Angelina & Neches River Authority FY 2026–2027 Clean Rivers Program Quality Assurance Project Plan

2901 N John Redditt Dr
Lufkin, Texas 75904

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:

Emylea Cole
Clean Rivers Program Coordinator
Angelina & Neches River Authority
2901 N John Redditt Dr
Lufkin, Texas 75904
936-633-7527
ecole@anra.org

A2 Approval Page

Texas Commission on Environmental Quality

Water Quality Planning Division

8/22/2025

Jason Godeaux, Manager Date
Water Quality Monitoring and Assessment Section

8/22/2025

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

8/22/2025

Sunshyne Hendrix Date
Project Quality Assurance Specialist
Clean Rivers Program

8/22/2025

Katrina Smith, Project Manager Date
Clean Rivers Program

08/22/2025

Cathy Anderson, Team Leader Date
Data Management and Analysis

Air Monitoring Division

08/25/2025

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

08/25/2025

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

Angelina & Neches River Authority

Emylea Cole, 2025-08-21
ANRA Project Manager

Jeremiah Poling, 2025-08-21
ANRA Quality Assurance Officer &
ANRA Data Manager

Angelina & Neches River Authority Environmental Laboratory

Ashlé Wright, 8/21/2025
ANRA Lab Quality Assurance Officer

Kathryn Roeder, 8/21/2025
ANRA Lab Technical Manager

Pace Analytical (NOLA)

Tracy Easley 08/20/2025

Tracy Easley, Date
Pace General Manager

Gabrielle J. Davis 8/18/2025

Gabrielle Jones, Date
Pace Quality Manager

Karen H. Brown 08/21/2025

Karen Brown, Date
Pace Project Manager

A3 Table of Contents

List of Acronyms

ANRA	Angelina & Neches River Authority
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
DMRG	Surface Water Quality Monitoring Data Management Reference Guide
DM&A	Data Management and Analysis
EPA	United States Environmental Protection Agency
FY	Fiscal Year
GPS	Global Positioning System
IBWC	International Boundary and Water Commission
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LIMS	Laboratory Information Management System
LOD	Limit of Detection
LOQ	Limit of Quantitation
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
QEC	Quality Environmental Containers, Inc.
QM	Quality Manual
QMP	Quality Management Plan
RPD	Relative Percent Difference
RT	Routine Monitoring
SE	Submitting Entity
SLOC	Station Location
SOP	Standard Operating Procedure
SWQM	Surface Water Quality Monitoring
SWQMIS	Surface Water Quality Monitoring Information System
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TMDL	Total Maximum Daily Load
TNI	The NELAC Institute
TSWQS	Texas Surface Water Quality Standards
TWDB	Texas Water Development Board
USACE	United States Army Corps of Engineers
VOA	Volatile Organic Analytes
WQS	Water Quality Standards

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 Angelina & Neches River Authority (ANRA) 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 ANRA 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*.

ANRA's monitoring program was developed to implement basin-wide water quality monitoring to help meet the goals of the Texas Clean Rivers Program, as well as the River Authority's statutory responsibilities. ANRA's monitoring strategy is primarily based upon impairments and/or concerns identified in the TCEQ's Texas Integrated Report. Other monitoring stations were selected based upon local concern and stakeholder input. ANRA's monitoring program is reviewed annually and includes the following activities:

- Collection of quality-assured surface water quality data as part of its commitment to water quality protection in ANRA's basin. Sites are sampled and analyzed using physical, chemical and bacteriological parameters to measure water quality.
- Coordinating with other monitoring programs in the basin to minimize any duplication of efforts.
- Developing a basin-wide coordinated monitoring schedule with maps to review at annual stakeholder meetings and coordinated monitoring meetings.
- Analysis of water quality data and preparation of water quality reports to inform stakeholders of water quality issues in the basin.

A5 Project/Task Description

During the Fiscal Year (FY) 2026-2027 biennium, ANRA's monitoring program will include routine (RT) monitoring across the basin.

This routine monitoring includes the following field parameters: pH, water temperature, dissolved oxygen, specific conductance, secchi depth (disc or tube measuring transparency), total water depth (at reservoir sites), instantaneous stream flow (at stream or river sites), flow severity, flow measurement method, days since last significant rainfall, present weather, and stream flow estimate (when instantaneous flow is not available).

This routine monitoring also includes the following bacteriological and conventional parameters analyzed in the laboratory:

- *Escherichia coli* (*E. coli)*
- Ammonia, as N

- Nitrate, as N (or combined Nitrate + Nitrite, as N when separate analyses cannot be completed)
- Nitrite, as N (or combined Nitrate + Nitrite, as N when separate analyses cannot be completed)
- Total Kjeldahl Nitrogen (TKN)
- Total Phosphorus
- Sulfate
- Chloride
- Total Suspended Solids
- Chlorophyll *a*
- Pheophytin *a*

ANRA Environmental Laboratory will perform the sample analyses for bacteriological and conventional parameters with the exception of Nitrate + Nitrite, as N, when necessary.

Pace (NOLA) will serve as the primary lab for Nitrate + Nitrite analysis. Pace (NOLA) will serve as an alternate laboratory for the analysis of conventional parameters as listed in their respective A6 table, in the event that sample analysis cannot be conducted at ANRA Environmental Laboratory (i.e., instrument failure, service or maintenance is required, etc.).

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 ANRA Project Manager (PM) to the TCEQ CRP PM electronically. ANRA 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 ANRA PM, the ANRA 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 ANRA PM. If adherence letters are required, ANRA will secure an adherence letter from each sub-tier project participant (e.g., subcontractors, sub-participant, 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. ANRA 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 ANRA, the TCEQ CRP PM, and TCEQ technical staff. Appendices will be written in an abbreviated format and will reference the ANRA QAPP where appropriate. Appendices will be approved by the ANRA PM, the ANRA 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 ANRA to project participants before data collection activities commence. ANRA 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. ANRA 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 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 or most recent version (https://www.tceq.texas.gov/downloads/water-quality/assessment/integrated-report-2024/2024-guidance.pdf). 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 purpose of diel (24-hour) water quality monitoring is to monitor trends and/or address the finding of the TCEQ Integrated Report and to provide data for future versions of the TCEQ Integrated Report.

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 ANRA 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

Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Katrina Smith, Project Manager
Clean Rivers Program
MC-234
(512) 239-5656
katrina.smith@tceq.texas.gov

Cathy Anderson, Team Leader
Data Management and Analysis Team
MC-234

(512) 239-1805
cathy.anderson@tceq.texas.gov

Loren Walker, Lead CRP Quality Assurance Specialist
Laboratory and Quality Assurance Section
MC-165
(512) 239-6340
loren.walker@tceq.texas.gov

Angelina & Neches River Authority
2901 N John Redditt Dr
Lufkin, Texas 75904

Emylea Cole, Project Manager
(936) 633-7527
ecole@anra.org

Jeremiah Poling, Quality Assurance Officer
(936) 633-7551
jpoling@anra.org

Angelina & Neches River Authority
Environmental Laboratory
2901 N John Redditt Dr
Lufkin, Texas 75904

Ashlé Wright, Lab Quality Assurance Officer
(936) 633-7542
awright@anra.org

Kathryn Roeder, Lab Technical Manager
(936) 633-7868
kroeder@anra.org

Pace Analytical (NOLA)
1000 Riverbend Blvd, Suite F
St. Rose, LA 70087

Karen Brown, Project Manager
(504) 305-3615
Karen.Brown@pacelabs.com

Tracy Easley, General Manager
(504) 305-3605
Tracy.Easley@pacelabs.com

Gabrielle Jones, Quality Manager
(504) 305-3612
Gabrielle.Jones@pacelabs.com

The TCEQ CRP PM will provide the approved QAPP and any amendments and appendices to TCEQ staff listed in A7 and to ANRA. ANRA 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). ANRA 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.

Katrina Smith
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 ANRA audits. Verifies QAPPs are being followed by contractors and that projects are producing data of known quality. Coordinates project planning with the ANRA 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.

ANGELINA & NECHES RIVER AUTHORITY

Emylea Cole
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 ANRA 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 are acceptable for reporting to the TCEQ.

Jeremiah Poling
Quality Assurance Officer & Data Manager
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 ANRA 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.

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 ANRA internet sites.

Ashlé Wright
Laboratory Quality Assurance Officer
Responsible for the overall quality control and quality assurance of analyses performed by ANRA Environmental Laboratory. Monitors the implementation of the QM/QAPP within the laboratory to ensure complete compliance with QA data quality

objectives, as defined by the contract and in this QAPP. Conducts 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.

Kathryn Roeder
Laboratory Technical Manager
Responsible for overall performance, administration, and reporting of analyses performed by ANRA's Environmental Laboratory. Responsible for supervision of laboratory personnel involved in generating analytical data for the project. Ensures that laboratory personnel have adequate training and a thorough knowledge of this QAPP and related SOPs. Responsible for oversight of all laboratory operations ensuring that all QA/QC requirements are met, documentation is complete and adequately maintained, and results are reported accurately.

Kimberly Wagner
Executive Manager, Communications
Responsible for education and outreach regarding ANRA's Clean Rivers Program. Also responsible for coordinating and conducting CRP sample collection in accordance with the basin coordinated monitoring schedule and the QAPP.

Pace Analytical (NOLA)

Karen Brown
Pace Project Manager
Responsible for analyses performed by Pace (NOLA) for this project. Responsible for project setup in LIMS. Responsible for Pace (NOLA) laboratory and field staff corrective action communication with the Pace (NOLA) Quality Manager. Makes Pace (NOLA) data available to the ANRA Data Manager. Notifies the Pace (NOLA) Quality Manager and ANRA QAO of laboratory analysis issues that may invalidate data.

Tracy Easley
Pace General Manager
Responsible for overall performance, administration, and reporting of analyses performed by Pace (NOLA). Responsible for supervision of laboratory personnel involved in generating analytical data for the project. Ensures that laboratory personnel have adequate training and a thorough knowledge of this QAPP and related SOPs. Responsible for oversight of all laboratory operations ensuring that all QA/QC requirements are met, documentation is complete and adequately maintained, and results are reported accurately.

Gabrielle Jones
Pace Quality Manager
Responsible for the overall quality control and quality assurance of analyses performed by Pace (NOLA). Monitors the implementation of the QM/QAPP within the laboratory to ensure complete compliance with QA data quality objectives, as defined by the contract and in this QAPP. Conducts 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.

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.

