

Amendment #1 Update to the Sabine River Authority of Texas Clean Rivers Program FY 2020/2021 QAPP

*Prepared by the Sabine River Authority
of Texas in Cooperation with the Texas
Commission on Environmental Quality
(TCEQ)*

Effective: Immediately upon approval by all parties

Questions concerning this QAPP should be directed to:

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Justification

This document details the changes made to the basin-wide Quality Assurance Project Plan to update Appendix B for fiscal year 2021. This document also updates personnel changes, updates versions of referenced documentation, adds clarifying language about frequency of blank collection, and addresses any other changes made to the quality program since the last amendment.

Summary of Changes

Section/Figure/Table	Page	Change	Justification
Section A1	6	<p>Replaced Sharon Coleman with Dana Squires as CRP Lead Quality Assurance Specialist</p> <p>Replaced Sarah Eagle, CRP Work Lead with Kyle Girten, Acting CRP Work Lead.</p> <p>Replaced Micalah Spenrath with Rebecca DuPont as TCEQ Project Manager</p> <p>Removed Quality Assurance Manager Signature block.</p>	<p>Personnel changes at TCEQ</p> <p>The Quality Assurance Manager is not required by the QMP to sign amendments for projects not funded by EPA.</p>
Section A3	7	<p>Replaced Sharon Coleman with Dana Squires as CRP Lead Quality Assurance Specialist</p> <p>Replaced Micalah Spenrath with Rebecca DuPont as TCEQ Project Manager</p>	Personnel changes at TCEQ
Section A4	8	<p>Replaced Peter Bohls with Sarah Kirkland as CRP Data Manager, DM&A Team</p> <p>Replaced Sharon Coleman with Dana Squires as CRP Lead Quality Assurance Specialist</p> <p>Replaced Sarah Eagle, CRP Work Lead with Kyle Girten, Acting CRP Work Lead.</p> <p>Replaced Micalah Spenrath with Rebecca DuPont as TCEQ Project Manager</p>	Personnel changes at TCEQ
Figure A4.1	10	<p>Replaced Peter Bohls with Sarah Kirkland as CRP Data Manager, DM&A Team</p> <p>Replaced Sharon Coleman with Dana Squires as CRP Lead Quality Assurance Specialist</p>	Personnel changes at TCEQ

		Replaced Sarah Eagle, CRP Work Lead with Kyle Girten, Acting CRP Work Lead. Replaced Micalah Spenrath with Rebecca DuPont as TCEQ Project Manager	
Section A8	11	Changed referenced version of TNI Standard from 2009 version to 2016 version.	The 2016 TNI ELS Standard was adopted on June 18, 2018. The implementation date was set as January 31, 2020 by vote of the NELAP Accreditation Council on January 7, 2019.
Section A9	11	Changed referenced version of TNI Standard from 2009 version to 2016 version.	The 2016 TNI ELS Standard was adopted on June 18, 2018. The implementation date was set as January 31, 2020 by vote of the NELAP Accreditation Council on January 7, 2019.
Section B5	12	Updated language for blank collection frequency	To clarify frequency with which field and equipment blanks are collected for Clean Rivers Program water quality samples.
Appendix A	13	Updated Table A7	When determining the analytical method limits for enterococcus samples, a common misconception is that the saline matrix is interfering due in part to the IDEXX instructions regarding dilution in "marine" water. This is not the case. The interference is caused by competing bacillus bacteria. Therefore, enterococcus samples should be diluted 1/10 as a routine practice. The AWRL is changed to 10 MPN/100 mL and the LOQ will remain 1 MPN/100 mL in this amendment. Updated the lab responsible for processing samples for Silver to Test America - Houston.
Appendix B	15	Updated sample design rationale for FY2021	Describes changes to monitoring design for FY2021 based on the FY2020 Coordinated Monitoring Meetings.
Appendix B	16	Updated Table B1.1	Describes changes to monitoring design for FY2021 based on the FY2020 Coordinated Monitoring Meetings. Station incorrectly labeled as 17646 corrected to 17464.
Appendix C	19	Updated maps of monitoring stations	Describes changes to monitoring design for FY2021 based on the FY2020 Coordinated Monitoring Meetings.

