Quality Assurance Project Plan Lower Neches River Basin/Neches Trinity Coastal Basin

Lower Neches Valley Authority
P.O. Box 5117
Beaumont, Texas 77726

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 2024 to FY 2025

Questions concerning this QAPP should be directed to:
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A1 Approval Page

Texas Commission on Environmental Quality

Water Quality Planning Division

09/05/2023

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Bethany Stanton 08-28-2023
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LNVA Data Manager

Eastex Environmental Laboratory (EEL) - Coldspring

Tiffany Harrison 8/28/23

Tiffany Harrison Date
EEL Technical Director

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Tiffany Harrison Date
Acting EEL Quality Assurance Manager

Sabine River Authority (SRA)

9-5-23

Pollie Holtham
SRA Technical Director

Date

9/1/23

Jennifer Claybar
SRA Quality Assurance Officer

Date

A2 Table of Contents

List of Acronyms

AWRL	Ambient Water Reporting Limit
BMP	Best Management Practices
CAP	Corrective Action Plan
CE	Collecting Entity
COC	Chain of Custody
CRP	Clean Rivers Program
DMRG	Surface Water Quality Monitoring Data Management Reference Guide
DM&A	Data Management and Analysis
EEL	Eastex Environmental Laboratory
EPA	United States Environmental Protection Agency
FY	Fiscal Year
GPS	Global Positioning System
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LIMS	Laboratory Information Management System
LNVA	Lower Neches Valley Authority
LOD	Limit of Detection
LOQ	Limit of Quantitation
MT	Monitoring Type
NELAP	National Environmental Lab Accreditation Program
QA	Quality Assurance
QM	Quality Manual
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
QAS	Quality Assurance Specialist
QC	Quality Control
QMP	Quality Management Plan
RT	Routine Monitoring
SE	Submitting Entity
SLOC	Station Location
SOP	Standard Operating Procedure
SRA	Sabine River Authority
SWQM	Surface Water Quality Monitoring
SWQMIS	Surface Water Quality Monitoring Information System
TMDL	Total Maximum Daily Load
TCEQ	Texas Commission on Environmental Quality
TNI	The NELAC Institute
TSWQS	Texas Surface Water Quality Standards
VOA	Volatile Organic Analyte

A3 Distribution List

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The LNVA will provide copies of this project plan and any amendments or appendices of this plan to each person on this list and to each sub-tier project participant, e.g., subcontractors, subparticipants, or other units of government. The LNVA 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.

A4 PROJECT/TASK ORGANIZATION

Description of Responsibilities

TCEQ

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

Jason Natho
Acting 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 and project manager in developing and implementing quality system. 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.

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 CRP Project Quality Assurance Specialist. Ensures maintenance of QAPPs. Assists CRP Lead QA Specialist in conducting LNVA audits. Verifies QAPPs are being followed by contractors and that projects are producing data of known quality. Coordinates project planning with the LNVA Project Manager. Reviews and approves data and reports produced by contractors. Notifies QA Specialists of circumstances which may adversely affect the quality of data derived from the collection and analysis of samples. Develops, enforces, and monitors corrective action measures to ensure contractors meet deadlines and scheduled commitments.

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

Scott Delgado
CRP Data Manager, DM&A Team
Responsible for coordination and tracking of CRP data sets from initial submittal through CRP Project Manager review and approval. Ensures that data are reported following instructions in the Data Management Reference Guide, July 2019 or most current version (DMRG). Runs automated data validation checks in the Surface Water Quality Management Information System (SWQMIS) and coordinates data verification and error correction with CRP Project Managers. Generates SWQMIS summary reports to assist CRP Project Managers' data review. Identifies data anomalies and inconsistencies. Provides training and guidance to CRP and Planning Agencies on technical data issues to ensure that data are submitted according to documented procedures. Reviews QAPPs for valid stream monitoring stations. Checks validity of parameter codes, submitting entity code(s), collecting entity code(s), and monitoring type code(s). Develops and maintains data management-related SOPs for CRP data management. Coordinates and processes data correction requests. Participates in the development, implementation, and maintenance of written QA standards (e.g., Program Guidance, SOPs, QAPPs, QMP).

Grant Bassett
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.

Lower Neches Valley Authority

Jeannie Mahan
LNVA 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 LNVA participants and that projects are producing data of known quality. Ensures that subparticipants are qualified to perform contracted work. Ensures CRP project managers 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.

Brielle Patronella
LNVA Quality Assurance Officer
Responsible for coordinating the implementation of the QA program. Responsible for writing and maintaining the QAPP and monitoring its implementation. Responsible for maintaining records of QAPP distribution, including appendices and amendments. Responsible for maintaining written records of sub-tier commitment to requirements specified in this QAPP. Responsible for identifying, receiving, and maintaining project QA records. Responsible for coordinating with the TCEQ CRP PM. to resolve QA-related issues. Notifies the LNVA Project Manager of particular circumstances which 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.

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

LNVA Environmental Analysts
Responsible for collecting data and water quality samples in the field in accordance with the TCEQ SWQM Manual and maintaining credible chain-of-custody records. Environmental Analysts must report any quality assurance issues to the LNVA Project Manager and/or LNVA QAO immediately. Reports to LNVA Project Manager.

Eastex Environmental Laboratory (EEL) –Coldspring

Tiffany Harrison
Technical Director

Responsible for ensuring all analytical and operational activities are documented. Supervises all personnel. Ensures that all sample acceptance criteria are verified and that samples are logged into the sample tracking system and properly labeled and stored. Performs annual Management System Reviews. Ensures that the laboratory has the appropriate resources and facilities to perform requested work. Ensures that corrective actions relating to findings from internal audits are completed. Ensures that outside support services and supplies are of adequate quality to perform laboratory testing. Ensures all QC requirements and performance specifications are followed per this QAPP, and coordinates with the LNVA Project Manager on any deficiencies or corrective actions.

Tiffany Harrison
Acting Quality Assurance Manager

Responsible for the oversight and/or review of quality control data. Responsible for auditing the implementation of the Quality System. Ensures that EEL staff are properly trained and that training records are maintained. Responsible for documenting the quality of all data reported by the laboratory and monitoring standards of performance in quality control and quality assurance. Responsible for QC requirements and performance specifications per this QAPP. Coordinates and monitors deficiencies and corrective actions, and maintains records of data verification and validation.

Sabine River Authority (SRA)

Pollie Holtham
SRA Technical Manager

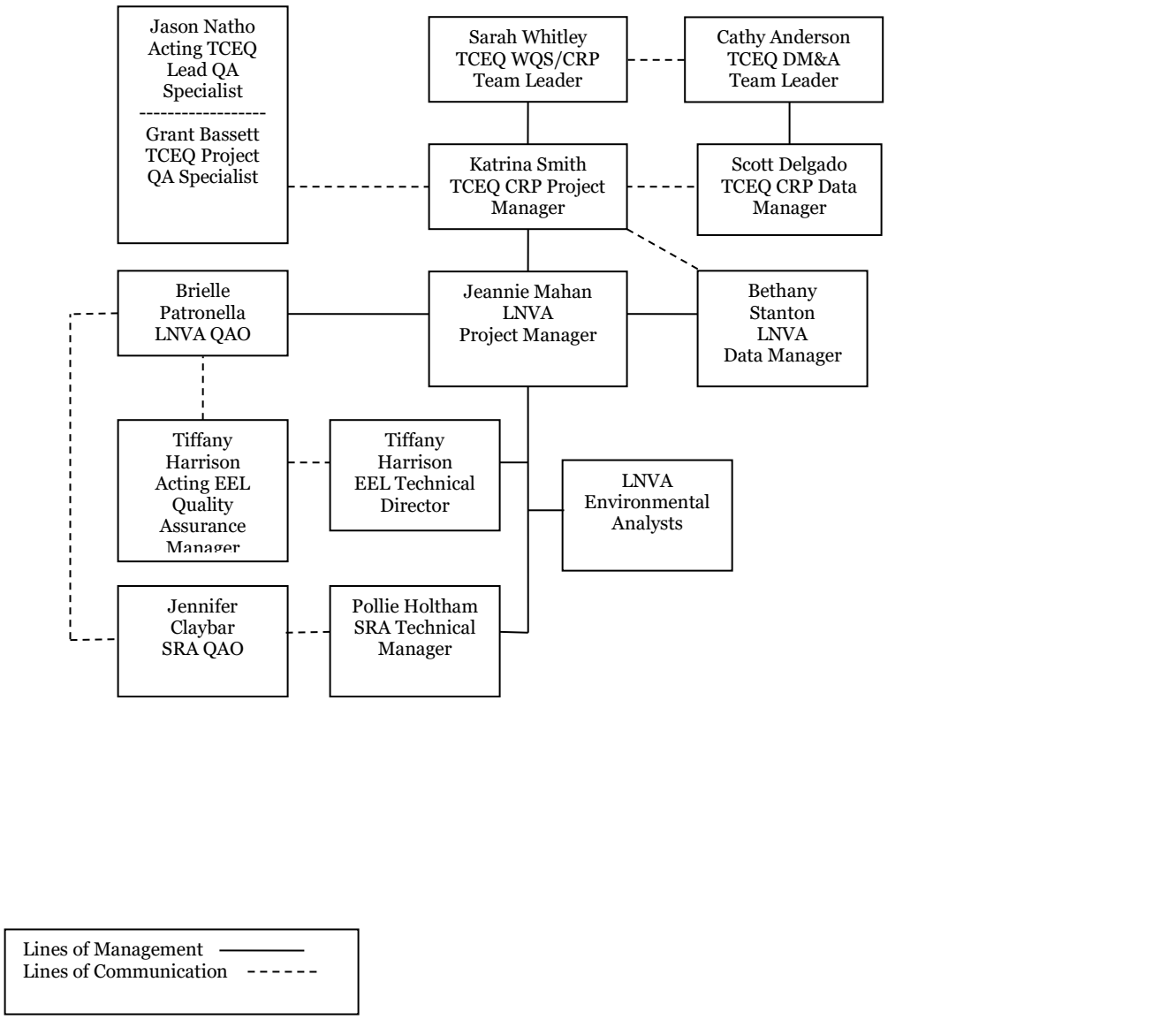
Responsible for overall performance, administration, and reporting of analyses performed by SRA Environmental Services Division Laboratory. Responsible for supervision of laboratory personnel involved in generating analytical data for the Clean Rivers Program. Ensures that laboratory personnel have adequate training and thorough knowledge of the QAPP and related SOPs. Responsible for oversight of all laboratory operations ensuring that all requirements are met, documentation is complete and adequately maintained, and results are reported accurately.

Jennifer Claybar
SRA Quality Assurance Officer

Responsible for the overall quality control and quality assurance performed by the SRA Environmental Services Division Laboratory. Monitors the implementation of the QAPP to ensure complete compliance with QA data quality objectives, as defined in this QAPP. Conducts in house audits in accordance with NELAP requirements 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. Notifies the SRA Technical Manager of particular circumstances which may adversely affect the quality of data.

Project Organization Chart

Figure A4.1. Organization Chart – Lines of Communication



A5 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 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 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 LNVA 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, January 2023 or most recent version (QMP).

The purpose of this QAPP is to clearly delineate LNVA 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, deemed acceptable for their intended use. This process will ensure that data collected under this QAPP and submitted to 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) and 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 *Clean Rivers Program Guidance and Reference Guide FY 2024-2025*.

Basin water quality reports (e.g., Texas Integrated Report, Basin Summary Report) are reviewed annually to ensure monitoring efforts address identified impairments and/or concerns based on state water quality standards and screening levels. Other factors influencing LNVA's monitoring program include public input from basin stakeholders, and the Coordinated Monitoring Meeting held annually by LNVA.

A6 Project/Task Description

Water quality monitoring in the basin will focus on collecting information to characterize water quality in a variety of locations and conditions. LNVA will conduct long-term water quality monitoring at routine monitoring sites, and coordinate all monitoring plans with TCEQ regional offices and other monitoring entities to avoid duplication of effort. The final number of sites, locations, frequencies, and parameters are based on available funding resources and priorities identified by the basin stakeholders and monitoring agencies at annual meetings.

The primary testing laboratory for nutrients, conventionals, and bacteria will be Eastex Environmental Labs (EEL) with Sabine River Authority (SRA) as a secondary laboratory for the testing of these parameters. The primary laboratory for the analysis for metals in water sampling, total and dissolved, will be SRA. The dissolved metals samples will be field filtered by LNVA staff.

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 LNVA Project Manager to the CRP Project Manager electronically. The LNVA 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 LNVA Project Manager, the LNVA QAO, the CRP Project Manager, the CRP Lead QA Specialist,

the TCEQ QA Manager or designee, the CRP Project QA Specialist, and 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 LNVA Project Manager. If adherence letters are required, LNVA 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. The LNVA will maintain this documentation as part of the project's QA records, and ensure that the documentation is available for review.

Special Project Appendices

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

A7 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, July 2022 or most recent version (https://www.tceq.texas.gov/downloads/water-quality/assessment/integrated-report-2022/2022-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 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 ("AWRL") 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.
- 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.
- When reporting data, no results may be reported below the LOQ stated in this QAPP.
- Measurement performance specifications for LOQ check samples are found in Appendix A.

Laboratory Measurement Quality Control Requirements and Acceptability Criteria are provided in Section B5.

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 B10.

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.

A8 Special Training/Certification

Before new field personnel independently conduct field work, the LNVA QA Officer (or designee) trains him/her in proper instrument calibration, field sampling techniques, and field analysis procedures. The QA officer (or designee) will document the successful field demonstration. The QA Officer (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 Global Positioning System (GPS) certification are located in Section B10, Data Management.

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

A9 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 A9.1 Project Documents and Records

Document/Record	Location	Retention (yrs)	Format*
QAPPs, amendments and appendices	LNVA	5/5+	Paper/ Electronic
Field SOPs	LNVA	5/5+	Paper/ Electronic
Laboratory Quality Manuals	EEL, SRA	5/5+	Paper/ Electronic
Laboratory SOPs	EEL, SRA	5/5+	Paper/ Electronic
QAPP distribution documentation	LNVA	5	Paper/ Electronic
Field staff training records	LNVA	5	Paper/ Electronic
Field equipment calibration/maintenance logs	LNVA	5/5+	Paper/ Electronic
Field data sheets	LNVA	5	Paper/ Electronic
Sample container status records	LNVA, EEL, SRA	5	Paper
Chain of custody records	LNVA/ EEL LNVA/ SRA	5	Paper/ Electronic
Sample preservatives documentation^	LNVA, EEL, SRA	5	Paper/Electronic
Laboratory calibration records	EEL, SRA	5	Paper/ Electronic
Laboratory instrument printouts	EEL, SRA	5	Paper
Laboratory data reports/results	LNVA, EEL, SRA	5/5+	Paper/ Electronic
Laboratory equipment maintenance logs	EEL, SRA	5/5+	Paper/ Electronic
Corrective Action Documentation	LNVA, EEL, SRA	5/5+	Paper/ Electronic

* For 'Paper / Electronic', records may be either / or, and do not have to be stored in both formats.

^Only the party responsible for adding preservatives is responsible for preservatives documentation for each sample batch.

Laboratory Test Reports

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

At LNVA, field and laboratory data are entered into the LNVA LIMS by the Environmental Analysts. Sample Reports are generated by the EEL or SRA and attached to the appropriate field sheets and COC forms.

EEL and SRA reports will include the following information:

- Sample ID
- Study
- Project
- Sample Location
- Sampler
- Batch No.
- Sample Date/Time
- Sample Type
- Sample Depth
- Sample Matrix
- Date Completed
- Comments/Notes
- Analyte
- Analysis Date/Time
- Analytical Results
- Holding Time for *E. coli*
- Units of measurement

- LOQ and 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

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. Eastex Environmental Laboratory and Sabine River Authority data reports will be submitted to LNVA electronically (PDF) and/or hard copies will be mailed to LNVA for records retention.