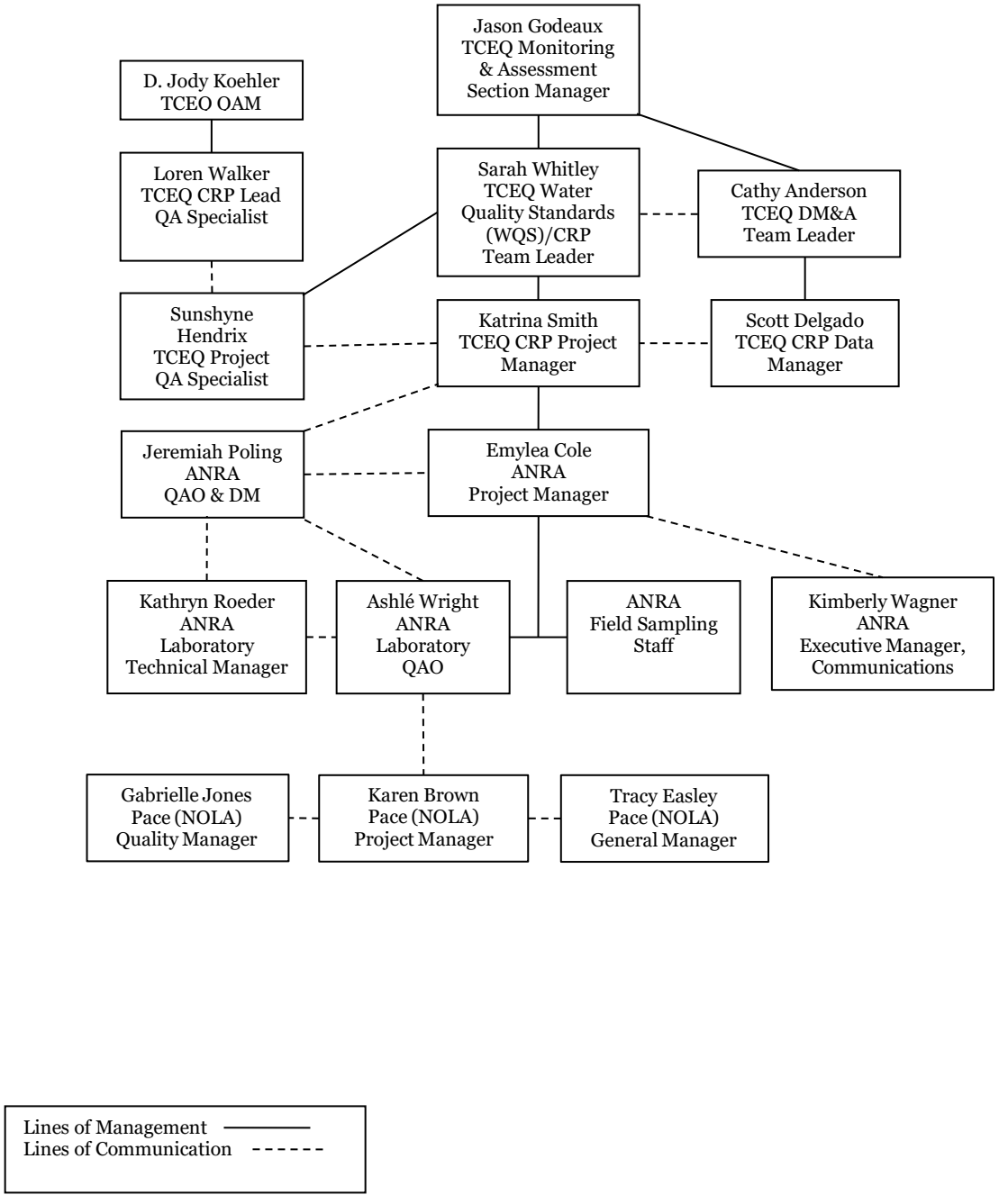
The TCEQ QA Manager (QAM) and designated TCEQ QA staff from the Laboratory and Quality Assurance Section within the Air Monitoring Division of the Office of Air are independent of activities performed by CRP. No CRP staff have authority to sign QAPPs, amendments, or appendices on behalf of TCEQ's QAM 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, a fully trained ANRA staff member trains them in proper instrument calibration, field sampling techniques, and field analysis procedures. The ANRA QAO (or designee) will document the successful field demonstration. The ANRA 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	ANRA	5	Electronic
Field SOPs	ANRA	5	Electronic
Laboratory quality manuals	ANRA/Pace	5	Electronic or Paper
Laboratory SOPs	ANRA/Pace	5	Electronic or Paper
QAPP distribution documentation	ANRA	5	Electronic
Field staff training records	ANRA	5	Electronic or Paper
Field equipment calibration/maintenance logs	ANRA	5	Electronic or Paper
Field instrument printouts	ANRA	5	Electronic or Paper
Field notebooks or data sheets	ANRA	5	Electronic or Paper
Chain of custody records	ANRA/Pace	5	Electronic or Paper
Laboratory calibration records	ANRA/Pace	5	Electronic or Paper
Laboratory instrument printouts	ANRA/Pace	5	Electronic or Paper
Laboratory data reports/results	ANRA/Pace	5	Electronic or Paper
Laboratory equipment maintenance logs	ANRA/Pace	5	Electronic or Paper
Corrective action documentation	ANRA/Pace	5	Electronic or 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.

Reports of results for analytical tests performed by the laboratory contain the following elements:

- Title of report
- Name and address of the laboratory
- Name and address of the client
- A clear identification of the sample(s) analyzed (unique identifiers)
- Identification method used
- Identification of samples that did not meet QA requirements (by the use of data qualifiers)
- Sample results

- Units of measurement
- Sample matrix
- Dry weight or wet weight (as applicable)
- Station information
- Date and time of collection
- Date and time of Analysis Start (for calculation of *E. coli* holding time)
- LOQ and limit of detection (LOD) (formerly referred to as the reporting limit and the method detection limit, respectively), and qualification of results outside the working range (if applicable)
- Certification of NELAP compliance

Upon completion of all analyses, the ANRA Environmental Laboratory generates a Report Cover Page, a Laboratory Analysis Report, and a Quality Control Data Report. The Chain-of-Custody and subcontract laboratory report (if applicable) are attached to form the final report. The ANRA Laboratory QAO reviews and approves the report and sends to the ANRA Project Manager. The ANRA Data Manager electronically submits the data to TCEQ.

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, which can be found at https://www.tceq.texas.gov/waterquality/data-management/dmrg_index.html. A completed data review checklist and data summary (see Appendix F) will be included with each data submittal.

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 ANRA'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	Sample Volume	Preservation	Holding Time
TSS	Water	Plastic	1000 mL	<6°C (but not frozen)	7 days
Ammonia-N	Water	Plastic	1000 mL[1]	Acidify with H_2SO_4 to pH<2, <6°C (but not frozen)	28 days
Phosphorus, Total					
TKN					
Nitrate + Nitrite-N	Water	Plastic	500 mL[2]	Acidify with H_2SO_4 to pH<2, <6°C (but not frozen)	28 days
Nitrate-N	Water	Plastic	125 mL[3]	<6°C (but not frozen)	48 hours
Nitrite-N					48 hours
Chloride					28 days
Sulfate					28 days
Chlorophyll *a* / Pheophytin *a*	Water	Amber Plastic	500 mL	<6°C (but not frozen), keep in dark	Filter within 48 hours, and store frozen up to 24 days
E. coli	Water	Sterile Plastic	100 mL (minimum) 250mL (for duplicates)	<6°C (but not frozen); with sodium thiosulfate	8 hours (can be extended up to 30 hours when necessary[4])

[1] Sample for Ammonia, Phosphorus, and TKN is collected in a single bottle and poured up as needed in the lab.

[2] In the event that the ANRA Lab is unable to complete the analysis of Nitrate and Nitrite individually, 500 mL of sample is poured up from one or more containers of existing sample volume, and acidified to <2 pH within the 48 hour hold time and then delivered to Pace for analysis.

[3] Nitrate, Nitrite, Chloride, and Sulfate are collected in a single bottle, and are analyzed as a group by the lab.

[4] *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

The ANRA Environmental Laboratory purchases pre-cleaned sample containers and maintains certificates from each manufacturer. The container types used for sampling are as follows:

- Bacteriological sample containers are sterile polyethylene 120 mL and 250 mL bottles with sodium thiosulfate. The bottles contain sufficient sodium thiosulfate to remove 5 mg/L (for 120 mL bottles) or 15 mg/L (for 250 mL bottles) of total chlorine.
- Amber containers are required for chlorophyll *a* sampling.
- Sample containers used for conventional parameters are various sizes and are disposable. Sample containers are either HDPE or LDPE.
- Sample containers are purchased from QEC, Environmental Express, Idexx, or equivalent, provided QC requirements are met.

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.

Documentation of Field Sampling Activities

Field sampling activities are documented on field data sheets as presented in Appendix D. Flow worksheets, aquatic life use monitoring checklists, habitat assessment forms, field biological assessment forms, 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 ANRA PM, in consultation with the ANRA 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 ANRA 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 ANRA PM. If a CAP is necessary (Figure C1.1), the ANRA QAO will submit the CAP to the TCEQ CRP PM in a timely manner for review. Additionally, the ANRA 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.

Reservoir stage data are collected every day from the USGS, International Boundary and Water Commission (IBWC), and the United States Army Corps of Engineers (USACE) websites. These data are preliminary and subject to revision. The Texas Water Development Board (TWDB) derives reservoir storage (in acre-feet) from these stage data (elevation in feet above mean sea level), by using the latest rating curve datasets available. These data are published at the TWDB website at http://waterdatafortexas.org/reservoirs/statewide. Information about measurement methodology can be found on the TWDB website. These data will be submitted to the TCEQ under parameter code 00052 (reservoir stage) and parameter code 00053 (reservoir percent full).

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
Analyses required
Name of collector
Custody transfer signatures and dates and time of transfer

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
Sample type (i.e., analyses) to be performed

Sample Handling

ANRA field data sheets are supplied to all field personnel prior to initiation of collection procedures. The field data sheets have spaces dedicated to recording of all pertinent field observations and water quality parameters. The field staff has the prime responsibility to ensure that all pertinent information is recorded correctly and in the proper units.

Upon collection, samples are placed in an ice chest containing ice for transport to the ANRA Environmental Laboratory. The ice chest remains in possession of the field personnel until delivery to the lab. Field personnel complete a chain-of-custody (COC) form describing the samples, collection times, and analyses requested prior to relinquishing custody of the samples to the lab with the date and time of transfer, and a signature on the form.

The ANRA Environmental Laboratory receives, documents, stores, and analyzes samples in accordance with its Laboratory Quality Manual (QM). The Sample Custodian examines all samples brought to the ANRA Environmental Laboratory for proper documentation, holding times, sample temperature, and preservation. The Sample Custodian accepts delivery by signing the final portion of the official COC submitted with the samples. The accepted samples are immediately logged into the laboratory information Management System (LIMS) and assigned a unique laboratory sample identification (ID) number. It is the responsibility of the sample custodian to login samples in the proper format, and to apply the unique laboratory sample ID number to the sample container. The sample custodian places the sample container in the proper laboratory refrigerator.