Detail of Changes

A1 Approval Page

The Approval Page was changed to reflect personnel changes at TCEQ: Sharon Coleman was changed to Dana Squires as CRP Lead Quality Assurance Specialist, Micalah Spenrath was changed to Rebecca DuPont as TCEQ Project Manager. The Quality Assurance Manager signature block was removed.

A3 Distribution List

The Distribution List was changed to reflect personnel changes at TCEQ: Sharon Coleman was changed to Dana Squires as CRP Lead Quality Assurance Specialist, Micalah Spenrath was changed to Rebecca DuPont as TCEQ Project Manager.

A4 Project/Task Organization

Section A4: The Project/Task Organization section was changed to reflect personnel changes at TCEQ: Peter Bohls was changed to Sarah Kirkland as CRP Data Manager, DM&A Team, Sharon Coleman was changed to Dana Squires as CRP Lead Quality Assurance Specialist, Micalah Spenrath was changed to Rebecca DuPont as TCEQ Project Manager, Sarah Eagle was changed to Kyle Girten as Acting CRP Work Lead.

Figure A4.1. Organization Chart – Lines of Communication

Figure A4.1: Organization Chart – Lines of Communication was changed to reflect personnel changes at TCEQ: Peter Bohls was changed to Sarah Kirkland as CRP Data Manager, DM&A Team, Sharon Coleman was changed to Dana Squires as CRP Lead Quality Assurance Specialist, Micalah Spenrath was changed to Rebecca DuPont as TCEQ Project Manager, Sarah Eagle was changed to Kyle Girten as Acting CRP Work Lead.

A8 Special Training/Certifications

Section A8: Special Training/Certifications was updated to reference the 2016 version of the TNI Standard instead of the 2009 version

A9 Documents and Records

Section A9: Documents and Records was updated to reference the 2016 version of the TNI Standard instead of the 2009 version.

B5 Quality Control

Section B5: Quality Control updated language to clarify frequency with which field and equipment blanks are collected for Clean Rivers Program water quality samples.

Appendix A: Table A7

Table A7: When determining the analytical method limits for enterococcus samples, a common misconception is that the saline matrix is interfering due in part to the IDEXX instructions regarding dilution in "marine" water. This is not the case. The interference is caused by competing bacillus bacteria. Therefore, enterococcus samples should be diluted 1/10 as a routine practice. The AWRL is changed to 10 MPN/100 mL and the LOQ will remain 1 MPN/100 mL in this amendment. Updated the lab responsible for processing samples for Silver to Test America – Houston.

Appendix B: Sample Design Rationale FY2021

The Sabine River Authority of Texas will maintain FY2020 water quality monitoring in the Sabine Basin through FY2021 with the following changes: Permit support monitoring will cease at Station 15710 in Segment 0505 and Station 22091 in Segment 0506. The City of Longview will cease monitoring at station 15195 on Lake Cherokee in Segment 0510 in FY2021. The TCEQ Region 5 office will maintain FY2020 water quality monitoring in the Sabine Basin through FY2021 with the following changes: Monitoring will cease at Station 14967 in Segment 0507, Station 14275, and Station 14263 in Segment 0512. The TCEQ Region 10 office will maintain FY2020 water quality monitoring in the Sabine Basin through FY2021. TPWD will monitor water quality and freshwater mussels in Segment 0506 in FY2021.

Monitoring Sites Table

The Sample Design and Schedule, Table B1.1, in Appendix B is revised to reflect the cease of monitoring at specified sites in FY 2021. The Station # 17646 was corrected to 17464.

Appendix C: Station Location Maps

The Sample Station Maps are revised to reflect monitoring sites in FY 2021.

A4 Project Task/Organization

Description of Responsibilities

TCEQ

Kyle Girten

CRP Work Leader

Responsible for Texas Commission on Environmental Quality (TCEQ) activities supporting the development and implementation of the Texas Clean Rivers Program (CRP). Responsible for verifying that the TCEQ Quality Management Plan (QMP) is followed by CRP staff. Supervises TCEQ CRP staff. Reviews and responds to any deficiencies, corrective actions, or findings related to the area of responsibility. Oversees the development of Quality Assurance (QA) guidance for the CRP. Reviews and approves all QA audits, corrective actions, reports, work plans, contracts, QAPPs, and TCEQ Quality Management Plan. Enforces corrective action, as required, where QA protocols are not met. Ensures CRP personnel are fully trained.