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: P*hysical and Chemical Monitoring Methods for Water, Sediment, and Tissue, 2012 (RG-415)* and Volume 2: *Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416)*, collectively referred to as "SWQM Procedures." Updates to SWQM Procedures are posted to the Surface Water Quality Monitoring Procedures website (https://www.tceq.texas.gov/waterquality/monitoring/swqm_guides.html), and shall be incorporated into the LNVA'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 EEL

Container	Volume	Parameter	Matrix	Additional Preservation†	Hold Time
Plastic bottle	250mL	Nitrate + Nitrite	Water	H_2SO_4 to pH <2	28 days
Plastic bottle	250mL	Sulfate	Water	None	28 days
		Chloride			
Plastic bottle	250mL	Hardness	Water	HNO_3 to pH <2	6 months
	250 mL	Total Phosphorus			
Plastic bottle	1000mL	TSS	Water	None	7 days
Plastic bottle	250mL	Alkalinity	Water	None	14 days
Plastic bottle	250mL	Ammonia as N	Water	H_2SO_4 to pH <2 $Na_2S_2O_3$	28 days
Plastic bottle	250mL	Turbidity	Water	None	48 hours
Sterile plastic bottle	100mL	*E. coli*	Water	$Na_2S_2O_3$‡	8 hours*
	100 mL	*Enterococcus*			

†All samples cooled to <6° C without freezing.

‡Sodium thiosulfate is required only if residual chlorine is detected.

**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.

Table B2.2 Sample Storage, Preservation and Handling Requirements SRA

Container	Volume	Parameter	Matrix	Additional Preservation†	Hold Time
Plastic bottle	120mL	Nitrate	Water	None	48 hours
		Nitrite			
		Sulfate			28 days
		Chloride			
Plastic bottle	250mL	Total Phosphorus	Water	H_2SO_4 to pH <2	28 days
		Ammonia			
Plastic bottle	250mL	Total Hardness	Water	HNO_3 to pH <2	6 months
Plastic bottle	1000mL	TSS	Water	None	7 days
Plastic bottle	1000mL	Total Alkalinity	Water	None	14 days
Plastic bottle	250mL	Turbidity	Water	None	48 hours
Sterile plastic bottle	100mL	*E. coli*	Water	$Na_2S_2O_3$‡	8 hours*
		Enterococcus			
Plastic bottle^	250 mL	Dissolved Metals	Water	HNO_3 to pH <2	6 months
Plastic bottle^	250 mL	Total Metals	Water	HNO_3 to pH <2	6 months

†All samples cooled to <6° C without freezing

‡Sodium thiosulfate is required only if residual chlorine is detected.

^ Bottles are purchased pre-cleaned with a certificate of analysis for metals.

**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

Disposable sample containers are provided by Eastex Environmental Laboratory (EEL) or Sabine River Authority Laboratory (SRA).

Sterile Plastic Bottles (120mL) with a seal-break lid containing a sodium thiosulfate pill are used for *Enterococci* and *E. coli* samples containers and are provided by Eastex Environmental Laboratory (EEL) or Sabine River Authority Laboratory (SRA). Sterility certifications are maintained by each laboratory per TNI Standards.

Disposable sample containers for metals sampling are purchased by LNVA through Quality Environmental Containers (QEC). Certificate of Analysis certifying that the containers meet or exceed the requirements of the US EPA's "Specifications and Guidance for Contaminant-Free Sample Containers" are kept on file by LNVA.

Processes to Prevent Contamination

SWQM Procedures outline the necessary steps to prevent contamination of samples, including: direct collection into sample containers, when possible; use of certified containers for organics; and clean sampling techniques for metals. Field QC samples (identified in Section B5) are collected to verify that contamination has not occurred.

Documentation of Field Sampling Activities

Field sampling activities are documented on field data sheets as presented in Appendix D. Flow worksheets, 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 LNVA Project Manager, in consultation with the LNVA 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 CRP Project Manager 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.

B3 Sample Handling and Custody

Sample Tracking

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

A sample is in custody if it is in actual physical possession or in a secured area that is restricted to authorized personnel. The Chain of Custody (COC) form is a record that documents the possession of the samples from the

time of collection to receipt in the laboratory. The following information concerning the sample is recorded on the COC form (See Appendix E). The following list of items matches the COC form in Appendix E.

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

Sample Labeling

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

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

Sample Handling

All samples collected and/or analyzed are logged into the respective LIMS. A unique identifier label is generated and attached to each sample bottle. Appropriate personnel in each lab confirm receipt by signing the appropriate Chain of Custody Form (See Appendix E).

The sample login information includes sample ID, project, location, sample type, date and time sampled, date and time of receipt, sample matrix, collector's name, analyte(s), preservative, and field comments. The laboratory checks samples for the following qualities, where appropriate, to evaluate sample acceptance: temperature, pH, preservative type, bottle type, sample integrity, fully required documentation (see above), and holding times. Samples are then stored in the designated refrigerators until analysis. Holding times are monitored by the appropriate personnel in each laboratory.

SRA and/or EEL are contacted and a pickup time is determined same-day prior to sampling.

- For EEL, the samples remain in the designated sample refrigerator or field cooler(s) until EEL arrives and the chain of custody form is completed (see Appendix E). EEL then transports the sample to their laboratory for testing.
- For SRA, the samples remain in the designated field cooler(s) until either SRA arrives or the samples can be dropped off at the SRA laboratory, and the chain of custody form is completed (see Appendix E). When appropriate, SRA then transports the sample to their laboratory for testing.

Sample handling procedures including Sample Receipt/Tracking, Sample Acceptance, Sample Storage, Chain of Custody, and Sample Disposal are detailed in the EEL QA Manual, Section 4.0: Sample Handling and SRA-TX FY 2024-2025 QAPP for the Clean Rivers Program. Samples analyzed by contract laboratories will be included on the appropriate Chain of Custody forms.

Sample Tracking Procedure Deficiencies and Corrective Action

All deficiencies associated with COC procedures, as described in this QAPP, are immediately reported to the LNVA Project Manager. 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 LNVA Project Manager in consultation with the LNVA

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 Project Manager in the project progress report. CAPs will be prepared by the Lead Organization QAO and submitted to TCEQ CRP Project Manager along with project progress report.

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

B4 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 30 Tex. Admin. Code ch. 307, in that data generally are generated for comparison to those standards and/or criteria. The Texas Surface Water Quality Standards 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 Surface Water Quality Monitoring Procedures as amended, 40 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 NELAP-accredited in accordance with 30 TAC Chapter 25. Copies of laboratory 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 Laboratory Supervisor, who will make the determination and notify the LNVA 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 LNVA Project Manager. The LNVA Project Manager will include this information in the CAP and submit with the Progress Report which is sent to the TCEQ CRP Project Manager.

The definition of and process for handling deficiencies and corrective action are defined 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 corrective action plan (as described in section C1) may be necessary.

B5 Quality Control

Sampling Quality Control Requirements and Acceptability Criteria

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

Field equipment blank

Field equipment blanks are required for metals-in-water samples when collected using sampling equipment. The field equipment blank is a sample of analyte-free media which has been used to rinse common sampling equipment to check the effectiveness of decontamination procedures. It is collected in the same type of container as the environmental sample, preserved in the same manner, and analyzed for the same parameter. Field equipment blanks will be collected quarterly at each total metals sampling event.

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

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

Laboratory Measurement Quality Control Requirements and Acceptability Criteria

Batch

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

Method Specific QC requirements

QC samples, other than those specified later 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 quality manuals (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 acceptance criteria published in the mandated test method. If the matrix spike results are outside established criteria, the data for the analyte that failed in the parent sample is not acceptable for use under this project and will not be reported to TCEQ. The result from the parent sample associated with that failed matrix spike will be considered to have excessive analytical variability and will be qualified by the laboratory as not meeting project QC requirements. Depending on the similarities in composition of the samples in the batch, the LNVA 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 LNVA Project Manager, in consultation with the LNVA 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 LNVA Project Manager and QAO will be relied upon in evaluating results.

Field blanks for trace elements and trace organics are scrutinized very closely. Field blank values exceeding the acceptability criteria will automatically invalidate the sample. Notations of blank contamination are noted in the data summaries that accompany data deliverables. Equipment blanks for metals analysis are also scrutinized very closely.

Laboratory measurement quality control failures are evaluated by the laboratory staff. The disposition of such failures and the nature and disposition of the failure is reported to the Laboratory QAO. The Laboratory QAO will discuss the failure with the LNVA Project Manager. If applicable, the LNVA Project Manager will include this information in a CAP and submit with the Progress Report which is sent to the TCEQ CRP Project Manager.

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 that the sub-contracting laboratory utilize the same reporting limits as the signatory laboratory and performs all required quality control analysis outlined in this QAPP. The signatory laboratory is also responsible for quality assurance of the data prior to delivering it to the LNVA, 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 (LNVA) when requested.

B6 Instrument/Equipment Testing, Inspection, and Maintenance

All sampling equipment testing and maintenance requirements are detailed in the SWQM Procedures. Sampling containers are provided by the laboratory doing the analyses and are assured appropriate for use. Multiprobe field equipment is maintained by LNVA and assured appropriate for use before each sampling event. 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).

B7 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).

B8 Inspection/Acceptance of Supplies and Consumables

This information is available in SECTION 9: PURCHASING AND SUPPLIES of the LNVA Laboratory QM. Requirements for inspection/acceptance of supplies and consumables for the laboratories are contained within the EEL QM and the SRA-TX FY 2024-2025 QAPP for the Clean Rivers Program.

B9 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 Flow, Instantaneous 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.

B10 Data Management

Data Management Process

The water quality data generated from field and laboratory analyses are recorded on field data sheets and laboratory bench sheets by appropriate staff. When laboratory analyses results are received from either EEL or SRA, the LNVA QAO will check that all results are meeting the required specifications of this QAPP. Field and lab data are then entered into the LNVA LIMS. Data entry into the LNVA LIMS is completed by LNVA Environmental Analysts and QA checks of the entered data are completed by the LNVA QAO and reviewed by the LNVA Data Manager. QA checks will be documented on the LNVA CRP Lab QA Checklist in Appendix F. If all of the QA/QC requirements are acceptable, the data will be exported from the LNVA LIMS into the proper CRP database format by the LNVA Data Manager. The Data Review Checklist is completed and the Data Summary is prepared by the LNVA Data Manager. Upon final review and approval by the LNVA Data Manager, the CRP database tables will be submitted to the TCEQ CRP Project Manager in the Events/Results file format

specified in the *SWQM Data Management Reference Guide*. After a review for completeness, reasonableness and adherence to the QAPP, the data files are forwarded to the TCEQ CRP Data Manager for loading into the SWQMIS database.

Data Dictionary

Terminology and field descriptions are included in the 2019 DMRG, or most recent version.

Name of Entity	Tag Prefix	Submitting Entity	Collecting Entity
Lower Neches Valley Authority	M	LV	LV

Data Errors and Loss

All field data sheets are reviewed for errors and omissions upon completion by all analysts. A CRP data review checklist is completed for each dataset (See Appendix F). In addition, the LIMS software has drop down menus and data ranges established for each parameter to reduce errors. The data summary also includes a section for the reporting of any data loss that may have occurred. All CRP database files are converted to pipe delimited text files and archived after submission to the TCEQ.

Record Keeping and Data Storage

All CRP data is stored on a local server PC using a local network drive, and daily backups of the local server are performed by main server. Data backups are maintained by the LNVA IT department. In the event of a disaster, data backup files can be retrieved and re-installed from the main server.

Data Handling, Hardware, and Software Requirements

The Laboratory Information Management System (LIMS) software is Tribal-LDMS (www.tribalsoftware.com) running on Microsoft Access or SQL Server. All computer hardware is chosen for its compatibility with the Tribal-LDMS software and Microsoft Office, and for its reliable networking capabilities. The LNVA Project Manager and Data Manager will ensure that all environmental analysts are trained in the use of the Tribal-LDMS software for data entry, compilation, and reporting. LIMS data will only be entered after review by another qualified environmental analyst or the QAO.

Information Resource Management Requirements

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

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

C1 Assessments and Response Actions

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

Table C1.1 Assessments and Response Requirements

Assessment Activity	Approximate Schedule	Responsible Party	Scope	Response Requirements
Status Monitoring Oversight, etc.	Continuous	LNVA	Monitoring of the project status and records to ensure requirements are being fulfilled	Report to TCEQ in Quarterly Report
Monitoring Systems Audit of LNVA	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, or other applicable guidance . Deficiencies may invalidate resulting data and require corrective action. Repeated deficiencies should initiate a CAP. 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 LNVA Project Manager (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 LNVA Project Manager, in consultation with the LNVA 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 CRP Project Manager both verbally and in writing in quarterly progress reports and by completion of a CAP.

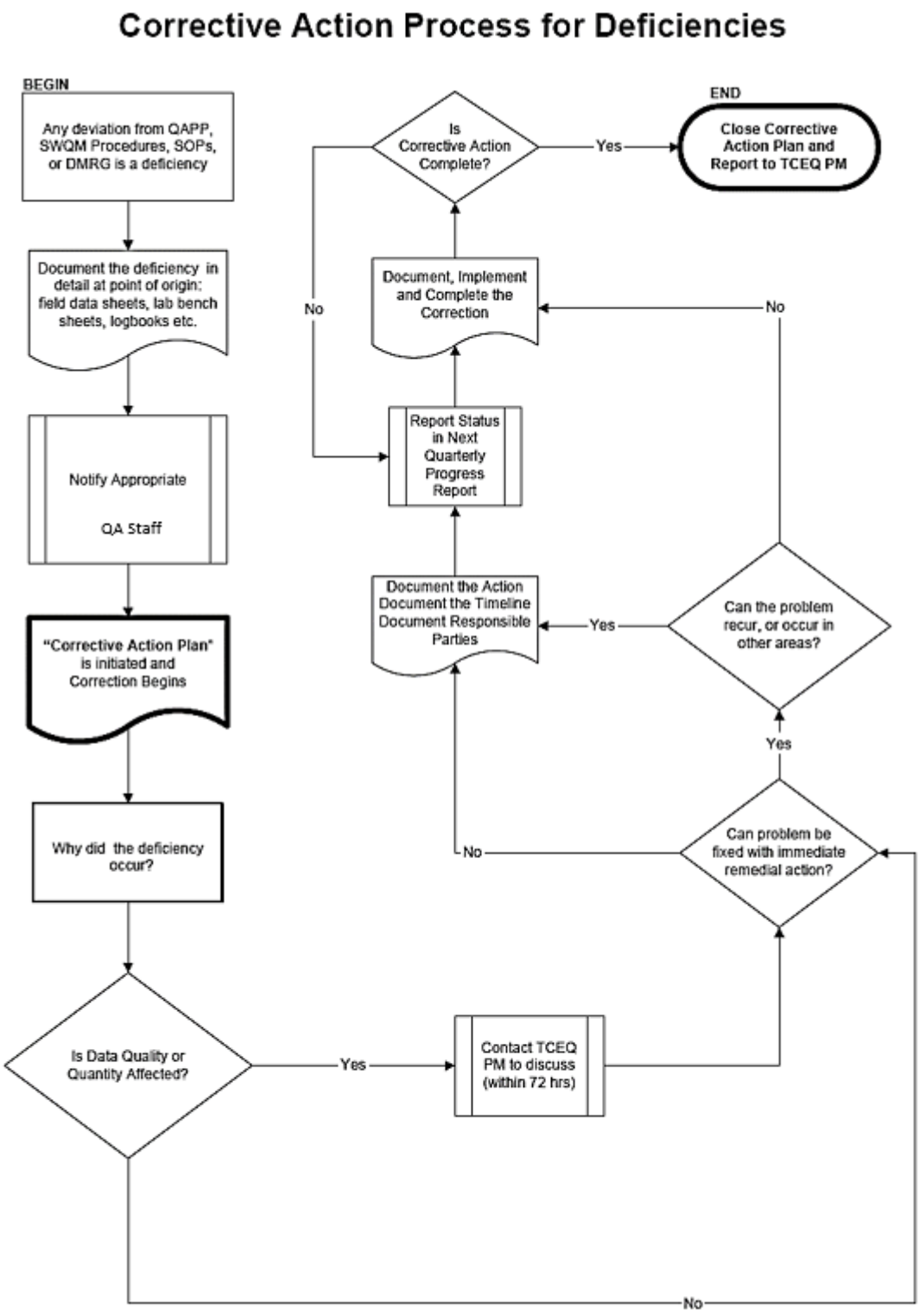
Corrective Action

CAPs should:

- Identify the problem, nonconformity, or undesirable situation
- Identify immediate remedial actions if possible
- Identify the underlying cause(s) of the problem
- 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 actions to prevent reoccurrence
- Describe programmatic impacts

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



The status of CAPs will be included with quarterly progress reports. In addition, significant conditions which, 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 LNVA Project Manager 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 LNVA Project Manager. 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.