Pace (NOLA) will serve as the primary lab for Nitrate plus Nitrite analysis on samples for which the primary lab is unable to perform Nitrate and/or Nitrite analyses separately, and as a backup for all other parameters in their A6 table in the event that the primary lab is unable to perform the required analysis. The sample custodian relinquishes samples to Pace (NOLA) for analysis, after first receiving, documenting, logging in, and labeling the sample containers. The sample custodian packs the samples on ice in a cooler to maintain a temperature between freezing and 6°C, seals the cooler containing the samples and appropriate COC forms, and then schedules a pickup with a shipping or courier service. ANRA relinquishes the sealed cooler to the courier, who receives it, transports it to Pace (NOLA), and relinquishes it. Pace (NOLA) verifies the condition of the samples, receives the samples, and logs them into their LIMS in accordance with the Pace laboratory QM.

Proper sample custody is a joint effort of the field sampling staff, the sample transporter, and the laboratory staff. The main documentation of proper sample custody for all events up to the arrival of the sample at the laboratory is the chain-of-custody (COC) form (see Appendix E). If any information or signatures on the COC form are not completely filled out, there is a gap in the documentation of sample custody. In such an event, the laboratory sample custodian will question whether the sample should be accepted. Refer all data acceptance questions to the ANRA Laboratory QAO.

The following procedures outline sample handling from collection to receipt of analytical results:

1. After transferring a sample into the proper sample container, tightly cap the container as quickly as possible to prevent the loss of volatile components and to exclude possible oxidation. Where appropriate, preserve samples in the field. Following field measurements, pack the samples on ice in a cooler to maintain a temperature between freezing and 6°C, and then transport to the laboratory as soon as possible.
2. Label the container with the proper laboratory sample identification number (a unique designation) on a label securely affixed to the container. Use a pen with waterproof ink when labeling the sample container and filling out the appropriate COC form.
3. Fill out the COC form completely and accurately.
4. Send samples requiring subcontractor lab analysis to applicable subcontract lab. Include the corresponding lab's completed COC form. Sign the COC as relinquished, write FedEx/UPS/applicable shipping service in the received section, scan all shipping paperwork together and save on the server, then seal paperwork in a bag and send with the sample cooler. The subcontract lab report includes the complete COC form.

Sample Tracking Procedure Deficiencies and Corrective Action

All deficiencies associated with COC procedures, as described in this QAPP, are immediately reported to the ANRA 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 ANRA PM, in consultation with the ANRA 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 ANRA 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.

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.

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 ANRA 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, ANRA 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 ANRA PM, in consultation with the ANRA 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 ANRA PM and QAO will be relied upon in evaluating results.

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 ANRA QAO and PM. If applicable, the ANRA PM or QAO 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 ANRA, 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 (ANRA) 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 ANRA PM. 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

The ANRA Environmental Laboratory ensures that purchased supplies and services that affect the quality of sample collection and preservation procedures, calibration of field equipment, and analysis of environmental tests are of the required or specified quality, by using approved suppliers and products. The laboratory has procedures for the purchasing, receiving, and storage of such supplies. Refer to the laboratory Quality Manual for more specific information regarding the procedures for approving suppliers, and inspecting and receiving supplies. No special requirements for acceptance are specified for other field sampling supplies or consumables.

B7 Data Management

Data Management Process

It is imperative that CRP data be maintained and managed in a manner consistent with the development and use of the data. To ensure scientifically valid results, ANRA CRP data will be subjected to a rigorous data management process. Documented quality assurance and quality control checks/procedures will be applied to all data collected by ANRA and analyzed by the ANRA laboratory or Pace (NOLA).

Data to be incorporated into the ANRA CRP Database is subject to varying levels of review. The QA/QC checks evaluate each data set as a whole, and the validity of individual data points. An initial review is performed by the ANRA analyst that performed the analysis, who is also responsible for entering the data they generate into the lab's LIMS. The ANRA QAO then reviews the laboratory raw data and compares it to the results that were entered into the LIMS. The ANRA QAO also reviews the laboratory analysis reports.

Before CRP data is entered into the ANRA CRP database, it is evaluated by the ANRA QAO for any problems that might impose a limitation on the use of the data; this includes all data analysis performed by Pace (NOLA). The following information is considered:

- Acceptable QA/QC procedures
- Intended use of the data
- Sample size
- Sample collection and preservation methods
- Field collection and laboratory analytical procedures
- General documentation (e.g., calibration logs, field sheets, COCs, etc.)

Data is entered into ANRA CRP Database by a member of the ANRA CRP staff. The data is entered, either manually (field data) or via automatic query of the LIMS (laboratory results), into a data entry form in ANRA's CRP Database. Any deviation (ex: sample exceeded holding time, QA batch analyzed without proper QC checks) found in the data set will be communicated to the TCEQ CRP PM by ANRA. Disqualified data will be removed from the dataset and will not be submitted to the TCEQ for inclusion in SWQMIS. The reason for the data removal will be listed on the data summary.

Electronic data input procedures vary according to the source and format of the data. Manual data input will be made to appropriately structured Microsoft Access tables. Standardized procedures are followed to ensure accurate data entry. Field sheets are paired with laboratory reports and station IDs dates and times are compared to verify that the appropriate reports have been matched. Field data is then transcribed into the database, which automatically rounds as needed. The lab results are automatically imported from the ANRA LIMS and shown in the data entry interface so that they can be verified against the lab report to confirm that the correct data was imported. If laboratory data is qualified, it is not imported, and a note is automatically added to the comments field describing the reason the data was excluded.

After data is entered into ANRA's CRP database, the individual data points will be evaluated by ANRA's DM and/or ANRA's QAO to determine their reasonableness. Data is exported to a spreadsheet which sorts sampling events by row, and parameters by column. This is used to screen for unreasonable or missing values such as values reported below LOQ, incorrectly identified sampling sites, etc. The spreadsheet is supplied to the TCEQ CRP PM with all data submittal packages. Data values that are considered outliers will be discarded or coded prior to inclusion in the TCEQ data deliverable. The criteria for determination of outliers will be based on minimum/maximum ranges included in the data validator report in the TCEQ SWQMIS database. If value is flagged as an outlier by the SWQMIS validator it will be verified against the original laboratory analysis data report, and may also be verified by the laboratory against original bench sheets and QC data. After verification, if an outlier is determined to be a valid value, then a "1" is entered into the "verify flg" field of the Results table. If the outlier is determined to be invalid, then that record will be removed from the database, and will not be included in the Results table sent to TCEQ for inclusion in SWQMIS.

After the final QA checks are performed by ANRA QAO, data are submitted by ANRA DM to the TCEQ CRP PM for review and approval. The TCEQ CRP PM then sends the data to the TCEQ CRP DM for further review. When the data is approved for upload by both the TCEQ CRP PM and the TCEQ DM, the TCEQ DM loads the data into SWQMIS.

The tag series assigned to the sampling events is documented on the Data Summary (QAPP Appendix F) that is submitted to the TCEQ. The files are delivered as pipe-delimited text files as described in the Surface Water Quality Monitoring Data

Management Reference Guide, most recent version, to the TCEQ CRP PM.

ANRA will provide a link on its website to the TCEQ's Surface Water Quality Web Reporting Tool, located at https://www80.tceq.texas.gov/SwqmisPublic/index.htm for public access. Also, electronic and/or hard copies of the data will be available upon request from ANRA.

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
Angelina & Neches River Authority	K	AN	AN

Data Errors and Loss

To prevent loss of data and minimize errors, all data generated under this QAPP are verified against the appropriate quality assurance checks as defined in the QAPP, including but not limited to chain of custody procedures, field sampling documentation, laboratory analysis results, and quality control data.

Automated and manual Data Reviews are performed prior to data delivery to TCEQ. Examples of checks that are used to review for data errors and data loss include:

- Parameter codes are contained in the QAPP
- Sites are in the QAPP Coordinated Monitoring Schedule
- Transcription or input errors
- Count of reported analytes (e.g., # pH = # DO = # Temperature)
- Significant figures
- Values are at or above the LOQs
- Values are below the highest standard of the calibration curve, and appropriate dilutions (if necessary) have been used
- Check for outliers
- Verified outliers are flagged
- Use of correct reporting units
- Flows should have a flow method associated with the data
- If flow severity = 1, then flow or flow estimate = 0
- If flow severity = 6, then no value is reported for flow
- Depth of surface sample is reported

Results and Events files are automatically generated from ANRA CRP Database. These files contain the correct number of fields.

Data exceeding holding times, improperly preserved samples, and estimated concentrations have unacceptable measurement uncertainty associated with them. This uncertainty will immediately disqualify analyses for submittal to SWQMIS. Therefore, data with these types of issues are not reported to the TCEQ and will be noted in the Data Summary Report. All data is uploaded to the SWQMIS User Acceptance Test environment, and a validator report is generated. The validator report is reviewed and any issues are corrected prior to the data being transmitted to the TCEQ CRP PM.

Record Keeping and Data Storage

All data is created/stored electronically where possible, and paper documents are scanned and appended to existing electronic records or stored separately as needed.

The servers that house ANRA's CRP and Laboratory data are backed up nightly Monday through Friday, with data duplicated to an off-site location to prevent loss due to a disaster such as fire or flood. Field equipment calibration logs are stored in binders at ANRA offices, and are scanned periodically. Paper copies may be disposed of once a permanent

electronic record is created and saved to ANRA servers.

Data Handling, Hardware, and Software Requirements

Hardware – ANRA CRP Database and ANRA Laboratory's LIMS (LabLite) is run from a Microsoft Windows Server-based system. The server provides security by limiting access to authorized users. ANRA LIMS is also protected by user-level login and user-specific menus, which can be used to restrict access to certain functions in the system. For staff, several Microsoft Windows-based PCs are utilized.

Software – Laboratory data is stored in Lablite LIMS, a SQL-based database program. This program has user- level access control. From the LIMS, analytical results are exported to ANRA's CRP Database, which is a Microsoft Access-based database. Several data checks have been implemented into ANRA CRP Database to identify values which do not meet criteria for inclusion into SWQMIS. ANRA CRP Database sequentially assigns Tag IDs to samples entered into the system. The database is capable of automatically generating Results and Events files which are compliant with the specifications listed in the DMRG.

Software routinely used includes, but is not limited to: Microsoft Office, Adobe Creative Suite, and Esri ArcGIS.

Information Resource Management Requirements

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

ANRA has the responsibility for assimilating and compiling the data for the Upper and Middle Neches River Basins collected under the Clean Rivers Program project. Data analyzed by ANRA Laboratory is stored in Lablite LIMS, a commercially available SQL-based relational database. ANRA CRP Database, created in-house and based on Microsoft Access, has been modified to import data directly from Lablite LIMS, automating the process and eliminating the manual reentry of the data, reducing the chance of transcription errors. Additional validity checks have also been included in ANRA CRP Database. Imported data is linked to parameter code tables in ANRA CRP Database, ensuring that results are reported under the correct parameter code. Additional functions, such as a graphing module, have been added to the database for data review purposes. Results and Events files are automatically generated by the database in the proper format for submittal to SWQMIS.

