Sabine River Authority of Texas FY 2026–2027 Clean Rivers Program Quality Assurance Project Plan

2065 Woodland Ridge Drive Orange, Texas 77632

Clean Rivers Program
Water Quality Planning Division
Texas Commission on Environmental Quality
P.O. Box 13087, MC 234
Austin, Texas 78711-3087
Effective Period: FY 2026 to FY 2027

Questions concerning this QAPP should be directed to:

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A2 Approval Page

Texas Commission on Environmental Quality

Water Quality Planning Division

8/20/2025

Jason Godeaux, Manager Date
Water Quality Monitoring and Assessment Section

8/20/2025

Sarah Whitley, Team Leader Date
Water Quality Standards and Clean Rivers Program

8/20/2025

Sunshyne Hendrix, Date
Project Quality Assurance Specialist
Clean Rivers Program

8/20/2025

Sunshyne Hendrix, Project Manager Date
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08/20/2025

Cathy Anderson, Team Leader Date
Data Management and Analysis

Air Monitoring Division

08/20/2025

D. Jody Koehler, Date
TCEQ Quality Assurance Manager
Laboratory and Quality Assurance Section

08/20/2025

Loren Walker, Date
Lead CRP Quality Assurance Specialist
Quality Assurance Team

Sabine River Authority of Texas (SRA-TX)

Kaleb McDade, Project Manager — Date: 8/19/25

Jennifer Claybar, Quality Assurance Officer — Date: 8/19/25

Jerry Wiegreffe, Data Manager — Date: 8-19-25

SRA-TX Laboratory

Brittany Edgerly, Technical Manager — Date: 8-19-25

Jennifer Claybar, Quality Assurance Officer — Date: 8/19/25

A3 Table of Contents

List of Acronyms

AWRL	Ambient Water Reporting Limit
BMP	Best Management Practices
CAP	Corrective Action Plan
CE	Collecting Entity
CFR	Code of Federal Regulations
COC	Chain of Custody
CRP	Clean Rivers Program
DB	Database
DMRG	Surface Water Quality Monitoring Data Management Reference Guide
DM&A	Data Management and Analysis
EPA	United States Environmental Protection Agency
ESD	Environmental Services Division
FY	Fiscal Year
GIS	Geographical Information System
GPS	Global Positioning System
IC	Ion Chromatography
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LIMS	Laboratory Information Management System
LOD	Limit of Detection
LOQ	Limit of Quantitation
LW	City of Longview
MT	Monitoring Type
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NELAC	National Environmental Laboratories Accreditation Conference
NELAP	National Environmental Laboratory Accreditation Program
PM	Project Manager
QA	Quality Assurance
QAM	Quality Assurance Manager
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
QAS	Quality Assurance Specialist
QC	Quality Control
QM	Quality Manual
QMP	Quality Management Plan
RPD	Relative Percent Difference
RT	Routine Monitoring
SE	Submitting Entity
SLOC	Station Location
SOP	Standard Operating Procedure
SRA-TX	Sabine River Authority of Texas
SWPARM	Surface Water Parameters
SWQM	Surface Water Quality Monitoring
SWQMIS	Surface Water Quality Monitoring Information System
TCEQ	Texas Commission on Environmental Quality
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TNI	The NELAC Institute
TOC	Total Organic Carbon
TP	Total Phosphorus
TSWQS	Texas Surface Water Quality Standards
VOA	Volatile Organic Analytes
WQS	Water Quality Standards
WQMP	Water Quality Monitoring Program

A4 Problem Definition/Background

In 1991, the Texas Legislature passed the Texas Clean River Act (Senate Bill 818) in response to growing concerns that water resource issues were not being pursued in an integrated, systematic manner. The act requires that ongoing water quality assessments be conducted for each river basin in Texas, an approach that integrates water quality issues within the watershed. The Clean Rivers Program (CRP) legislation mandates that each river authority (or local governing entity) shall submit quality-assured data collected in the river basin to the commission. Quality-assured data in the context of the legislation means data that comply with Texas Commission on Environmental Quality (TCEQ) rules for surface water quality monitoring (SWQM) programs, including rules governing the methods under which water samples are collected and analyzed and data from those samples are assessed and maintained. This QAPP addresses the program developed between the SRA-TX and the TCEQ to carry out the activities mandated by the legislation. The QAPP was developed and will be implemented in accordance with provisions of the TCEQ Quality Management Plan (QMP), Revision 30 or most recent version.

The purpose of this QAPP is to clearly delineate SRA-TX Quality Assurance (QA) policy, management structure, and procedures which will be used to implement the QA requirements necessary to verify and validate the surface water quality data collected. The QAPP is reviewed by the TCEQ to help ensure that data generated for the purposes described above are of known and documented quality and deemed acceptable for their intended use. This process will ensure that data collected under this QAPP and submitted to the Surface Water Quality Monitoring Information System (SWQMIS) have been collected and managed in a way that guarantees its reliability and therefore can be used in water quality assessments, total maximum daily load (TMDL) projects, water quality standards development, permit decisions, and other program activities deemed appropriate by the TCEQ. Project results will be used to support the achievement of CRP objectives, as contained in the *Guidance for Partners in the Texas Clean Rivers Program FY 2026–2027*.

The SRA-TX Environmental Services Division (ESD) collects surface water quality data as part of its commitment to water quality protection in the Sabine River Basin. This Water Quality Monitoring Program (WQMP) includes fixed sites that are sampled and analyzed for physical, chemical and bacteriological parameters to ensure high quality water for all Sabine River Basin stakeholders. The WQMP monitoring sites include locations that are monitored over a long period at strategic points in the Sabine Basin, primarily water bodies that serve as drinking water or process water supply sources, recreation areas, and areas that receive treated wastewater. The City of Longview is an in-kind participant that samples one site under the SRA-TX CRP QAPP. City of Longview personnel are SRA-TX CRP steering committee members and participate in coordinated monitoring meetings.

A5 Project/Task Description

Monitoring will be conducted at 40 routine sites (39 by SRA-TX and one by City of Longview) to adequately characterize water quality trends and monitor progress in protecting or restoring water quality in the Sabine Basin. All monitoring plans are coordinated with the TCEQ regional offices to avoid duplication of effort. The SRA-TX Routine Monitoring program includes sampling at 39 sites monthly for field, conventional parameters and bacteria. Samples for chlorophyll-a will be collected monthly at three sites. Samples for total and dissolved metals analyses will be collected annually at 34 sites (33 sites by SRA-TX and one for total selenium only by City of Longview).

Flow will be recorded from 9 USGS gaging stations along the Sabine River and Big Sandy Creek.

Site selection is based on locations that are monitored over a long period of time, primarily in water bodies that serve as drinking water or process water supply sources, recreational areas and regions that receive treated wastewater. Details of the monitoring schedule, parameters and sampling locations are included in Appendix B.

Water quality data is analyzed using the data analysis program developed by SRA-TX following guidance from the TCEQ. The Routine Monitoring program is reviewed each year to consider revisions in every aspect of the program.

Monitoring plans were developed by the SRA-TX and other monitoring partners in cooperation with TCEQ staff at the annual Coordinated Monitoring meetings.

Additional monitoring conducted under this QAPP will be provided by the City of Longview.
The City of Longview monitoring program includes sampling at one site on Lake Cherokee. Site #15514 will be sampled monthly for at least nine months for field, conventional and bacteria, once annually for total selenium and quarterly sampling that includes alkalinity, total hardness and chlorophyll a. The City of Longview's monitoring schedule, parameters and sampling location are included in Appendix B.

See Appendix B for the project-related work plan tasks and schedule of deliverables for a description of work defined in this QAPP.

See Appendix B for sampling design and monitoring pertaining to this QAPP.

Amendments to the QAPP

Amendments to the QAPP may be necessary to address incorrectly documented information or to reflect changes in project organization, tasks, schedules, objectives, and methods. Requests for amendments will be directed from the SRA-TX Project Manager (PM) to the TCEQ CRP PM electronically. The SRA-TX will submit a completed QAPP amendment document, including a justification of the amendment, a table of changes, and all pages, sections, and attachments affected by the amendment. Amendments are effective immediately upon approval by the SRA-TX PM, the SRA-TX Quality Assurance Officer (QAO), the TCEQ CRP PM, the TCEQ CRP Lead Quality Assurance Specialist (QAS), the TCEQ CRP Project QAS, the TCEQ CRP Team Leader, the TCEQ Data Management and Analysis (DM&A) Team Leader, and any additional parties affected by the amendment. Amendments are not retroactive. No work shall be implemented without an approved QAPP or amendment prior to the start of work. Any activities under this contract that commence prior to the approval of the governing QA document constitute a deficiency and are subject to corrective action as described in section C1 of this QAPP. Any deviation or deficiency from this QAPP which occurs after the execution of this QAPP will be addressed through a corrective action plan (CAP). An amendment may be a component of a CAP to prevent future recurrence of a deviation.

Amendments will be incorporated into the QAPP by way of attachment and distributed to personnel on the distribution list by the SRA-TX PM. If adherence letters are required, SRA-TX will secure an adherence letter from each sub-tier project participant (e.g., subcontractors, subparticipants, or other units of government) affected by the amendment stating the organization's awareness of and commitment to requirements contained in each amendment to the QAPP. The SRA-TX will maintain this documentation as part of the project's QA records and ensure that the documentation is available for review.

Special Project Appendices

Projects requiring QAPP appendices will be planned in consultation with the SRA-TX, the TCEQ CRP PM, and TCEQ technical staff. Appendices will be written in an abbreviated format and will reference the SRA-TX QAPP where appropriate. Appendices will be approved by the SRA-TX PM, the SRA-TX QAO, the Laboratory (as applicable), the TCEQ CRP PM, the TCEQ CRP Project QAS, the TCEQ Lead QAS, TCEQ CRP Team Leader, the TCEQ DM&A Team Leader, and additional parties affected by the appendix, as appropriate. Copies of approved QAPP appendices will be distributed by the SRA-TX to project participants before data collection activities commence. The SRA-TX will secure written documentation from each sub-tier project participant (e.g., subcontractors, subparticipants, other units of government) stating the organization's awareness of and commitment to requirements contained in each special project appendix to the QAPP. The SRA-TX will maintain this documentation as part of the project's QA records and ensure that the documentation is available for review.

A6 Quality Objectives and Criteria

The purpose of routine water quality monitoring, 24-DO monitoring and annual metals sampling is to collect surface water quality data that can be used to characterize water quality conditions, identify significant long-

term water quality trends, support water quality standards development, support the permitting process, and conduct water quality assessments in accordance with TCEQ's Guidance for Assessing and Reporting Surface Water Quality in Texas, February 2024. These water quality data, and data collected by other organizations (e.g., United States Geological Survey [USGS], TCEQ, etc.), will be subsequently reconciled for use and assessed by the TCEQ.

The measurement performance specifications to support the project purpose for a minimum data set are specified in Appendix A.

Ambient Water Reporting Limits (AWRLs)

For surface water to be evaluated for compliance with Texas Surface Water Quality Standards (TSWQS) and screening levels, data must be reported at or below specified reporting limits. To ensure data are collected at or below these reporting limits, required ambient water reporting limits (AWRLs) have been established. A full listing of AWRLs can be found at https://www.tceq.texas.gov/assets/public/waterquality/crp/QA/awrlmaster.pdf .

The limit of quantitation (LOQ) is the minimum reporting limit, concentration, or quantity of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence by the laboratory analyzing the sample. Analytical results shall be reported down to the laboratory's LOQ (i.e., the laboratory's LOQ for a given parameter is its reporting limit) as specified in Appendix A.

The following requirements must be met in order to report results to the CRP:

- The laboratory's LOQ for each analyte must be set at or below the AWRL. It is the responsibility of SRA-TX to ensure that any laboratories used to generate CRP data have satisfactory LOQs.
- Once the LOQ is established in the QAPP, that is the reporting limit for that parameter until such time as the laboratory amends the QAPP and lists an updated LOQ.
- The laboratory must demonstrate its ability to quantitate at its LOQ for each analyte by running an LOQ check sample for each analytical batch of CRP samples analyzed.
- Under reasonable circumstances (e.g., the use of a subcontracted lab), data may be reported above or below the LOQ stated in this QAPP, so long as the LOQ remains at or below the AWRL stated in this QAPP.
- Measurement performance specifications for LOQ check samples are found in Appendix A.

Laboratory Measurement Quality Control (QC) Requirements and Acceptability Criteria are provided in Section B4.

Precision

Precision is the degree to which a set of observations or measurements of the same property, obtained under similar conditions, conform to themselves. It is a measure of agreement among replicate measurements of the same property, under prescribed similar conditions, and is an indication of random error.

Laboratory precision is assessed by comparing replicate analyses of laboratory control samples (LCS) in the sample matrix (e.g., deionized water, sand, commercially available tissue), matrix spike/matrix spike duplicate (MS/MSD), or sample/duplicate (DUP) pairs, as applicable. Precision results are compared against measurement performance specifications and used during evaluation of analytical performance. Program-defined measurement performance specifications for precision are defined in Appendix A.

Bias

Bias is the systematic or persistent distortion of a measurement process, which causes errors in one direction (i.e., the expected sample measurement is different from the sample's true value). Bias is a statistical measurement of correctness and includes multiple components of systematic error. Bias is determined through the analysis of LCS and LOQ check samples prepared with verified and known amounts of all target analytes in the sample matrix (e.g., deionized water, sand, commercially available tissue) and by calculating percent recovery. Results are compared against measurement performance specifications and used during evaluation of analytical performance. Program-defined measurement performance specifications for bias are specified in

Appendix A.

Representativeness

Site selection, the appropriate sampling regime, comparable monitoring and collection methods, and use of only approved analytical methods will assure that the measurement data represents the conditions at the site. Routine data collected under CRP are considered to be spatially and temporally representative of ambient water quality conditions. Water quality data are collected on a routine frequency and are separated by approximately even time intervals. At a minimum, samples are collected over at least two seasons (to include inter-seasonal variation) and over two years (to include inter-year variation) and include some data collected during an index period (March 15–October 15). Although data may be collected during varying regimes of weather and flow, the data sets will not be biased toward unusual conditions of flow, runoff, or season. The goal for meeting maximum representation of the water body will be tempered by funding availability.

Comparability

Confidence in the comparability of routine data sets for this project and for water quality assessments is based on the commitment of project staff to use only approved sampling and analysis methods and QA/QC protocols in accordance with quality system requirements as described in this QAPP and in TCEQ guidance. Comparability is also guaranteed by reporting data in standard units, by using accepted rules for rounding figures, and by reporting data in a standard format as specified in the Data Management Plan in Section B7.

Completeness

The completeness of the data describes how much of the data are available for use compared to the total potential data. Ideally, 100% of the data should be available. However, the possibility of unavailable data due to accidents, insufficient sample volume, broken or lost samples, etc. is to be expected. Therefore, it will be a general goal of the project(s) that 90% data completion is achieved.