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
Non-Conformance Report	As Needed	As Needed	Field Staff Laboratory Staff	LNVA QA Staff or Laboratory Management as appropriate
CRP Progress Reports	Quarterly	December 15, 2023 March 15, 2024 June 15, 2024 September 15, 2024 December 15, 2024 March 15, 2025 June 15, 2025 August 15, 2025	LNVA Project Manager	TCEQ CRP Project Management
CRP Deliverables Progress Report	Quarterly	November 15, 2023 February 15, 2024 May 15, 2024 August 15, 2024 November 15, 2024 February 15, 2025 May 15, 2025 August 15, 2025	LNVA Project Manager	LNVA Project Manager Supervisor
Data Summary	Triannual	2022 (Dec); 2024 (Mar, Aug, Dec); 2025 (Mar, Aug)	LNVA Data Manager	TCEQ CRP Project Management
Annual Self Evaluation	Annual	2024 & 2025 (Aug 31)	LNVA Project Manager	TCEQ CRP Project Management
Deficiencies and Corrective Action Report	As Needed	As Needed	LNVA QAO	LNVA Project Manager

Reports to LNVA Project Management

A summary of the status of CRP contract deliverables will be provided quarterly to the LNVA Project Manager Supervisor.

Deficiencies and Corrective Actions

In the event that data quality issues are encountered during the data collection or during analysis, the issue will be reported immediately to the LNVA Project Manager by the responsible party.

Reports to TCEQ Project Management

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

Progress Report

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

Monitoring Systems Audit Report and Response

Following any audit performed by the LNVA, a report of findings, recommendations and response is sent to the TCEQ in the quarterly progress report.

Data Summary

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

Reports by TCEQ Project Management

Contractor Evaluation

The LNVA 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 and continuity, reasonableness, and conformance to project requirements, and then validated against the project objectives and measurement performance specifications which are listed in Section A7 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.

D2 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 D2.1, respectively. 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 D2.1 is performed by the LNVA Data Manager and QAO. Data review, verification, and validation tasks to be performed on the data set include, but are not limited to, the confirmation of laboratory and field data review, evaluation of field QC results, additional evaluation of anomalies and outliers, analysis of sampling and analytical gaps, and confirmation that all parameters and sampling sites are included in the QAPP.

The Data Review Checklist (see Appendix F) covers three main types of review: data format and structure, data quality review, and documentation review. The Data Review Checklist is transferred 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 Quality Assurance Specialist. 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 LNVA Project Manager 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 LNVA Data Manager with the data in the Data Summary (See Appendix F). All failed QC checks, missing samples, missing analytes, missing parameters, and suspect results should be discussed in the Data Summary.

Table D2.1: 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	LNVA Analyst			
Field QC samples collected for all analytes as prescribed in the TCEQ SWQM Procedures	LNVA Analyst			
Standards and reagents traceable	LNVA Analyst	EEL, SRA		
Chain of custody complete/acceptable	LNVA Analyst	EEL, SRA		
NELAP Accreditation is current		EEL, SRA	LNVA QAO	
Sample preservation and handling acceptable	LNVA Analyst	EEL, SRA		
Holding times not exceeded	LNVA Analyst	EEL, SRA		
Collection, preparation, and analysis consistent with SOPs and QAPP	LNVA Analyst	EEL, SRA	LNVA QAO	
Field documentation (e.g., biological, stream habitat) complete	LNVA Analyst			
Instrument calibration data complete	LNVA Analyst	EEL, SRA		
QC samples analyzed at required frequency		EEL, SRA		Data Manager
QC results meet performance and program specifications	LNVA Analyst	EEL, SRA	LNVA QAO	Data Manager
Analytical sensitivity (LOQ/AWRL) consistent with QAPP		EEL, SRA	LNVA QAO	Data Manager
Results, calculations, transcriptions checked	LNVA Analyst	EEL, SRA		
Laboratory bench-level review performed		EEL, SRA		
All laboratory samples analyzed for all scheduled parameters		EEL, SRA	LNVA QAO	
Corollary data agree	LNVA Analyst		LNVA QAO	Data Manager
Nonconforming activities documented	LNVA Analyst	EEL, SRA	LNVA QAO	Data Manager
Outliers confirmed and documented; reasonableness check performed				Data Manager
Dates formatted correctly				Data Manager
Depth reported correctly and in correct units				Data Manager
TAG IDs correct				Data Manager
TCEQ Station ID number assigned				Data Manager
Valid parameter codes				Data Manager
Codes for submitting entity(ies), collecting entity(ies), and monitoring type(s) used correctly				Data Manager
Time based on 24-hour clock				Data Manager
Check for transcription errors				Data Manager
Sampling and analytical data gaps checked (e.g., all sites for which data are reported are on the coordinated monitoring schedule)	LNVA Analyst		LNVA QAO	Data Manager
Field instrument pre- and post-calibration check results within limits	LNVA Analyst		LNVA QAO	Data Manager
10% of data manually reviewed	LNVA Analyst			Data Manager

D3 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 A5.

Appendix A: Measurement Performance Specifications (Table A7.1-.7)

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

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

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

- analytical methodologies
- AWRLs
- limits of quantitation
- bias limits for LCSs
- precision limits for 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 A7 are stored in SWQMIS. Any parameters listed in Tables A7 that do not have a valid TCEQ parameter code assigned will not be stored in SWQMIS.

TABLE A7.1 Measurement Performance Specifications for the Lower Neches Valley 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)	us/cm	water	EPA 120.1 and TCEQ SOP, V1	00094	Field
OXYGEN, DISSOLVED (MG/L)	mg/L	water	SM 4500-O G and TCEQ SOP V1	00300	Field
PH (STANDARD UNITS)	s. u	water	EPA 150.1 and TCEQ SOP V1	00400	Field
SALINITY - PARTS PER THOUSAND	PPT	water	SM 2520 and TCEQ SOP V1	00480	Field
DAYS SINCE PRECIPITATION EVENT (DAYS)	days	other	TCEQ SOP V1	72053	Field
DEPTH OF BOTTOM OF WATER BODY AT SAMPLE SITE	meters	water	TCEQ SOP V2	82903	Field
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)**	meters	other	TCEQ SOP V2	89864	Field
MAXIMUM POOL DEPTH AT TIME OF STUDY(METERS)**	meters	other	TCEQ SOP V2	89865	Field
POOL LENGTH, METERS**	meters	other	TCEQ SOP V2	89869	Field
% POOL COVERAGE IN 500 METER REACH**	%	other	TCEQ SOP V2	89870	Field
WIND INTENSITY (1=CALM,2=SLIGHT,3=MOD.,4=STRONG)	NU	other	NA	89965	Field
PRESENT WEATHER (1=CLEAR,2=PTCLDY,3=CLDY,4=RAIN,5=OTHER)	NU	other	NA	89966	Field

* Reporting to be consistent with SWQM guidance and based on measurement capability.
** 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 (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020
U.S. Code of Federal Regulations (CFR). Title 40: Protection of Environment, Part 136
American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2022.
TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).
TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416).

TABLE A7.2 Measurement Performance Specifications for the Lower Neches Valley 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:
United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020
U.S. Code of Federal Regulations (CFR). Title 40: Protection of Environment, Part 136
American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard
Methods for the Examination of Water and Wastewater, 24th Edition, 2022.
TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).
TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416).

TABLE A7.3 Measurement Performance Specifications for LNVA Contract Laboratory-Eastex Environmental Laboratory

Conventional Parameters in Water

Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab
ALKALINITY, TOTAL (MG/L AS CACO3)	mg/L	water	SM 2320B	00410	20	20	NA	20	NA	EEL
RESIDUE, TOTAL NONFILTRABLE (MG/L)	mg/L	water	SM 2540D	00530	5	1	NA	NA	NA	EEL
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	SM 4500-NH3 G	00610	0.1	0.1	70-130	20	80-120	EEL
NITRITE PLUS NITRATE, TOTAL ONE LAB DETERMINED VALUE (MG/L AS N)	mg/L	water	SM 4500-NO3 F	00630	0.05	0.02	70-130	20	80-120	EEL
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	SM 4500- P E or EPA 200.7	00665	0.06	0.06	70-130	20	80-120	EEL
HARDNESS, TOTAL (MG/L AS CACO3) *	mg/L	water	SM 2340 C	00900	5	5	NA	20	80-120	EEL
CHLORIDE (MG/L AS CL)	mg/L	water	SM 4500-Cl-C or EPA 300.0	00940	5	5	70-130	20	80-120	EEL
SULFATE (MG/L AS SO4)	mg/L	water	ASTM D516 or EPA 300.0	00945	5	4	70-130	20	80-120	EEL
TURBIDITY, LAB NEPHELOMETRIC TURBIDITY UNITS, NTU	NTU	water	SM 2130B	82079	0.5	0.5	NA	NA	NA	EEL

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

References:

United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020
U.S. Code of Federal Regulations (CFR). Title 40: Protection of Environment, Part 136
American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2022.
TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).
TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416).

TABLE A7.4 Measurement Performance Specifications for LNVA Contract Laboratory-Sabine River Authority Laboratory

Conventional Parameters in Water

Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab
ALKALINITY, TOTAL (MG/L AS CACO3)	mg/L	water	SM 2320B	00410	20	20	NA	20	NA	SRA
RESIDUE, TOTAL NONFILTRABLE (MG/L)	mg/L	water	SM 2540D	00530	5	3	NA	NA	NA	SRA
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	EPA 350.1	00610	0.1	0.1	70-130	20	80-120	SRA
NITRITE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.0	00615	0.05	0.05	70-130	20	80-120	SRA
NITRATE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.0	00620	0.05	0.05	70-130	20	80-120	SRA
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	EPA 365.4	00665	0.06	0.06	70-130	20	80-120	SRA
HARDNESS, TOTAL (MG/L AS CACO3) *	mg/L	water	SM 2340 C	00900	5	5	NA	20	80-120	SRA
CHLORIDE (MG/L AS CL)	mg/L	water	EPA 300.0	00940	5	5	70-130	20	80-120	SRA
SULFATE (MG/L AS SO4)	mg/L	water	EPA 300.0	00945	5	5	70-130	20	80-120	SRA
TURBIDITY, LAB NEPHELOMETRIC TURBIDITY UNITS, NTU	NTU	water	SM 2130B	82079	0.5	0.5	NA	NA	NA	SRA

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

References:

United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020
U.S. Code of Federal Regulations (CFR). Title 40: Protection of Environment, Part 136
American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2022.
TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).
TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416).

TABLE A7.5 Measurement Performance Specifications for LNVA Contract Laboratories-EEL and SRA

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	IDEXX Laboratories Colilert**	31699	1	1	NA	0.50*	NA	EEL/SRA
ENTEROCOCCI, ENTEROLERT, IDEXX, (MPN/100 ML)	MPN/100 mL	water	IDEXX Laboratories Enterolert	31701	10***	10***	NA	0.50*	NA	EEL/SRA
E. COLI, COLILERT, IDEXX, HOLDING TIME	hours	water	NA	31704	NA	NA	NA	NA	NA	EEL/SRA

* This value is not expressed as a relative percent difference. It represents the maximum allowable difference between the logarithm of the result of a sample and the logarithm of the duplicate result. See Section B5.
** *E. coli* samples analyzed by these methods should always be processed as soon as possible and within 8 hours. When transport conditions necessitate delays in delivery longer than 6 hours, the holding time may be extended and samples must be processed as soon as possible and within 30 hours.
****Enterococcus* Samples should be diluted 1:10 for all waters.

References:
United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020
U.S. Code of Federal Regulations (CFR). Title 40: Protection of Environment, Part 136
American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2022.
TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).
TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416).

TABLE A7.6 Measurement Performance Specifications for Lower Neches Valley 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	uS/cm	Water	TCEQ SOP V1	00212	field
SPECIFIC CONDUCTANCE, US/CM, FIELD, 24HR MAX	uS/cm	Water	TCEQ SOP V1	00213	field
SPECIFIC CONDUCTANCE, US/CM, FIELD, 24HR MIN	uS/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:

United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020

U.S. Code of Federal Regulations (CFR). Title 40: Protection of Environment, Part 136

American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2022.

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

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

TABLE A7.7 Measurement Performance Specifications for LNVA Contract Laboratory-Sabine River Authority										
Metals in Water										
Parameter	**Units**	**Matrix**	**Method**	**Parameter Code**	**TCEQ AWRL**	**LOQ**	**LOQ Check Sample %Rec**	**Precision (RPD)**	**Bias %Rec. of LCS**	**Lab**
HARDNESS, TOTAL (MG/L AS CACO3)*	mg/L	water	SM 2340 B or C	00900	5	5	NA	20	80-120	SRA
CALCIUM, DISSOLVED (MG/L AS CA)**	mg/L	water	EPA 200.7	00915	NA	NA	70-130	20	80-120	Eurofins Xenco – Houston
SODIUM, DISSOLVED (MG/L AS NA)**	mg/L	water	EPA 200.7	00930	NA	NA	70-130	20	80-120	Eurofins Xenco – Houston
POTASSIUM, DISSOLVED (MG/L AS K)**	mg/L	water	EPA 200.7	00935	NA	NA	70-130	20	80-120	Eurofins Xenco – Houston
ARSENIC, DISSOLVED (µG/L AS AS)	µg/L	water	EPA 200.8	01000	5	5	70-130	20	80-120	SRA
CADMIUM, DISSOLVED (µG/L AS CD)	µg/L	water	EPA 200.8 Rev 5.4 (1998)	01025	0.1 for waters <50mg/L hardness ------- 0.3 for waters >50mg/L hardness	0.1 for waters <50mg/L hardness ------- 0.3 for waters >50mg/L hardness	70-130	20	80-120	SRA
CHROMIUM, DISSOLVED (µG/L AS CR)	µg/L	water	EPA 200.8 Rev 5.4 (1998)	01030	10	10	70-130	20	80-120	SRA
COPPER, DISSOLVED (µG/L AS CU)	µg/L	water	EPA 200.8 Rev 5.4 (1998)	01040	1 for waters < 50mg/L hardness ------- 3 for waters >= 50mg/L hardness	1 for waters < 50mg/L hardness ------- 3 for waters >= 50mg/L hardness	70-130	20	80-120	SRA
IRON, DISSOLVED (µG/L)**	µg/L	water	EPA 200.7	01046	NA	NA	70-130	20	80-120	Eurofins Xenco – Houston

LEAD, DISSOLVED (µG/L AS PB)	µg/L	water	EPA 200.8 Rev 5.4 (1998)	01049	0.1 for waters < 85 mg/L hardness ------- 1 for waters >= 85 mg/L hardness	0.1 for waters < 85 mg/L hardness ------- 1 for waters >= 85 mg/L hardness	70-130	20	80-120	SRA
NICKEL, DISSOLVED (µG/L AS NI)	µg/L	water	EPA 200.8 Rev 5.4 (1998)	01065	10	10	70-130	20	80-120	SRA
SILVER, DISSOLVED (µG/L AS AG)**	µg/L	water	EPA 200.8 Rev 5.4 (1998)	01075	0.5	0.5	70-130	20	80-120	Eurofins Xenco – Houston
ZINC, DISSOLVED (µG/L AS ZN)	µg/L	water	EPA 200.8 Rev 5.4 (1998)	01090	5	5	70-130	20	80-120	SRA
ALUMINUM, DISSOLVED (µG/L AS AL)**	µg/L	water	EPA 200.7 Rev 4.4 (1994)	01106	200	200	70-130	20	80-120	Eurofins Xenco – Houston
SELENIUM, TOTAL (µG/L AS SE)	µg/L	water	EPA 200.8 Rev 5.4 (1998)	01147	2	2	70-130	20	80-120	SRA
MERCURY, TOTAL, WATER, METHOD 1631 µg/L**	µg/L	water	EPA 1631	71960	0.006	0.006	70-130	20	80-120	Eurofins Xenco – Pensacola, FL

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

**Total mercury and dissolved silver, calcium, sodium, potassium, iron, and aluminum are sub-contracted by SRA to Eurofins Xenco, whose adherence letter is on file.