Data in both Lablite LIMS and ANRA CRP Database are stored on a password-protected server, and access is granted only to authorized individuals. Data backups are performed nightly, with copies of backups stored off- site.

Monitoring data is made available to the public by way of a link to TCEQ's public interface for the Surface Water Quality Web Reporting Tool. In instances where ANRA is asked to provide data, either quality-assured data exported directly from SWQMIS is provided, or a disclaimer stating that the data is provisional pending inclusion in SWQMIS will be included with the data provided to the requestor in pipe-delimited text, Excel, or Access format.

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	ANRA	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 ANRA	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
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 ANRA 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 ANRA 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 ANRA PM, in consultation with the ANRA 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 ANRA concerning deficiencies associated with CRP work. This includes the TCEQ CRP Team Leader, PM, Project QAS, and Lead QAS. The ANRA PM or QAO should submit CAPs to their assigned TCEQ CRP PM in a timely manner. ANRA 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 ANRA QAO for revision. All CAPs for a FY should be cataloged in the quarterly progress reports submitted to the TCEQ CRP PM by the ANRA 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 ANRA 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 ANRA 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

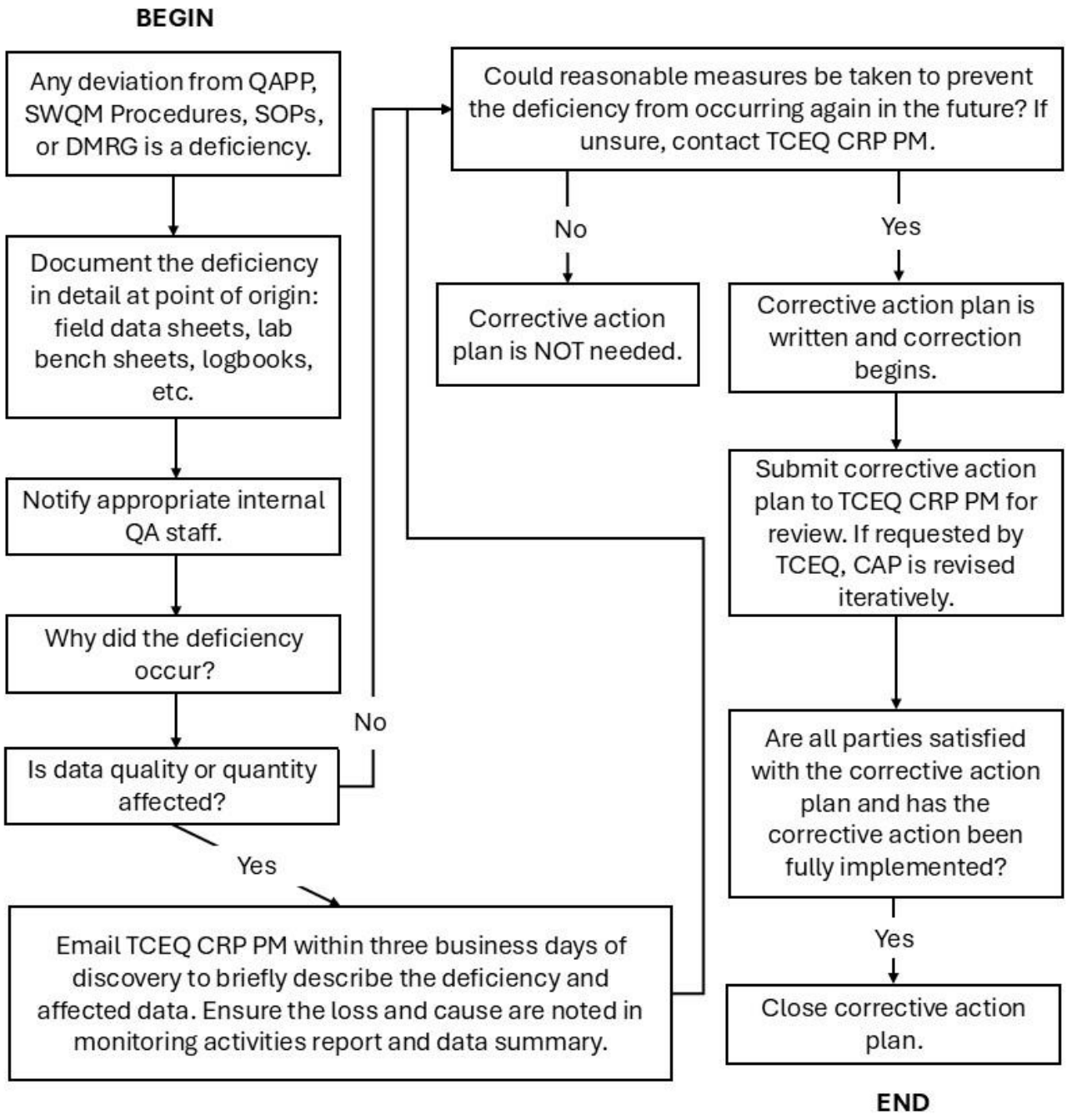
CAPs should:

- 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	ANRA QAO, and/or ANRA PM, or Laboratory QAO as appropriate	ANRA 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	ANRA Project Manager	TCEQ CRP Project Manager
Monitoring Systems Audit Report and Response	As Needed	As Needed	ANRA QAO	TCEQ CRP Project Manager
Data Summary	As Needed	As Needed	ANRA Data Manager	TCEQ CRP Project Manager

Reports to ANRA Project Management

ANRA PM is charged with the responsibility to report the status of implementation and application of the quality assurance procedures described in this QAPP and thereby the status of data quality. It is imperative that ANRA PM is properly informed of any quality assurance problems encountered and assists in the development and implementation of corrective actions. This information will be provided to ANRA PM by ANRA QAO, ANRA DM, Field Personnel, and/or any performance auditor through the completion of reports. These reports may include but are not limited to the following: analytical and QC summary reports from the laboratory, field QC results and calibration records, and a data summary and data review checklist. These reports will be provided to ANRA PM as requested. The data summary and data review checklist are reviewed by the ANRA QAO before each database transfer to the TCEQ. Other reports may include any corrective action forms, correspondence, etc. describing corrective actions or implementation of new processes to ensure that quality assured data are produced.

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 ANRA'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 ANRA, 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
ANRA 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 ANRA DM 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 ANRA DM 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 ANRA DM 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 Collector	ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	ANRA Data Manager
Field QC samples collected for all analytes as prescribed in the TCEQ SWQM Procedures	Field Collector		ANRA QAO/ Pace Quality Manager	ANRA Data Manager
Standards and reagents traceable		ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	
Chain of custody complete/acceptable	Field Collector	ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	
NELAP Accreditation is current		ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	
Sample preservation and handling acceptable	Field Collector	ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	
Holding times not exceeded	Field Collector	ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	
Collection, preparation, and analysis consistent with SOPs and QAPP	Field Collector	ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	
Field documentation (e.g., biological, stream habitat) complete	Field Collector		ANRA QAO	ANRA Data Manager
Instrument calibration data complete	Field Collector	ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	ANRA Data Manager
QC samples analyzed at required frequency		ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	ANRA Data Manager
QC results meet performance and program specifications		ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	ANRA Data Manager
Analytical sensitivity (LOQ/AWRL) consistent with QAPP		ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	ANRA Data Manager
Results, calculations, transcriptions checked		ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	ANRA Data Manager
Laboratory bench-level review performed		ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	
All laboratory samples analyzed for all scheduled parameters		ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	ANRA Data Manager
Corollary data agree		ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	ANRA Data Manager
Nonconforming activities documented	ANRA CRP QAO	ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	ANRA Data Manager
Outliers confirmed and documented; reasonableness check performed	ANRA CRP QAO	ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	ANRA Data Manager
Dates formatted correctly			ANRA QAO/ Pace Quality Manager	ANRA Data Manager
Depth reported correctly and in correct units	ANRA CRP		ANRA QAO	ANRA Data

	QAO/ Field Collector			Manager
TAG IDs correct				ANRA Data Manager
TCEQ Station ID number assigned				ANRA Data Manager
Valid parameter codes				ANRA Data Manager
Codes for submitting entity(ies), collecting entity(ies), and monitoring type(s) used correctly				ANRA Data Manager
Time based on 24-hour clock				ANRA Data Manager
Check for transcription errors		ANRA Laboratory QAO/ Pace Laboratory Manager	ANRA QAO/ Pace Quality Manager	ANRA Data Manager
Sampling and analytical data gaps checked (e.g., all sites for which data are reported are on the coordinated monitoring schedule)	ANRA CRP QAO		ANRA QAO	ANRA Data Manager
Field instrument pre- and post-calibration check results within limits	ANRA CRP QAO/ Field Collector		ANRA QAO	ANRA Data Manager
10% of data manually reviewed			ANRA QAO/ Pace Quality Manager	ANRA Data Manager

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 (Tables A6.1–A6.6)

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 the Angelina & Neches River Authority

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	SM 9223-B (2016)**	31699	1	1	NA	0.50*	NA	ANRA
E. COLI, COLILERT, IDEXX, HOLDING TIME	hours	water	NA	31704	NA	NA	NA	NA	NA	ANRA

* 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.

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

Table A6.2 - Measurement Performance Specifications for the Angelina & Neches River Authority

Conventional Parameters in Water										
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab
RESIDUE, TOTAL NONFILTRABLE (MG/L)	mg/L	water	SM 2540D (2015)	00530	5	2.5	NA	NA	NA	ANRA
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	SM 4500-NH3 D (2011)	00610	0.1	0.1	70-130	20	80-120	ANRA
NITRITE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00615	0.05	0.05	70-130	20	80-120	ANRA
NITRATE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00620	0.05	0.05	70-130	20	80-120	ANRA
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	EPA 351.2 Rev. 2.0 (1993)	00625	0.2	0.2	70-130	20	80-120	ANRA
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	EPA 365.1 (1993)	00665	0.06	0.02	70-130	20	80-120	ANRA
CHLORIDE (MG/L AS CL)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00940	5	5	70-130	20	80-120	ANRA
SULFATE (MG/L AS SO4)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00945	5	5	70-130	20	80-120	ANRA
PHEOPHYTIN-A UG/L FLUOROMETRIC METHOD	µg/L	water	EPA 445.0 Rev. 1.2 (1997)	32213	3	2	NA	NA	NA	ANRA
CHLOROPHYLL-A, FLUOROMETRIC METHOD, UG/L	µg/L	water	EPA 445.0 Rev. 1.2 (1997)	70953	3	2	NA	20	80-120	ANRA

ANRA Environmental Laboratory will perform the sample analyses for bacteriological and conventional parameters with the exception of Nitrate + Nitrite, as N, which will be performed by Pace Analytical, and only in instances where Nitrate and/or Nitrite cannot be analyzed individually.