A7 Distribution List

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MC-234
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Jennifer Claybar, Quality Assurance Officer
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Jerry Wiegreffe, Data Manager
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Sabine River Authority of Texas – Laboratory
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Brittany Edgerly, Laboratory Technical Manager
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bedgerly@sratx.org

Jennifer Claybar, Quality Assurance Officer
(409)746-3284
jclaybar@sratx.org

The TCEQ CRP PM will provide the approved QAPP and any amendments and appendices to TCEQ staff listed in A7 and the SRA-TX. The SRA-TX will provide copies of this project plan and any amendments or appendices of this plan to each person on this list and to each sub-tier project participant (e.g., subcontractors, subparticipants, or other units of government). The SRA-TX will document distribution of the plan and any amendments and appendices, maintain this documentation as part of the project's quality assurance records, and ensure the documentation is available for review.

A8 Project/Task Organization

Description of Responsibilities

TCEQ

Jason Godeaux
Manager, Monitoring and Assessment Section
Responsible for oversight of the implementation of CRP QAPPs, directs the day-to-day management of the section.

Sarah Whitley
Team Leader, Water Quality Standards and Clean Rivers Program
Responsible for TCEQ activities supporting the development and implementation of the Texas CRP. Responsible for verifying that the TCEQ QMP is followed by TCEQ 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 QA guidance for the CRP. Reviews and approves all QA audits, corrective actions, reports, work plans, contracts, QAPPs, and TCEQ QMP. Enforces corrective action, as required, where QA protocols are not met. Ensures CRP personnel are fully trained.

Sunshyne Hendrix
CRP Project Quality Assurance Specialist
Serves as liaison between CRP management and TCEQ QA management. Participates in the development, approval, implementation, and maintenance of written QA standards (e.g., Program Guidance, SOPs, QAPPs, QMP). Serves on planning team for CRP special projects. Reviews and approves CRP QAPPs in coordination

with other CRP staff. Coordinates documentation and monitors implementation of corrective actions for the CRP.

Sunshyne Hendrix
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). Coordinates the review and approval of CRP QAPPs in coordination with the TCEQ CRP Project QAS. Ensures maintenance of QAPPs. Assists TCEQ CRP Lead QAS 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 PM. Reviews and approves data and reports produced by contractors. Notifies TCEQ CRP QA Specialists of circumstances that 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 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.

Scott Delgado
CRP Data Manager, Data Management and Analysis Team
Responsible for coordination and tracking of CRP data sets from initial submittal through TCEQ CRP PM review and approval. Ensures that data are reported following instructions in the Data Management Reference Guide (DMRG), July 2019 or most current version. Runs automated data validation checks in SWQMIS and coordinates data verification and error correction with TCEQ CRP PMs. Generates SWQMIS summary reports to assist CRP PMs' 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 (SE) code(s), collecting entity (CE) code(s), and monitoring type (MT) 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).

D. Jody Koehler
TCEQ Quality Assurance Manager
Responsible for coordinating development and implementation of TCEQ's QA program. Provides oversight and guidance for TCEQ's QA program. Responsible for the development and maintenance of the TCEQ QMP. TCEQ's QA Manager, or designated QA staff in the Laboratory and Quality Assurance Section of the Air Monitoring Division, is responsible for review and approval of program/project QAPPs to ensure QAPPs conform to applicable requirements as detailed in TCEQ's QMP.

Loren Walker
CRP Lead Quality Assurance Specialist
Participates in the development, approval, implementation, and maintenance of written QA standards (e.g., Program Guidance, SOPs, QAPPs, QMP). Assists program manager and TCEQ CRP Project QAS in developing and implementing the quality system. Reviews and approves CRP QAPPs, QAPP amendments, and QAPP special appendices. Prepares and distributes annual audit plans. Conducts monitoring systems audits of planning agencies. Concurs with corrective actions. 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 audit records for the CRP.

Sabine River Authority of Texas

Kaleb McDade
SRA-TX Project Manager
Responsible for implementing and monitoring CRP requirements in contracts, QAPPs, and QAPP amendments and appendices. Coordinates basin planning activities and work of basin partners. Ensures monitoring systems audits are conducted to ensure QAPPs are followed by SRA-TX participants and that projects are producing data of known quality. Ensures that subparticipants are qualified to perform contracted work. Ensures TCEQ CRP PM and/or QA Specialists are notified of deficiencies and corrective actions, and that issues are resolved. Responsible for validating that data collected is acceptable for reporting to the TCEQ.

Jennifer Claybar
SRA-TX Quality Assurance Officer/Laboratory Quality Assurance Officer
Responsible for coordinating the implementation of the QA program. Responsible for writing and maintaining the QAPP and monitoring its implementation. Responsible for maintaining records of QAPP distribution, including appendices and amendments. Responsible for maintaining written records of sub-tier commitment to requirements specified in this QAPP. Responsible for identifying, receiving, and maintaining project QA records. Responsible for coordinating with the TCEQ CRP PM to resolve QA-related issues. Notifies the SRA-TX PM of particular circumstances that may adversely affect the quality of data. Coordinates and monitors deficiencies and corrective action. Coordinates and maintains records of data verification and validation. Coordinates the research and review of technical QA material and data related to water quality monitoring system design and analytical techniques. Conducts monitoring systems audits on project participants to determine compliance with project and program specifications, issues written reports, and follows through on findings. Ensures that field staff is properly trained and that training records are maintained.

SRA-TX Laboratory Quality Assurance Officer is responsible for conducting in-house audits to ensure compliance with written SOPs and to identify potential problems. Responsible for supervising and verifying all aspects of the QA/QC in the laboratory. Performs validation and verification of the data before the report is sent to the primary contractor/client. Ensures that all QA reviews are conducted in a timely manner.

Jerry Wiegreffe
SRA-TX Data Manager
Responsible for ensuring that field data are properly reviewed and verified. Responsible for the transfer of basin quality-assured water quality data to the TCEQ in a format compatible with SWQMIS. Maintains quality-assured data on SRA-TX internet sites.

Brittany EdgerlySRA-TX Laboratory Technical Manager
Responsibilities include, but are not limited to, supervising the receiving of samples into the laboratory, the analysis of the samples within proper holding time, the entry of the results into the Laboratory Information Management System (LIMS), and the review and verification of all laboratory data.

Kaleb McDade
Basin Field Coordinator
Responsible for designing and implementing the WQMP and any other special studies. Responsible for overseeing and coordinating the completion of all field equipment calibration and maintenance, data collection and bench sheets. Responsible for coordinating all special investigations. Responsible for coordinating the collection of Global Positioning Systems (GPS) data. Responsible for coordinating the entering of field data into the SRA database. Ensures that field staff are properly trained and that training records are maintained. Responsible for coordinating and overseeing the monitoring systems audits on project participants to determine compliance with project and program specifications and reports the findings to the Quality Assurance Officer.

City of Longview
Personnel from the City of Longview will collect field data and water samples to be sent to the SRA-TX laboratory for analysis. The samples will be collected and handled as specified in this document.

A9 Project QAM Independence

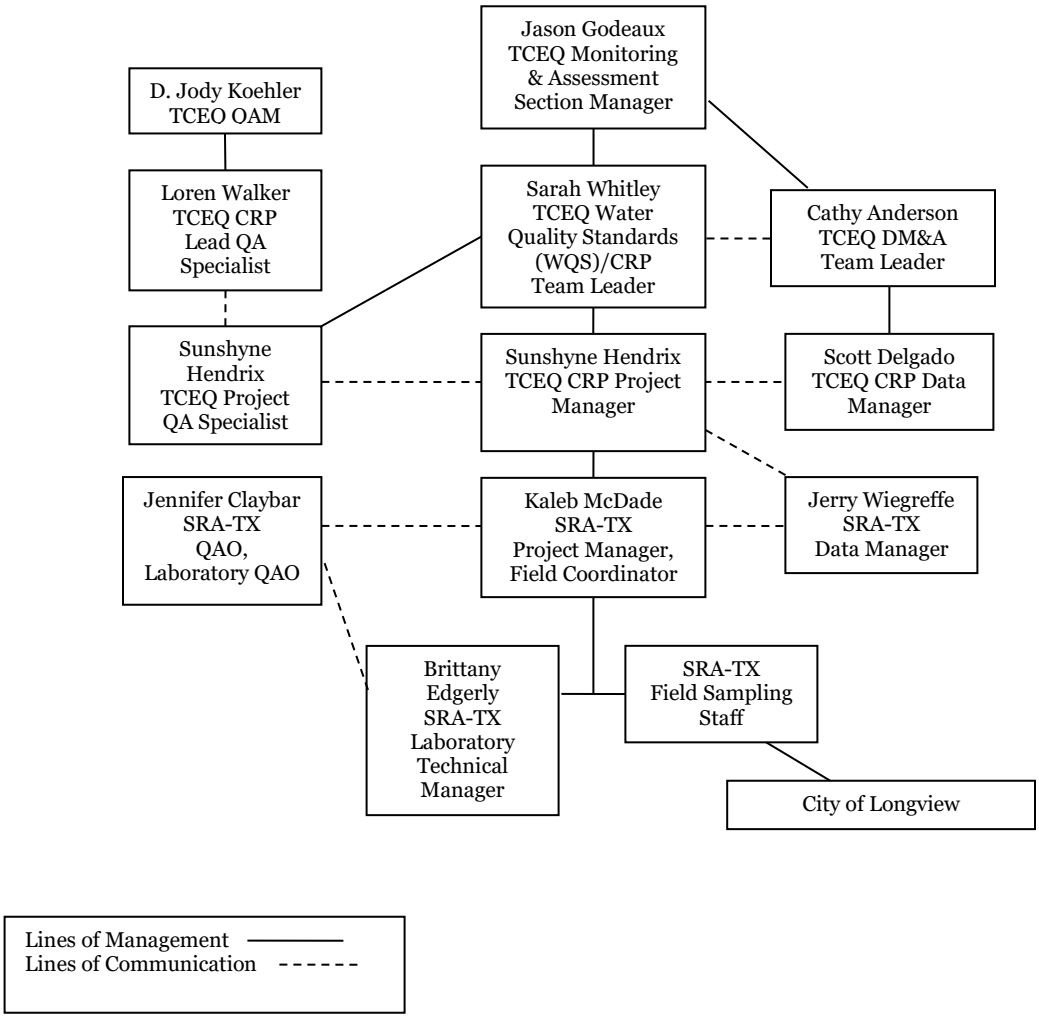
TCEQ uses a semi-decentralized QA program, which is organizationally independent of operational programs and activities within the agency. TCEQ's QA program has sufficient access and authority to coordinate the development and implementation of the agency's quality system.

The TCEQ QA Manager (QAM) and designated TCEQ QA staff from the Laboratory and Quality Assurance Section within the Air Monitoring Division of the Office of Air are independent of activities performed by CRP. No CRP staff have authority to sign QAPPs, amendments, or appendices on behalf of TCEQ's QAM or the Lead CRP QAS. Similarly, TCEQ's QAM and the Lead CRP QAS cannot sign QAPPs, amendments or appendices on behalf of CRP staff.

Roles of project QA staff are described in Section A8. An illustration of QA independence and lines of communication and supervision for this project are detailed in the project organization chart in A10. Communication for deficiencies and corrective actions are described in Section C1.

A10 Project Organizational Chart and Communication Project Organization Chart

Figure A10.1. Organization Chart with Lines of Communication



A11 Special Training/Certification

Before new field personnel independently conduct field work, SRA-TX Basin Coordinator (or designee) trains them in proper instrument calibration, field sampling techniques, and field analysis procedures. The SRA-TX QAO (or designee) will document the successful field demonstration. The SRA-TX 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.

The requirements for obtaining certified positional data using a global positioning system (GPS) are located in Section B7, Data Management.

Contractors and subcontractors must ensure that laboratories analyzing samples under this QAPP meet the requirements contained in The National Environmental Laboratories Accreditation Conference (NELAC) Institute Standard (2016) Volume 1, Module 2, Section 4.5 (concerning Subcontracting of Environmental Tests).

A12 Documents and Records

The documents and records that describe, specify, report, or certify activities are listed. The list below is limited to documents and records that may be requested for review during a monitoring systems audit.

Table A12.1 Project Documents and Records

Document/Record	Location	Retention (yrs)	Format
QAPPs, amendments and appendices	SRA-TX	Minimum 5 Years	Electronic/Paper
Field SOPs	SRA-TX	Minimum 5 Years	Electronic/Paper
Laboratory Quality Manuals	SRA-TX	Minimum 5 Years	Electronic/Paper
Laboratory SOPs	SRA-TX	Minimum 5 Years	Electronic/Paper
QAPP distribution documentation	SRA-TX	Minimum 5 Years	Electronic/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	Electronic/Paper
Chain of custody records	SRA-TX	Minimum 5 Years	Electronic/Paper
Laboratory calibration records	SRA-TX	Minimum 5 Years	Electronic/Paper
Laboratory instrument printouts	SRA-TX	Minimum 5 Years	Electronic/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	Electronic/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 NELAC Institute (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.

Paper laboratory reports are only generated upon request by the client (TCEQ CRP) and include the following information:

a) a title, such as Analytical Report;
b) the name and address of the laboratory, the location of the laboratory if different from the address, and the phone number and name of a contact person;
c) unique identification of the test report, such as an order ID number, on each page and a pagination system that ensures that each page is recognized as part of the test report and a clear identification of the end of the report, such as 3 of 10;
d) the name and address of the client if applicable;
e) the identification of the test method used;
f) an unambiguous identification of the sample(s), including the client identification code;
g) the date of sample receipt when it is critical to the validity and application of the results, date and time of sample collection, dates the tests were performed, the time of sample preparation and analysis if the required holding time for either activity is less than or equal to 72 hours;
h) reference to the sampling plan and procedures used by the laboratory where these are relevant to the validity or application of the results;
i) the test results with failures identified, units of measurement, an indication of whether results are calculated on a dry weight or wet weight basis, and for Whole Effluent Toxicity, an identification of the statistical package used;
j) the date of sampling;
k) station information;
l) sample matrix;
m) locations and depth of the sampling, including diagrams, sketches, or photographs;
n) details of any environmental conditions during sampling that may affect the interpretations of the test results;
o) any standard or other specification for the sampling method or procedure, and deviations, additions to or exclusions from the specification concerned.
p) holding time for *E. coli*;
q) LOQ and LOD and qualification of results with values outside the working range.
r) the name, function, and signature or an equivalent electronic identification of the person authorizing the test report, and the date of issue;
s) a statement to the effect that the results relate only to the samples received;
t) at the laboratory's discretion, a statement that the report shall not be reproduced except in full without written approval of the laboratory;
u) certification that the results are in compliance with the standards adopted by the National Environmental Laboratory Accreditation Program, if accredited to be in compliance or provide reasons and/or justification if they do not comply.