Dana Squires

Lead CRP Quality Assurance Specialist

Participates in the development, approval, implementation, and maintenance of written QA standards (e.g., Program Guidance, SOPs, QAPPs, QMP). Assists program and project manager in developing and implementing quality system. Serves on planning team for CRP special projects. Coordinates the approval of CRP QAPPs. Prepares and distributes annual audit plans. Conducts monitoring systems audits of Planning Agencies. Conveys QA problems to appropriate management. Recommends that work be stopped in order to safeguard programmatic objectives, worker safety, public health, or environmental protection. Ensures maintenance of QAPP records and audit records for the CRP.

Rebecca DuPont

CRP Project Manager

Responsible for the development, implementation, and maintenance of CRP contracts. Tracks, reviews, and approves deliverables. Participates in the development, approval, implementation, and maintenance of written QA standards (e.g., Program Guidance, SOPs, QAPPs, QMP). Assists CRP Lead QA Specialist in conducting Basin Planning Agency audits. Verifies QAPPs are being followed by contractors and that projects are producing data of known quality. Coordinates project planning with the Basin Planning Agency Project Manager. Reviews and approves data and reports produced by contractors. Notifies QA Specialists of circumstances which may adversely affect the quality of data derived from the collection and analysis of samples. Develops, enforces, and monitors corrective action measures to ensure contractors meet deadlines and scheduled commitments.

Cathy Anderson

Team Leader, Data Management and Analysis (DM&A) Team

Participates in the development, approval, implementation, and maintenance of written QA standards (e.g., Program Guidance, SOPs, QAPPs, QMP). Ensures DM&A staff perform data management-related tasks.

Sarah Kirkland

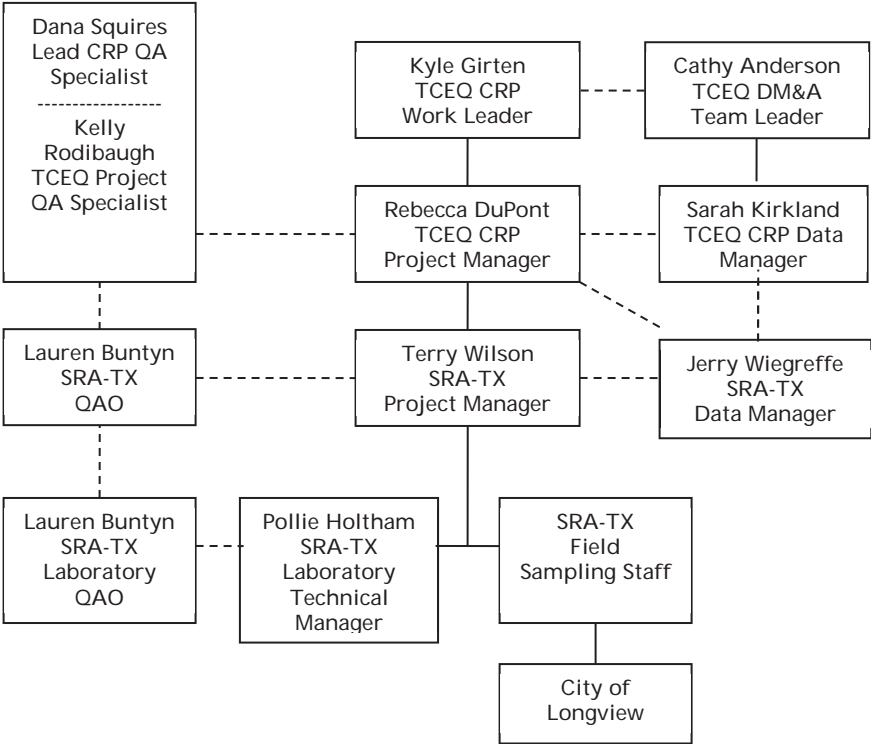
CRP Data Manager, DM&A Team

Responsible for coordination and tracking of CRP data sets from initial submittal through CRP Project Manager review and approval. Ensures that data are reported following instructions in the Data Management Reference Guide, December 2018 or most current version (DMRG). Runs automated data validation checks in the Surface Water Quality Management Information System (SWQMIS) and