References:

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

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

Table A6.3 - Measurement Performance Specifications for Pace Analytical (NOLA)

Conventional Parameters in Water										
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab
RESIDUE, TOTAL NONFILTRABLE (MG/L)	mg/L	water	SM 2540D (2015)	00530	5	4	NA	NA	NA	Pace
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	SM 4500-NH3 G (2011)	00610	0.1	0.1	70-130	20	80-120	Pace
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	EPA 351.2 Rev 2.0 (1993)	00625	0.2	0.1	70-130	20	80-120	Pace
NITRITE PLUS NITRATE, TOTAL ONE LAB DETERMINED VALUE (MG/L AS N)	mg/L	water	SM 4500-NO3 F (2016)	00630	0.05	0.05	70-130	20	80-120	Pace
CHLORIDE (MG/L AS CL)	mg/L	water	SM 4500-Cl E	00940	5	1	70-130	20	80-120	Pace
SULFATE (MG/L AS SO4)	mg/L	water	EPA 9038	00945	5	1	70-130	20	80-120	Pace

Pace (NOLA) will serve as the primary lab for Nitrate + Nitrite analysis. Pace (NOLA) will serve as an alternate laboratory for the analysis of conventional parameters as listed in their respective A6 table, in the event that sample analysis cannot be conducted at ANRA Environmental Laboratory (i.e., instrument failure, service or maintenance is required, etc.).

References:

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

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

Table A6.4 - Measurement Performance Specifications for the Angelina & Neches River Authority

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)	µS/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
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
RESERVOIR STAGE (FEET ABOVE MEAN SEA LEVEL) **	FT ABOVE MSL	water	TWDB	00052	Field
RESERVOIR PERCENT FULL**	% RESERVOIR CAPACITY	water	TWDB	00053	Field
RESERVOIR ACCESS NOT POSSIBLE LEVEL TOO LOW ENTER 1 IF REPORTING	NS	other	TCEQ Drought Guidance	00051	Field
MAXIMUM POOL WIDTH AT TIME OF STUDY ( )**	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
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.
** As published by the Texas Water Development Board on their website https://www.waterdatafortexas.org/reservoirs/statewide

References:
United States Environmental Protection Agency (EPA), 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 A6.5 - Measurement Performance Specifications for the Angelina & Neches River Authority

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
STREAM FLOW ESTIMATE (CFS)	cfs	water	TCEQ SOP V1	74069	Field
FLOW MTH: 1=GAGE, 2=ELEC, 3=MECH, 4=WEIR/FLU, 5=DOPPLER	NU	other	TCEQ SOP V1	89835	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 the Angelina & Neches River Authority

24 Hour Parameters in Water					
Parameter	Units	Matrix	Method	Parameter Code	Lab
TEMPERATURE, WATER (DEGREES CENTIGRADE), 24HR AVG	DEG C	water	TCEQ SOP V1	00209	Field
WATER TEMPERATURE, DEGREES CENTIGRADE, 24HR MAX	DEG C	water	TCEQ SOP V1	00210	Field
TEMPERATURE, WATER (DEGREES CENTIGRADE) 24HR MIN	DEG C	water	TCEQ SOP V1	00211	Field
SPECIFIC CONDUCTANCE, US/CM, FIELD, 24HR AVG	µS/cm	water	TCEQ SOP V1	00212	Field
SPECIFIC CONDUCTANCE, US/CM, FIELD, 24HR MAX	µS/cm	water	TCEQ SOP V1	00213	Field
SPECIFIC CONDUCTANCE, US/CM, FIELD, 24HR MIN	µS/cm	water	TCEQ SOP V1	00214	Field
PH, S.U., 24HR MAXIMUM VALUE	std. units	water	TCEQ SOP V1	00215	Field
PH, S.U., 24HR, MINIMUM VALUE	std. units	water	TCEQ SOP V1	00216	Field
WATER TEMPERATURE, # OF MEASUREMENTS IN 24-HRS	NU	water	TCEQ SOP V1	00221	Field
SPECIFIC CONDUCTANCE, # OF MEASUREMENTS IN 24-HRS	NU	water	TCEQ SOP V1	00222	Field
pH, # OF MEASUREMENTS IN 24-HRS	NU	water	TCEQ SOP V1	00223	Field
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)

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: The Performing Party will conduct water quality monitoring activities in the Upper and Middle portions of the Neches River Basin (Basin 6). The Performing Party will coordinate with other agencies in the basin to enhance coverage, eliminate duplication of effort, and address basin priorities.

The Performing Party will complete the following subtasks:

Monitoring Description— In FY 2026, The Performing Party will monitor a minimum of 30 sites quarterly (4 times per year) for conventional, bacteria (*E. coli*), flow (stream sites only), and field parameter groups. The Performing Party may also monitor a minimum of one site, five times per year, for 24-hour dissolved oxygen with field parameters and flow.
In FY 2027, The Performing Party will monitor at a similar level of effort as FY 2026. The actual number of sites, location, frequency, and parameters collected for FY 2027 will be based on priorities identified at the Basin Steering Committee and Coordinated Monitoring meetings and included in the amended Appendix B schedule of the 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 ANRA coordinates closely with the TCEQ and other participants to ensure a comprehensive water monitoring strategy within the watershed. ANRA monitors its chosen sites to either: collect additional information for the characterization of waterbodies, ensure unimpaired waters are not declining in quality, observe changes in impaired waterbodies, or to pinpoint sources of point or nonpoint pollution.

No changes have been made to the monitoring schedule from FY 2025 to 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	Conventional	Bacteria	Flow	24 hr DO	AqHab	Benthics	Nekton	Metal Water	Organic Water	Metal Sed	Organic Sed	Fish Tissue	Amb Tox Water	Amb Tox Sed	Comments
NECHES RIVER AT US 69 1.01 KM NORTH OF FM 1014/US 69 INTERSECTION 1.8 KM NORTHWEST OF ROCKLAND IN TYLER COUNTY	10585	0604	6	10	AN	AN	RT	4	4	4	4												
CEDAR CREEK AT ELLIS AVE IN LUFKIN	21434	0604A	6	10	AN	AN	RT	4	4	4	4												
CEDAR CREEK AT FM 1336 1.29 KM WEST-SOUTHWEST OF FM 324/FM 1336 INTERSECTION IN SOUTHWEST LUFKIN	13528	0604A	6	10	AN	AN	RT	4	4	4	4												
CEDAR CREEK AT FM 2497 5.55 KM NORTHWEST OF FM 2497/US 59 INTERSECTION 7.45 KM NORTH NORTHWEST OF CITY OF DIBOLL	10478	0604A	6	10	AN	AN	RT	4	4	4	4												
CEDAR CREEK AT ST LOOP 287 IN LUFKIN	10479	0604A	6	10	AN	AN	RT	4	4	4	4												
CEDAR CREEK AT ST LOOP 287 IN LUFKIN	10479	0604A	6	10	AN	AN	BS					5											
HURRICANE CREEK 38 METERS DOWNSTREAM OF KIWANIS PARK DRIVE AND DIRECTLY DOWNSTREAM OF CONFLUENCE WITH UNNAMED TRIBUTARY IN LUFKIN	21433	0604B	6	10	AN	AN	RT	4	4	4	4												
HURRICANE CREEK AT FM 324 6.74 KM SOUTH SOUTHWEST OF LUFKIN	13529	0604B	6	10	AN	AN	RT	4	4	4	4												
HURRICANE CREEK AT ST LOOP 287 IN SOUTH LUFKIN	10487	0604B	6	10	AN	AN	RT	4	4	4	4												
JACK CREEK AT FM 2497 5 KM SOUTHEAST OF SH 94/FM 2497 INTERSECTION 13.3 KM SOUTHWEST OF LUFKIN	10492	0604C	6	10	AN	AN	RT	4	4	4	4												
JACK CREEK AT FM 3150 7 KM WEST OF LUFKIN	10494	0604C	6	10	AN	AN	RT	4	4	4	4												
PINEY CREEK AT FM 358 2.4 KM EAST OF FM 3154/FM 358 INTERSECTION 10 KM EAST OF CITY OF PENNINGTON	16096	0604D	6	10	AN	AN	RT	4	4	4	4												
BILOXI CREEK AT ANGELINA CR216 8 KM SOUTHEAST OF LUFKIN 2.4 KM DOWNSTREAM OF US69	10499	0604M	6	10	AN	AN	RT	4	4	4	4												
BILOXI CREEK AT FM 1818 2.5 KM EAST OF FM 1818/ FM 58 INTERSECTION 13.8 KM EAST OF DIBOLL	16097	0604M	6	10	AN	AN	RT	4	4	4	4												
BUCK CREEK AT FM 1818 4.72 KM WEST OF FM 844/ FM 1818 17.94 KM EAST OF DIBOLL	16098	0604N	6	10	AN	AN	RT	4	4	4	4												

Site Description	Station ID	Waterbody ID	Basin	Region	SE	CE	MT	Field	Conventional	Bacteria	Flow	24 hr DO	AqHab	Benthics	Nekton	Metal Water	Organic Water	Metal Sed	Organic Sed	Fish Tissue	Amb Tox Water	Amb Tox Sed	Comments
LAKE RATCLIFF WHERE NORTHWEST ARM OF LAKE JOINS MAIN BODY 350 M NORTHWEST OF THE SOUTHWEST CORNER OF DAM1.48 KM WEST OF RATCLIFF	17339	0604T	6	10	AN	AN	RT	4	4	4													
BAYOU CARRIZO AT SH 21 NEAR NACOGDOCHES	21432	0610P	6	10	AN	AN	RT	4	4	4	4												*
SAM RAYBURM RESERVOIR NEAR SHIRLEY CREEK IN THE ANGELINA RIVER CHANNEL 5.13 KM NE OF FM 2109/ FM 2801 INTERSECTION	15524	0610	6	10	AN	AN	RT	4	4	4													
SAM RAYBURN RESERVOIR ADJACENT TO ALLIGATOR COVE IN THE ATTOYAC RIVER CHANNEL 3.94 KM NORTHWEST OF FM 3185/ SH 147 INTERSECTION	15523	0610	6	10	AN	AN	RT	4	4	4													
AYISH BAYOU AT SH 103 0.8 KM EAST OF FM 705	15361	0610A	6	10	AN	AN	RT	4	4	4	4												*
AYISH BAYOU AT WEST COLUMBIA STREET IN CITY OF SAN AUGUSTINE	21431	0610A	6	10	AN	AN	RT	4	4	4	4												*
ANGELINA RIVER 340 METERS UPSTREAM OF SH 204 9.93 KM WEST OF CUSHING	10633	0611	6	5	AN	AN	RT	4	4	4	4												
ANGELINA RIVER AT SH 21 11.17 KM EAST NORTHEAST OF ALTO	10630	0611	6	10	AN	AN	RT	4	4	4	4												
ANGELINA RIVER UPSTREAM SAM RAYBURN RESERVOIR AT FM 1798 5.5 KM WEST OF LANEVILLE	10635	0611	6	5	AN	AN	RT	4	4	4	4												
LA NANA BAYOU AT LOOP 224 NORTH IN THE CITY OF NACOGDOCHES 1.2 KM EAST OF THE INTERSECTION OF US BUS 59F/ST LOOP 224 NORTH	16301	0611B	6	10	AN	AN	RT	4	4	4	4												*
LA NANA BAYOU AT NACOGDOCHES CR 526 6.9 MI SOUTH OF NACOGDOCHES BETWEEN FM 2863 AND FM 3228	10474	0611B	6	10	AN	AN	RT	4	4	4	4												*
LA NANA BAYOU IMMEDIATELY UPSTREAM OF EAST MAIN STREET/STATE HIGHWAY 7/ STATE HIGHWAY 21 IN NACOGDOCHES	20792	0611B	6	10	AN	AN	RT	4	4	4	4												*
MUD CREEK AT US 79 9.8 KM EAST OF JACKSONVILLE AND 5.9 KM WEST OF NEW SUMMERFIELD	14477	0611C	6	5	AN	AN	RT	4	4	4	4												
MUD CREEK AT US 84 0.87 KM SOUTHWEST OF REKLAW	10532	0611C	6	5	AN	AN	RT	4	4	4	4												
LAKE NACOGDOCHES IN MAIN POOL NEAR DAM 375 M EAST OF WESTERN EDGE OF DAM 126 M NORTH OF DAM 10 MI WEST OF NACOGDOCHES	15801	0611Q	6	10	AN	AN	RT	4	4	4													