When necessary for interpretation of the results or when more information is requested by the client (TCEQ CRP), test reports can include additional information.

Electronic Data

Data will be submitted electronically to the TCEQ in the event/result file format described in the most

current version of the DMRG. A completed data review checklist and data summary (see Appendix F) will be included with each data submittal. Samples collected by the City of Longview personnel are received by SRA-TX field personnel and are transported to the SRA-TX Laboratory. The sample custody records (SRA-TX field sheets) for these samples include the field measurements collected by City of Longview personnel at the time of sample collection.

B1 Sampling Process Design

See Appendix B for sampling process design information and monitoring tables associated with data collected under this QAPP.

B2 Sampling Methods

Field Sampling Procedures

Field sampling will be conducted in accordance with the latest versions of the *TCEQ Surface Water Quality Monitoring Procedures Volume 1: Physical and Chemical Monitoring Methods, 2012* (RG-415) and *Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014* (RG-416), collectively referred to as "SWQM Procedures." Updates to SWQM Procedures are posted to the Surface Water Quality Monitoring Procedures website https://www.tceq.texas.gov/waterquality/monitoring/swqm_guides.html and shall be incorporated into the SRA-TX's procedures, QAPP, SOPs, etc., within 60 days of any final published update. Additional aspects outlined in Section B below reflect specific requirements for sampling under CRP and/or provide additional clarification.

Table B2.1 Sample Storage, Preservation, and Handling Requirements

Parameter	Matrix	Container	Preservation	Sample Volume	Holding Time
Conventionals					
Nitrate	Water	Precleaned plastic bottle	Cool <6°C but above freezing	100 mL	48 hours
Nitrite	Water	Precleaned plastic bottle	Cool <6°C but above freezing	100 mL	48 hours
Ammonia	Water	Precleaned plastic bottle	H_2SO_4 to pH<2 and Cool <6°C but above freezing	250 mL	28 days
Total Kjeldahl Nitrogen (TKN)	Water	Precleaned plastic bottle	H_2SO_4 to pH<2 and Cool <6°C but above freezing	250 mL	28 days
Total Phosphorus	Water	Precleaned plastic bottle	H_2SO_4 to pH<2 and Cool <6°C but above freezing	250 mL	28 days
Sulfate	Water	Precleaned plastic bottle	Cool <6°C but above freezing	100 mL	28 days
Chloride	Water	Precleaned plastic bottle	Cool <6°C but above freezing	100 mL	28 days

Total Organic Carbon (TOC)	Water	Amber borosilicate vial/Amber glass bottle	H_2SO_4 to pH<2 and Cool <6°C but above freezing	40 mL/250 mL	28 days
Total Alkalinity	Water	Precleaned plastic bottle	Cool <6°C but above freezing	1000 mL	14 days
Total Hardness	Water	Precleaned plastic bottle	HNO_3 to pH<2 and Cool <6°C but above freezing	250 mL	6 months
Chlorophyll-a	Water	Opaque plastic bottle	Dark and cool before filtration to <6°C but above freezing; Filters dark and frozen	1000 mL	Samples must be filtered as soon as possible; Filters stored frozen up to 24 days
Turbidity	Water	Precleaned plastic bottle	Cool <6°C but above freezing	1000 mL	48 hours
Bacteriological					
Enterococcus	Water	Sterile plastic bottle	Cool <6°C but above freezing, $Na_2S_2O_3$	100 mL	8 hours
**E. coli*	Water	Sterile plastic bottle	Cool <6°C but above freezing, $Na_2S_2O_3$	100 mL/290 mL	8 hours
Metals					
Dissolved	Water	Precleaned plastic bottle	HNO_3 to pH< 2 field filtered	250 mL	6 months
Total	Water	Precleaned plastic bottle	HNO_3 to pH< 2	250 mL	6 months
**E. coli* samples should always be processed as soon as possible and incubated no later than 8 hours from time of collection. When transport conditions necessitate sample incubation after 8 hours from time of collection, the holding time may be extended, and samples must be processed as soon as possible and within 30 hours.					

Sample Containers

Sample containers purchased from Environmental Sampling Supply arrive pre-cleaned for conventional parameters and metals and are disposable. Pre-sterilized plastic bottles purchased from Fisher Scientific containing 1% sodium thiosulfate tablets (for chlorine neutralization) are used for bacteriological samples. Amber borosilicate vials are also purchased from Environmental Sampling Supply and arrive pre-cleaned and certified for organic constituents for TOC samples. Certificates from sample container manufacturers are maintained in a notebook by the SRA-TX. Amber glass bottles may also be used for TOC sampling in order to provide the laboratory with enough sample to analyze sample duplicates and matrix spikes. Opaque plastic bottles are used routinely for chlorophyll-a samples. The amber glass bottles and the opaque plastic bottles are cleaned in an automatic steam washer with Contrad®. One container from each batch is checked with a 0.04% Bromothymol Blue solution to ensure proper rinsing and documented on a labware cleaning benchsheet. Sample containers are preserved in the field.

Processes to Prevent Contamination

SWQM Procedures outline the necessary steps to prevent contamination of samples, including: direct collection into sample containers, when possible; use of certified containers for organics; and clean sampling techniques for metals. Field QC samples (identified in Section B4) are collected to verify that contamination has not occurred.

Documentation of Field Sampling Activities

Field sampling activities are documented on field data sheets as presented in Appendix D. Flow worksheets and records of bacteriological analyses (if applicable) are part of the field data record. The following will be recorded for all visits:

- Station ID
- Sampling date
- Location
- Sampling depth
- Sampling time
- Sample collector's name
- Values for all field parameters collected

Additional notes containing detailed observational data not captured by field parameters may include:

- Water appearance
- Weather
- Biological activity
- Recreational activity
- Unusual odors
- Pertinent observations related to water quality or stream uses
- Watershed or instream activities
- Specific sample information
- Missing parameters

Recording Data

For the purposes of this section and subsequent sections, all field and laboratory personnel follow the basic rules for recording information as documented below:

- Write legibly, in indelible ink.
- Make changes by crossing out original entries with a single line strike-out, entering the changes, and initialing and dating the corrections.
- Close-out incomplete pages with an initialed and dated diagonal line.

Sampling Method Requirements or Sampling Process Design Deficiencies, and Corrective Action

Examples of sampling method requirements or sample design deficiencies include but are not limited to such things as inadequate sample volume due to spillage or container leaks, failure to preserve samples appropriately, contamination of a sample bottle during collection, storage temperature and holding time exceedance, sampling at the wrong site, etc. Any deviations from the QAPP, SWQM Procedures, or appropriate sampling procedures may invalidate data and require documented corrective action. Corrective action may include for samples to be discarded and re-collected. It is the responsibility of the SRA-TX PM, in consultation with the SRA-TX QAO, to ensure that the actions and resolutions to the problems are documented and that records are maintained in accordance with this QAPP. In addition, these actions and resolutions will be conveyed to the TCEQ CRP PM both verbally and in writing in the project progress reports and by completion of a CAP.

The definition of and process for handling deficiencies and corrective action are defined in Section C1.

Analytical Methods

The analytical methods, associated matrices, and performing laboratories are listed in Appendix A. The

authority for analysis methodologies under CRP is derived from the Texas Administrative Code (TAC), Title 30, Chapter 307, in that data generally are generated for comparison to those standards and/or criteria. The TSWQS state "procedures for laboratory analysis must be in accordance with the most recently published edition of the book entitled Standard Methods for the Examination of Water and Wastewater, the TCEQ SWQM Procedures as amended, 40 Code of Federal Regulations (CFR) 136, or other reliable procedures acceptable to the TCEQ, and in accordance with chapter 25 of this title."

Laboratories collecting data under this QAPP must be accredited by the National Environmental Laboratory Accreditation Program (NELAP) in accordance with TAC, Title 30, Chapter 25. Copies of laboratory quality manuals (QMs) and SOPs shall be made available for review by the TCEQ.

Standards Traceability

All standards used in the field and laboratory are traceable to certified reference materials. Standards preparation is fully documented and maintained in a standards log book. Each documentation includes information concerning the standard identification, starting materials, including concentration, amount used and lot number; date prepared, expiration date and preparer's initials/signature. The reagent bottle is labeled in a way that will trace the reagent back to preparation.

Analytical Method Deficiencies and Corrective Actions

Deficiencies in field and laboratory measurement systems involve, but are not limited to such things as instrument malfunctions, failures in calibration, blank contamination, quality control samples outside QAPP- defined limits, etc. In many cases, the field technician or lab analyst will be able to correct the problem. If the problem is resolvable by the field technician or lab analyst, then they will document the problem on the field data sheet or laboratory record and complete the analysis. If the problem is not resolvable, then it is conveyed to the applicable supervisor, who will make the determination and notify the SRA-TX QAO if the problem compromises sample results. If the analytical system failure may compromise the sample results, the resulting data will not be reported to the TCEQ. The nature and disposition of the problem is reported on the data report which is sent to the SRA-TX PM. If a CAP is necessary (Figure C1.1), the SRA-TX QAO will submit the CAP to the TCEQ CRP PM in a timely manner for review. Additionally, the SRA-TX PM will summarize the CAP in the associated progress report submitted to the TCEQ CRP PM.

The definition of and process for handling deficiencies and corrective action are explained in detail in Section C1.

The TCEQ has determined that analyses associated with qualifier codes (e.g., "holding time exceedance," "sample received unpreserved," "estimated value") may have unacceptable measurement uncertainty associated with them. This will immediately disqualify analyses from submittal to SWQMIS. Therefore, data with these types of problems should not be reported to the TCEQ. Additionally, any data collected or analyzed by means other than those stated in the QAPP, or data suspect for any reason should not be submitted for loading and storage in SWQMIS. However, when data is lost, its absence will be described in the data summary report submitted with the corresponding data set, and a CAP (as described in Section C1) may be necessary.

Acquired Data

Non-directly measured data, secondary data, or acquired data involves the use of data collected under another project and collected with a different intended use than this project. The acquired data still meets the quality requirements of this project and is defined below. The following data source(s) will be used for this project:

USGS gage station data will be used throughout this project to aid in determining gage height and flow. Rigorous QA checks are completed on gage data by the USGS and the data are approved by the USGS and permanently stored at the USGS. This data will be submitted to the TCEQ under parameter code 00061 (instantaneous flow) or parameter code 74069 (flow estimate) depending on the proximity of the

monitoring station to the USGS gage station.

B3 Sample Handling and Custody

Sample Tracking

Proper sample handling and custody procedures ensure the custody and integrity of samples beginning at the time of sampling and continuing through transport, sample receipt, preparation, and analysis.

A sample is in custody if it is in actual physical possession or in a secured area that is restricted to authorized personnel. The chain of custody (COC) form is a record that documents the possession of the samples from the time of collection to receipt in the laboratory. The following information concerning the sample is recorded on the COC form (see Appendix E). The following list of items matches the COC form in Appendix E.

Date and time of collection
Site identification
Sample matrix
Number of containers
Preservative used
Was the sample filtered
Analyses required
Name of collector
Custody transfer signatures and dates and time of transfer
Bill of lading, if applicable

Sample Labeling

Samples from the field are labeled on the container, or on a label, with an indelible marker. Label information includes:

Site identification
Date and time of collection
Preservative added, if applicable
Indication of field-filtration for metals, as applicable
Sample type (i.e., analyses) to be performed

Sample Handling

All samples submitted to the laboratory for analyses must have proper documentation as to their source, method of collection, and maintenance of integrity during transport and delivery. The samples are received in the laboratory by the Sample Custodian or assigned alternate. After checking the COC form for completeness, the Sample Custodian records the date, time, and signs the form. The Sample Custodian maintains copies of the signed forms. The field personnel maintain the original signed field sheets in binders. Laboratory analyses conducted on the samples are referenced to the field sheets by the laboratory work order #, station ID# and sample date.

The Sample Custodian then affixes a computer-generated label to the sample. The label indicates the sample ID number, the place of storage, date received, date collected, and the tests to be performed. The sample is stored in the appropriate refrigeration unit or issued to an analyst if immediate analysis is required. Only authorized laboratory personnel will handle samples received by the laboratory. Samples remain stored in the appropriate refrigeration unit until removed for analysis by an analyst. The Laboratory Technical Manager or designee will assign testing to laboratory analysts within the specified holding times.

The laboratory analyst assigned to conduct the analyses in SRA-TX Laboratory generates a work list of samples from the computer. The analyst removes the samples from storage and records the sample ID numbers in the appropriate bound benchsheet. All other appropriate information is recorded on the benchsheets at this time. The information includes the date and time the analysis began, the analyst's initials, and any other information pertinent to the specific test such as standards, dilution volumes, all required quality assurance samples, etc.

The analyst is responsible for the integrity of the sample from the time it is removed from storage, during the time of the analysis, and until it is returned to storage. The analyst must be prepared to testify in a court of law that the integrity of the sample was maintained throughout the analysis. Each sample is returned to its appropriate storage upon completion of the analysis. If the entire sample is used, the empty container will be stored in the designated storage place until the appointed disposal time. Samples are properly disposed of after all tests have been completed and at least 30 days after collection.

Sample Tracking Procedure Deficiencies and Corrective Action

All deficiencies associated with COC procedures, as described in this QAPP, are immediately reported to the SRA-TX PM. These include such items as delays in transfer resulting in holding time violations; violations of sample preservation requirements; incomplete documentation, including signatures; possible tampering of samples; broken or spilled samples; etc. The SRA-TX PM, in consultation with the SRA-TX QAO, will determine if the procedural violation may have compromised the validity of the resulting data. Any failures that have reasonable potential to compromise data validity will invalidate data and the sampling event should be repeated. The resolution of the situation will be reported to the TCEQ CRP PM in the project progress report. CAPs will be prepared by the SRA-TX and submitted to TCEQ CRP PM.

The definition of and process for handling deficiencies and corrective action are defined in Section C1.

B4 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 A12).

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. The minimum frequency requirement for field blanks for total metals-in-water samples is specified in the SWQM Procedures.

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. The minimum frequency requirement for field equipment blanks is specified in the SWQM Procedures.

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.

Laboratory Measurement Quality Control Requirements and Acceptability Criteria

Batch
A batch is defined as environmental samples that are prepared and/or analyzed together with the same process and personnel, using the same lot(s) of reagents. A preparation batch is composed of one to 20 environmental samples of the same NELAP-defined matrix, meeting the above-mentioned criteria and with a maximum time between the start of processing of the first and last sample in the batch to be 24 hours. An analytical batch is composed of prepared environmental samples (extract, digestates, or concentrates) which are analyzed together as a group. An analytical batch can include prepared samples originating from various environmental matrices and can exceed 20 samples.