coordinates data verification and error correction with CRP Project Managers. Generates SWQMIS summary reports to assist CRP Project Managers' data review. Identifies data anomalies and inconsistencies. Provides training and guidance to CRP and Planning Agencies on technical data issues to ensure that data are submitted according to documented procedures. Reviews QAPPs for valid stream monitoring stations. Checks validity of parameter codes, submitting entity code(s), collecting entity code(s), and monitoring type code(s). Develops and maintains data management-related SOPs for CRP data management. Coordinates and processes data correction requests. Participates in the development, implementation, and maintenance of written QA standards (e.g., Program Guidance, SOPs, QAPPs, QMP).

Project Organization Chart

Figure A4.1. Organization Chart - Lines of Communication



Lines of Management ———
 Lines of Communication - - - - -

A8 Special Training/Certification

Before new field personnel independently conduct field work, the SRA-TX Upper or Lower Basin Field Coordinators trains him/her in proper instrument calibration, field sampling techniques, and field analysis procedures. The QAO (or designee) will document the successful field demonstration. The QAO (or designee) will retain documentation of training and the successful field demonstration in the employee's personnel file (or other designated location and ensure that the documentation will be available during monitoring systems audits.

Contractors and subcontractors must ensure that laboratories analyzing samples under this QAPP meet the requirements contained in The NELAC Institute Standard (2016) Volume 1, Module 2, Section 4.5.5 (concerning Subcontracting of Environmental Tests).

Table A9.1 Project Documents and Records

Document/Record	Location	Retention (yrs)	Format
QAPPs, amendments and appendices	SRA-TX	Minimum 5 years	Paper
Field SOPs	SRA-TX	Minimum 5 years	Paper
Laboratory Quality Manuals	SRA-TX	Minimum 5 years	Paper
Laboratory SOPs	SRA-TX	Minimum 5 years	Paper
QAPP distribution documentation	SRA-TX	Minimum 5 years	Paper
Field staff training records	SRA-TX/City of Longview	Minimum 5 years	Paper
Field equipment calibration/maintenance logs	SRA-TX/City of Longview	Minimum 5 years	Paper
Field instrument printouts	SRA-TX	Minimum 5 years	Paper
Field notebooks or data sheets	SRA-TX/City of Longview	Minimum 5 years	Paper
Chain of custody records	SRA-TX	Minimum 5 years	Paper
Laboratory calibration records	SRA-TX	Minimum 5 years	Paper
Laboratory instrument printouts	SRA-TX	Minimum 5 years	Paper
Laboratory data reports/results	SRA-TX	Minimum 5 years	Electronic/Paper
Laboratory equipment maintenance logs	SRA-TX	Minimum 5 years	Paper
Corrective Action Documentation	SRA-TX	Minimum 5 years	Paper

Laboratory Test Reports

Test/data reports from the laboratory must document the test results clearly and accurately. Routine data reports should be consistent with the TNI Standard (2016), Volume 1, Module 2, Section 5.10 and include the information necessary for the interpretation and validation of data. The requirements for reporting data and the procedures are provided.

B5 Quality Control

Sampling Quality Control Requirements and Acceptability Criteria

The minimum field QC requirements, and program-specific laboratory QC requirements, are outlined in SWQM Procedures. Specific requirements are outlined below. Field QC sample results are submitted with the laboratory data report (see Section A9.).

Field blank

Field blanks are required for total metals-in-water samples when collected without sample equipment (i.e., as grab samples). For other types of samples, they are optional. A field blank is prepared in the field by filling a clean container with pure deionized water and appropriate preservative, if any, for the specific sampling activity being undertaken. Field blanks are used to assess contamination from field sources, such as airborne materials, containers, or preservatives. Field blanks for total metals-in-water samples will be collected at a frequency of one per day of sampling. Only those samples collected on dates with associated field blanks collected on the same day will be submitted to TCEQ.

The analysis of field blanks should yield values lower than the LOQ. When target analyte concentrations are high, blank values should be lower than 5% of the lowest value of the batch, or corrective action will be implemented.

Field blanks are associated with batches of field samples. In the event of a field blank failure for one or more target analytes, all applicable data associated with the field batch may need to be qualified as not meeting project QC requirements, and these qualified data will not be reported to the TCEQ. These data include all samples collected on that day during that sample run and should not be confused with the laboratory analytical batch.