References:

United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020

U.S. Code of Federal Regulations (CFR). Title 40: Protection of Environment, Part 136

American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2022.

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

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

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

TASK 3: WATER QUALITY MONITORING

Objectives: Water quality monitoring will focus on collecting information to characterize water quality in 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; and
- systematic, regularly-scheduled short-term monitoring to screen water bodies for issues.

Task Description: LNVA will conduct long-term water quality monitoring at routine monitoring sites and coordinate all monitoring plans with TCEQ and other monitoring entities to avoid duplication of effort.

LNVA will complete the following subtasks:

Monitoring Description-For FY 2024, the LNVA will monitor 23 routine stations quarterly (4 times per year) for field, flow (where possible), conventional parameters, and bacteria. In addition, the LNVA will conduct diel dissolved oxygen monitoring at 5 different locations quarterly. For FY 2025, the LNVA will monitor at a level of effort similar to FY 2024. The actual number of sites, locations, frequencies, and parameters will be based on priorities identified during basin stakeholder meetings and coordinated monitoring meetings, and will be included in the Appendix B monitoring schedule of the QAPP.

All monitoring will be completed in accordance with the LNVA 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 LNVA will hold an annual coordinated monitoring meeting as described in the FY 2024-2025 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 provided by 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) (http://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.

Quarterly Progress Report (QPR) - Each QPR will include all types of monitoring and indicate the number of sampling events and the types of monitoring conducted in the quarter.

Deliverables and Dues Dates:

September 1, 2023 through August 31, 2024

A. Conduct water quality monitoring, summarize activities, and submit with QPRs - December 15, 2023; March 15 and June 15, 2024
B. Coordinated Monitoring Meeting - between March 15 and April 30, 2024

C. Coordinated Monitoring Meeting Summary of Changes - within 2 weeks of the meeting
D. Email notification that Coordinated Monitoring Schedule updates are complete - May 31, 2024

September 1, 2024 through August 31, 2025

A. Conduct water quality monitoring, summarize activities, and submit with QPRs - September 15 and December 15, 2024; March 15 and June 15 and August 15, 2025
B. Coordinated Monitoring Meeting - between March 15 and April 30, 2025
C. Coordinated Monitoring Meeting Summary of Changes – within 2 weeks of the meeting
D. Email notification that Coordinated Monitoring Schedule updates are complete - May 31, 2025

Sample Design Rationale FY 2024

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

Monitoring aims to continue providing current data for historical CRP sites in the basin as well as targeting sites and parameters listed as impaired in the 2022 Texas Integrated Report. The following changes or additions have been made to the monitoring schedule. These changes have come about as a result of requests made by steering committee members and monitoring entities.

24 Hour DO monitoring events will continue at stations 15367 (Pine Island Bayou at SH 105 0.65 KM Southwest of FM 770/SH 105 intersection near Batson, on segment 0607), 16127 (Boggy Creek at FM 421 1.75 KM Southwest of FM 421/ US 69 intersection near Lumberton on segment 0607A), and 16126 (Mill Creek at FM 418, 4.5 KM Northwest of Silsbee on segment 0608) in FY 2024 in order to provide data to TCEQ in the event of a standard change approval by EPA. 24 Hour DO will also continue at station 10602 (Pine Island Bayou at US 69/US 96/US287 at Voth Rd) and station 15345 (Willow Creek at unnamed road 4.87 KM North Northwest of Nome 6.78 KM Upstream of Pine Island Bayou confluence/SH 326) for the same reason.

Metals in water sampling will continue on Station 15355 (Beech Creek AT FM 1943 7 KM West of FM 1943/FM 92 Intersection 7.3 KM West- Southwest of the city of Fred). This station is included at the request of monitoring entities in order to accumulate recent data for assessment purposes.

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 2024

Table B1.1 Sample Design and Schedule, FY 2024

Site Description	Station ID	Waterbody ID	Region	SE	CE	MT	24 hr DO	Metals Water	Bacteria	Conv	Flow	Field	Comments
NECHES RIVER 217 METERS EAST AND 2.11 KILOMETERS NORTH TO THE INTERSECTION OF COLEMAN STREET AND EAST LUCAS DRIVE AT LNVA SALINITY STATION Y 1.8 KILOMETERS DOWNSTREAM OF NECHES RIVER SALTWATER BARRIER	20774	0601	10	LV	LV	RT			4	4	4	4	USGS Station 08041780
NECHES RIVER AT FM 1013 IN THE BIG THICKET NATIONAL PRESERVE EAST OF SPURGER IN JASPER COUNTY	10581	0602	10	LV	LV	RT			4	4	4	4	USGS Station 08040600
NECHES RIVER AT HIGH LINE CROSSING 0.55 KM DOWNSTREAM OF PINE ISLAND BAYOU 5.85 KM EAST NORTHEAST OF SH 105/US 69 INTERSECTION	10579	0602	10	LV	LV	RT			4	4	4	4	USGS Station 08041780
NECHES RIVER NEAR LAKEVIEW 1 KM WEST OF FM 1131 12.24 KM UPSTREAM OF PINE ISLAND BAYOU CONFLUENCE	15343	0602	10	LV	LV	RT			4	4	4	4	USGS Station 08041000 and 08041500
SANDY CREEK AT FM 777 2.15 KM SOUTHWEST OF FM 777/US 190 INTERSECTION 14.7 KM SOUTHWEST OF JASPER	10484	0603A	10	LV	LV	RT			4	4	4	4	
WOLF CREEK AT FM 256 5.6 KM UPSTREAM OF BA. STEINHAGEN RESERVOIR 2.3 KM NNW OF US 190/FM 256 INTERSECTION 16.8 KM NE OF WOODVILLE	15344	0603B	10	LV	LV	RT			4	4	4	4	
PINE ISLAND BAYOU AT LNVA LOWER PUMP STATION 6.62 KM UPSTREAM OF NECHES RIVER CONFLUENCE 2.86 KM EAST OF US 69	10599	0607	10	LV	LV	RT			4	4	4	4	USGS Station 08041780

Site Description	Station ID	Waterbody ID	Region	SE	CE	MT	24 hr DO	Metals in Water	Bacteria	Conv	Flow	Field	Comments
PINE ISLAND BAYOU AT SOUR LAKE ROAD 7.5 KM SOUTHEAST OF INTERSECTION OF SH 326/SH 105 IN CITY OF SOUR LAKE	10607	0607	10	LV	LV	RT			4	4	4	4	USGS Station 08041700
PINE ISLAND BAYOU AT US 69 /US 96/US 287 AT VOTH	10602	0607	10	LV	LV	RT	4		4	4	4	4	USGS Station 08041749
PINE ISLAND BAYOU AT SH 105 0.65 KM SOUTHWEST of FM 770/SH 105 INTERSECTION NEAR CITY OF BATSON	15367	0607	10	LV	LV	RT	4		4	4	4	4	
BOGGY CREEK AT FM 421 1.75 KM SOUTHWEST OF FM 421/US 69 INTERSECTION NEAR LUMBERTON	16127	0607A	10				4				4		TCEQ Region 10 CRP Site
LITTLE PINE ISLAND BAYOU AT SH 326 5.68 KM NORTH OF CITY OF SOUR LAKE	15346	0607B	10	LV	LV	RT			4	4	4	4	
WILLOW CREEK AT UNNAMED ROAD 4.87 KM NORTH NORTHWEST OF NOME 6.78 KM UPSTREAM OF PINE ISLAND BAYOU CONFLUENCE/SH 326	15345	0607C	10	LV	LV	RT	4		4	4	4	4	
VILLAGE CREEK AT 418 5.04 KM NORTHEAST OF KOUNTZE	13625	0608	10	LV	LV	RT			4	4	4	4	
BEECH CREEK AT FM 1013 1.13 KM WEST OF SPURGER	10529	0608A	10	LV	LV	RT			4	4	4	4	
BEECH CREEK AT FM 1943 7 KM WEST OF FM 1943/ FM 92 INTERSECTION 7.3 KM WEST-SOUTHWEST OF CITY OF FRED	15355	0608A	10	LV	LV	RT		4					
BIG SANDY CREEK AT FM 942 2.07 KM SOUTHWEST OF FM 942/FM 2500 INTERSECTION 10.47 KM SOUTHEAST OF LEGGETT	15354	0608B	10	LV	LV	RT			4	4	4	4	
CYPRESS CREEK AT US 69/US 287 3.4 KM SOUTHEAST OF KOUNTZE	15352	0608C	10	LV	LV	RT			4	4	4	4	

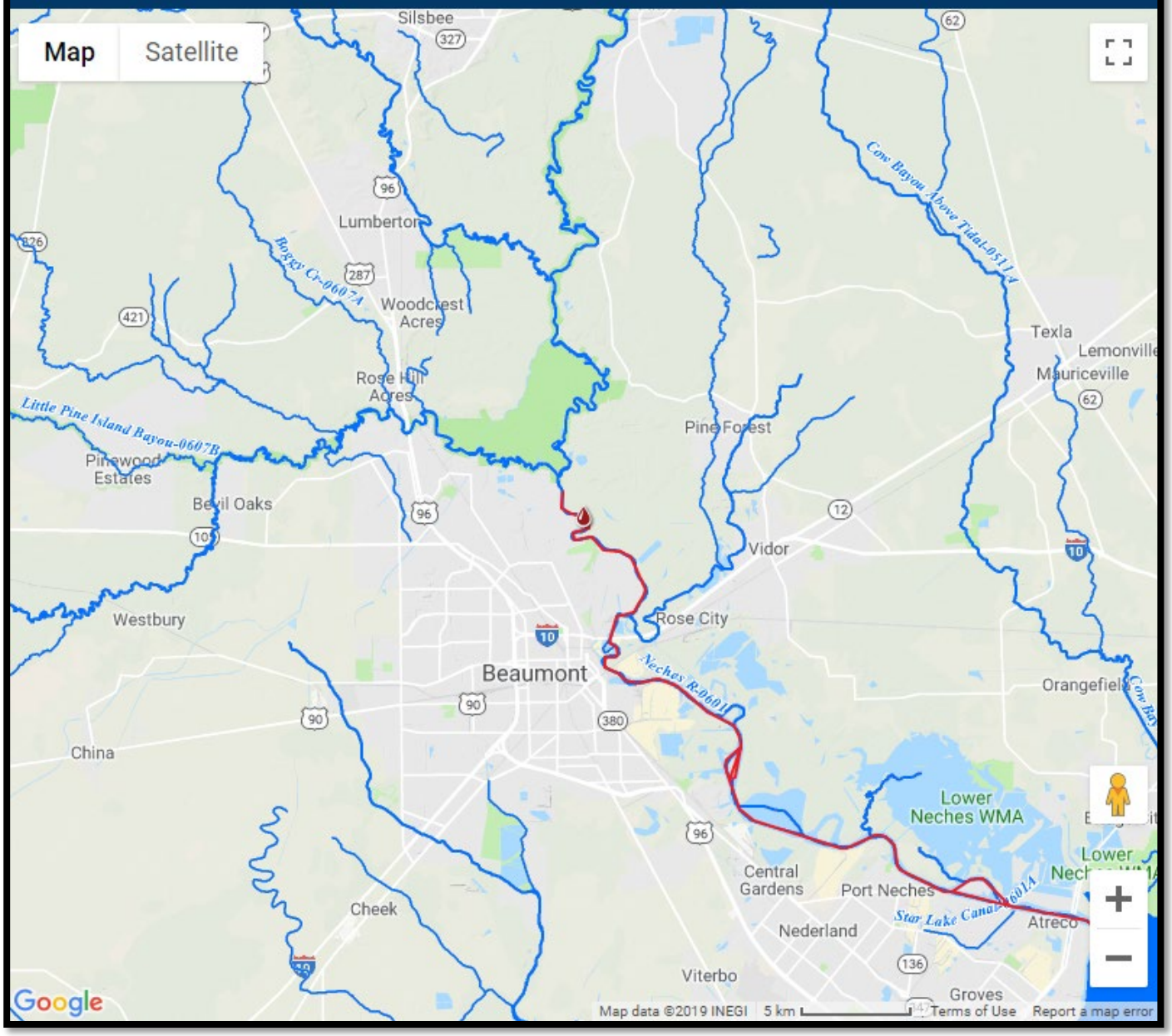
Site Description	Station ID	Waterbody ID	Region	SE	CE	MT	24 hr DO	Metals in Water	Bacteria	Conv	Flow	Field	Comments
HICKORY CREEK AT US 69 0.73 KM NORTH OF FM 2827/US 69 INTERSECTION 5.8 KM SOUTH OF WARREN	15349	0608D	10	LV	LV	RT			4	4	4	4	
MILL CREEK AT FM 418 4.5 KM NORTHWEST OF SILSBEE	16126	0608E	10	LV	LV	RT	4				4		
TURKEY CREEK AT FM 1013 3.57 KM EAST NORTHEAST OF US 287/FM 1013 INTERSECTION 3.17 KM EAST NORTHEAST OF HILLISTER	15356	0608F	10	LV	LV	RT			4	4	4	4	
TURKEY CREEK AT GORE STORE ROAD 6.3 KM SOUTHEAST OF FM 2827/US 69 INTERSECTION11.7 KM SOUTHEAST OF WARREN	15350	0608F	10	LV	LV	RT			4	4	4	4	
ANGELINA RIVER AT SH 63 2.10 KM SOUTHEAST OF SH 63/REC RD 255 INTERSECTION 19.56 KM NORTH OF JASPER	10610	0609	10	LV	LV	RT			4	4	4	4	
SAM RAYBURN RESERVOIR USGS SITE AC 2.5 KM EAST NORTHEAST OF FM 705/FM 3127 INTERSECTION	15673	0610	10	LV	LV	RT			4	4		4	
SAM RAYBURN RESERVOIR USGS SITE FC 7.21 KM SOUTHWEST OF FM 3173/FM 705 INTERSECTION	15671	0610	10	LV	LV	RT			4	4		4	
SAM RAYBURN RESERVOIR USGS SITE LC 1.7 KM NORTHWEST OF MILL CREEK PARK SWIMMING AREA 3.96 KM NW OF ST LOOP 149/ US 96 INTERSECTION	15674	0610	10	LV	LV	RT			4	4		4	

