201_00	LA090201_00	1042	Active	
Pearl River (West) southeast of Slidell, Louisiana	LA090202_00	LA090202_00	0105	Long-term	
Morgan River upstream from West Pearl River	LA090202_5126	LA090202_5126	4469	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Headwaters of the Lower Bogue Chitto River, southeast of Sun, Louisiana	LA090203_00	LA090203_00	3588	Active	
Pearl River Navigation Canal upstream of Lock #1	LA090204_00	LA090204_00	3642	Active	
Headwaters of Wilson and Bradley Slough at Pearl River, southeast of Sun, La	LA090205_00	Site 3592 assesses both LA090205_00 and LA090206_00	3592	Active (Site 3592 assesses both LA090205_00 and LA090206_00)	
Middle Pearl River at Hwy. 90	LA090207_00	LA090207_00	1055	Active	
Little Lake adjacent to Channel Marker No. 7	LA090208_00	LA090208_00	1037	Active	
Pushepatapa Creek at Highway 436, Louisiana	LA090301_00	LA090301_00	1119	Active	
Bogue Lusa Creek at Bogalusa, Louisiana	LA090401_00	LA090401_00	0063	Active	
Bogue Chitto River near Bush, Louisiana	LA090501_00	LA090501_00	0064	Long-term	
Big Silver Creek at Hwy. 38	LA090502_00	LA090502_00	1058	Active	
Little Silver Creek at Old Lake Road	LA090503_00	LA090503_00	1059	Active	
Lawrence Creek at Hwy. 16	LA090504_00	LA090504_00	1057	Active	
Bonner Creek at Hwy. 25	LA090505_00	LA090505_00	1060	Active	
Thigpen Creek at Mill Creek Road	LA090506_00	LA090506_00	1056	Active	
Red River Basin					
Red River North of Shreveport, Louisiana	LA100101_00	LA100101_00	0120	Long-term	Yes
Red River northwest of Marksville, Louisiana	LA100201_00	LA100201_00	0024	Long-term	
Little River northeast Marksville, Louisiana	LA100202_00	LA100202_00	4012	Active	
Old River northeast of Mansura, Louisiana	LA100203_00	LA100203_00	3063	Active	
Black Bayou at Highway 168 west of Rodessa	LA100301_00	LA100301_00	3906	Active	
Black Bayou Lake east of Vivian, Louisiana	LA100302_00	LA100302_00	1173	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Black Bayou at Highway 530, southwest of Gilliam, Louisiana	LA100303_00	LA100303_00	1174	Active	
Cross Bayou at Shreveport, Louisiana	LA100304_00	LA100304_00	0270	Active	Yes
McCain Creek at Highway 3194, Shreveport, Louisiana	LA100305_00	LA100305_00	1175	Active	
Kelly Bayou at Huckaby Road, south of Hosston, Louisiana	LA100306_00	LA100306_00	1192	Active	
Caddo Lake at old Highway 538 bridge, Mooringsport, Louisiana	LA100307_00	LA100307_00	1176	Active	Yes
Paw Paw Bayou at Highway 169, south of Longwood, Louisiana	LA100308_00	LA100308_00	1177	Active	Yes
Cross Bayou near Greenwood, Louisiana	LA100309_00	LA100309_00	2303	Active	Yes
Cross Lake at Shreveport, Louisiana	LA100310_00	LA100310_00	1178	Active	Yes
Bodcau Bayou near Bellevue, Louisiana	LA100401_00	LA100401_00	3422	Active	
Red Chute Bayou at Swan Lake Road, east of Poole, Louisiana	LA100402_00	LA100402_00	1179	Active	
Cypress Bayou at Highway 160, Hughes, Louisiana	LA100403_00	LA100403_00	1180	Active	
Cypress Bayou Reservoir southeast of Benton, Louisiana	LA100404_00	LA100404_00	1181	Active	Yes
Black Bayou Reservoir southeast of Benton, Louisiana	LA100405_00	LA100405_00	3423	Active	
Flat River east of Taylortown, Louisiana	LA100406_00	LA100406_00	0272	Active	
Bayou Dorcheat west of Minden, Louisiana	LA100501_00	LA100501_00	0061	Active	
Lake Bistineau Spillway west of Ringgold, Louisiana	LA100502_00	LA100502_00	0275	Active	
Loggy Bayou north of East Point, Louisiana	LA100506_00	LA100506_00	0276	Active	
Bayou Pierre at PR 407, southwest of Howard, Louisiana	LA100601_00	LA100601_00	3595	Active	
Boggy Bayou southwest of Shreveport, Louisiana	LA100602_00	LA100602_00	1207	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Wallace Lake, south of Shreveport, Louisiana	LA100603_00	LA100603_00	3626	Active	
Wallace Bayou west of Caspiana, Louisiana	LA100604_00	LA100604_00	3584	Active	
Smithport Lake at spillway, west of Abington, Louisiana	LA100605_00	LA100605_00	1208	Active	
Bayou Pierre at Highway 1, northwest of Natchitoches, Louisiana	LA100606_00	LA100606_00	1185	Active	
Black Lake Bayou at Highway 793, southeast of Dubberly, Louisiana	LA100701_00	LA100701_00	1186	Active	