Field equipment blank

Field equipment blanks are required for metals-in-water samples when collected using sampling equipment. The field equipment blank is a sample of analyte-free media which has been used to rinse common sampling equipment to check the effectiveness of decontamination procedures. It is collected in the same type of container as the environmental sample, preserved in the same manner, and analyzed for the same parameter. Field equipment blanks for dissolved metals-in-water samples will be collected at a frequency of one per day of sampling. Only those samples collected on dates with associated field equipment blanks collected on the same day will be submitted to TCEQ.

The analysis of field equipment blanks should yield values lower than the LOQ, or, when target analyte concentrations are very high, blank values must be less than 5% of the lowest value of the batch, or corrective action will be implemented.

Field equipment blanks are associated with batches of field samples. In the event of a field equipment blank failure for one or more target analytes, all applicable data associated with the field batch may need to be qualified as not meeting project QC requirements, and these qualified data will not be reported to the TCEQ. These data include all samples collected on that day during that sample run and should not be confused with the laboratory analytical batch.

Appendix A: Measurement Performance Specifications (Table A7.1a and A7.3)

TABLE A7.1a Measurement Performance Specifications for SRA-TX FY 20-21 QAPP										
Metals in Water										
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab
HARDNESS, TOTAL (MG/L AS CaCO ₃)*	mg/L	water	SM 2340 C	00900	5	5	NA	20	80-120	SRA-TX
ARSENIC, DISSOLVED (UG/L AS AS)	µg/L	water	EPA 200.8 Rev 5.4 (1998)	01000	5	2	70-130	20	80-120	SRA-TX
CADMIUM, DISSOLVED (UG/L AS CD)	ug/L	water	EPA 200.8 Rev 5.4 (1998)	01025	0.1 for waters <50mg/L hardness ----- 0.3 for waters >=50mg/L hardness	0.1	70-130	20	80-120	SRA-TX
CHROMIUM, DISSOLVED (UG/L AS CR)	ug/L	water	EPA 200.8 Rev 5.4 (1998)	01030	10	10	70-130	20	80-120	SRA-TX
COPPER, DISSOLVED (UG/L AS CU)	ug/L	water	EPA 200.8 Rev 5.4 (1998)	01040	1 for waters < 50mg/L hardness ----- 3 for waters >= 50mg/L hardness	1	70-130	20	80-120	SRA-TX
LEAD, DISSOLVED (UG/L AS PB)	ug/L	water	EPA 200.8 Rev 5.4 (1998)	01049	0.1 for waters < 85 mg/L hardness ----- 1 for waters >= 85 mg/L hardness	0.1	70-130	20	80-120	SRA-TX
NICKEL, DISSOLVED (UG/L AS NI)	ug/L	water	EPA 200.8 Rev 5.4 (1998)	01065	10	5	70-130	20	80-120	SRA-TX
SILVER, DISSOLVED (UG/L AS AG)	ug/L	water	EPA 200.8 Rev 5.4 (1998)	01075	0.5	0.5	70-130	20	80-120	Test America (Houston)
ZINC, DISSOLVED (UG/L AS ZN)	ug/L	water	EPA 200.8 Rev 5.4 (1998)	01090	5	5	70-130	20	80-120	SRA-TX
SELENIUM, TOTAL (UG/L AS SE)	ug/L	water	EPA 200.8 Rev 5.4 (1998)	01147	2	1	70-130	20	80-120	SRA-TX

*Hardness is not used for regulatory purposes but is used to assess metals in water at inland sites (estuarine sites do not require hardness analysis).

References:
 United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020
 U.S. Code of Federal Regulations (CFR). Title 40: Protection of Environment, Part 136
 American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 2017.
 TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).
 TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416).