Method Specific QC requirements
QC samples, other than those specified later in this section (e.g., sample duplicates, surrogates, internal standards, continuing calibration samples, interference check samples, positive control, negative control, and media blank), are run as specified in the methods and in SWQM Procedures. The requirements for these samples, their acceptance criteria or instructions for establishing criteria, and corrective actions are method-specific.

Detailed laboratory QC requirements and corrective action procedures are contained within the individual laboratory QMs. The minimum requirements that all participants abide by are stated below.

Comparison Counting
For routine bacteriological samples, repeat counts on one or more positive samples are required, at least monthly. If possible, the analyst will compare counts with another analyst who also performs the analysis. Replicate counts by the same analyst should agree within 5 percent, and those between analysts should agree within 10 percent. The analyst(s) will record the results.

Limit of Quantitation (LOQ)
The laboratory will analyze a calibration standard (if applicable) at the LOQ published in Appendix A of this QAPP on each day calibrations are performed. In addition, an LOQ check sample will be analyzed with each analytical batch. Calibrations including the standard at the LOQ listed in Appendix A will meet the calibration requirements of the analytical method, or corrective action will be implemented.

LOQ Check Sample
An LOQ check sample consists of a sample matrix (e.g., deionized water, sand, commercially available tissue) free from the analytes of interest spiked with verified known amounts of analytes or a material

containing known and verified amounts of analytes. It is used to establish intra-laboratory bias to assess the performance of the measurement system at the lower limits of analysis. The LOQ check sample is spiked into the sample matrix at a level less than or equal to the LOQ published in Appendix A of this QAPP, for each analyte for each analytical batch of CRP samples run. If it is determined that samples have exceeded the high range of the calibration curve, samples should be diluted or run on another curve. For diluted or high concentration samples run on batches with calibration curves that do not include the LOQ published in Appendix A of this QAPP, a check sample will be run at the low end of the calibration curve.

The LOQ check sample is carried through the complete preparation and analytical process and is performed at a rate of one per analytical batch.

The percent recovery of the LOQ check sample is calculated using the following equation in which %R is percent recovery, S_R is the sample result, and S_A is the reference concentration for the check sample:

$$\%R = {}^{S_R}/_{S_A} \times 100$$

Measurement performance specifications are used to determine the acceptability of LOQ check sample analyses as specified in Appendix A of this QAPP.

Laboratory Control Sample (LCS)

An LCS consists of a sample matrix (e.g., deionized water, sand, commercially available tissue) free from the analytes of interest spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes. It is used to establish intra-laboratory bias to assess the performance of the measurement system. The LCS is spiked into the sample matrix at a level less than or near the midpoint of the calibration for each analyte. In cases of test methods with very long lists of analytes, LCSs are prepared with all the target analytes and not just a representative number, except in cases of organic analytes with multipeak responses.

The LCS is carried through the complete preparation and analytical process and is performed at a rate of one per preparation batch.

Results of LCSs are calculated by percent recovery (%R), which is defined as 100 times the measured concentration, divided by the true concentration of the spiked sample.

The following formula is used to calculate percent recovery, where %R is percent recovery; S_R is the measured result; and S_A is the true result:

$$\%R = {}^{S_R}/_{S_A} \times 100$$

Measurement performance specifications are used to determine the acceptability of LCS analyses as specified in Appendix A.

Laboratory Duplicates

A laboratory duplicate is an aliquot taken from the same container as an original sample under laboratory conditions and processed and analyzed independently. A laboratory duplicate is achieved by preparing 2 separate aliquots of a sample, LCS, or matrix spike. Both samples are carried through the entire preparation and analytical process. Laboratory duplicates are used to assess precision and are performed at a rate of one per preparation batch.

For most parameters except bacteria, precision is evaluated using the relative percent difference (RPD) between duplicate results as defined by 100 times the difference (range) of each duplicate set, divided by the average value (mean) of the set. For duplicate results, X_1 and X_2, the RPD is calculated from the following equation:

$$RPD = \frac{|X_1 - X_2|}{\left(\frac{X_1 + X_2}{2}\right)} \times 100$$

If the precision criterion is exceeded, the data are not acceptable for use under this project and are not reported to TCEQ. Results from all samples associated with that failed duplicate (usually a maximum of 10 samples) are considered to have excessive analytical variability and are qualified as not meeting project QC requirements.

For bacteriological parameters, precision is evaluated using the results from laboratory duplicates. Bacteriological duplicates are analyzed at a 10% frequency (or once per preparation batch, whichever is more frequent). Sufficient volume should be collected to analyze laboratory duplicates from the same sample container.

The base-10 logarithms of the results from the original sample and its duplicate are calculated. The absolute value of the difference between the two base-10 logarithms is calculated and compared to the precision criterion in Appendix A.

$$|\text{Log A} - \text{Log B}| = \text{Log Range}$$

If the difference in logarithms is greater than the precision criterion, the data are not acceptable for use under this project and are not reported to TCEQ. Results from all samples associated with that failed duplicate (usually a maximum of 10 samples) are considered to have excessive analytical variability and are qualified as not meeting project QC requirements.

The precision criterion in Appendix A for bacteriological duplicates applies only to samples with concentrations > 10 MPN.

Laboratory equipment blank

Laboratory equipment blanks are prepared at the laboratory where collection materials for metals sampling equipment are cleaned between uses. These blanks document that the materials provided by the laboratory are free of contamination. The QC check is performed before the metals sampling equipment is sent to the field. The analysis of laboratory equipment blanks should yield values less than the LOQ. If the result is not less than the LOQ, the equipment should not be used.

Matrix spike

Matrix spikes are prepared by adding a known quantity of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

Matrix spikes indicate the effect of the sample on the precision and accuracy of the results generated using the selected method. Matrix-specific QC samples indicate the effect of the sample matrix on the precision and accuracy of the results generated using the selected method. The information from these controls is sample/matrix specific and would not normally be used to determine the validity of the entire batch. The frequency of matrix spikes is specified by the analytical method, or a minimum of one per preparation batch, whichever is greater. To the extent possible, matrix spikes prepared and analyzed over the course of the project should be performed on samples from different sites.

The components to be spiked shall be as specified by the mandated analytical method. The results from matrix spikes are primarily designed to assess the validity of analytical results in a given matrix and are expressed as percent recovery (%R).

The percent recovery of the matrix spike is calculated using the following equation, where %R is percent recovery, S_{SR} is the concentration measured in the matrix spike, S_R is the concentration in the parent sample, and S_A is the concentration of analyte that was added:

$$\%R = \frac{S_{SR} - S_R}{S_A} \times 100$$

Matrix spike recoveries are compared to the same acceptance criteria established for the associated LCS recoveries, rather than the matrix spike recoveries published in the mandated test method. The EPA 1993 methods (i.e., ammonia-nitrogen, ion chromatography, TKN) that establish matrix spike recovery acceptance criteria are based on recoveries from drinking water that has very low interferences and variability and do not represent the matrices sampled in the CRP. If the matrix spike results are outside laboratory-established criteria, there will be a review of all other associated quality control data in that batch. If all of the quality control data in the associated batch passes, it will be the decision of the laboratory QAO or SRA-TX PM to report the data for the analyte that failed in the parent sample to TCEQ or to determine that the result from the parent sample associated with that failed matrix spike is considered to have excessive analytical variability and does not meet project QC requirements. Depending on the similarities in composition of the samples in the batch, SRA-TX may consider excluding all of the results in the batch related to the analyte that failed recovery.

Method blank

A method blank is a sample of matrix similar to the batch of associated samples (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as the samples through all steps of the analytical procedures, and in which no target analytes or interferences are present at concentrations that impact the analytical results for sample analyses. The method blank is used to document contamination from the analytical process. The analysis of method blanks should yield values less than the LOQ. For very high-level analyses, the blank value should be less than 5% of the lowest value of the batch, or corrective action will be implemented. Samples associated with a contaminated blank shall be evaluated as to the best corrective action for the samples (e.g., reprocessing, data qualifying codes). In all cases, the corrective action must be documented.

The method blank shall be analyzed at a minimum of one per preparation batch. In those instances for which no separate preparation method is used (e.g., VOA) the batch shall be defined as environmental samples that are analyzed together with the same method and personnel, using the same lots of reagents, not to exceed the analysis of 20 environmental samples.

Quality Control or Acceptability Requirements, Deficiencies, and Corrective Actions

Sampling QC excursions are evaluated by the SRA-TX PM, in consultation with the SRA-TX QAO. In that differences in sample results are used to assess the entire sampling process, including environmental variability, the arbitrary rejection of results based on pre-determined limits is not practical. Therefore, the professional judgment of the SRA-TX PM and QAO will be relied upon in evaluating results.

Field blanks for trace elements and trace organics are scrutinized very closely. Field blanks are associated with batches of field samples. In the event of a field blank failure, any target analytes in the ambient sample associated with the field blank should be qualified as not meeting project QC requirements. Notations of blank contamination are noted in the data summaries that accompany data deliverables. Equipment blanks for metals analysis are also scrutinized very closely.

Laboratory measurement quality control failures are evaluated by the laboratory staff. The disposition of such failures and the nature and disposition of the failure is reported to the Laboratory QAO. The Laboratory QAO will discuss the failure with the SRA-TX PM. If applicable, the SRA-TX PM will include this information in a CAP and submit the CAP to the TCEQ CRP PM.

The definition of and process for handling deficiencies and corrective action are defined in Section C1.

Additionally, in accordance with CRP requirements and the TNI Standard (Volume 1, Module 2, Section 4.5, Subcontracting of Environmental Tests) when a laboratory that is a signatory of this QAPP finds it necessary and/or advantageous to subcontract analyses, the laboratory that is the signatory on this QAPP

must ensure that the subcontracting laboratory is NELAP-accredited (when required) and understands and follows the QA/QC requirements included in this QAPP. This includes confirming that the sub-contracting laboratory has LOQs at or below TCEQ AWRLs and performs all required QC analysis outlined in this QAPP. The signatory laboratory is also responsible for QA of the data prior to delivering it to the SRA-TX, including review of all applicable QC samples related to CRP data. As stated in section 4.5.5 of the TNI Standard, the laboratory performing the subcontracted work shall be indicated in the final report and the signatory laboratory shall make a copy of the subcontractor's report available to the client (SRA-TX) when requested.

B5 Instrument/Equipment Calibration, Testing, Inspection, and Maintenance

All sampling equipment testing and maintenance requirements are detailed in the SWQM Procedures. Sampling equipment is inspected and tested upon receipt and is assured appropriate for use by the Basin Field Coordinator. Equipment records are kept on all field equipment and a supply of critical spare parts is maintained.

All laboratory tools, gauges, instrument, and equipment testing and maintenance requirements are contained within laboratory QM(s).

Instrument Calibration and Frequency

Field equipment calibration requirements are contained in the SWQM Procedures. Post-calibration check error limits and the disposition resulting from errors are adhered to. Data collected from field instruments that do not meet the post-calibration check error limits specified in the SWQM Procedures will not be submitted for inclusion into SWQMIS.

Detailed laboratory calibrations are contained within the QM(s).

B6 Inspection/Acceptance of Supplies and Consumables

No special requirements for acceptance are specified for field sampling supplies and consumables. Requirements for acceptance of laboratory supplies and consumables are outlined on page 21 of the SRA-TX QM. All laboratory and field supplies purchased are verified through management and inspected before acceptance.

B7 Data Management

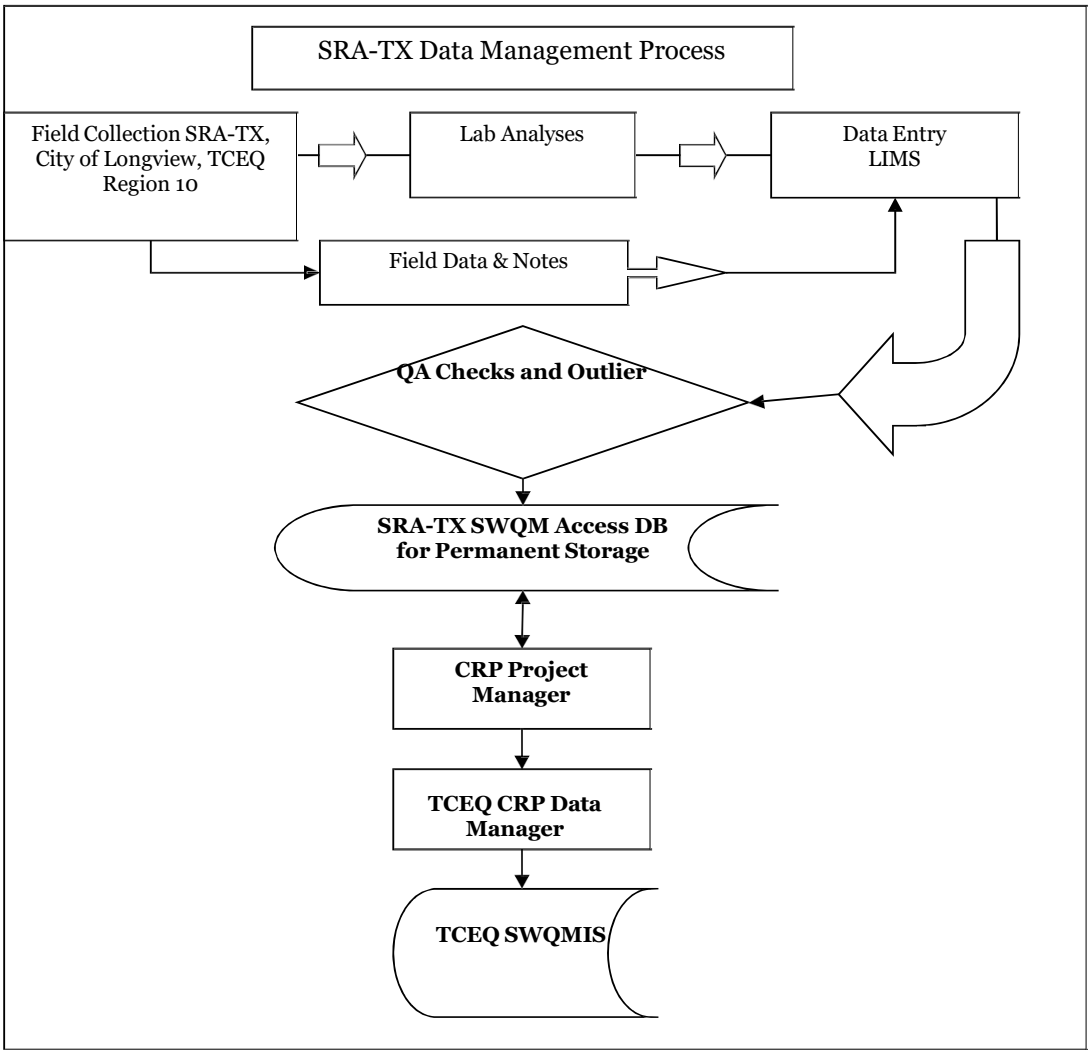
Data Management Process

Field data and samples are collected by SRA-TX field sampling staff and City of Longview staff. Samples collected by the City of Longview staff are delivered to SRA-TX personnel in the field. The samples are then transported by SRA-TX personnel to the SRA-TX laboratory for analysis. Upon arrival at the SRA-TX laboratory, the samples are logged into the SRA-TX LIMS; currently Sample Master® by Confience. The samples are then analyzed by SRA-TX laboratory staff and entered into the SRA-TX LIMS. Each analytical run goes through a secondary analyst review before being submitted to the SRA-TX QAO or designee for final validation and approval. These reviews ensure that data generated by the laboratory are compliant with method, laboratory and client requirements. If any errors or QC failures are identified, the samples are reanalyzed if possible or are rejected and the SRA-TX Project Manager is notified. The field data is entered into the SRA-TX LIMS by the Field Coordinator or SRA-TX laboratory staff. After all field data and analytical results are entered into the SRA-TX LIMS, a data review, using the data review checklist included in Appendix F, is performed by SRA-TX field sampling staff. When the data review is complete,

the SRA-TX Data Manager exports the data from the SRA-TX LIMS into SRA-TX's Surface Water Quality Monitoring Program Database (SWQM DB) for permanent storage. The SRA-TX Data Manager assigns program codes to data, assigns J-Tag numbers and creates location and data tables and performs data checks for log-in errors, incomplete tests, etc. The SRA-TX QAO then queries the data against historical data for control limit outliers and SWParm outliers. SWParm is a database of minimum and maximum surface water parameter results. These outliers are reviewed by the SRA-TX QAO and are verified, corrected, or rejected.