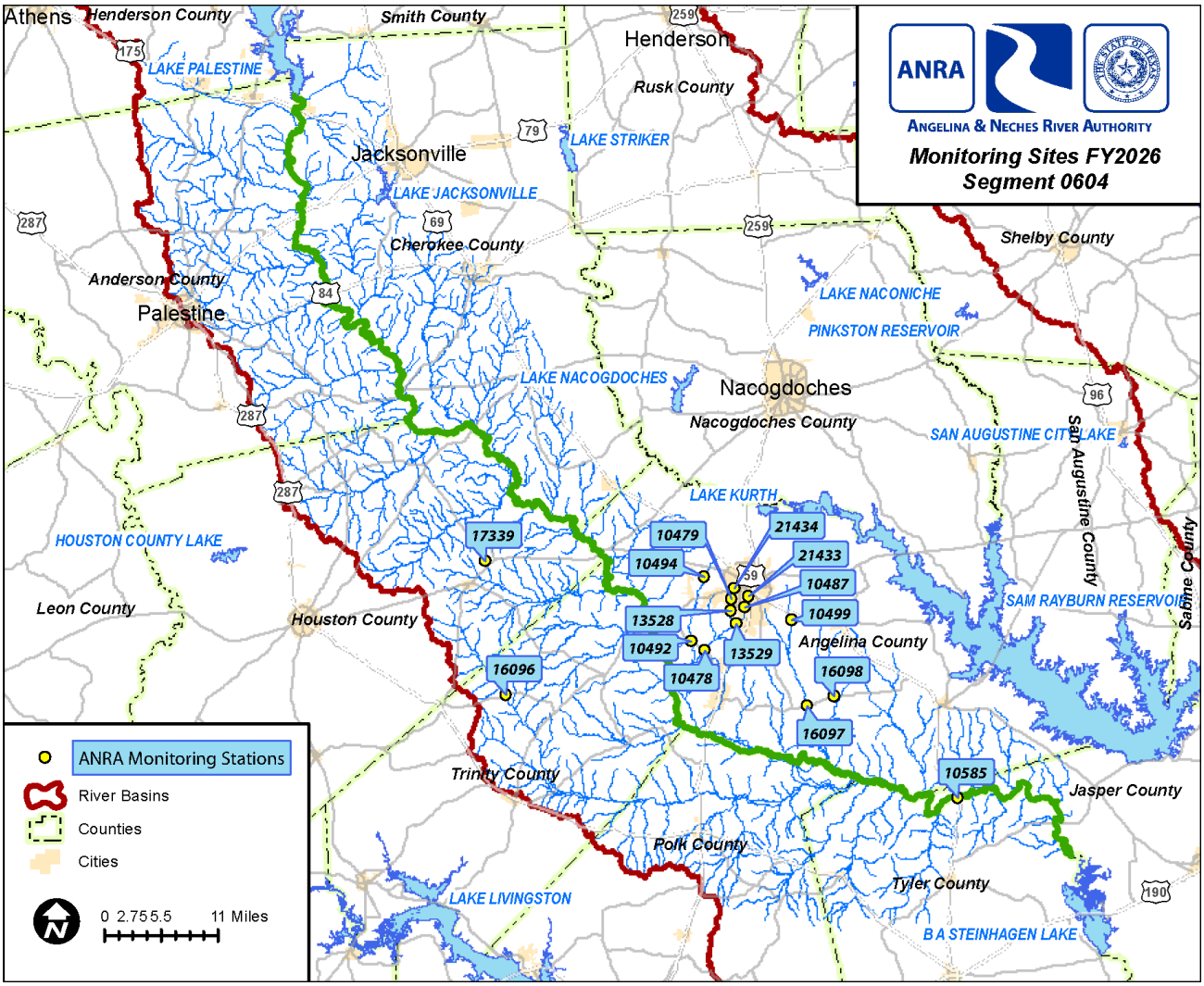
Site Description	Station ID	Waterbody ID	Basin	Region	SE	CE	MT	Field	Conventional	Bacteria	Flow	24 hr DO	AqHab	Benthics	Nekton	Metal Water	Organic Water	Metal Sed	Organic Sed	Fish Tissue	Amb Tox Water	Amb Tox Sed	Comments
LAKE NACOGDOCHES NEAR ISLAND IN UPPER LAKE EQUIDISTANT BETWEEN ISLAND AND BOAT RAMP AT THE END OF HARBOR DRIVE AND 3.37 KM SOUTH OF SH 21	21021	0611Q	6	10	AN	AN	RT	4	4	4													
LAKE STRIKER NEAR DAM APPROX 0.8 MILES SOUTHEAST OF POWERPLANT 138 M NORTHWEST OF SPILLWAY AND 7.5 MILES SOUTHEAST OF NEW SUMMERFIELD	17824	0611R	6	5	AN	AN	RT	4	4	4													
LAKE STRIKER UPPER LAKE EQUIDISTANT BETWEEN SHORELINES 2.28KM SOUTHEAST OF INTERSECTION OF FM2274/FM32889.4 KM E. OF NEW SUMMERFIELD	17822	0611R	6	5	AN	AN	RT	4	4	4													
ATTOYAC BAYOU AT SH 21 0.71 KM WEST OF INTERSECTION OF SH 21/ FM 1196 4.77 KM EAST OF CHIRENO	10636	0612	6	10	AN	AN	RT	4	4	4	4												
ATTOYAC BAYOU AT SH 7 1.75 KM NORTHEAST OF MARTINSVILLE	15253	0612	6	10	AN	AN	RT	4	4	4	4												
ATTOYAC BAYOU AT US 59 4.12 KM NORTHEAST OF GARRISON	16076	0612	6	10	AN	AN	RT	4	4	4	4												
NACONICHE LAKE NEAR THE DAM 226 METERS NORTH AND 715 METERS WEST OF INTERSECTION OF FM 2435 AND US 59 NORTHEAST OF CITY OF NACOGDOCHES	21435	0612G	6	10	AN	AN	RT	4	4	4													
WEST CREEK AT FM 2913 2.57 KM N OF INTERSECTION WITH SH 7	20845	0612F	6	10	AN	AN	RT	4	4	4	4												
ANGELINA RIVER/SAM RAYBURN RESERVOIR 0.2 KM DOWNSTREAM FROM PAPER MILL CREEK CONFLUENCE NW CORNER OF SAM RAYBURN RESERVOIR	10622	0615	6	10	AN	AN	BS					5											

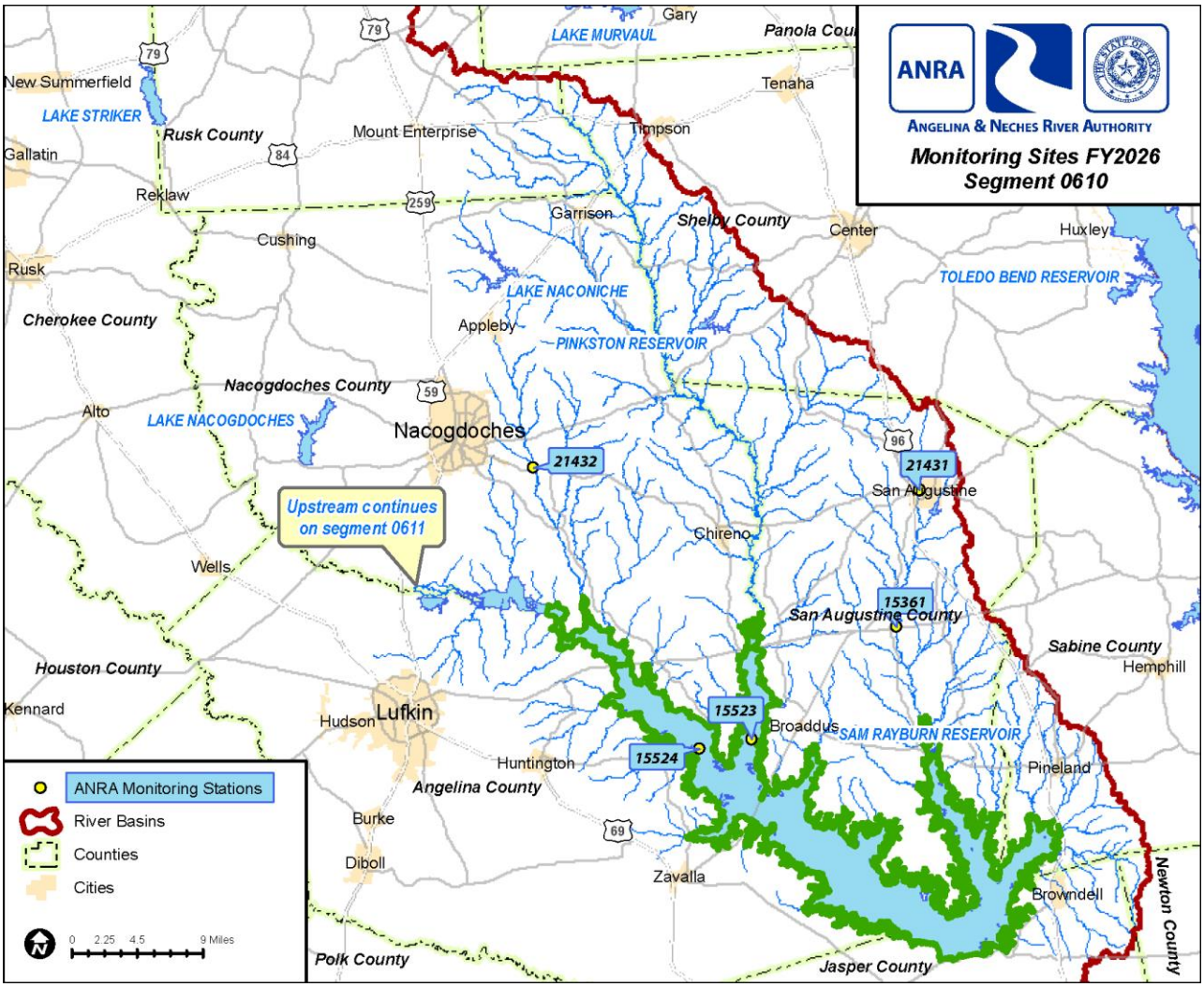
* This site is part of a CWA section 319 or TMDL project which is providing additional monthly monitoring in non CRP months. For more details and project durations, please reference the Coordinated monitoring Schedule at https://cms.lcra.org/schedule.aspx?basin=6&FY=2026