Black Lake Bayou at Highway 155, east of Martin, Louisiana	LA100702_00	LA100702_00	1187	Active	
Black Bayou Lake north of Natchitoches, Louisiana	LA100703_00	LA100703_00	0366	Active	Yes
Kepler Creek west of Bienville, Louisiana	LA100704_00	LA100704_00	0283	Active	
Kepler Creek Lake southeast of Jamestown, Louisiana	LA100705_00	LA100706_00	1188	Active	
Castor Creek at Highway 507, southwest of Castor, Louisiana	LA100707_00	LA100707_00	1189	Active	
Unnamed tributary of Castor Creek near Castor, Louisiana	LA100708_00	LA100708_00	1194	Active	
Grand Bayou at Highway 507, north of Fairview Alpha, Louisiana	LA100709_00	LA100709_00	1190	Active	Yes
Unnamed tributary of Grand Bayou near Hall Summit, Louisiana	LA100710_00	LA100710_00	1195	Active	
Saline Bayou near Goldonna, Louisiana	LA100801_00	LA100801_00	0075	Active	
Saline Lake Dam at end of CheeChee Dam Road, north of Crews, Louisiana	LA100802_00	LA100802_00	1205	Active	
Saline Bayou east of Clarence, Louisiana	LA100803_00	LA100803_00	3245	Active	
Unnamed tributary of Saline Bayou near Arcadia, Louisiana	LA100804_00	LA100804_00	1206	Active	
Nantachie Creek east of Montgomery, Louisiana	LA100901_00	LA100901_00	1215	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Nantachie Lake north of Waddel, Louisiana	LA100902_00	Site assesses both LA100902_00 and LA100903_00	1216	Active (Same site used for both LA100902_00 and LA100903_00)	
Sibley Lake at Natchitoches, Louisiana	LA101001_00	LA101001_00	1191	Active	Yes
Cane River at Marco, Louisiana	LA101101_00	LA101101_00	1217	Active	
Kisatchie Bayou at FS 337, northwest of Kisatchie, Louisiana	LA101102_00	LA101102_00	3591	Active	
Kisatchie Bayou near Lotus, Louisiana	LA101103_00	LA101103_00	0042	Active	
Cotile Lake southwest of Hotwells, Louisiana	LA101201_00	LA101201_00	3054	Active	
Rigolette Bayou northwest of Pineville, Louisiana	LA101301_00	LA101301_00	1220	Active	
Iatt Lake southwest of Fairfield, Louisiana	LA101302_00	LA101302_00	1221	Active	
Iatt Creek southeast of Iatt, Louisiana	LA101303_00	LA101303_00	1222	Active	
Buhlow Lake northwest of Pineville, Louisiana	LA101401_00	LA101401_00	1223	Active	
Big Saline Bayou northeast of North Point, Louisiana	LA101501_00	LA101501_00	1224	Active	
Saline Lake northeast of North Point, Louisiana	LA101502_00	LA101502_00	3058	Active	
Saline Bayou upstream of Larto Lake	LA101504_00	LA101504_00	3056	Active	
Larto Lake north of Larto, Louisiana	LA101505_00	LA101505_00	3057	Active	
Big Creek at North Point, Louisiana	LA101506_00	LA101506_00	1227	Active	
Bayou Cocodrie at the Hwy 565 bridge	LA101601_00	LA101601_00	3034	Active	
Cocodrie Lake south of Stacy, Louisiana	LA101602_00	LA101602_00	3055	Active	
Lake St. John at Spokane, Louisiana	LA101603_00	LA101603_00	1230	Active	
Lake Concordia at Ferriday, Louisiana	LA101604_00	LA101604_00	1231	Active	
Bayou Cocodrie southwest of Ferriday, Louisiana	LA101605_00	LA101605_00	1232	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Bayou Cocodrie west of Shaw, Louisiana	LA101606_00	LA101606_00	1233	Active	
Bayou Cocodrie southwest of Ridgecrest, Louisiana	LA101607_00	LA101607_00	1234	Active	
Sabine Basin					
Toledo Bend Reservoir southwest of Haddens, Louisiana	LA110101_00	LA110101_00	1154	Active	Yes
Sabine River northwest of Toomey, Louisiana	LA110201_00	LA110201_00	1155	Active	
Pearl Creek northwest of Burr Ferry, Louisiana	LA110202_00	LA110202_00	1156	Active	
Sabine River northeast of Orange, Texas	LA110301_00	LA110301_00	0091	Active	
Black Bayou south of Orange, Texas	LA110302_00	LA110302_00	1157	Active	
Sabine Lake near Blue Buck Point, Louisiana	LA110303_00	LA110303_00	1158	Active	
Sabine Pass south of Port Arthur, Texas	LA110304_00	LA110304_00	1159	Active	
Bayou Toro northeast of Toro, Louisiana	LA110401_00	LA110401_00	1160	Active	
Bayou Toro at Louisiana Highway 392, Louisiana	LA110402_00	LA110402_00	1161	Active	
West Anacoco Creek at US Highway 171, Louisiana	LA110501_00	LA110501_00	1162	Active	
East Anacoco Creek northeast of Anacoco, Louisiana	LA110502_00	LA110502_00	1163	Active	
Vernon Lake northeast of Standard, Louisiana	LA110503_00	LA110503_00	1164	Active	