The SRA-TX Data Manager then uploads the data to the SWQMIS Test Environment to verify that there are no loading errors present. Then the SRA-TX Data manager sends the data in an Events and Results file along with a Data Summary Report and the Data Review Checklist to the TCEQ Project Manager for review. The TCEQ Project Manager reviews the data and forwards it to the TCEQ Data Manager for further review. The TCEQ Data Manager uploads the data to SWQMIS Production upon the TCEQ Project Manager's approval.

Figure B7.1 – Data Management Process Flowchart



Data Dictionary

Terminology and field descriptions are included in the 2019 DMRG, or most recent version. A table outlining the entities that will be used when submitting data under this QAPP is included below for the purpose of verifying which entity codes are included in this QAPP.

Name of Entity	Tag Prefix	Submitting Entity	Collecting Entity
SRA-TX	J	SR	SR
City of Longview	J	SR	LW

Data Errors and Loss

All data is entered into SRA-TX's LIMS and checked for errors by the SRA-TX QAO. Data is exported from SRA-TX LIMS and is queried for control limit outliers and SWParm outliers. SWParm is a database of minimum and maximum surface water parameter results. These outliers are reviewed against field sheets and/or lab analysis results by the SRA-TX QAO, SRA-TX Laboratory Technical Manager and SRA-TX Field Office Coordinators and are either verified or corrected. Tag numbers are assigned, and data is uploaded to the SRA-TX SWQM DB. Data is uploaded to the TCEQ SWQMIS system according to the

Program Guidance and Work Plan Deliverables schedule. The Data Review Checklist and Data Summary are used to detect data errors and report data loss to TCEQ (see Appendix F).

Record Keeping and Data Storage

Data is stored in a normalized relational database on SRA-TX's internal network. The data and internal network is maintained by the SRA-TX Information Technology Administrator on-site. Field data sheets and bench sheets are kept in permanent storage for a minimum of five years.

Data Handling, Hardware, and Software Requirements

Data collected by SRA-TX and City of Longview field personnel are manually entered into the ESD LIMS directly from field sheets or the results of lab analysis. All data is checked for transcription errors by SRA-TX QAO or SRA-TX Data Manager. Further data processing, compilation, and analysis is performed on Wide Area Network (WAN)-based computer workstations using the Microsoft® Office Professional suite of programs as described below.

Information Resource Management Requirements

Multiple levels of QA checks and review, as described above, within the data management process ensure that applicable information resource management requirements are satisfied.

Data will be managed in accordance with the TCEQ DMRG (most recent revision) and applicable SRA-TX information resource management policies.

GPS equipment may be used as a component of the information required by the station location (SLOC) request process for creating the certified positional data that will ultimately be entered into SWQMIS database. Positional data obtained by CRP grantees using a GPS will follow the TCEQ's OPP 8.11 policy regarding the collection and management of positional data. Positional data may be acquired with a GPS and verified with photo interpolation using a certified source, such as Google Earth or Google Maps. The verified coordinates and map interface can then be used to develop a new SLOC.

C1 Assessments and Response Actions

The following table presents the types of assessments and response actions for data collection activities applicable to the QAPP.

Table C1.1 Assessments and Response Requirements

Assessment Activity	Approximate Schedule	Responsible Party	Scope	Response Requirements
Status Monitoring Oversight	Continuous	SRA-TX	Monitoring of the project status and records to ensure requirements are being fulfilled	Report to TCEQ in quarterly report. Submit CAPs to TCEQ as needed.
Monitoring Systems Audit of SRA-TX	Dates to be determined by TCEQ CRP	TCEQ	Field sampling, handling and measurement; facility review; and data management as they relate to CRP	30 days to provide corrective actions response to the TCEQ
Monitoring Systems Audit of Program Subparticipants	Dates to be determined by the SRA-TX (at a frequency of once per biennium)	SRA-TX	Field sampling, handling and measurement; facility review; and data management as they relate to CRP	30 days to respond in writing to the SRA-TX. SRA-TX PM will report findings to TCEQ in progress report.

Laboratory Assessment	Dates to be determined by TCEQ	TCEQ Laboratory Assessor	Analytical and quality control procedures employed at the laboratory and the contract laboratory	30 days to provide corrective actions response to the TCEQ

Corrective Action Process for Deficiencies

Deficiencies are any deviation from the QAPP, SWQM Procedures, DMRG, SOPs, or other applicable guidance documents. Deficiencies may invalidate resulting data and require corrective action. Deficiencies that can be prevented from occurring again in the future require a CAP. TCEQ QA staff recognize that deficiencies may occur that are out of the control of SRA-TX staff and/or their subparticipant's staff. Such deficiencies do not require a CAP. However, when a deficiency impacts data quality or quantity, the TCEQ CRP PM must be notified (within three business days of discovery) and the data loss noted in the associated monitoring activities report and data summary. Corrective action for deficiencies may include for samples to be discarded and re-collected. Deficiencies are documented in logbooks, field data sheets, etc. by field or laboratory staff, are communicated to the SRA-TX PM (or other appropriate staff) and should be subject to periodic review so their responses can be uniform, and their frequency tracked. It is the responsibility of the SRA-TX PM, in consultation with the SRA-TX QAO, to ensure that the actions and resolutions to the problems are documented and that records are maintained in accordance with this QAPP.

TCEQ staff are tasked with reviewing CAPs written by SRA-TX concerning deficiencies associated with CRP work. This includes the TCEQ CRP Team Leader, PM, Project QAS, and Lead QAS. The SRA-TX PM or QAO should submit CAPs to their assigned TCEQ CRP PM in a timely manner. SRA-TX can begin implementing corrective actions without TCEQ approval. However, TCEQ may request alternate or modified corrective actions if deemed necessary.

A template for writing CAPs is provided in the *Guidance for Partners in the Texas Clean Rivers Program FY 2026–2027* (Exhibit 2C). While CAPs need not adhere to this specific format, they must include information for all of the listed elements. Incomplete CAPs will be returned to the SRA-TX QAO for revision. All CAPs for a FY should be cataloged in the quarterly progress reports submitted to the TCEQ CRP PM by the SRA-TX PM. This documentation should include, at a minimum, the report number, date(s) of deficiency occurrence, description of deficiency, action taken, CAP status, and the date the CAP was closed (if applicable).

Significant conditions that, if uncorrected, could have a serious effect on safety or on the validity or integrity of data will be reported to the TCEQ immediately.

The SRA-TX PM is responsible for ensuring that corrective actions have been implemented and tracks deficiencies and corrective actions. Records of audit findings and corrective actions are maintained by the SRA-TX PM. Audit reports and associated corrective action documentation will be submitted to the TCEQ with the quarterly progress reports.

If audit findings and corrective actions cannot be resolved, then the authority and responsibility for terminating work are specified in the TCEQ QMP and in agreements in contracts between participating organizations.

Corrective Action

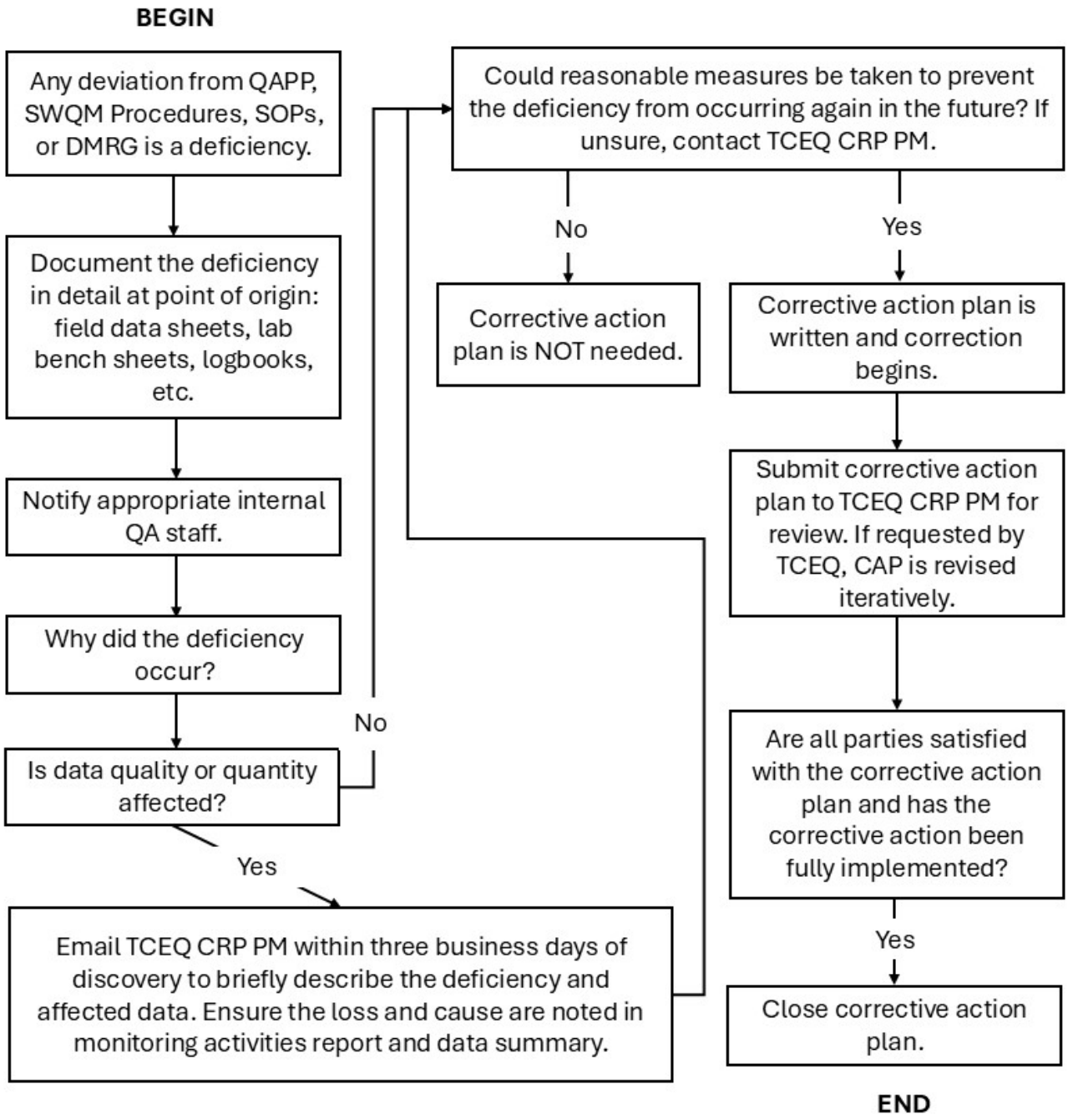
CAPs should:

- Identify the problem, nonconformity, or undesirable situation
- Identify immediate remedial actions if possible
- Identify the underlying cause(s) of the problem
- Describe the programmatic impact
- Identify whether the problem is likely to recur, or occur in other areas
- Assist in determining the need for corrective action and actions to prevent reoccurrence

- Employ problem-solving techniques to verify causes, determine solution, and develop an action plan
- Identify personnel responsible for action
- Establish timelines and provide a schedule
- Document the corrective action and action(s) to prevent reoccurrence

A flow chart has been developed to facilitate the process (see Figure C1.1: Corrective Action Process for Deficiencies).

Figure C1.1 Corrective Action Process for Deficiencies



C2 Reports to Management

Table C2.1 QA Management Reports

Type of Report	Frequency (daily, weekly, monthly, quarterly, etc.)	Projected Delivery Date(s)	Person(s) Responsible for Report Preparation	Report Recipients
Corrective Action Plans	As Needed	As Needed	Field Staff Laboratory Staff	SRA-TX QA Staff or Laboratory Management as appropriate, TCEQ CRP Project Manager
Progress Reports	Quarterly	December 15, 2025 March 15, 2026 June 15, 2026 September 15, 2026 December 15, 2026 March 15, 2027 June 15, 2027 August 15, 2027	SRA-TX Project Manager	TCEQ CRP Project Manager
QA Report (Annual Quality Assurance Report)	Annual	August 31, 2026 August 31,2027	SRA-TX QAO	SRA-TX Project Manager
Monitoring Systems Audit Report and Response	As Needed	As Needed	SRA-TX QAO	TCEQ CRP Project Manager
Data Summary	As Needed	As Needed	SRA-TX Data Manager	TCEQ CRP Project Manager

Reports to SRA-TX Project Management

The QAO reports the status of implementation of the procedures discussed in this project plan to the SRA-TX Project Manager through yearly managerial meetings. Both the SRA-TX QAO and Project Manager must be informed of any quality assurance problems encountered and solutions adopted.

The QAO will submit an annual quality assurance (QA) report to the SRA-TX Project Manager. This report will address the accuracy, precision and completeness of measurement data used in the project. It will also discuss any problems encountered and solutions made.

The annual QA report from the QAO will also be transmitted to the SRA-TX Environmental Services Division Managers. This will allow the highest levels of management to be kept informed as to the quality of data obtained by the ESD in conducting this project.

Reports to TCEQ Project Management

All reports detailed in this section are contract deliverables and are transferred to the TCEQ in accordance with contract requirements.

Progress Report
Summarizes the SRA-TX's activities for each task; reports monitoring status, problems, delays, deficiencies, status of open CAPs, and documentation for completed CAPs; and outlines the status of each task's deliverables.