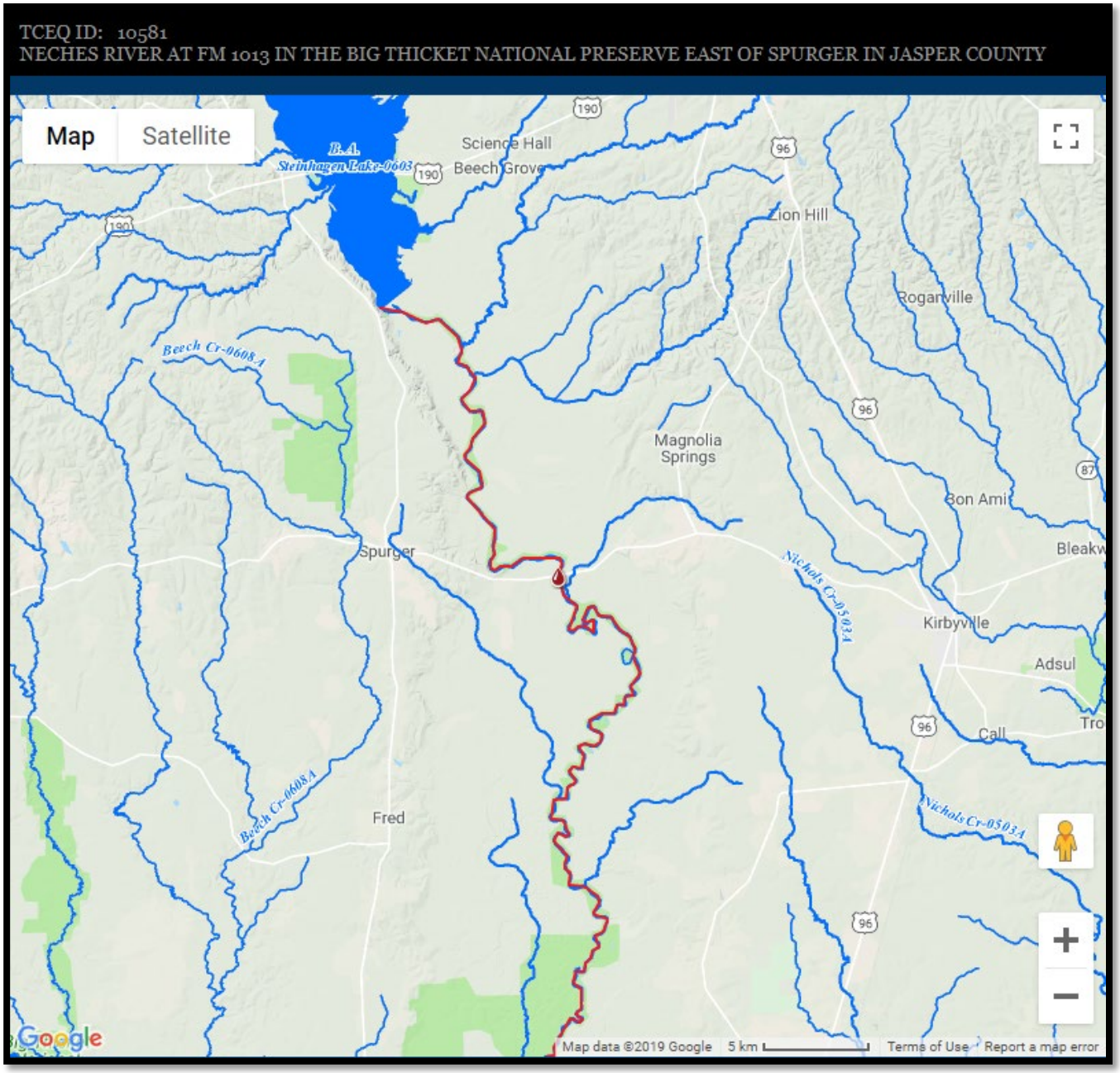
Appendix C: Station Location Maps

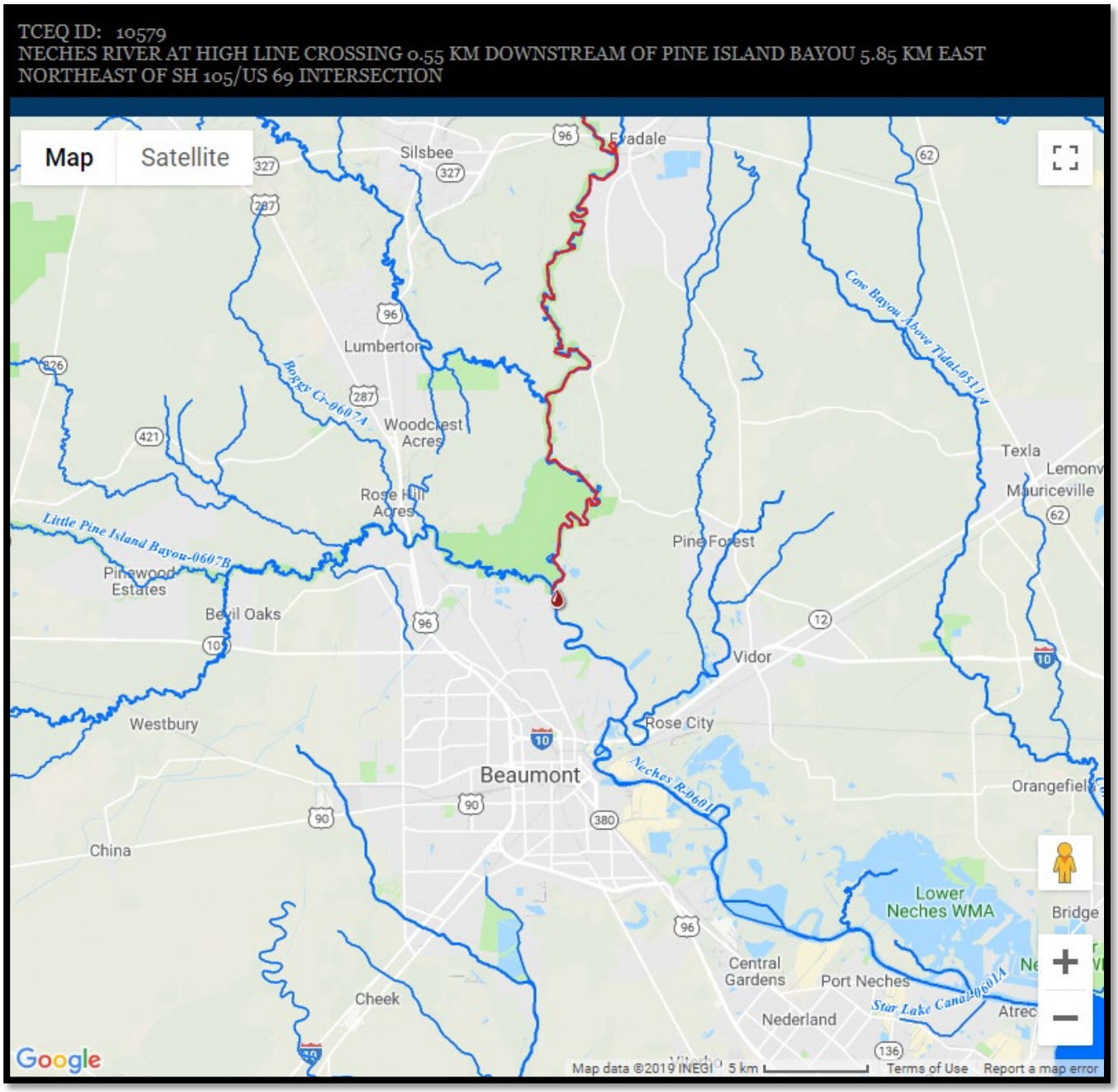
Station Location Maps

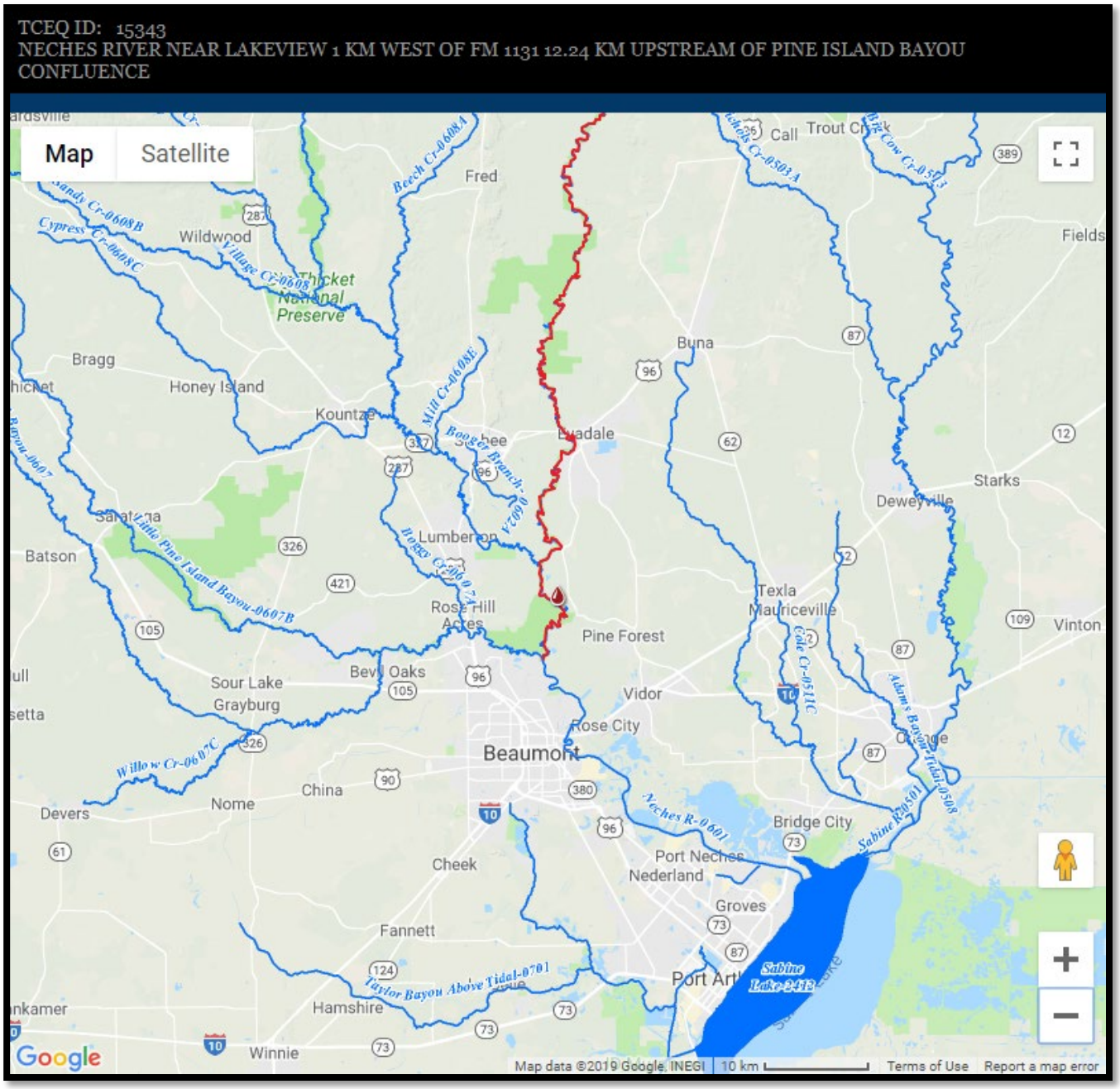
Maps of stations monitored by the LNVA are provided below. The maps were generated by the LNVA. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. For more information concerning this map, contact the LNVA Project Manager at (409)-892-4011.

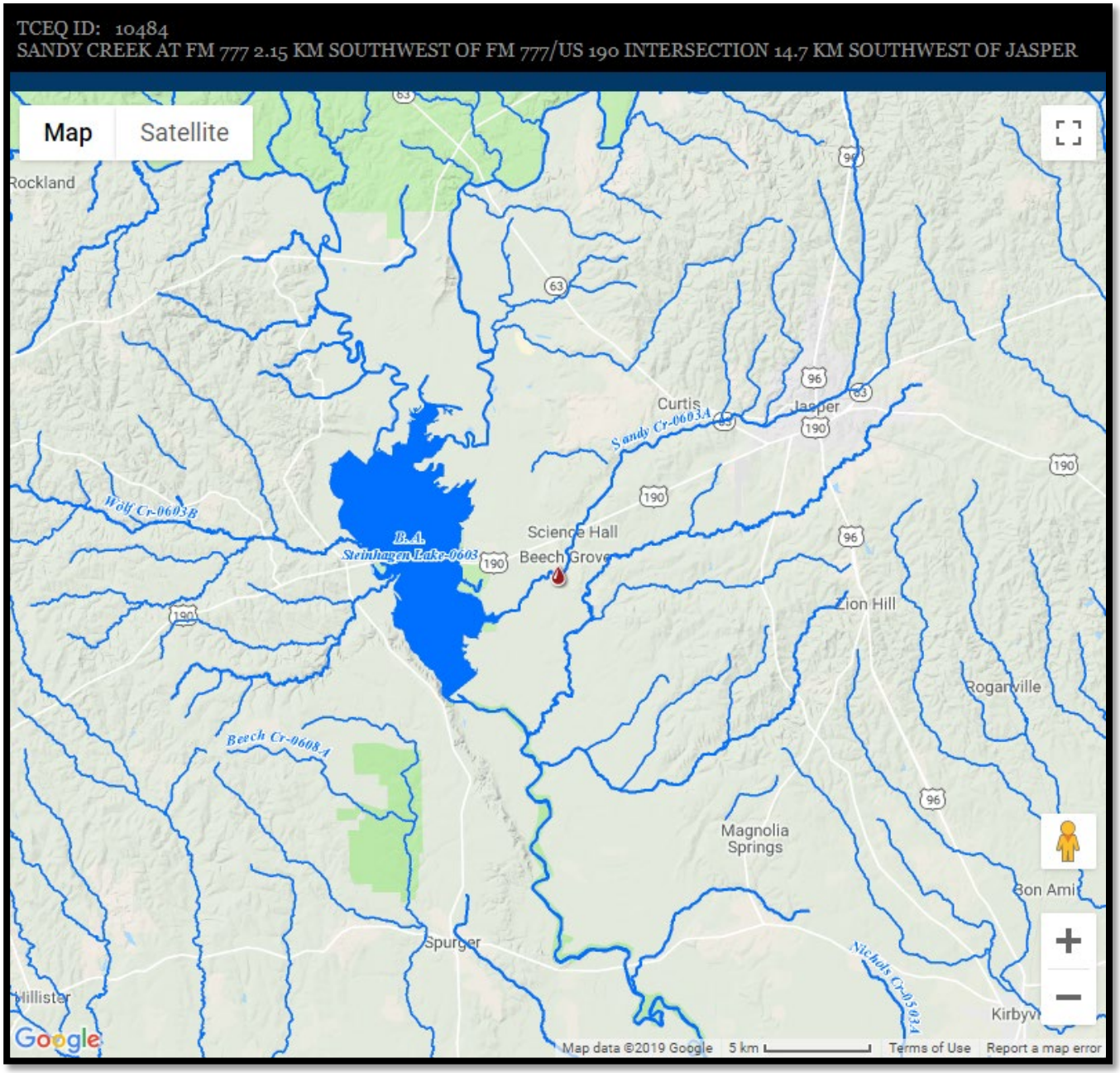
TCEQ ID: 20774
NECHES RIVER 217 METERS EAST AND 2.11 KILOMETERS NORTH TO THE INTERSECTION OF COLEMAN STREET AND EAST LUCAS DRIVE AT LNVA SALINITY STATION Y 1.8 KILOMETERS DOWNSTREAM OF NECHES RIVER SALTWATER BARRIER