Bayou Anacoco at Standard, Louisiana	LA110504_00	LA110504_00	1165	Active	
Anacoco Lake west of Leesville, Louisiana	LA110505_00	LA110505_00	0501	Active	
Bayou Anacoco southeast of Knight, Louisiana	LA110506_00	LA110506_00	1166	Active	
Bayou Anacoco at Louisiana Highway 464, Louisiana	LA110507_00	LA110507_00	1167	Active	
Vinton Waterway south of Vinton, Louisiana	LA110601_00	LA110601_00	1168	Active	
Black Bayou south of Toomey, Louisiana	LA110602_00	LA110602_00	1169	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Gulf of Mexico south of Louisiana Point, Louisiana	LA110701_00	LA110701_00	1170	Active	
Terrebonne Basin					
Bayou Poydras, Louisiana	LA120102_00	LA120102_00	0969	Active	
Bayou Choctaw west of Port Allen, Louisiana	LA120103_00	LA120103_00	0336	Active	
Bayou Grosse Tete, Louisiana	LA120104_00	LA120104_00	0970	Active	
Chamberlin Canal, Louisiana	LA120105_00	LA120105_00	0971	Active	
Bayou Plaquemine, Louisiana	LA120106_00	LA120106_00	0972	Active	
Upper Grand River, Louisiana	LA120107_00	LA120107_00	0973	Active	
False River south of New Roads, Louisiana	LA120108_00	LA120108_00	0335	Active	
Lower Grand River at Bayou Sorrel, Louisiana	LA120109_00	LA120109_00	0080	Active	Yes
Bayou Chalpin, Louisiana	LA120110_00	LA120110_00	0976	Active	
Bayou Maringouin, Louisiana	LA120111_00	LA120111_00	0977	Active	
Belle River north of Morgan City, Louisiana	LA120201_00	LA120201_00	0337	Active	
Bayou Black west of Houma, Louisiana	LA120202_00	LA120202_00	0339	Active	Yes
Bayou Boeuf at Amelia, Louisiana	LA120203_00	LA120203_00	0928	Active	Yes
Lake Verret at Attakapas Landing near Georgia, Louisiana	LA120204_00	LA120204_00	0144	Active	
Lake Palourde near Morgan City, Louisiana	LA120205_00	LA120205_00	0338	Active	Yes
Grand Bayou, Louisiana	LA120206_00	LA120206_00	0980	Active	
Bayou Terrebonne at Houma, Louisiana	LA120301_00	LA120301_00	0110	Active	
Bayou Folse north of Houma, Louisiana	LA120302_00	LA120302_00	0341	Active	Yes
Bayou L'Eau Bleu west of Larose, Louisiana	LA120303_00	LA120303_00	2843	Active	
Intracoastal Waterway east of Houma, Louisiana	LA120304_00	LA120304_00	0340	Active	Yes
Bayou Penchant southeast of Amelia, Louisiana	LA120401_00	LA120401_00	3586	Active	
Bayou Avoca at Sword Bayou, Louisiana	LA120402_00	LA120402_00	0933	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Intracoastal Waterway at Venvirotek Dock, Louisiana	LA120403_00	LA120403_00	0934	Active	Yes
Lake Penchant southwest of Houma, Louisiana	LA120404_00	LA120404_00	0896	Active	
Minors Canal north of Marmande Ridge, Louisiana	LA120405_00	LA120405_00	0936	Active	
Lake DeCade, Louisiana	LA120406_00	LA120406_00	0937	Active	
Bayou Grand Caillou at Cedar Grove Bridge, Louisiana	LA120501_00	LA120501_00	0938	Active	
Bayou Grand Caillou at Dulac, Louisiana	LA120502_00	LA120502_00	0113	Active	
Bayou Petit Caillou at Klondyke Bridge, Louisiana	LA120503_00	LA120503_00	0939	Active	
Bayou Petite Caillou south of Houma, Louisiana	LA120504_00	LA120504_00	0347	Active	
Bayou Du Large at Dr. Beautrous Bridge, Louisiana	LA120505_00	LA120505_00	0940	Active	
Bayou Du Large at Fishermans Retreat Bridge, Louisiana	LA120506_00	LA120506_00	0941	Active	
Bayou Chauvin south of Houma, Louisiana	LA120507_00	LA120507_00	0346	Active	
Houma Navigation Canal south of Houma, Louisiana	LA120508_00	LA120508_00	0344	Active	
Houma Navigation Canal at Gulf Island Dock, Louisiana	LA120509_00	LA120509_00	0942	Active	Yes
Bayou Terrebonne in Bourg, Louisiana	LA120601_00	LA120601_00	0943	Active	
Bayou Terrebonne southeast of Houma, Louisiana	LA120602_00	LA120602_00	0349	Active	
Company Canal in Bourg, Louisiana	LA120603_00	LA120603_00	0944	Active	
Bayou Blue SSW of Larose, Louisiana	LA120604_00	LA120604_00	0945	Active	
Bayou Point aux Chene east of Montegut, Louisiana	LA120605_00	LA120605_00	0946	Active	
Bayou Blue southwest of Larose, Louisiana	LA120606_00	LA120606_00	2844	Active	
Bayou Grand Caillou at China Island, Louisiana	LA120701_00	LA120701_00	0948	Active	
Bayou Petit Caillou at Cocodrie, Louisiana	LA120702_00	LA120702_00	0949	Active	