TABLE A7.3 Measurement Performance Specifications for SRA-TX and City of Longview FY 20-21 QAPP

Bacteriological Parameters in Water										
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Log Difference of Duplicates	Bias %Rec. of LCS	Lab
E. COLI, COLILERT, IDEXX METHOD, MPN/100ML	MPN/100 mL	water	Colilert™/ Colilert 18™**	31699	1	1	NA	0.50*	NA	SRA-TX
ENTEROCOCCI, ENTEROLERT, IDEXX, (MPN/100 ML)	MPN/100 mL	water	Enterolert™	31701	10***	1	NA	0.50*	NA	SRA-TX
E.COLI, COLILERT, IDEXX, HOLDING TIME	hours	water	NA	31704	NA	NA	NA	NA	NA	SRA-TX

* This value is not expressed as a relative percent difference. It represents the maximum allowable difference between the logarithm of the result of a sample and the logarithm of the duplicate result. See Section B5.

** E.coli samples analyzed by these methods should always be processed as soon as possible and within 8 hours. When transport conditions necessitate delays in delivery longer than 6 hours, the holding time may be extended and samples must be processed as soon as possible and within 30 hours.

***Enterococcus Samples should be diluted 1:10 for all waters.

References:

United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020
 U.S. Code of Federal Regulations (CFR). Title 40: Protection of Environment, Part 136

American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 2017.

TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).

TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416).

Appendix B Sampling Process Design and Monitoring Schedule (plan)

Sample Design Rationale FY 2021

The sample design is based on the legislative intent of CRP. Under the legislation, the Basin Planning Agencies have been tasked with providing data to characterize water quality conditions in support of the Texas Water Quality Integrated Report, and to identify significant long-term water quality trends. Based on Steering Committee input, achievable water quality objectives and priorities and the identification of water quality issues are used to develop work plans which are in accord with available resources. As part of the Steering Committee process, the SRA-TX coordinates closely with the TCEQ and other participants to ensure a comprehensive water monitoring strategy within the watershed.

The following changes or additions have been made to the monitoring schedule. These changes have been made to address concerns or requests of Steering Committee members or monitoring entities.

The Sabine River Authority of Texas will maintain FY2020 water quality monitoring in the Sabine Basin through FY2021 with the following changes:

1. Permit support monitoring will cease at Station 15710 in Segment 0505 and Station 22091 in Segment 0506.
2. The City of Longview will cease monitoring at station 15195 on Lake Cherokee in Segment 0510 in FY2021.
3. The TCEQ Region 5 office will maintain FY2020 water quality monitoring in the Sabine Basin through FY2021 with the following changes:
 - a. Monitoring will cease at Station 14967 in Segment 0507, Station 14275, and Station 14263 in Segment 0512.
4. The TCEQ Region 10 office will maintain FY2020 water quality monitoring in the Sabine Basin through FY2021.
5. TPWD will monitor water quality and freshwater mussels in Segment 0506 in FY2021.

The FY2021 Coordinated Monitoring Schedule for the Sabine Basin has been reviewed, updated and can be viewed at <https://cms.lcra.org/>

Monitoring Sites for FY 2021

The sample design for SWQM is shown in Table B1.1 below.