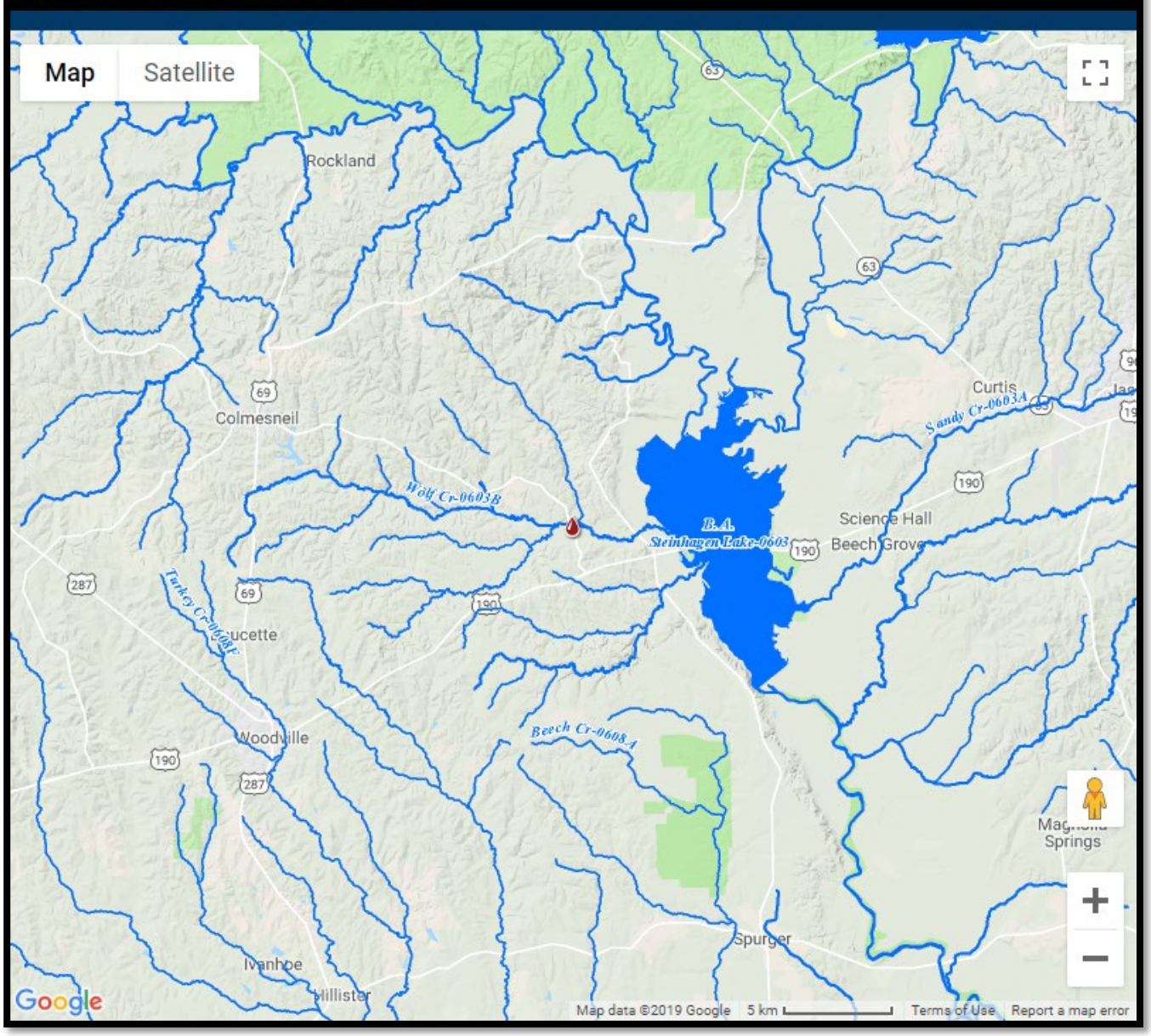

TCEQ ID: 10581
NECHES RIVER AT FM 1013 IN THE BIG THICKET NATIONAL PRESERVE EAST OF SPURGER IN JASPER COUNTY
Map
Satellite
B.A. Steinhagen Lake-0603
Science Hall
Beech Grove
Zion Hill
Rogarville
Beech Cr-0608-A
Magnolia Springs
Bon Ami
Spurger
Nichols Cr-0503-A
Kirbyville
Adsul
Call
Fred
Google
Map data ©2019 Google
5 km
Terms of Use
Report a map error


TCEQ ID: 10579
NECHES RIVER AT HIGH LINE CROSSING 0.55 KM DOWNSTREAM OF PINE ISLAND BAYOU 5.85 KM EAST NORTHEAST OF SH 105/US 69 INTERSECTION
Map
Satellite
Silsbee
Evadale
Lumberton
Woodcrest Acres
Rose Hill Acres
Pine Forest
Texla
Lemonv
Mauriceville
Pinewood Estates
Beaumont
Vidor
Rose City
Orangefield
Westbury
China
Cheek
Nederland
Port Neches
Central Gardens
Lower Neches WMA
Bridge
Cow Bayou Above Tidal-0511A
Boggy Cr-0607A
Little Pine Island Bayou-0607B
Neches R-0601
Star Lake Canal-0601A
Google
Map data ©2019 INEGI
5 km
Terms of Use
Report a map error

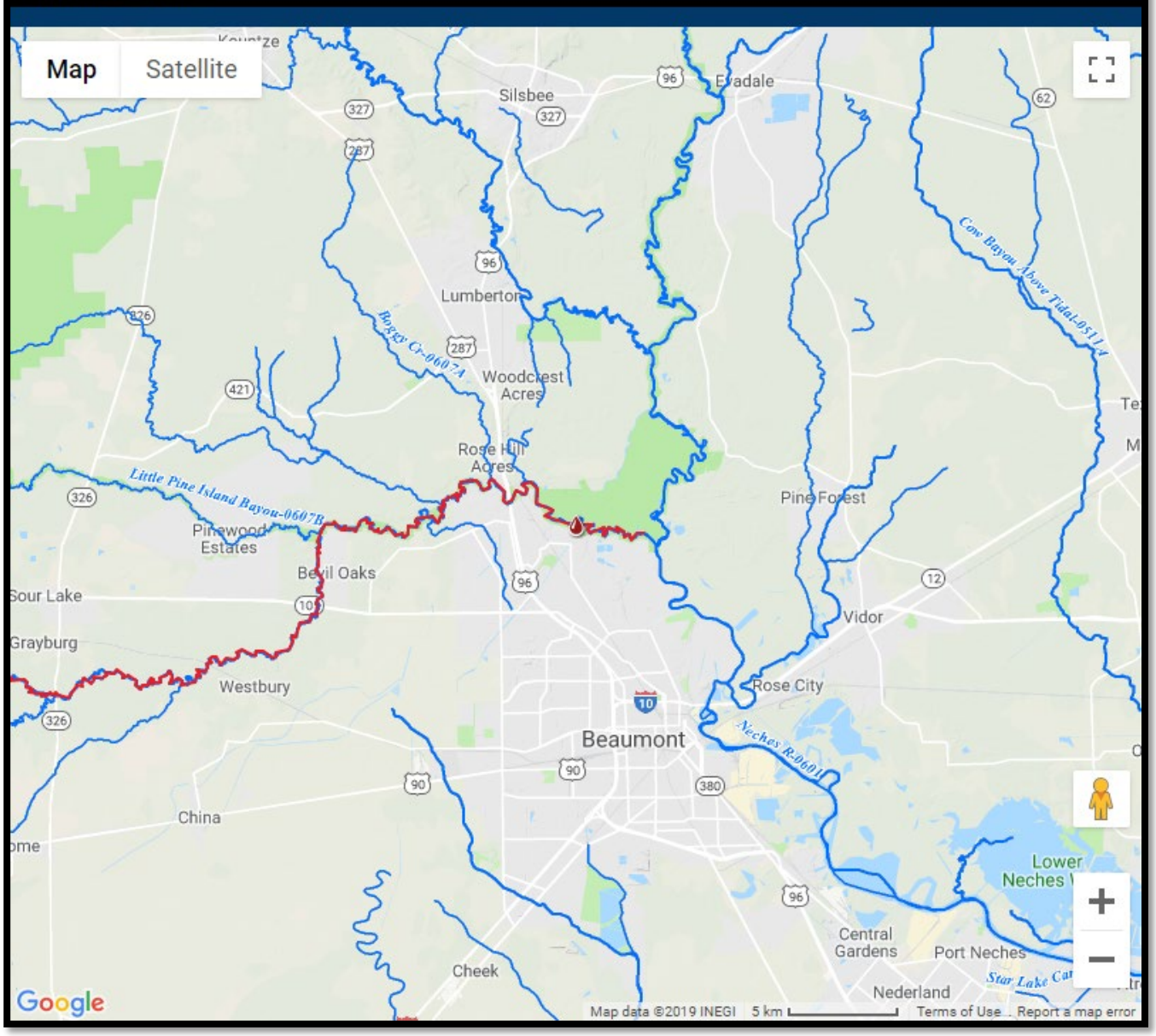

TCEQ ID: 15343
NECHES RIVER NEAR LAKEVIEW 1 KM WEST OF FM 1131 12.24 KM UPSTREAM OF PINE ISLAND BAYOU CONFLUENCE
Map
Satellite
Fred
Wildwood
Bragg
Honey Island
Kountze
Buna
Starks
Deweyville
Batson
Lumberton
Rose Hill Acres
Pine Forest
Texla
Mauriceville
Vinton
Sour Lake
Grayburg
Vidor
Rose City
Beaumont
China
Nome
Devers
Cheek
Bridge City
Port Neches
Nederland
Groves
Fannett
Hamshire
Winnie
Google
Map data ©2019 Google, INEGI
10 km
Terms of Use
Report a map error

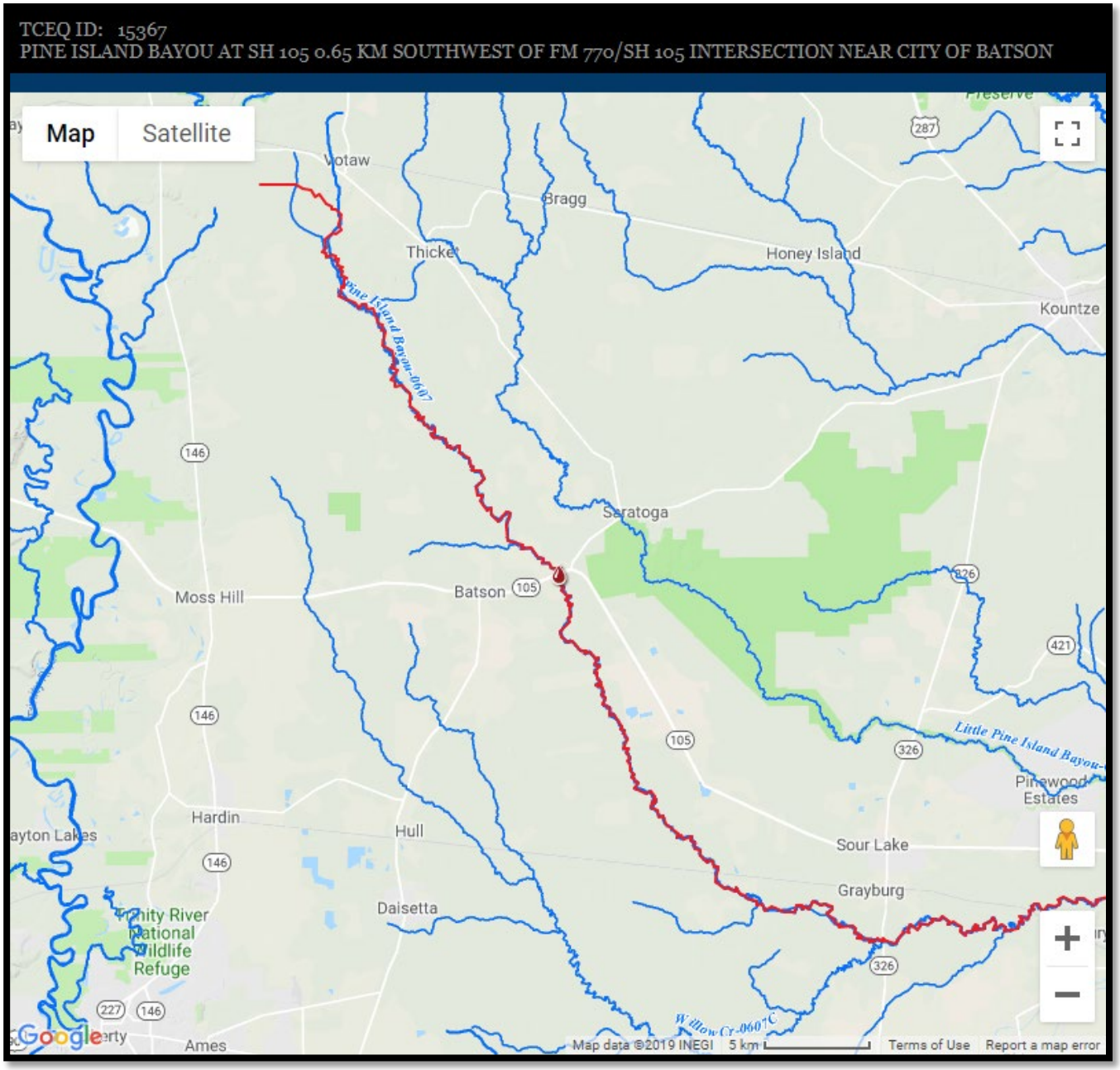

TCEQ ID: 10484
SANDY CREEK AT FM 777 2.15 KM SOUTHWEST OF FM 777/US 190 INTERSECTION 14.7 KM SOUTHWEST OF JASPER
Map
Satellite
Rockland
Curtis
Jasper
Sandy Cr-0603A
Wolf Cr-0603B
B.A. Steinhagen Lake-0603
Science Hall
Beech Grove
Lion Hill
Rogarville
Beech Cr-0608A
Magnolia Springs
Bon Ami
Spurger
Nichols Cr-0503A
Kirbyv
Google
Map data ©2019 Google
5 km
Terms of Use
Report a map error

TCEQ ID: 15344
WOLF CREEK AT FM 256 5.6 KM UPSTREAM OF BA. STEINHAGEN RESERVOIR 2.3 KM NNW OF US 190/FM 256 INTERSECTION 16.8 KM NE OF WOODVILLE



TCEQ ID: 10599
PINE ISLAND BAYOU AT LNVA LOWER PUMP STATION 6.62 KM UPSTREAM OF NECHES RIVER CONFLUENCE 2.86 KM EAST OF US 69