Site Name	Physical Subsegment	Assessment Subsegment	Site Number	Active/ Long-term site	Drinking Water Supply
Grand Bayou Du Large at Bayou Voisin, Louisiana	LA120703_00	LA120703_00	0950	Active	
Bayou Terrebonne near Lapeyrouse, Louisiana	LA120704_00	LA120704_00	3001	Active	
Houma Navigation Canal north of Bayou Petit Caillou, Louisiana	LA120705_00	LA120705_00	0952	Active	
Southwestern Louisiana Canal west of Leeville, Louisiana	LA120706_00	LA120706_00	0953	Active	
Lake Boudreaux south of Bayou Chauvin, Louisiana	LA120707_00	LA120707_00	0954	Active	
Lost Lake west of Bayou De Cade, Louisiana	LA120708_00	LA120708_00	0955	Active	
Bayou Petit Caillou at Tambour Bay, Louisiana	LA120709_00	LA120709_00	0956	Active	
Caillou Bay south of Bayou Grand Caillou, Louisiana	LA120801_00	LA120801_00	0957	Active	
Terrebonne Bay southeast of Cocodrie, Louisiana	LA120802_00	LA120802_00	0958	Active	
Timbalier Bay south of Devils Island, Louisiana	LA120803_00	LA120803_00	0959	Active	
Lake Barre west of Cocodrie, Louisiana	LA120804_00	LA120804_00	0960	Active	
Lake Pelto south of Cocodrie, Louisiana	LA120805_00	LA120805_00	0961	Active	
Gulf of Mexico south of Wine Island Pass, Louisiana	LA120806_00	LA120806_00	0962	Active	