Table B1.1 Sample Design and Schedule, FY 2021

Site Description	Station ID	Waterbody ID	Basin	Region	SE	CE	MT	Field	Conv	Bacteria	Flow	24 hr DO	AqHab	Benthics	Nekton	Metal Water	Organic Water	Metal Sed	Organic Sed	Fish Tissue	Amb Tox Water	Amb Tox Sed	Comments
BLACK BAYOU IN CAMERON PARISH LA 0.7 KM UPSTREAM OF CONFLUENCE WITH SABINE RIVER	15654	0501	5	10	SR	SR	RT	12	12	12						1							Anions not sampled
ICWW 3.2 KM EAST OF SABINE RIVER AT PERRY RIDGE IN CALCASIEU PARISH LA	15653	0501	5	10	SR	SR	RT	12	12	12						1							Anions not sampled
SABINE RIVER AT CHANNEL CAN 3 1866M DOWNSTREAM MOUTH OF NEW COW BAYOU	10391	0501	5	10	SR	SR	RT	12	12	12													Anions not sampled
SABINE RIVER AT IH 10 IN ORANGE	10394	0501	5	10	SR	SR	RT	12	12	12						1							Anions not sampled
SABINE RIVER 11.726 KM UPSTREAM OF IH 10/GC-1	10395	0502	5	10	SR	SR	RT	12	12	12													
SABINE RIVER 7M DOWNSTREAM FROM SH 12 NORTH OF DEWEYVILLE TX/GC-2	10397	0502	5	10	SR	SR	RT	12	12	12	12					1							
ANACOCO BAYOU AT LOUISIANA HWY 111 CROSSING SOUTHWEST OF KNIGHT LA./GC-4	10340	0503	5	10	SR	SR	RT	12	12	12						1							
BAYOU TORO AT LOUISIANA SH 392 IN SABINE PARISH SW OF HORNBECK LA	15660	0503	5	10	SR	SR	RT	12	12	12						1							
SABINE RIVER 5M IMMEDIATELY UPSTREAM FROM SH 63 EAST OF BURKEVILLE TX/TB-5	10399	0503	5	10	SR	SR	RT	12	12	12	12												
SABINE RIVER DOWNSTREAM TOLEDO BEND RESERVOIR AT RIGHT ABUTMENT OF SPILLWAY FOR DAM/TB-6SPW	10401	0503	5	10	SR	SR	RT	12	12	12													
SABINE RIVER IMMEDIATELY DOWNSTREAM FROM US 190 EAST OF BON WIER TX/GC-3	10398	0503	5	10	SR	SR	RT	12	12	12	12												
TOLEDO BEND RESERVOIR AT SH 21 NORTHEAST OF MILAM/TB-6H	10402	0504	5	10	SR	SR	RT	12	12	12						1							No Chlorophyll a
TOLEDO BEND RESERVOIR IN LANANA BAYOU AT LOUISIANA SH 191 IN SABINE PARISH LOUISIANA	15659	0504	5	10	SR	SR	RT	12	12	12						1							Mid-lake Arm of the Toledo Bend No Chlorophyll a
TOLEDO BEND RESERVOIR IN NEGREET BAYOU ARM BOAT LANE 293 M SE OF INTERSECTION OF DAVIS CIRCLE AND NEGREET BAY LOOP	18054	0504	5	10	SR	SR	RT	12	12	12						1							Mid-lake Arm of the Toledo Bend No Chlorophyll a

Table B1.1 Sample Design and Schedule, FY 2021 Cont.

Site Description	Station ID	Waterbody ID	Basin	Region	SE	CE	MT	Field	Conv	Bacteria	Flow	24 hr DO	AqHab	Benthics	Nekton	Metal Water	Organic Water	Metal Sed	Organic Sed	Fish Tissue	Amb Tox Water	Amb Tox Sed	Comments
TOLEDO BEND RESERVOIR IN OLD RIVER CHANNEL IN MAIN LAKE 1.05 KM E 804 M S OF BRUSHY CREEK-RAGTOWN BAY CONFLUENCE TB6R	18052	0504	5	10	SR	SR	RT	12	12	12						1							Main-lake station on Toledo Bend No Chlorophyll a
TOLEDO BEND RESERVOIR IN SIX MILE BOAT LANE 0.80 KM EAST OF SH 87/TB-6C	10406	0504	5	10	SR	SR	RT	12	12	12						1							No Chlorophyll a
TOLEDO BEND RESERVOIR IN SUNSHINE BAY NEAR FM 3121 BRIDGE/TB-6F	10411	0504	5	10	SR	SR	RT	12	12	12						1							No Chlorophyll a
TOLEDO BEND RESERVOIR MAIN LAKE UPSTREAM THE DAM AT THE OLD RIVER CHANNEL/TB-6A	10404	0504	5	10	SR	SR	RT	12	12	12						1							Chlorophyll a
TOLEDO BEND RESERVOIR PATROON BAYOU BRANCH AT FM 276	15655	0504	5	10	SR	SR	RT	12	12	12						1							No Chlorophyll a
TOLEDO BEND RESERVOIR SAN MIGUEL ARM BOAT LANE 1.32 KM E 122 M S OF INTERSECTION OF PARKSIDE DRIVE AND CYPRESS COURT SW OF ZWOLLE LA	18053	0504	5	10	SR	SR	RT	12	12	12						1							No Chlorophyll a
SABINE RIVER AT FM 2517 WEST OF DEADWOOD TX/TB-10	10415	0505	5	5	SR	SR	RT	12	12	12						1							
SABINE RIVER AT US 59 8.4 MI NE OF BECKVILLE 0.9 MI UPSTREAM FROM EIGHTMILE CREEK	13628	0505	5	5	SR	SR	RT	12	12	12	12					1							
SABINE RIVER IMMEDIATELY DOWNSTREAM OF SH 42 NEAR KILGORE RK 283.9	10427	0505	5	5	SR	SR	RT	12	12	12						1							
SABINE RIVER AT US 271 AT GLADEWATER TX/SR-17	10428	0506	5	5	SR	SR	RT	12	12	12	12					1							
SABINE RIVER AT US 69 NORTHWEST OF LINDALE/5.6 KM SOUTH OF MINEOLA WOOD COUNTY	10430	0506	5	5	SR	SR	RT	12	12	12	12					1							
SABINE RIVER IMMEDIATELY DOWNSTREAM OF FM 14 4.17 KM SOUTH OF HAWKINS TX/LF-19	10429	0506	5	5	SR	SR	RT	12	12	12	12					1							
LAKE TAWAKONI 20M DOWNSTREAM FROM SH 276 1638M FROM WEST BANK	10437	0507	5	4	SR	SR	RT	12	12	12						1							No Chlorophyll a
LAKE TAWAKONI IN WACO BAY EQUIDISTANT FROM FINGER POINT AND SPRING POINT 1.17 KILOMETERS BEARING 18.61 DEGREES FROM IRON BRIDGE PUMPING STATION	21173	0507	5	4	SR	SR	RT	12	12	12						1							No Chlorophyll a
LAKE TAWAKONI MID LAKE 2.13 KM NORTH AND 180 M WEST OF CENTER OF THE DAM SPILLWAY APPROXIMATELY 15.6 KM SOUTHWEST OF EMORY TX LT-23A	10434	0507	5	5	SR	SR	RT	12	12	12						1							Chlorophyll a