TCEQ ID: 15367
PINE ISLAND BAYOU AT SH 105 0.65 KM SOUTHWEST OF FM 770/SH 105 INTERSECTION NEAR CITY OF BATSON
Map
Satellite
Votaw
Bragg
Thicket
Honey Island
Kountze
Pine Island Bayou-0607
Saratoga
Batson
Moss Hill
Hardin
Hull
Sour Lake
Grayburg
Daisetta
Pinewood Estates
Little Pine Island Bayou-
Trinity River National Wildlife Refuge
Ames
Willow Cr-0607C
Google
Map data ©2019 INEGI
5 km
Terms of Use
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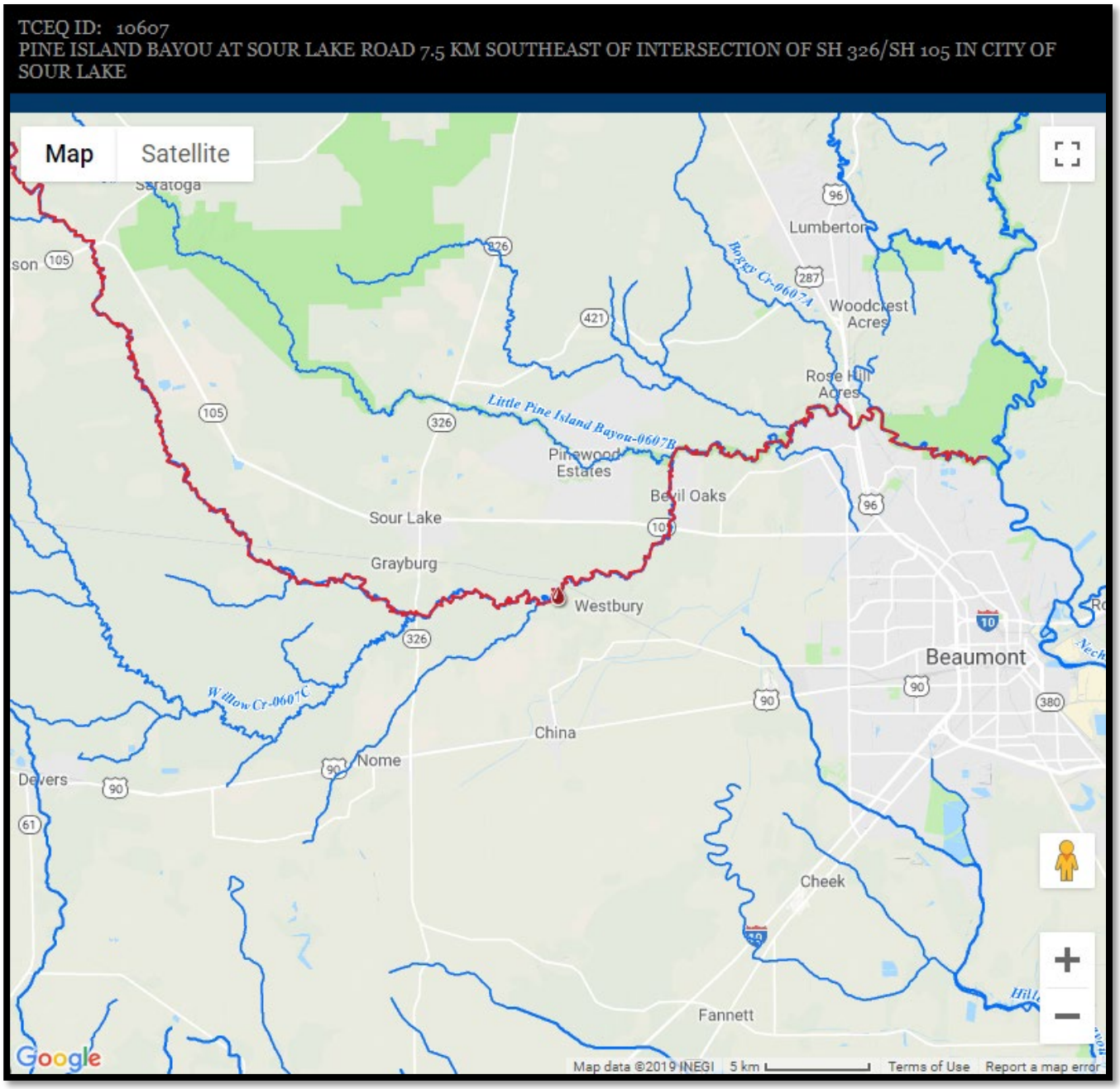
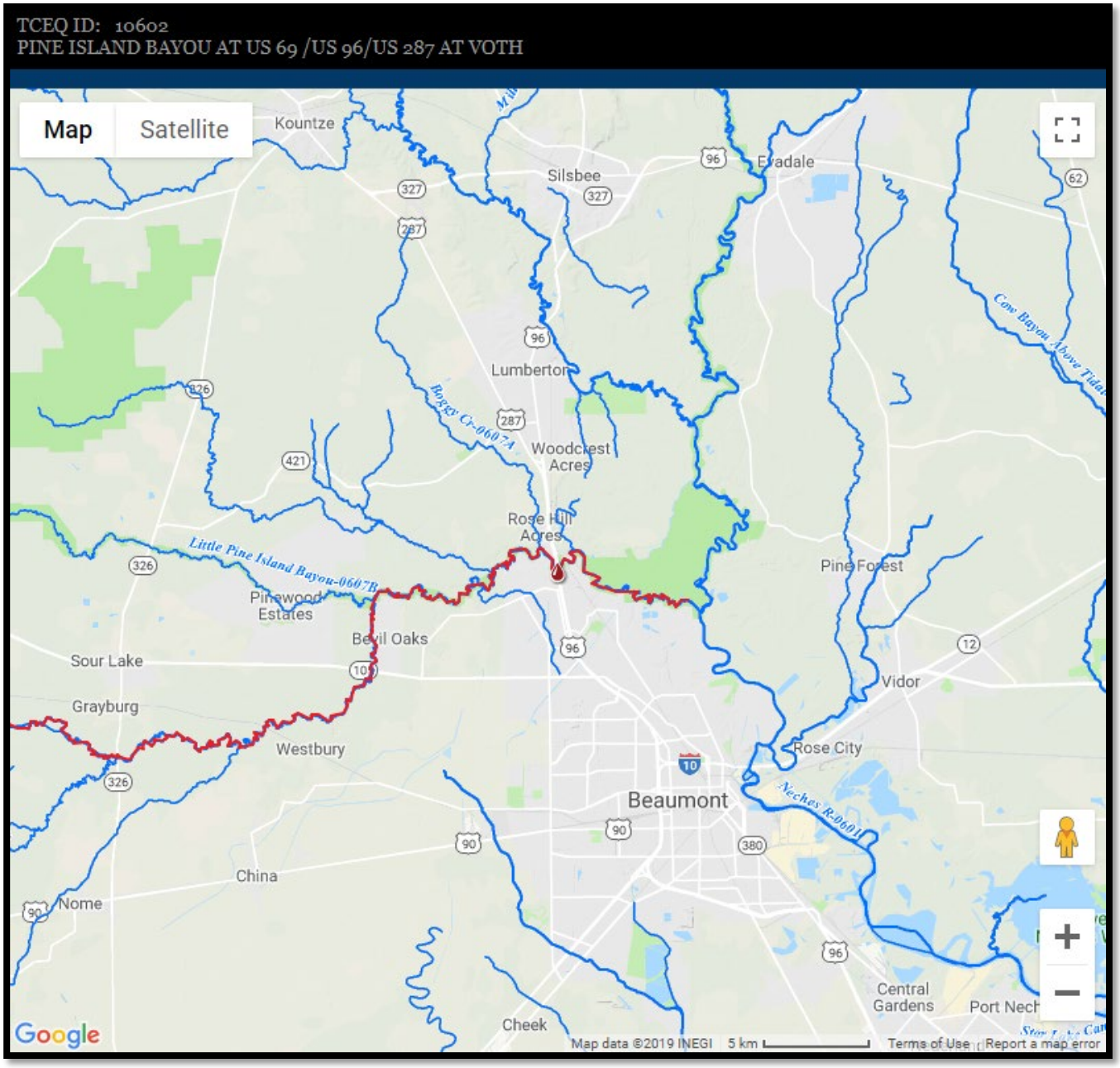
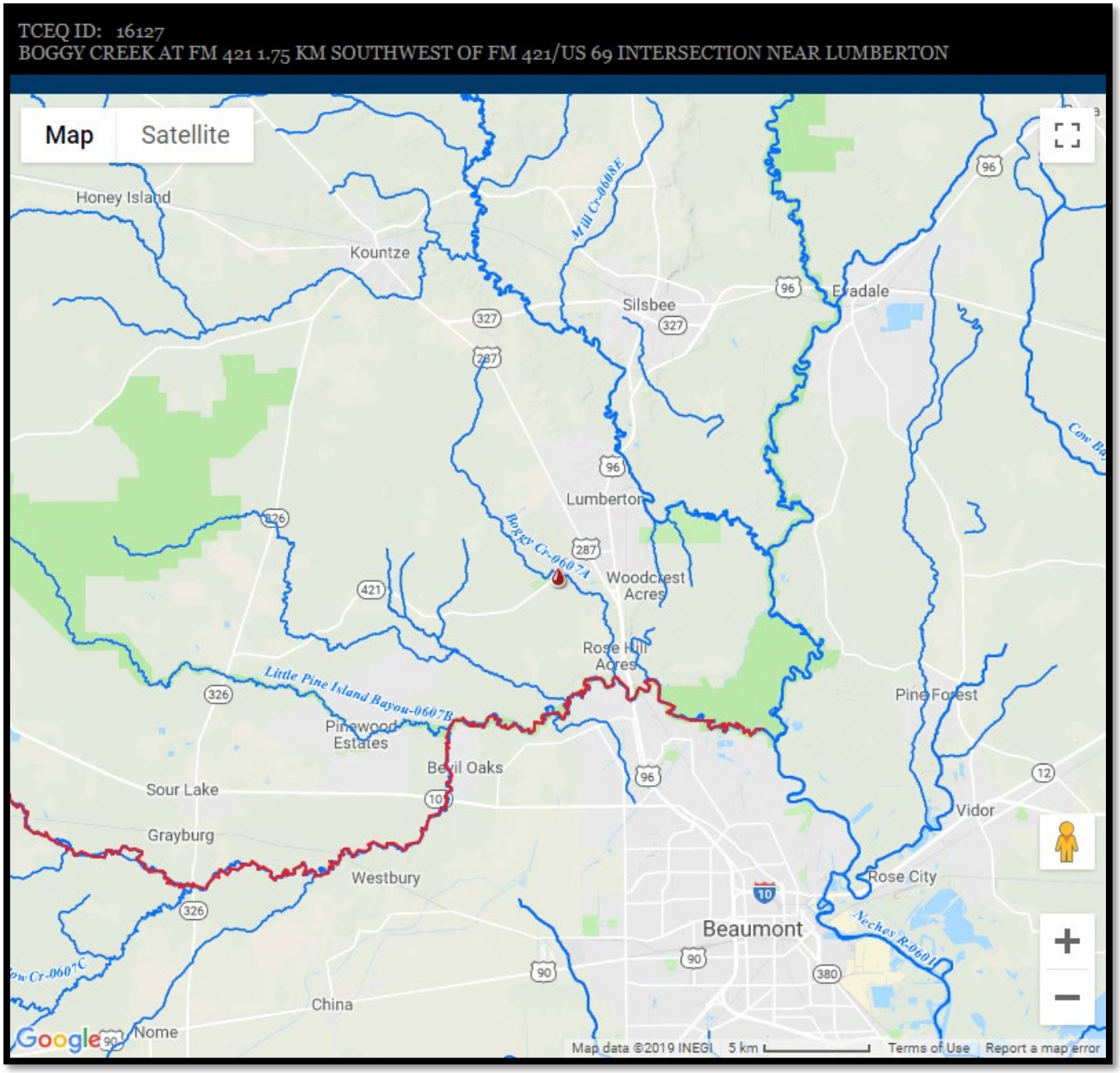
TCEQ ID: 10607
PINE ISLAND BAYOU AT SOUR LAKE ROAD 7.5 KM SOUTHEAST OF INTERSECTION OF SH 326/SH 105 IN CITY OF SOUR LAKE