Monitoring Systems Audit Report and Response
Following any audit performed by the SRA-TX, a report of findings, recommendations and response is sent to the TCEQ in the quarterly progress report.

Data Summary
Contains basic identifying information about the data set and comments regarding inconsistencies and errors identified during data verification and validation steps or problems with data collection efforts (e.g., deficiencies).

Reports by TCEQ Project Management

Contractor Evaluation
The SRA-TX participates in a contractor evaluation by the TCEQ annually for compliance with administrative and programmatic standards. Results of the evaluation are submitted to the TCEQ Financial Administration Division, Procurement and Contracts Section.

D1 Data Review, Verification, and Validation

All field and laboratory data will be reviewed and verified for integrity, continuity, reasonableness, and conformance to project requirements, and then validated against the project objectives and measurement performance specifications which are listed in Section A6 of this QAPP. Only those data which are supported by appropriate quality control data and meet the measurement performance specifications defined for this project will be considered acceptable and will be reported to the TCEQ for entry into SWQMIS.

Verification and Validation Methods

All field and laboratory data will be reviewed, verified and validated to ensure they conform to project specifications.

Data review, verification, and validation will be performed using self-assessments as well as peer and management review as appropriate to the project task. The data review tasks to be performed by field and laboratory staff are listed in the first two columns of Table D1.1. Potential errors are identified by examination of documentation and by manual examination of corollary or unreasonable data; this analysis may be computer-assisted. If a question arises or an error is identified, the manager of the task responsible for generating the data is contacted to resolve the issue. Issues which can be corrected are corrected and documented. If an issue cannot be corrected, the task manager consults with the higher-level project management to establish the appropriate course of action, or the data associated with the issue are rejected and not reported to the TCEQ for storage in SWQMIS. Field and laboratory reviews, verifications, and validations are documented.

After the field and laboratory data are reviewed, another level of review is performed once the data are combined into a data set. This review step, as specified in Table D1.1, is performed by the SRA-TX Date Manager and QAO. Data review, verification, and validation tasks to be performed on the data set include, but are not limited to, the confirmation of laboratory and field data review, evaluation of field QC results, additional evaluation of anomalies and outliers, analysis of sampling and analytical gaps, and confirmation that all parameters and sampling sites are included in the QAPP.

The Data Review Checklist (see Appendix F) covers three main types of review: data format and structure, data quality review, and documentation review. The Data Review Checklist is completed and sent with the

water quality data submitted to the TCEQ to ensure that the review process is being performed.

Another element of the data validation process is consideration of any findings identified during the monitoring systems audit conducted by the TCEQ CRP Lead QAS. Any issues requiring corrective action must be addressed, and the potential impact of these issues on previously collected data will be assessed. After the data are reviewed and documented, the SRA-TX PM validates that the data meet the data quality objectives of the project and are suitable for reporting to TCEQ.

If any requirements or specifications of the CRP are not met, based on any part of the data review, the responsible party should document the nonconforming activities and submit the information to the SRA-TX Data Manager with the data in the data summary (See Appendix F). All failed QC checks, missing samples, missing analytes, missing parameters, and suspect results should be discussed in the data summary.

Table D1.1: Data Review Tasks

Data to be Verified	Field Task	Laboratory Task	QA Task	Lead Organization Data Manager Task
Sample documentation complete; samples labeled, sites identified	Field Coordinators			
Field QC samples collected for all analytes as prescribed in the TCEQ SWQM Procedures	Field Coordinators			
Standards and reagents traceable			QAO	
Chain of custody complete/acceptable	Field Coordinators	Laboratory Technical Manager	QAO	
NELAP Accreditation is current		Laboratory Technical Manager	QAO	
Sample preservation and handling acceptable	Field Coordinators			
Holding times not exceeded		Laboratory Technical Manager	QAO	
Collection, preparation, and analysis consistent with SOPs and QAPP	Field Coordinators	Laboratory Technical Manager	QAO	
Field documentation (e.g., biological, stream habitat) complete	Field Coordinators			
Instrument calibration data complete	Field Coordinators		QAO	
QC samples analyzed at required frequency	Field Coordinators		QAO	
QC results meet performance and program specifications			QAO	
Analytical sensitivity (LOQ/AWRL) consistent with QAPP		Laboratory Technical Manager	QAO	
Results, calculations, transcriptions checked		Laboratory Technical Manager	QAO	
Laboratory bench-level review performed			QAO	
All laboratory samples analyzed for all scheduled parameters		Laboratory Technical Manager		
Corollary data agree	Field Coordinators	Laboratory Technical Manager	QAO	
Nonconforming activities documented	Field Coordinators	Laboratory Technical Manager	QAO	
Outliers confirmed and documented; reasonableness check performed				Data Manager
Dates formatted correctly				Data Manager
Depth reported correctly and in correct units				Data Manager
TAG IDs correct				Data Manager
TCEQ Station ID number assigned				Data Manager
Valid parameter codes				Data Manager
Codes for submitting entity(ies), collecting entity(ies), and monitoring type(s) used correctly				Data Manager
Time based on 24-hour clock				Data Manager
Check for transcription errors		Laboratory Technical Manager	QAO	Data Manager
Sampling and analytical data gaps checked (e.g., all sites for which data are reported are on the coordinated monitoring schedule)	Field Coordinators	Laboratory Technical Manager	QAO	
Field instrument pre- and post-calibration check results within limits	Field Coordinators			
10% of data manually reviewed		Laboratory Technical Manager	QAO	

D2 Reconciliation with User Requirements

Data produced in this project, and data collected by other organizations (e.g., USGS, TCEQ, etc.), will be analyzed and reconciled with project data quality requirements. Data which do not meet requirements will not be submitted to SWQMIS nor will be considered appropriate for any of the uses noted in Section A4.

Appendix A: Measurement Performance Specifications (Table A6.1–A6.7)

Measurement performance specifications define the data quality needed to satisfy project objectives. To this end, measurement performance specifications are qualitative and quantitative statements that:

- clarify the intended use of the data
- define the type of data needed to support the end use
- identify the conditions under which the data should be collected

Appendix A of the QAPP addresses measurement performance specifications, including:

- analytical methodologies
- AWRLs
- limits of quantitation
- bias limits for LCSs
- precision limits for laboratory control sample duplicates (LCSDs)
- completeness goals
- qualitative statements regarding representativeness and comparability

The items identified above should be considered for each type of monitoring activity. The CRP encourages that
data be collected to address multiple objectives to optimize resources; however, caution should be applied when attempting to collect data for multiple purposes because measurement performance specifications
may vary according to the purpose. For example, limits of quantitation may differ for data used to assess standards attainment and for trend analysis. When planning projects, first priority will be given to the main use
of the project data and the data quality needed to support that use, then secondary goals will be considered.

Procedures for laboratory analysis must be in accordance with the most recently published edition of Standard Methods for the Examination of Water and Wastewater, 40 CFR 136, or otherwise approved independently. Only data collected that have a valid TCEQ parameter code assigned in Tables A6 are stored in SWQMIS. Any parameters listed in Tables A6 that do not have a valid TCEQ parameter code assigned will not be stored in SWQMIS.

TABLE A6.1 Measurement Performance Specifications for SRA-TX FY 26-27 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 CACO3)*	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	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 <50 mg/L hardness ---------- --- 0.3 for waters >50 mg/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 < 50 mg/L hardness ---------- --- 3 for waters >= 50 mg/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
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), Clean Water Act Analytical Methods

Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2022 or applicable version

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

TABLE A6.2 Measurement Performance Specifications for City of Longview FY 26-27 QAPP										
Metals in Water										
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab
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

References:
United States Environmental Protection Agency (USEPA), Clean Water Act Analytical Methods
Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2022 or applicable version
TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).

TABLE A6.3 Measurement Performance Specifications for SRA-TX and City of Longview FY 26-27 QAPP										
Conventional Parameters in Water										
Parameter	**Units**	**Matrix**	**Method**	**Parameter Code**	**TCEQ AWRL**	**LOQ**	**LOQ Check Sample %Rec**	**Precision (RPD)**	**Bias %Rec. of LCS**	**Lab**
ALKALINITY, TOTAL (MG/L AS CACO3)	mg/L	water	SM 2320B	00410	20	20	NA	20	NA	SRA-TX
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	EPA 350.1 Rev. 2.0 (1993)	00610	0.1	0.1	70-130	20	80-120	SRA-TX
NITRITE NITROGEN, TOTAL (MG/L AS N)*	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00615	0.1	0.05	70-130	20	80-120	SRA-TX
NITRATE NITROGEN, TOTAL (MG/L AS N)*	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00620	0.1	0.05	70-130	20	80-120	SRA-TX
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	EPA 351.2	00625	0.2	0.2	70-130	20	80-120	SRA-TX
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	EPA 365.4	00665	0.1	0.06	70-130	20	80-120	SRA-TX
CARBON, TOTAL ORGANIC, NPOC (TOC), MG/L	mg/L	water	SM 5310 C	00680	2	1	NA	NA	NA	SRA-TX
CHLORIDE (MG/L AS CL)*	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00940	5	5	70-130	20	80-120	SRA-TX
SULFATE (MG/L AS SO4)*	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00945	5	5	70-130	20	80-120	SRA-TX
CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	ug/L	water	EPA 446.0	32211	3	3	NA	20	80-120	SRA-TX
RESIDUE, TOT DISS, UNSPEC CALC BASED ON COND (MG/L)	mg/L	water	calculation	70294	NA	NA	NA	NA	NA	Field
TURBIDITY, LAB NEPHELOMETRIC TURBIDITY UNITS, NTU	NTU	water	SM 2130B	82079	0.5	0.5	NA	NA	NA	SRA-TX

*chloride, sulfate, nitrate nitrogen, and nitrite nitrogen are not analyzed at tidal sites

References:

United States Environmental Protection Agency (USEPA), Clean Water Act Analytical Methods

Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2022 or applicable version

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

TABLE A6.4 Measurement Performance Specifications for SRA-TX and City of Longview FY 26-27 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***	10	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 B4.

** *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:

Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2022 or applicable version

Annual Book of ASTM Standards, Section 11, Water and Environmental Technology, Volume 11.02, Water

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

TABLE A6.5 Measurement Performance Specifications for SRA-TX and City of Longview FY 26-27 QAPP					
Flow Parameters					
Parameter	**Units**	**Matrix**	**Method**	**Parameter Code**	**Lab**
FLOW STREAM, INSTANTANEOUS (CUBIC FEET PER SEC)	cfs	water	TCEQ SOP V1	00061	Field
FLOW SEVERITY: 1=No Flow, 2=Low, 3=Normal, 4=Flood, 5=High, 6=Dry	NU	water	TCEQ SOP V1	01351	Field
FLOW MTH 1=GAGE 2=ELEC 3=MECH 4=WEIR/FLU 5=DOPPLER	NU	other	TCEQ SOP V1	89835	Field
FLOW ESTIMATE (CUBIC FEET PER SEC)	cfs	water	TCEQ SOP V1	74069	Field

References:

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

TABLE A6.6 Measurement Performance Specifications for SRA-TX and City of Longview FY -26-27 QAPP					
Field Parameters					
Parameter	**Units**	**Matrix**	**Method**	**Parameter Code**	**Lab**
TEMPERATURE, WATER (DEGREES CENTIGRADE)	DEG C	water	SM 2550 B and TCEQ SOP V1	00010	Field
TRANSPARENCY, SECCHI DISC (METERS)	meters	water	TCEQ SOP V1	00078	Field
SPECIFIC CONDUCTANCE, FIELD (US/CM @ 25C)	us/cm	water	EPA 120.1 and TCEQ SOP V1	00094	Field
OXYGEN, DISSOLVED (MG/L)	mg/L	water	SM 4500-O G and TCEQ SOP V1	00300	Field
PH (STANDARD UNITS)	s.u	water	EPA 150.1 and TCEQ SOP V1	00400	Field
SALINITY - PARTS PER THOUSAND	PPT	water	SM 2520 and TCEQ SOP V1	00480	Field
DAYS SINCE PRECIPITATION EVENT (DAYS)	days	other	TCEQ SOP V1	72053	Field
DEPTH OF BOTTOM OF WATER BODY AT SAMPLE SITE***	meters	water	TCEQ SOP V2	82903	Field
MAXIMUM POOL WIDTH AT TIME OF STUDY (METERS)**	meters	other	TCEQ SOP V2	89864	Field
MAXIMUM POOL DEPTH AT TIME OF STUDY (METERS)**	meters	other	TCEQ SOP V2	89865	Field
POOL LENGTH, METERS**	meters	other	TCEQ SOP V2	89869	Field
% POOL COVERAGE IN 500 METER REACH**	%	other	TCEQ SOP V2	89870	Field
WIND INTENSITY (1=CALM, 2=SLIGHT, 3=MOD., 4=STRONG)	NU	other	NA	89965	Field
PRESENT WEATHER (1=CLEAR, 2=PTCLDY, 3=CLDY, 4=RAIN, 5=OTHER)	NU	other	NA	89966	Field
** To be routinely reported when collecting data from perennial pools.					
*** Parameter code 82903 is not collected at site 10401					
References:					
United States Environmental Protection Agency (USEPA), Clean Water Act Analytical Methods					
Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2022 or applicable version					
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 A6.7 Measurement Performance Specifications for SRA-TX and City of Longview FY 26-27 QAPP					
24 Hour Parameters in Water					
Parameter	**Units**	**Matrix**	**Method**	**Parameter Code**	**Lab**
DISSOLVED OXYGEN, 24-HOUR MIN. (MG/L) MIN. 4 MEA	mg/L	water	TCEQ SOP V1	89855	field
DISSOLVED OXYGEN, 24-HOUR MAX. (MG/L) MIN. 4 MEA	mg/L	water	TCEQ SOP V1	89856	field
DISSOLVED OXYGEN, 24-HOUR AVG. (MG/L) MIN. 4 MEA	mg/L	water	TCEQ SOP V1	89857	field
DISSOLVED OXYGEN, # OF MEASUREMENTS IN 24-HRS	NU	water	TCEQ SOP V1	89858	field

References:

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

Appendix B: Task 3 Work Plan & Sampling Process Design and Monitoring Schedule (Plan)

Task 3: Water Quality Monitoring

Objective: Water quality monitoring will focus on the characterization of a variety of locations and conditions. This will include a combination of the following:

- Planning and coordinating basin-wide monitoring.
- Routine, regularly scheduled monitoring to collect long-term information and support statewide assessment of water quality.
- Systematic, regularly scheduled short-term monitoring to screen water bodies for issues.

Task Description: Performing Party will conduct long-term water quality monitoring at fixed monitoring sites. The Performing Party will coordinate all monitoring plans with the TCEQ regional offices and other monitoring entities to avoid duplication of effort.