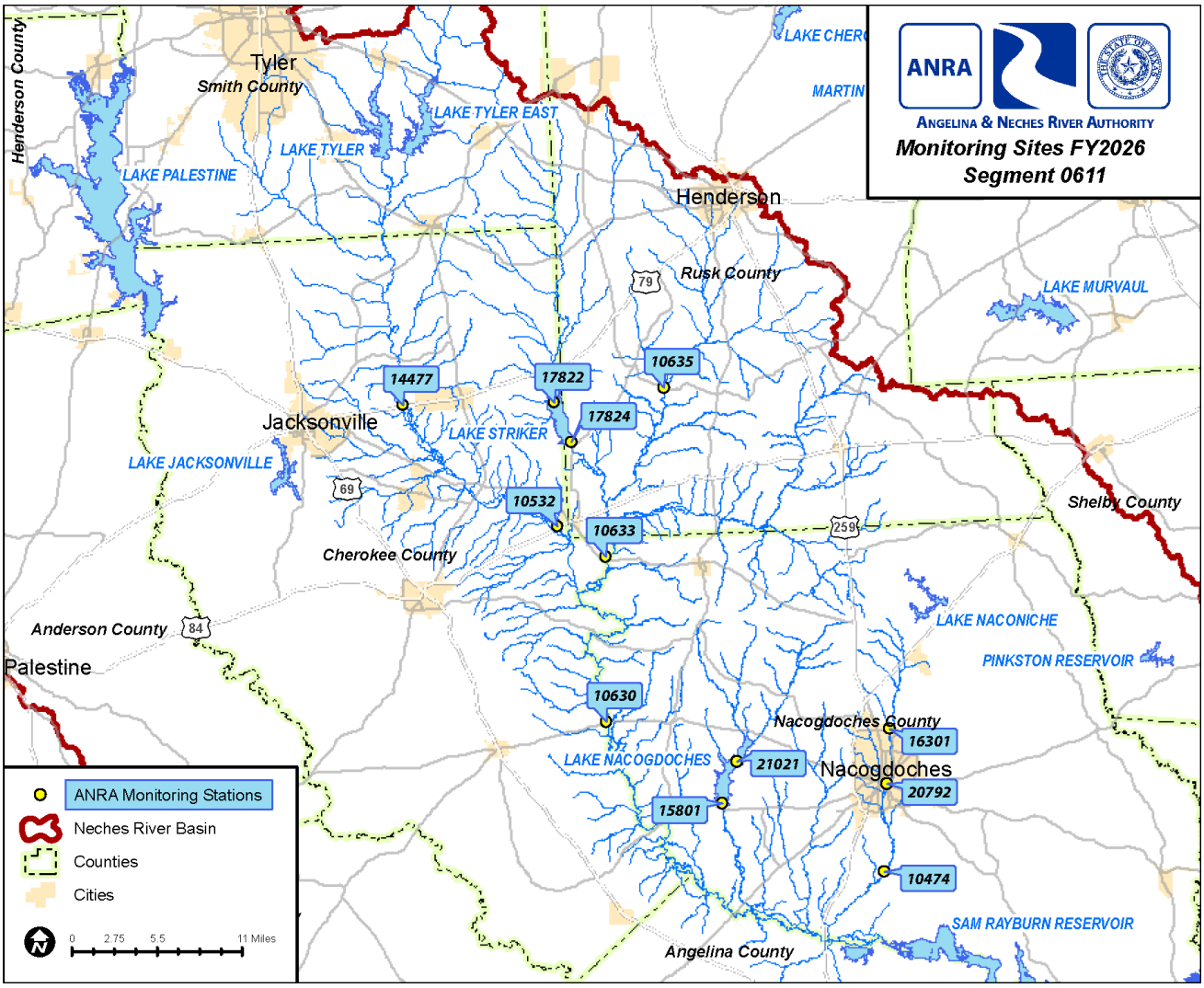
Appendix C: Station Location Maps

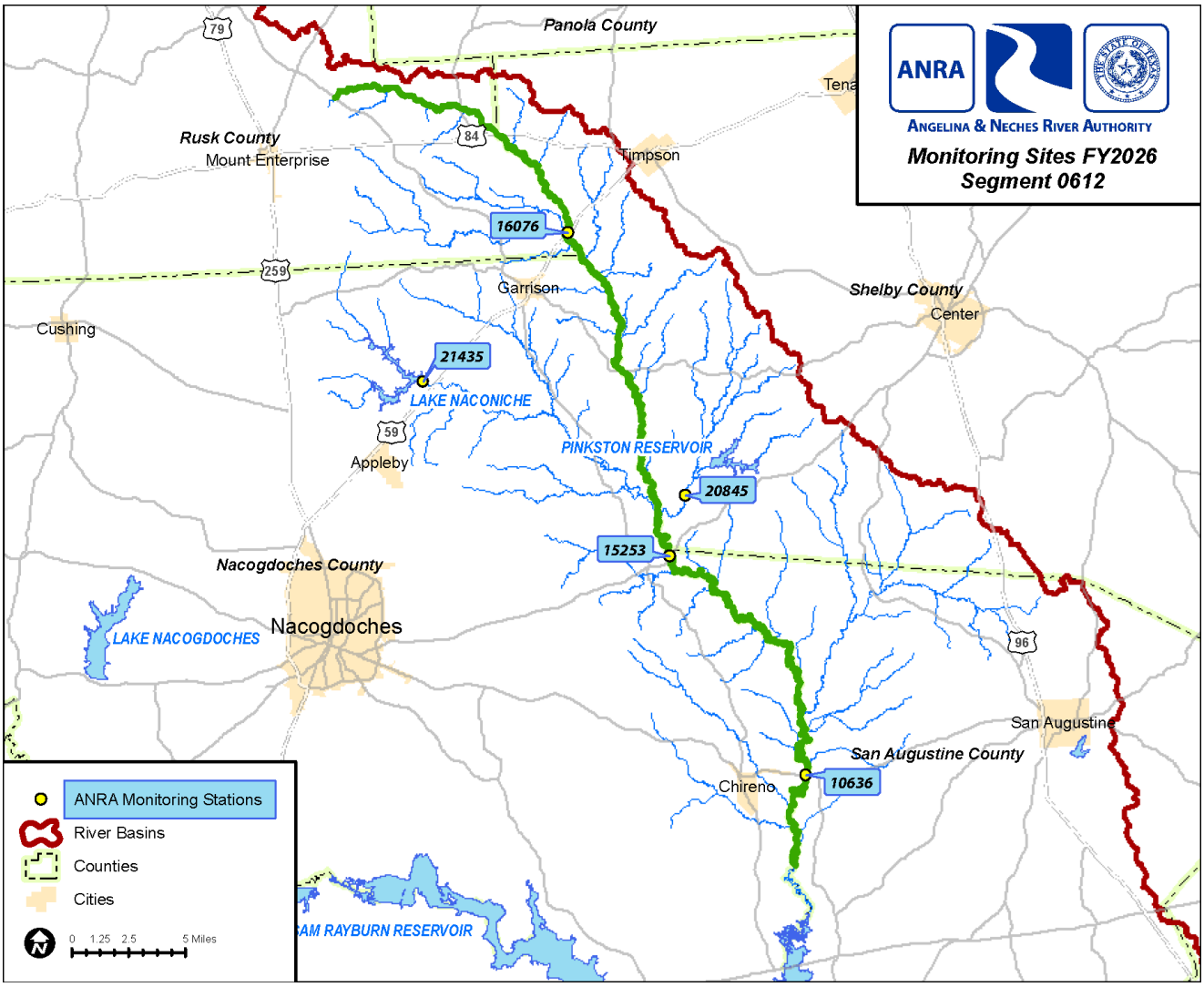
Station Location Maps

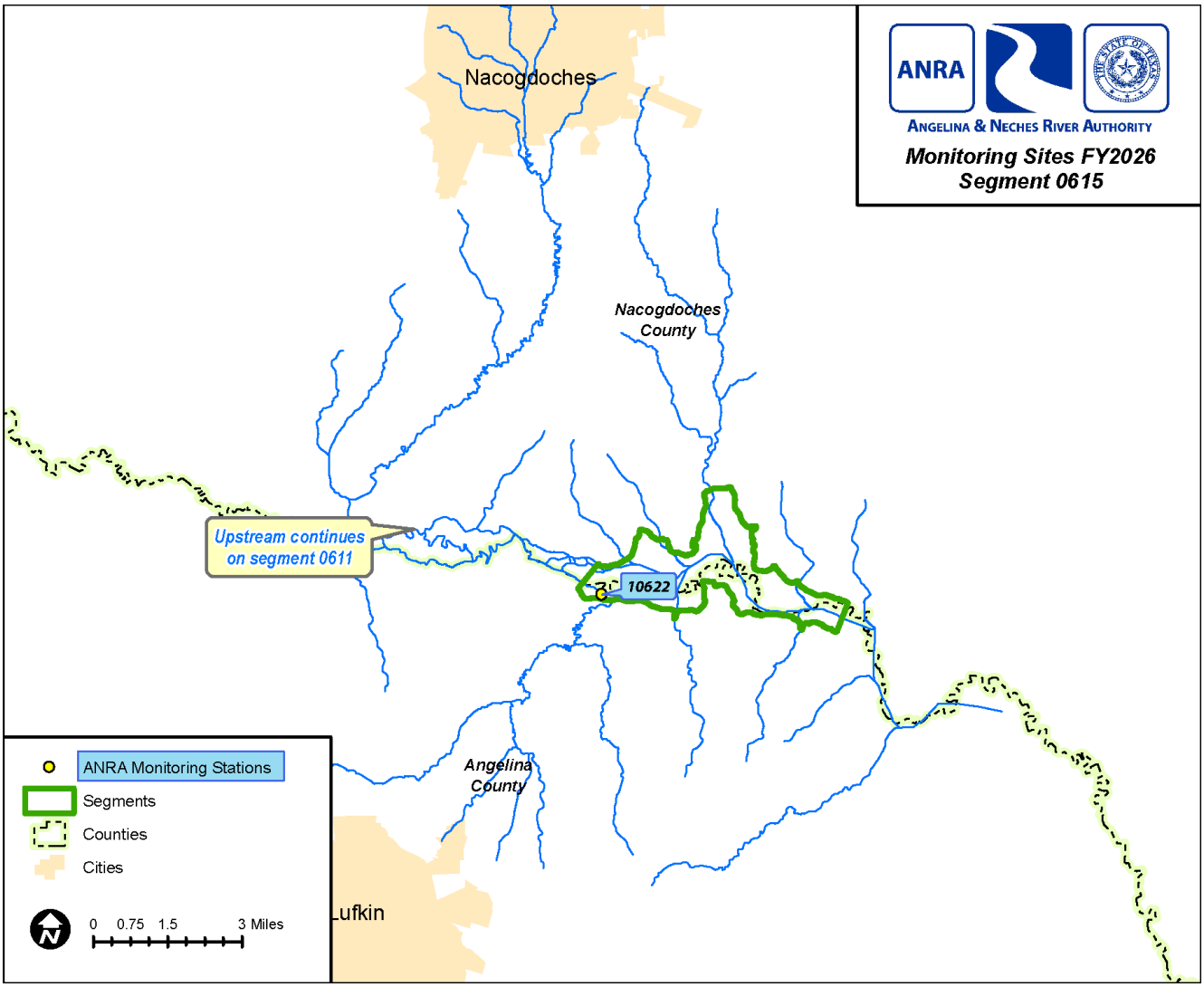
Maps of stations monitored by ANRA are provided below. The maps were generated by ANRA. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. For more information concerning these maps, contact the Angelina & Neches River Authority Central Office at 936-632-7795.