Table B1.1 Sample Design and Schedule, FY 2021 Cont.

Site Description	Station ID	Waterbody ID	Basin	Region	SE	CE	MT	Field	Conv	Bacteria	Flow	24 hr DO	AqHab	Benthics	Nekton	Metal Water	Organic Water	Metal Sed	Organic Sed	Fish Tissue	Amb Tox Water	Amb Tox Sed	Comments
ADAMS BAYOU AT FM1006 IN ORANGE TX SUBWATERSHED 1.03/AB2	10441	0508	5	10	SR	SR	RT	12	12	12						1							Anions not sampled
LAKE CHEROKEE CITY OF LONGVIEW WATER INTAKE 2.5 MI EAST OF FM 2963	15514	0510	5	5	SR	LW	RT	9	9	9						1							Total Selenium will be the only metal analyzed
COW BAYOU 10M DOWNSTREAM OF FM1442/ROUND BUNCH RD EAST OF BRIDGE CITY TX SW 1.02/CB1	10449	0511	5	10	SR	SR	RT	12	12	12						1							Anions not sampled
LAKE FORK RESERVOIR MID ARM IN CANEY CREEK ARM AT FM 515/LF-3	10461	0512	5	5	SR	SR	RT	12	12	12						1							No Chlorophyll a
LAKE FORK RESERVOIR MID COVE IN LAKE FORK CREEK ARM AT FM 515/LF-4	10462	0512	5	5	SR	SR	RT	12	12	12						1							No Chlorophyll a
LAKE FORK RESERVOIR NEAR DAM 300M NW OF SPILLWAY AT MID RESERVOIR/LF-2	10458	0512	5	5	SR	SR	RT	12	12	12						1							Chlorophyll a
BIG COW CREEK AT FM 1416 SOUTH OF BON WIER	10465	0513	5	10	SR	SR	RT	12	12	12						1							
BIG SANDY CREEK 70M DOWNSTREAM FROM SH 155 NORTHWEST OF BIG SANDY TX/BS-1	10468	0514	5	5	SR	SR	RT	12	12	12	12					1							Relocated to original site wUSGS gauge
LAKE FORK CREEK AT US 80 12 KM EAST OF MINEOLA	10469	0515	5	5	SR	SR	RT	12	12	12						1							

Appendix C: Station Location Maps

Station Location Maps

Maps of stations monitored by the SRA-TX are provided below. The maps were generated by the SRA-TX. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. For more information concerning this map, contact Terry Wilson at (903) 878-2420.