The Performing Party will complete the following subtasks:

Monitoring Description—The fixed monitoring program includes sampling at a minimum of 38 sites monthly for routine field, conventional parameters, and bacteria. Metals in water will be analyzed annually at a minimum of 32 sites. Data analysis from the results of the monitoring are reviewed annually and will be used to adjust the fixed monitoring sites to address changes in water quality issues. Additional details concerning the monitoring activities conducted by the Performing Party are outlined in the Performing Party's FY2026-2027 CRP QAPP.

In FY2027, the Performing Party will monitor at a similar level of effort as in FY2026. The actual number of sites, location, frequency, and parameters collected for FY2027 will be based on priorities identified at the Basin Steering Committee and Coordinated Monitoring meetings and included in an amendment to the Appendix B monitoring schedule of the Performing Party's FY2026-2027 CRP QAPP.

Details of the monitoring schedule, parameters, and sampling locations are included in Appendix B of the QAPP and will be updated each year. All monitoring plans will be presented to the Sabine Basin Steering Committee. All interested parties will be encouraged to participate in water quality monitoring through the Performing Party's CRP QAPP.

All monitoring will be completed according to the Performing Party QAPP, the *TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods* (RG- 415) and the *TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data* (RG-416).

Coordinated Monitoring Meeting—The Performing Party will hold an annual coordinated monitoring meeting as described in the FY2026-2027 CRP Guidance. Qualified monitoring organizations will be invited to attend the working meeting in which monitoring needs and purposes will be discussed segment by segment and station by station. Information from participants and stakeholders will be used to select stations and parameters that will enhance overall water quality monitoring coverage, eliminate duplication of effort, and address basin priorities. A summary of the changes to the monitoring schedule will be provided to the participants within two weeks of the meeting. Changes to the monitoring schedule will be entered into the statewide Coordinated Monitoring Schedule (CMS; cms.lcra.org) and communicated to meeting attendees. Changes to monitoring schedules that occur during the year will be entered into the CMS and communicated to meeting attendees. All requirements related to meetings will be followed and required meetings will be conducted in-person or via TCEQ approved virtual format.

Monitoring Activities—Each progress report will include a description of activities including all types of

monitoring performed, number of sampling events, and the types of monitoring conducted in the quarter. The Performing Party will complete and submit a monitoring activities report as an attachment to the progress report.

Deliverables and Due Dates:

September 1, 2025 through August 31, 2026

A. Conduct water quality monitoring, submit monitoring activities report, summarize activities, and submit with progress report—December 15, 2025; March 15 and June 15, 2026

B. Coordinated Monitoring Meeting—between March 15 and April 30, 2026

C. Coordinated Monitoring Meeting Summary of Changes—within 2 weeks following the meeting

D. Email notification that Coordinated Monitoring Schedule updates are complete—May 31, 2026

September 1, 2026 through August 31, 2027

A. Conduct water quality monitoring, submit monitoring activities report, summarize activities, and submit with progress report—September 15 and December 15, 2026; March 15 and June 15 and August 15, 2027

B. Coordinated Monitoring Meeting—between March 15 and April 30, 2027

C. Coordinated Monitoring Meeting Summary of Changes—within 2 weeks following the meeting

D. Email notification that Coordinated Monitoring Schedule updates are complete—May 31, 2027

Sample Design Rationale FY 2026

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 Integrated Report of Surface Water Quality, 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 Sabine River Authority of Texas will maintain the FY2025 water quality monitoring in the Sabine Basin through FY 2026 with the addition of one site (14500 Harris Creek at FM 16). Site 14500 was added at the request of TCEQ due to a previous bacteria impairment in that section of the river. The additional sampling for site 14500 will include 24-hour DO, *E. coli*, nitrate, ammonia, total phosphorus, and chlorophyll a to be sampled six times a year. Samples collected in tidal segments are not analyzed for anions (chloride, sulfate, nitrate nitrogen and nitrite nitrogen).

The City of Longview will maintain the FY2025 water quality monitoring schedule on Lake Cherokee in Segment 0510 in FY 2026.

Site Selection Criteria

This data collection effort involves monitoring routine water quality using procedures that are consistent with the TCEQ SWQM program. Some general guidelines are followed when selecting sampling sites, as outlined below, and discussed thoroughly in SWQM Procedures, Volumes I and II. Overall consideration is given to accessibility and safety. All monitoring activities have been developed in coordination with the CRP Steering

Committee and with the TCEQ. The site selection criteria specified are those the TCEQ would like considered to produce data which is complementary to that collected by the state and which may be used in assessments, etc.

1. Locate stream sites so that samples can be safely collected from the centroid of flow. Centroid is defined as the midpoint of that portion of stream width which contains 50 percent of the total flow. If multiple potential sites on a stream segment are appropriate for monitoring, choose one that would best represent the water body, and not a site that displays unusual conditions or contaminant source(s). Avoid backwater areas or eddies when selecting a stream site.
2. At a minimum for reservoirs, locate sites near the dam (reservoirs) and in the major arms. Larger reservoirs might also include stations in the middle and upper (riverine) areas. Select sites that best represent the water body by avoiding coves and back water areas. A single monitoring site is considered representative of 25 percent of the total reservoir acres, but not more than 5,120 acres.
3. Monitoring sites are selected to maximize stream coverage or basin coverage. Very long segments may require more stations. As a rule of thumb, stream segments between 25 and 50 miles long require two stations, and longer than 50 miles require three or more depending on the existence of areas with significantly different sources of contamination or potential water quality concerns. Major hydrological features, such as the confluence of a major tributary or an instream dam, may also limit the spatial extent of an assessment based on one station.
4. Because historical water quality data can be very useful in assessing use attainment or impairment, it may be best to use sites that are on current or past monitoring schedules.
5. All classified segments (including reservoirs) should have at least one Monitoring site that adequately characterizes the water body, and monitoring should be coordinated with the TCEQ or other qualified monitoring entities reporting routine data to TCEQ.
6. Monitoring sites may be selected to bracket sources of pollution, influence of tributaries, changes in land uses, and hydrological modifications.
7. Sites should be accessible. When possible, stream sites should have a USGS or IBWC stream flow gauge. If not, it should be possible to conduct flow measurement during routine visits.

Monitoring Sites for FY 2026

Table B1.1 Sample Design and Schedule, FY 2026

Site Description	Station ID	Waterbody ID	Basin	Region	SE	CE	MT	Field	Conv	Bacteria	Flow	24 hr DO	Metal Water	Alkalinity	Ammonia	Total Hardness	Chlorophyll a	Comments
BLACK BAYOU IN CAMERON PARISH LA 0.7 KM UPSTREAM OF CONFLUENCE WITH SABINE RIVER	15654	501	5	10	SR	SR	RT	12	12	12			1	6		6		Tidal Site
ICWW 3.2 KM EAST OF SABINE RIVER AT PERRY RIDGE IN CALCASIEU	15653	501	5	10	SR	SR	RT	12	12	12			1	6		6		Tidal Site
SABINE RIVER AT CHANNEL CAN 3 1866M DOWNSTREAM MOUTH OF NEW COW BAYOU	10391	501	5	10	SR	SR	RT	12	12	12				6		6		Tidal Site
SABINE RIVER AT IH 10 IN ORANGE	10394	501	5	10	SR	SR	RT	12	12	12			1	6		6		Tidal Site
SABINE RIVER 11.726 KM UPSTREAM OF IH 10/GC-1	10395	501	5	10	SR	SR	RT	12	12	12				6	4	6		Tidal Site
SABINE RIVER 7M DOWNSTREAM FROM SH 12 NORTH OF DEWEYVILLE	10397	502	5	10	SR	SR	RT	12	12	12	12		1	6	4	6		
ANACOCO BAYOU AT LOUISIANA HWY 111 CROSSING SOUTHWEST OF KNIGHT LA./GC-4	10340	503	5	10	SR	SR	RT	12	12	12			1	6		6		
BAYOU TORO AT LOUISIANA SH 392 IN SABINE PARISH SW OF HORNBECK LA	15660	503	5	10	SR	SR	RT	12	12	12			1	6		6		
SABINE RIVER 5M IMMEDIATELY UPSTREAM FROM SH 63 EAST OF BURKEVILLE TX/TB-5	10399	503	5	10	SR	SR	RT	12	12	12	12			6	4	6		
SABINE RIVER DOWNSTREAM TOLEDO BEND RESERVOIR AT RIGHT ABUTMENT OF SPILLWAY FOR DAM/TB-6SPW	10401	503	5	10	SR	SR	RT	12	12	12				6		6		Parameter 82903 not collected at this site
SABINE RIVER IMMEDIATELY DOWNSTREAM FROM US 190 EAST OF BON WIER TX/GC-3	10398	503	5	10	SR	SR	RT	12	12	12	12			6	4	6		
TOLEDO BEND RESERVOIR AT SH 21 NORTHEAST OF MILAM/TB-6H	10402	504	5	10	SR	SR	RT	12	12	12			1	6		6		
TOLEDO BEND RESERVOIR IN LANANA BAYOU AT LOUISIANA SH 191 IN SABINE PARISH LOUISIANA	15659	504	5	10	SR	SR	RT	12	12	12			1	6		6		Mid-lake Arm of the Toledo Bend
TOLEDO BEND RESERVOIR IN NEGREET BAYOU ARM BOAT LANE 293 M SE OF INTERSECTION OF DAVIS CIRCLE AND NEGREET BAY LOOP	18054	504	5	10	SR	SR	RT	12	12	12			1	6		6		Mid-lake Arm of the Toledo Bend

Site Description	Station ID	Waterbody ID	Basin	Region	SE	CE	MT	Field	Conv	Bacteria	Flow	24 hr DO	Metal Water	Alkalinity	Ammonia	Total Hardness	Chlorophyll a	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	504	5	10	SR	SR	RT	12	12	12			1	6		6		Main-lake station on Toledo Bend
TOLEDO BEND RESERVOIR IN SIX MILE BOAT LANE 0.80 KM EAST OF SH 87/TB-6C	10406	504	5	10	SR	SR	RT	12	12	12			1					
TOLEDO BEND RESERVOIR IN SUNSHINE BAY NEAR FM 3121	10411	504	5	10	SR	SR	RT	12	12	12			1	6		6		
TOLEDO BEND RESERVOIR MAIN LAKE UPSTREAM THE DAM AT THE OLD RIVER CHANNEL/TB-6A	10404	504	5	10	SR	SR	RT	12	12	12			1	6		6	12	
TOLEDO BEND RESERVOIR PATROON BAYOU BRANCH AT FM 276	15655	504	5	10	SR	SR	RT	12	12	12			1	6		6		
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	18053	504	5	10	SR	SR	RT	12	12	12			1	6		6		
SABINE RIVER AT FM 2517 WEST OF DEADWOOD TX/TB-10	10415	505	5	5	SR	SR	RT	12	12	12			1	6		6		
SABINE RIVER AT US 59 8.4 MI NE OF BECKVILLE 0.9 MI UPSTREAM FROM EIGHTMILE CREEK	13628	505	5	5	SR	SR	RT	12	12	12	12		1	6	4	6		
SABINE RIVER IMMEDIATELY DOWNSTREAM OF SH 42 NEAR KILGORE RK 283.9	10427	505	5	5	SR	SR	RT	12	12	12			1	6		6		
SABINE RIVER AT US 271 AT GLADEWATER TX/SR-17	10428	506	5	5	SR	SR	RT	12	12	12	12		1	6	4	6		
SABINE RIVER AT US 69 NORTHWEST OF LINDALE/5.6 KM SOUTH OF MINEOLA WOOD COUNTY	10430	506	5	5	SR	SR	RT	12	12	12	12		1	6	4	6		
SABINE RIVER IMMEDIATELY DOWNSTREAM OF FM 14 4.17 KM SOUTH OF HAWKINSTX/LF-19	10429	506	5	5	SR	SR	RT	12	12	12	12		1	6		6		
LAKE TAWAKONI 20M DOWNSTREAM FROM SH 276 1638M FROM WEST BANK	10437	507	5	4	SR	SR	RT	12	12	12			1	6		6		
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	507	5	4	SR	SR	RT	12	12	12			1	6		6		
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	507	5	5	SR	SR	RT	12	12	12			1	6		6	12	