ANRA
Angelina & Neches River Authority
Monitoring Sites FY2026
Segment 0610
Gary
LAKE MURVAUL
Panola Cou
Tenaha
New Summerfield
LAKE STRIKER
Rusk County
Mount Enterprise
Timpson
Gallatin
Reklaw
Garrison
Shelby County
Center
Huxley
Cushing
Rusk
LAKE NACONICHE
TOLEDO BEND RESERVOIR
Cherokee County
Appleby
PINKSTON RESERVOIR
Nacogdoches County
Alto
LAKE NACOGDOCHES
Nacogdoches
21432
21431
San Augustine
Upstream continues on segment 0611
Chireno
Wells
15361
San Augustine County
Sabine County
Hemphill
Houston County
Kennard
Hudson
Lufkin
15523
Broaddus
SAM RAYBURN RESERVOIR
15524
Huntington
Pineland
Angelina County
Burke
Diboll
Zavalla
Browndell
Newton County
Polk County
Jasper County
ANRA Monitoring Stations
River Basins
Counties
Cities
0 2.25 4.5 9 Miles


ANRA
Angelina & Neches River Authority
Monitoring Sites FY2026
Segment 0611
Henderson County
Tyler
Smith County
LAKE TYLER EAST
LAKE TYLER
LAKE PALESTINE
LAKE CHER
MARTIN
Henderson
Rusk County
79
LAKE MURVAUL
14477
17822
10635
17824
Jacksonville
LAKE STRIKER
LAKE JACKSONVILLE
69
10532
10633
259
Shelby County
Cherokee County
Anderson County
84
Palestine
LAKE NACONICHE
PINKSTON RESERVOIR
10630
Nacogdoches County
16301
LAKE NACOGDOCHES
21021
Nacogdoches
20792
15801
10474
SAM RAYBURN RESERVOIR
Angelina County
ANRA Monitoring Stations
Neches River Basin
Counties
Cities
0 2.75 5.5 11 Miles


ANRA
Angelina & Neches River Authority
Monitoring Sites FY2026
Segment 0612
Panola County
Rusk County
Mount Enterprise
Timpson
16076
Garrison
Shelby County
Center
Cushing
21435
LAKE NACONICHE
Appleby
PINKSTON RESERVOIR
20845
15253
Nacogdoches County
Nacogdoches
LAKE NACOGDOCHES
San Augustine
San Augustine County
Chireno
10636
ANRA Monitoring Stations
River Basins
Counties
Cities
0 1.25 2.5 5 Miles
AM RAYBURN RESERVOIR


ANRA
Angelina & Neches River Authority
Monitoring Sites FY2026
Segment 0615
Nacogdoches
Nacogdoches County
Upstream continues on segment 0611
10622
Angelina County
Lufkin
ANRA Monitoring Stations
Segments
Counties
Cities
0 0.75 1.5 3 Miles

Appendix D: Field Data Sheets

SURFACE WATER QUALITY MONITORING PROGRAM FIELD DATA SHEET

ANGELINA & NECHES RIVER AUTHORITY • 2109 N John Redditt Dr.. • LUFKIN, TEXAS 75904 • (936) 632-7795

Station ID:_____ Station Description: _____

Collector(s) Name/Signature:_____

Date Collected:_____ Time Collected:_____ Sample Depth (meters):_____

Field Tests and Measurements:			Sample Identification:			
	Water Temperature °C	00010	TAG ID		Sample ID	
	Specific Conductance (µS/cm)	00094	Parameters Collected:			
	pH (standard units)	00400	X	E. Coli	X	T. Phosphorus
	Dissolved Oxygen (mg/L)	00300	X	TSS	X	Chlorophyll-a
	Secchi Depth (meters)	00078	X	Ammonia-N	X	Pheophytin-a
	Total Water Depth (meters)	82903	X	Nitrate-N	X	Chloride
	Instantaneous Stream Flow (cfs)	00061	X	Nitrite-N	X	Sulfate

Field Observations:			
	01351 - Flow Severity (1-no flow, 2- low, 3-normal, 4-flood, 5-high, 6-dry)		
	89835 - Flow measurement method (1-gage, 2-electric, 3-mechanical, 4-weir/flume, 5-doppler)		
	72053 - Days since last significant rainfall		
	89966 - Present Weather (1-clear, 2-partly cloudy, 3-cloudy, 4-rain, 5-other)		
	If sampling from a Reservoir		
		00052 - Reservoir Stage (Feet Above Mean Sea Level) (collected from TWDB website)	
		00053 - Reservoir Percent Full (collected from TWDB website)	
		00051 - Reservoir Access Not Possible, Level Too Low (Enter "1" If true)	
	If sampling from an perennial pool (isolated pool)		
		89864 - Maximum pool width in meters	
		89865 - Maximum pool depth in meters	
		89869 - Pool length in meters	
		89870 - Percentage the pool covers within a 500 meter reach	
	74069 - Stream Flow Estimate (cfs)		(W × D × L × C ÷ T = Flow Estimate)
		Stream Width (W)	(feet)
		Average Depth of Stream (D)	(feet)
		Distance Object Travels (L)	(feet)
		Correction Factor (C)	(0.9 for smooth or muddy bottom) (0.8 for rough or rocky bottom)
		Time for Object to Travel Distance (T)	(seconds)
	Comments/Observations:		

Appendix E: Chain of Custody Forms

2901 N. John Redditt Dr.
Lufkin, TX 75904
Phone: 936-632-7795
Website: www.anra.org

CHAIN-OF-CUSTODY RECORD

SECTION A – CLIENT & SAMPLER INFORMATION		SECTION B – SAMPLE RECEIPT INFORMATION (LAB USE ONLY)		
Client Name		Temperature, °C:	Observed: / Corrected:	Receipt #:
Project Name		Thermometer ID / Correction Factor:	THERM- / CF:	Client Notification:
Phone #		Preservative & pH paper Standard ID #s:		Comments:
Sampler Name		Subcontract Lab / PO #:	Sub Lab: PO #:	

SECTION C – SAMPLE CONTAINERS AND PRESERVATION							SECTION D – INSTRUCTIONS/KEYS	
Container Letter							Label each individual sample container with a letter (A, B, C, etc.). If multiple analyses come from the same container, assign them the same letter, or write them in the same column.	Matrix Codes: **DW** = Drinking Water, **NP** = Non-Potable Water, **S** = Soil, **SL** = Sludge
Container Type							Container Type Codes: **A** = Amber, **AG** = Amber Glass, **G** = Glass, **P** = Plastic, **S** = Sterile, **V** = Vial	
Preservative							Preservative Codes: **1** = None, **2** = Sulfuric Acid (H_2SO_4), **3** = Sodium Thiosulfate ($Na_2S_2O_3$), **4** = Nitric Acid (HNO_3), **5** = Sodium Hydroxide (NaOH), **6** = Hydrochloric Acid (HCl)	Sample Type Codes: **C** = Composite, **G** = Grab, **SP** = Special (DW matrix only)

SECTION E – SAMPLE INFORMATION AND ANALYSES REQUESTED												SECTION F – FIELD ANALYSES/INFORMATION				SECTION G – SAMPLE ID	
												Enter the applicable parameters in the fields below.				LAB USE ONLY	
Item #	Sample Description	Analyses						Matrix (see Section D)	Sample Type (see Section D)	Collection Date	Collection Time					pH of preserved containers (e.g. A <2)	Work Order #: / Sample ID #s
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

SECTION H – COMPOSITE DATA (if Composite marked above)				SECTION I – TRANSFER OF SAMPLE CUSTODY						
	Date	Time	Totalizer	Relinquished by (Signature)	Date	Time	Transported on ice	Received by (Signature)	Date	Time
Start							☐ Yes ☐ No			
End							☐ Yes ☐ No			
Total Flow (MGD)							☐ Yes ☐ No			

Form ID: LAB-027
Revision #: 3
Effective: 6/9/2020
Approved: MDG

NOTE: Section I – Transfer of Sample Custody must reflect all transfers from sample collection to receipt at the ANRA Environmental Laboratory.
NOTE: Chain-of-Custody must be completed by the customer (or corrected, if needed, at the time of sample drop-off) before ANRA staff will accept samples and sign the COC as received.

Clear Form

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Angelina & Neches River Authority	Report To:	lab@anra.org	Attention:	Accounting
Address:	2901 N John Redditt Dr	Copy To:		Company Name:	Angelina & Neches River Authority
	Lufkin, TX 75904			Address:	2901 N John Redditt Dr, Lufkin TX
Email To:	lab@anra.org	Purchase Order No.:		Pace Quote Reference:	
Phone:	936-633-7795 Fax: 936-632-2564	Project Name:	CRP samples	Pace Project Manager:	Karen H. Brown
Requested Due Date/TAT:	Normal 10 WD	Project Number:		Pace Profile #:	17327

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☒ OTHER Surface Water wells

Site Location STATE: TX

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test ↓ Y/N	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1		WT	G																	
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-Feb-2007

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