APPENDIX C

Planned Analyses For

Monitoring Volatile and Semi-Volatile

Organic Substances

APPENDIX C
Planned Analyses for Monitoring Volatile and Semi-Volatile Organic Substances

PCBs and Pesticides (USEPA Method 608)

CAS Number	Compound	CAS Number	Compound	CAS Number	Compound
11096-82-5	PCB-1260	309-00-2	Aldrin	53494-70-5	Endrin ketone
11097-69-1	PCB-1254	60-57-1	Dieldrin	5103-71-9	alpha-Chlordane
12672-29-6	PCB-1248	8001-35-2	Toxaphene	5103-74-2	gamma-Chlordane
53469-21-9	PCB-1242	72-43-5	Methoxychlor	319-84-6	alpha-BHC
11141-16-5	PCB-1232	959-98-8	Endosulfan I	319-85-7	beta-BHC
12674-11-2	PCB-1016	33213-65-9	Endosulfan II	58-89-9	gamma-BHC
11104-28-2	PCB-1221	1031-07-8	Endosulfan sulfate	319-86-8	delta-BHC
72-55-9	4,4'-DDE	72-20-8	Endrin	76-44-8	Heptachlor
50-29-3	4,4'-DDT	7421-93-4	Endrin aldehyde	1024-57-3	Heptachlor epoxide
72-54-8	4,4'-DDD				

Volatile Organic Compounds (USEPA Methods 601 and 602 or 624)

CAS Number	Compound	CAS Number	Compound	CAS Number	Compound
75-34-3	1,1-dichloroethane	79-00-5	1,1,2-trichloroethane	74-87-3	chloromethane
75-35-4	1,1-dichloroethene	75-09-2	methylene chloride	1634-04-4	tert-butyl methyl ether
107-06-2	1,2-dichloroethane	75-69-4	trichlorofluoromethane	75-01-4	vinyl chloride
78-87-5	1,2-dichloropropane	79-01-6	trichloroethene (TCE)	71-43-2	benzene
95-50-1	1,2-dichlorobenzene	127-18-4	tetrachloroethylene (PCE)	100-41-4	ethyl benzene
541-73-1	1,3-dichlorobenzene	79-34-5	1,1,2,2-tetrachloroethane	108-88-3	toluene
106-46-7	1,4-dichlorobenzene	56-23-5	carbon tetrachloride	75-25-2	bromoform
10061-01-5	cis-1,3-dichloropropene	75-00-3	chloroethane	74-83-9	bromomethane
156-60-5	trans-1,2-dichloroethene	67-66-3	chloroform	75-27-4	bromodichloromethane
10061-02-6	trans-1,3-dichloropropene	108-90-7	chlorobenzene	124-48-1	dibromochloromethane
71-55-6	1,1,1-trichloroethane				

Semi-volatiles (USEPA Method 625)

Base/Neutral Extractables

CAS Number	Compound	CAS Number	Compound	CAS Number	Compound
120-82-1	1,2,4-trichlorobenzene	207-08-9	benzo(k)fluoranthene	87-68-3	1,3-hexachlorobutadiene
121-14-2	2,4-dinitrotoluene	111-91-1	bis(2-chloroethoxy)methane	77-47-4	hexachlorocyclopentadiene
606-20-2	2,6-dinitrotoluene	111-44-4	bis(2-chloroethyl)ether (2-chloroethyl ether)	67-72-1	hexachloroethane
91-58-7	2-chloronaphthalene	108-60-1	bis(2-chloroisopropyl)ether	193-39-5	indeno(1,2,3-c,d)pyrene
91-94-1	3,3'-dichlorobenzidine	117-81-7	bis(2-ethylhexyl)phthalate	78-59-1	isophorone
101-55-3	4-bromophenyl phenyl ether	85-68-7	buytlbenzylphthalate	62-75-9	n-nitrosodimethylamine
7005-72-3	4-chlorophenyl phenyl ether	218-01-9	chrysene	86-30-6	n-nitrosodiphenylamine
83-32-9	acenaphthene	84-74-2	di-n-butylphthalate	621-64-7	n-nitroso-di-n-propylamine
208-96-8	acenaphthylene	117-84-0	di-n-octylphthalate	91-20-3	naphthalene
120-12-7	anthracene	53-70-3	dibenzo(a,h)anthracene	98-95-3	nitrobenzene
92-87-5	benzidine	84-66-2	diethylphthalate	87-86-5	pentachlorophenol
56-55-3	benzo(a)anthracene	131-11-3	dimethylphthalate	85-01-8	phenanthrene
50-32-8	benzo(a)pyrene	206-44-0	fluoranthene	129-00-0	pyrene
205-99-2	benzo(b)fluoranthene	86-73-7	fluorene		
191-24-2	benzo(g,h,i)perylene	118-74-1	hexachlorobenzene		

Acid Extractables

120-83-2	2,4-dichlorophenol	95-57-8	2-chlorophenol	59-50-7	4-chloro-3-methylphenol
105-67-9	2,4-dimethylphenol	534-52-1	2-methyl-4,6-dinitrophenol(4,6-dinitro-o-cresol)	100-02-7	4-nitrophenol
51-28-5	2,4-dinitrophenol	88-75-5	2-nitrophenol	108-95-2	phenol
88-06-2	2,4,6-trichlorophenol				