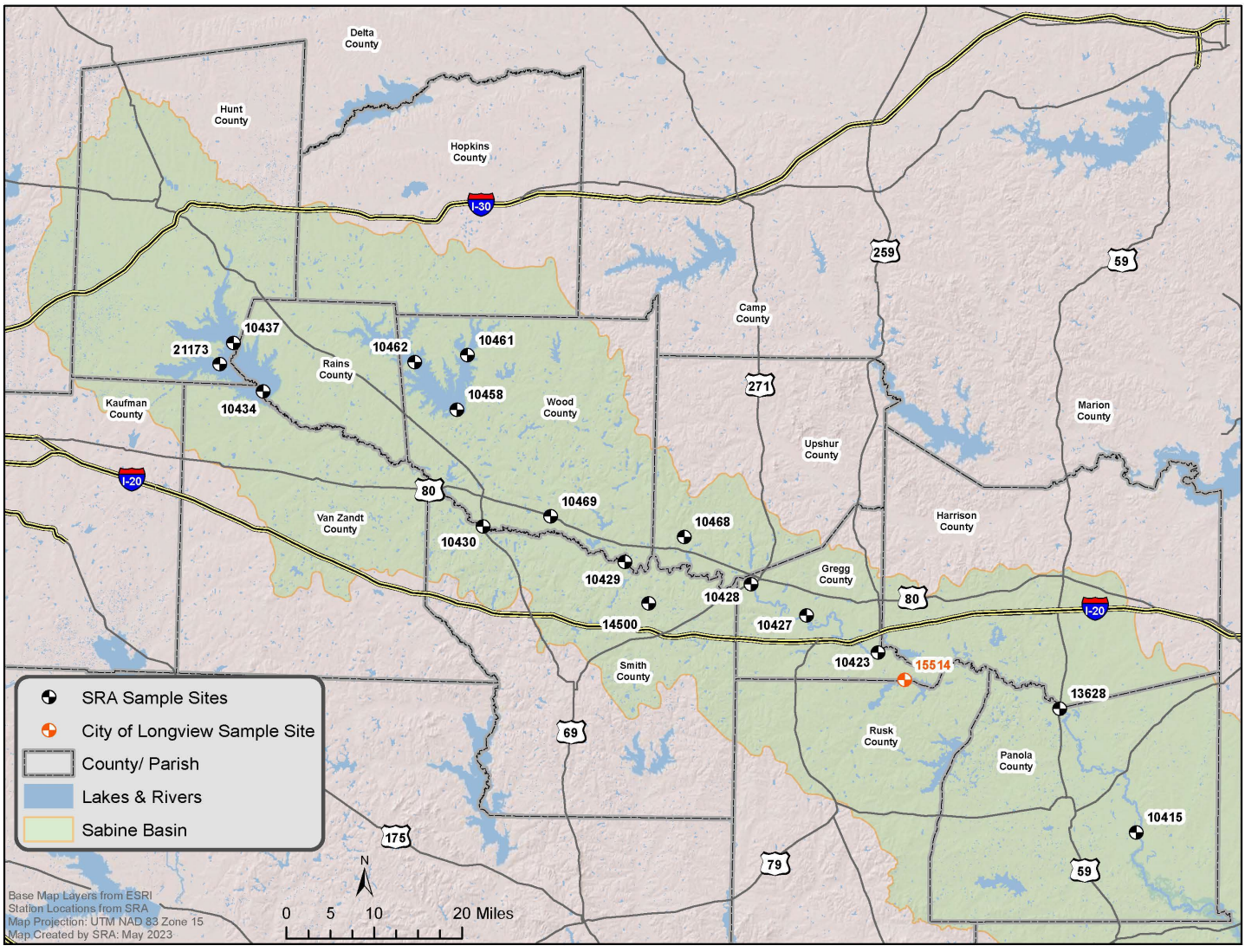
Site Description	Station ID	Waterbody ID	Basin	Region	SE	CE	MT	Field	Conv	Bacteria	Flow	24 hr DO	Metal Water	Alkalinity	Ammonia	Total Hardness	Chlorophyll a	Comments
ADAMS BAYOU AT FM1006 IN ORANGE TX SUBWATERSHED 1.03/AB2	10441	508	5	10	SR	SR	RT	12	12	12			1	6		6		Tidal Site
LAKE CHEROKEE CITY OF LONGVIEW WATER INTAKE 2.5 MI EAST OF FM 2963	15514	510	5	5	SR	LW	RT	9	9	9			1	4		4	4	Total Selenium will be the only metal analyzed. TKN & TP, IC and TOC conv parameters
COW BAYOU 10M DOWNSTREAM OF FM1442/ROUND BUNCH RD EAST OF BRIDGE CITY TX SW 1.02/CB1	10449	511	5	10	SR	SR	RT	12	12	12			1	6		6		Tidal Site
LAKE FORK RESERVOIR MID ARM IN CANEY CREEK ARM AT FM 515/LF-3	10461	512	5	5	SR	SR	RT	12	12	12			1	6		6		
LAKE FORK RESERVOIR MID COVE IN LAKE FORK CREEK ARM AT FM 515/LF-4	10462	512	5	5	SR	SR	RT	12	12	12			1	6		6		
LAKE FORK RESERVOIR NEAR DAM 300M NW OF SPILLWAY AT MID RESERVOIR/LF-2	10458	512	5	5	SR	SR	RT	12	12	12			1	6		6	12	
BIG COW CREEK AT FM 1416 SOUTH OF BON WIER	10465	513	5	10	SR	SR	RT	12	12	12			1	6		6		
BIG SANDY CREEK 70M DOWNSTREAM FROM SH 155 NORTHWEST OF BIG SANDY TX/BS-1	10468	514	5	5	SR	SR	RT	12	12	12	12		1	6		6		Relocated to original site w/ USGS gauge
LAKE FORK CREEK AT US 80 12 KM EAST OF MINEOLA	10469	515	5	5	SR	SR	RT	12	12	12			1	6		6		
SABINE RIVER AT SH 149	10423	505	5	5	SR	SR	RT	12	12	12	12		1	6		6		
HARRIS CREEK AT FM 16	14500	506	*5*	5	SR	SR	RT	6	6	6		6			6		6	Site added for FY26 – conv parameters to include nitrate and total phosphorus

Appendix C: Station Location Maps

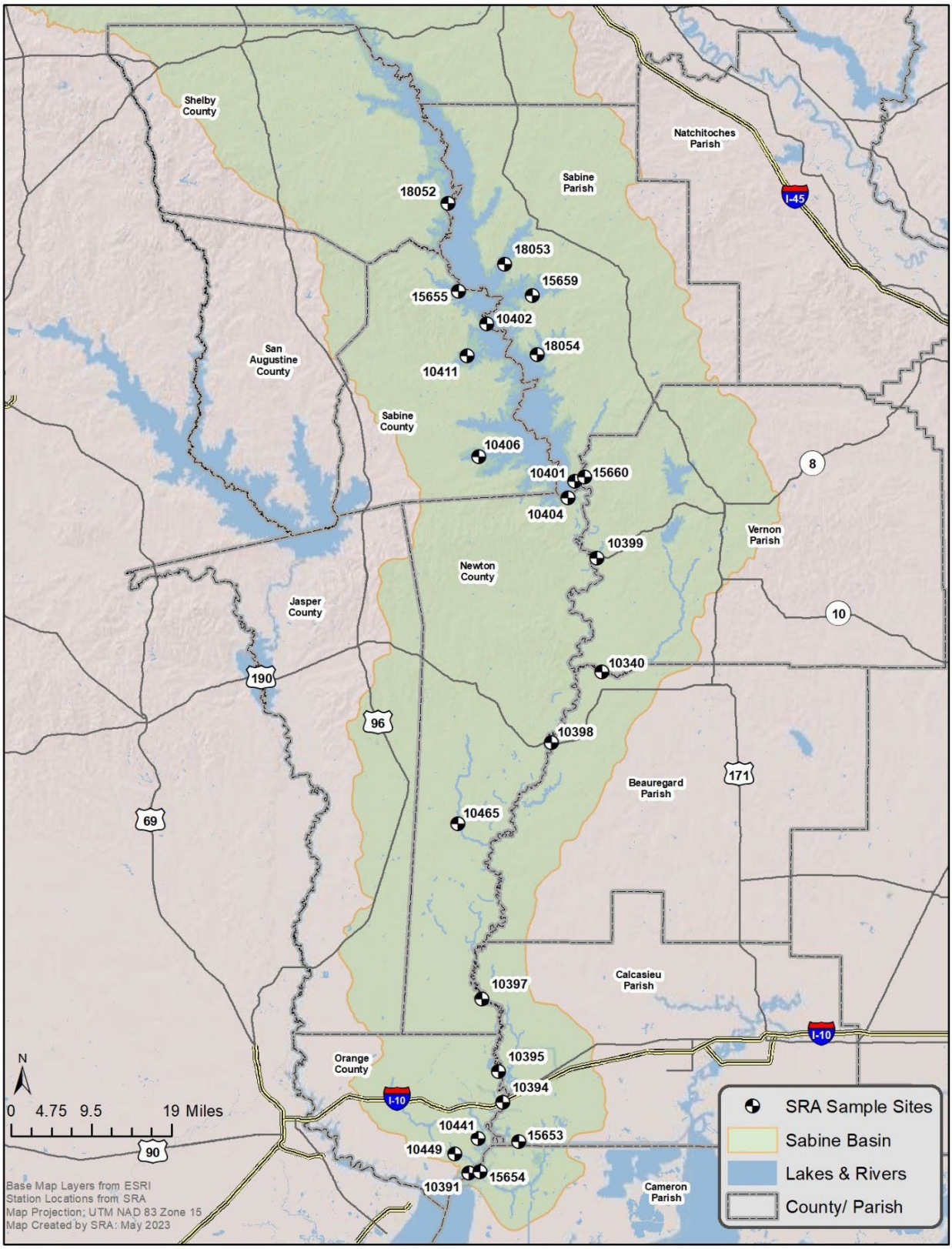
Station Location Maps

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 the SRA-TX at 409-746-3284.

FY 2026 Upper Basin Sampling Sites



FY 2026 Lower Basin Sampling Sites



Appendix D: Field Data Sheets

SABINE RIVER AUTHORITY
FIELD DATA SHEET / CHAIN OF CUSTODY

Description					
Station ID #		**WEATHER**		**DEPTH (m)**	
Client_Code		**WIND INTENSITY**		**SECCHI (m)**	
Observer(s)		**WIND DIRECTION**		**GAUGE HGT. (ft)**	
DATE		**WATER COLOR**		**FLOW(cfs)**	
TIME		**WATER ODOR**		**FLOW METHOD**	
AIR TEMP (°C)		**FLOW SEVERITY**		**STREAM WIDTH (ft)**	
CHLORINE RES		**FIELD TURBIDITY**		**DAYS SINCE PRECIP.**	
WATER PROFILE DATA		**METER NUMBER**			

DEPTH (m)	TEMP (°C)	pH (units)	D.O. (ppm)	% SAT	COND µS/cm	TDS mg/L	SAL (ppt)
SURF (0.3)							

SAMPLE CONTAINERS	SURF.		BTM.		DPTH.		QA	

NUMBER								
TYPE								
CONTAINER								
QUANTITY								
PRESERVATION								
NUMBER RELEASED								

RELEASED BY		**DATE**	
		TIME	
RECEIVED BY		**DATE**	
		TIME	
RELEASED BY		**DATE**	
		TIME	
RECEIVED BY		**DATE**	
		TIME	

TESTS REQUESTED	
E. COLI	
IC-ANIONS	
FIELD TURBIDITY	
TOC	
TP	
TKN	

OBSERVATIONS:

Appendix E: Chain of Custody Forms

Email:

Client Name _____

Address _____

City _____ State _____ Zip _____

Contact Name _____

Phone _____ Fax _____

I/we certify that the samples below have not been out of our custody until relinquished

SAMPLER (S) SIGNATURE:

Environmental Services Division

CHAIN OF CUSTODY RECORD

2065 Woodland Ridge Dr
Orange, Texas 77632
(409) 746-3284

Parameter List Requisition

CHEMISTRY

Alkalinity – Total	Coliform – Fecal	Hardness – Calcium	Phosphorus, Total
Alkalinity – P	Coliform – Total	Hardness – Total	Residue, TDS
BOD – 5 Day	Color, True	Nitrogen, Ammonia	Residue, TSS
BOD – C	Conductivity	Nitrogen, Nitrate	Residue, VSS
Chloride	DO	Nitrogen, Nitrite	Salinity
Chlorine – Free	Enterococcus by	Nitrogen, TKN	Sulfate
Chlorine – Total	~~Enterolert~~	Oil & Grease	Sulfite
Chlorophyll – a	E. coli by Colilert	Orthophosphate	TOC
COD	Fluoride	pH	Turbidity

METALS

Aluminum	Copper	Selenium
Antimony	Iron	Silver
Arsenic	Lead	Sodium
Barium	Magnesium	Thallium
Beryllium	Manganese	Vanadium
Cadmium	Mercury	Zinc
Calcium	Molybdenum	
Chromium	Nickel	
Cobalt	Potassium	

Collect Date	Collect Time	Lab Seq.#	Sample ID - Site ID	Matrix: Drinking Water	Matrix: ~~Waste Water~~	Matrix: Other	Test Parameter	Container Type	No. of Containers	Preservatives: Unpres.	Preservatives: H_2SO_4	Preservatives: HNO_3	Preservatives: HCL	Sample Receiving Comments

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:	Work Order #	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:	Cooler Temp: _____ Gun #: _____	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:	Disposal	Date: Initials:

Client Specific Notes:	Requested Turnaround Time:

Appendix F: Data Review Checklist and Summary Shells

Data Review Checklist

This checklist is to be used by the Planning Agency and other entities handling the monitoring data in order to review data before submitting to the TCEQ. This table may not contain all of the data review tasks being conducted.

Data Format and Structure	Y, N, or N/A
Are there any duplicate Tag Id numbers in the Events file?	
Do the Tag prefixes correctly represent the entity providing the data?	
Have any Tag Id numbers been used in previous data submissions?	
Are Tag IDs associated with a valid SLOC?	
Are sampling Dates in the correct format, MM/DD/YYYY with leading zeros?	
Are sampling Times based on the 24 hr clock (e.g. 09:04) with leading zeros?	
Is the Comments field filled in where appropriate (e.g. unusual occurrence, sampling problems, unrepresentative of ambient water quality)?	
Are Submitting Entity, Collecting Entity, and Monitoring Type codes used correctly?	
Do sampling dates in the Results file match those in the Events file for each Tag Id?	
Are values represented by a valid parameter code with the correct units?	
Are there any duplicate parameter codes for the same Tag Id?	
Are there any invalid symbols in the Greater Than/Less Than (GT/LT) field?	
Are there any Tag Ids in the Results file that are not in the Events file or vice versa?	
Data Quality Review	Y, N, or N/A
Are “less-than” values reported at the LOQ? If no, explain in Data Summary.	
Have the outliers been verified and a "1" placed in the Verify_flg field?	
Have checks on correctness of analysis or data reasonableness been performed? e.g., Is ortho-phosphorus less than total phosphorus? Are dissolved metal concentrations less than or equal to total metals? Is the minimum 24 hour DO less than the maximum 24 hour DO? Do the values appear to be consistent with what is expected for site?	
Have at least 10% of the data in the data set been reviewed against the field and laboratory data sheets?	
Are all parameter codes in the data set listed in the QAPP?	
Are all stations in the data set listed in the QAPP?	
Documentation Review	Y, N, or N/A
Are blank results acceptable as specified in the QAPP?	
Were control charts used to determine the acceptability of lab duplicates (if applicable)?	
Was documentation of any unusual occurrences that may affect water quality included in the Event file’s Comments field?	
Were there any failures in sampling methods and/or deviations from sample design requirements that resulted in unreportable data? If yes, explain in Data Summary.	
Were there any failures in field and/or laboratory measurement systems that were not resolvable and resulted in unreportable data? If yes, explain in Data Summary.	
Was the laboratory’s NELAP Accreditation current for analysis conducted?	
Did participants follow the requirements of this QAPP in the collection, analysis, and reporting of data?	

Data Summary

Data Set Information

Data Source: _____

Date Submitted: _____

Tag_id Range: _____

Date Range: _____

□ I certify that all data in this data set meets the requirements specified in Texas Water Code Chapter 5, Subchapter R (TWC §5.801 et seq) and Title 30 Texas Administrative Code Chapter 25, Subchapters A & B.
□ This data set has been reviewed using the criteria in the Data Review Checklist.

Planning Agency Data Manager: _____ Date: _____

Please explain in the table below any data discrepancies discovered during data review including:

- Inconsistencies with LOQs
- Failures in sampling methods and/or laboratory procedures that resulted in data that could not be reported to the TCEQ (indicate items for which the Corrective Action Process has been initiated and send *Corrective Action Status Report* with the applicable Progress Report).

Dataset ____ contains data from FY__ QAPP Submitting Entity code __ and collecting entity __. This is field and lab data that was collected by the (collecting entity). Analyses were performed by the (lab name). The following tables explain discrepancies or missing data as well as calculated data loss.

Discrepancies or missing data for the listed tag ID:

Tag ID	Station ID	Date	Parameters	Type of Problem	Comment/PreCAPs/CAPs

Data Loss

Parameter	Missing Data points out of Total	Percent Data Loss for this Dataset	Parameter	Missing Data points out of Total	Percent Data Loss for this Dataset