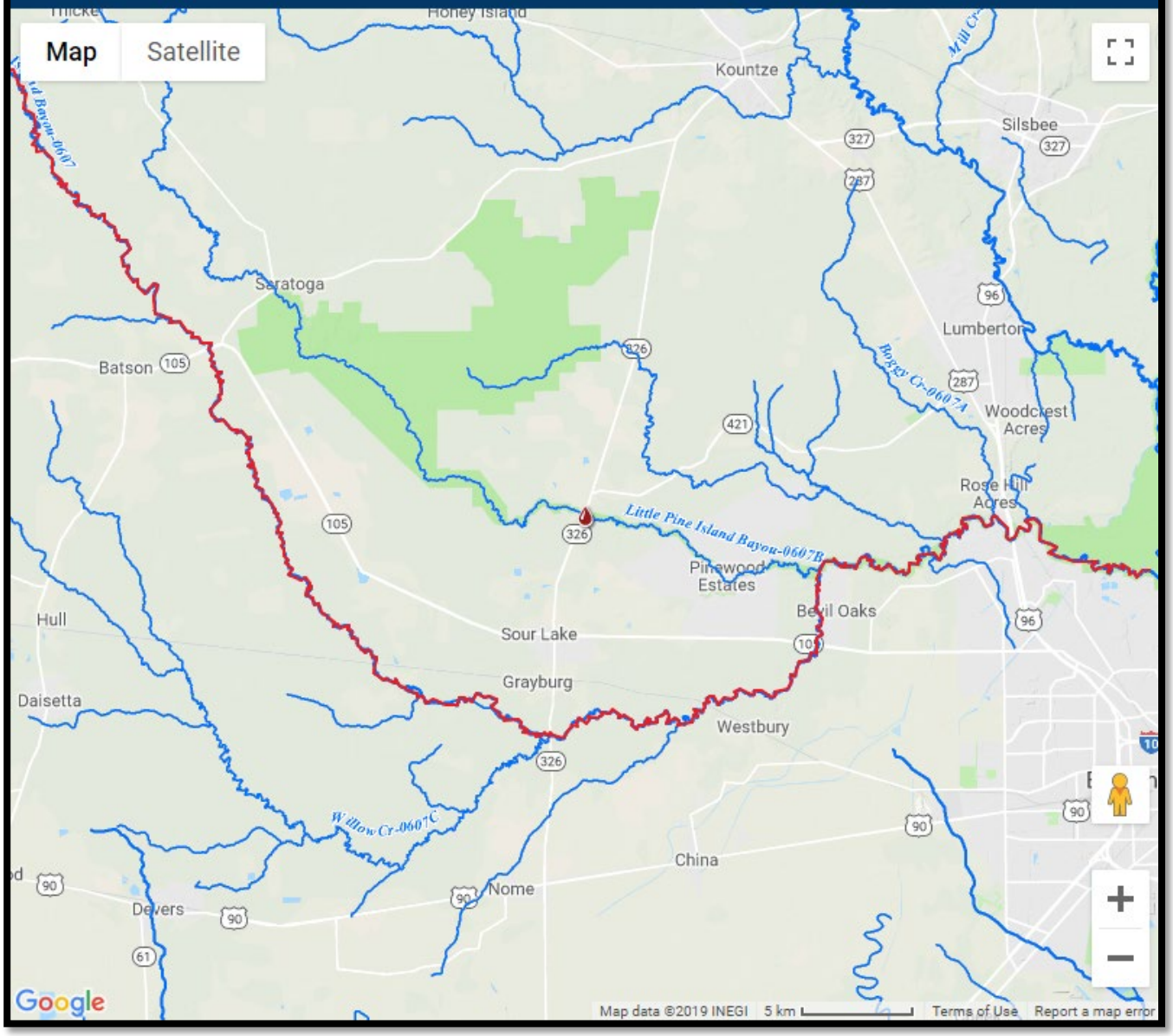


TCEQ ID: 10602
PINE ISLAND BAYOU AT US 69 /US 96/US 287 AT VOTH

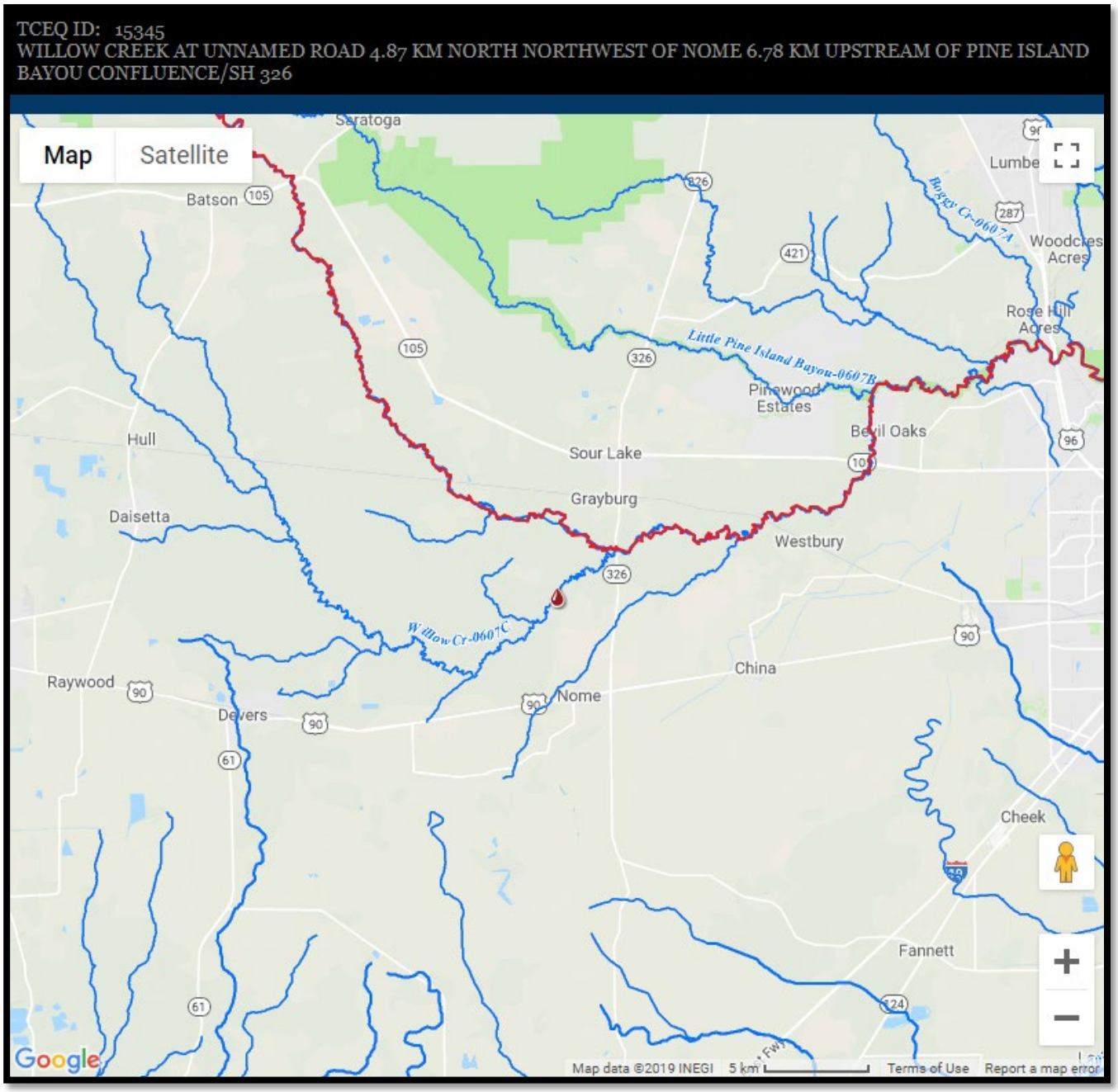


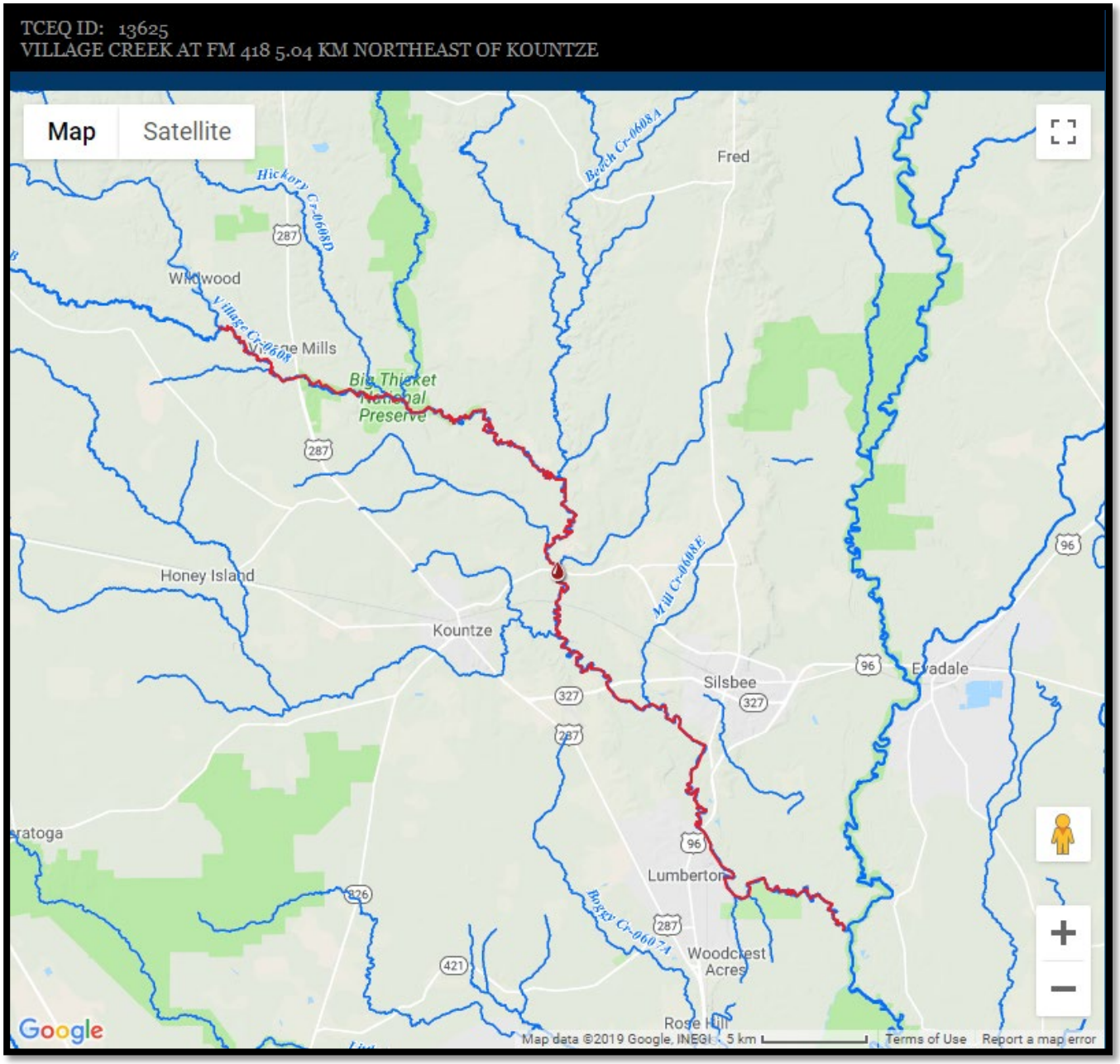

TCEQ ID: 16127
BOGGY CREEK AT FM 421 1.75 KM SOUTHWEST OF FM 421/US 69 INTERSECTION NEAR LUMBERTON
Map
Satellite
Honey Island
Kountze
Silsbee
Evadale
Lumberton
Woodcrest Acres
Rose Hill Acres
Pine Forest
Pinewood Estates
Bevil Oaks
Sour Lake
Grayburg
Westbury
Vidor
Rose City
Beaumont
China
Nome
Mill Cr-0608E
Boggy Cr-0607A
Little Pine Island Bayou-0607B
Neches R-0601
Google
Map data ©2019 INEGI
5 km
Terms of Use
Report a map error

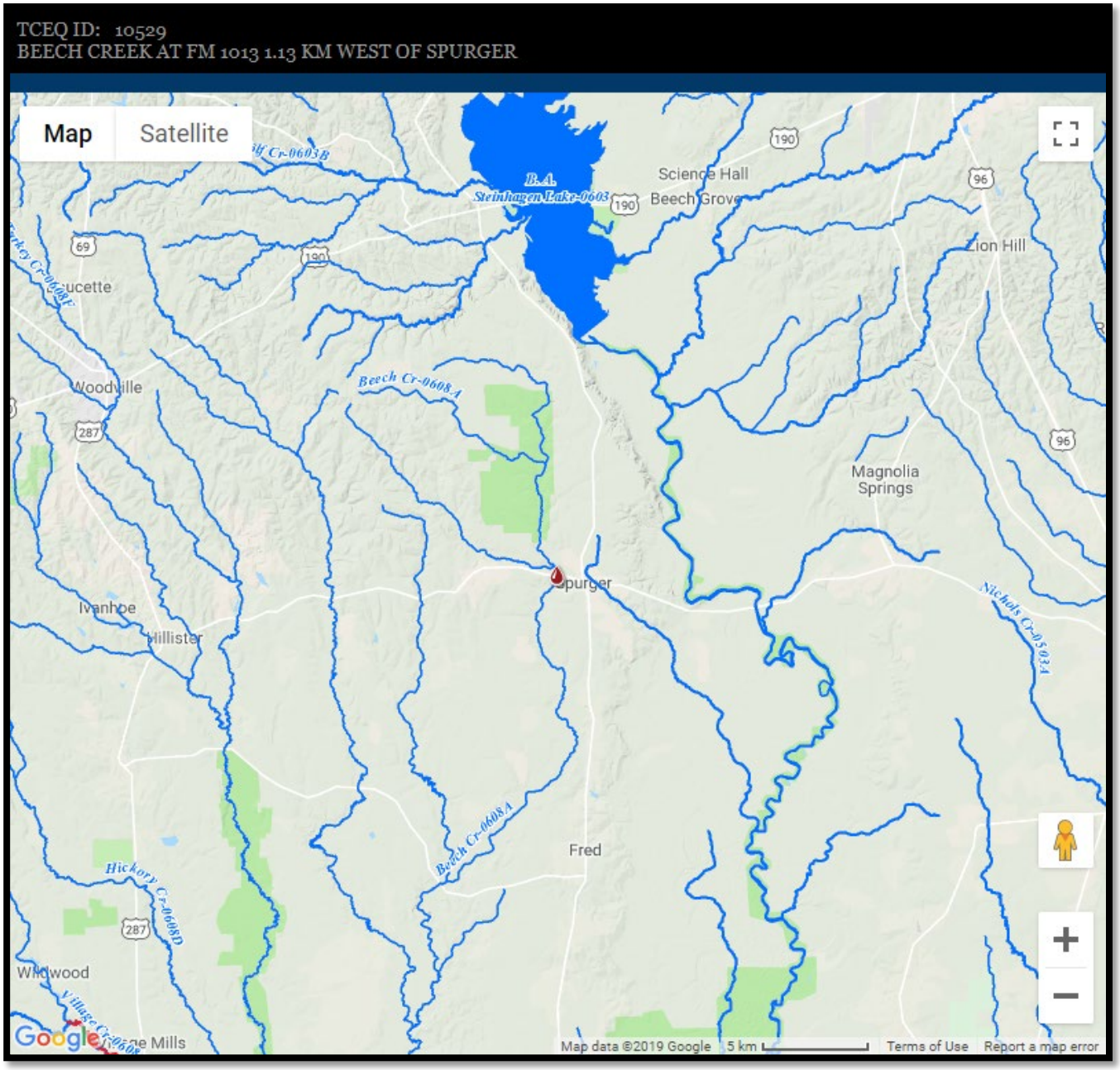
TCEQ ID: 15346
LITTLE PINE ISLAND BAYOU AT SH 326 5.68 KM NORTH OF CITY OF SOUR LAKE



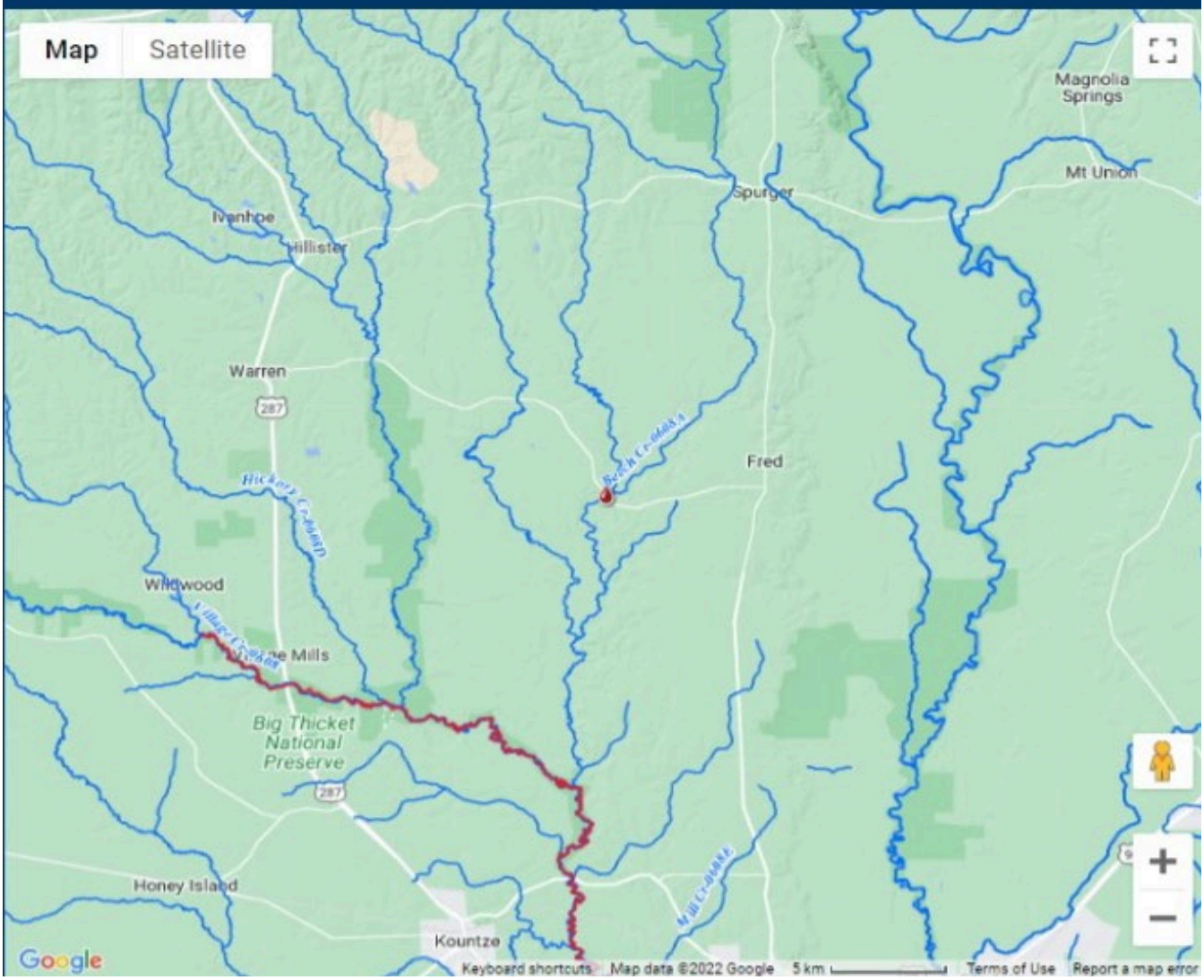
TCEQ ID: 15345
WILLOW CREEK AT UNNAMED ROAD 4.87 KM NORTH NORTHWEST OF NOME 6.78 KM UPSTREAM OF PINE ISLAND BAYOU CONFLUENCE/SH 326



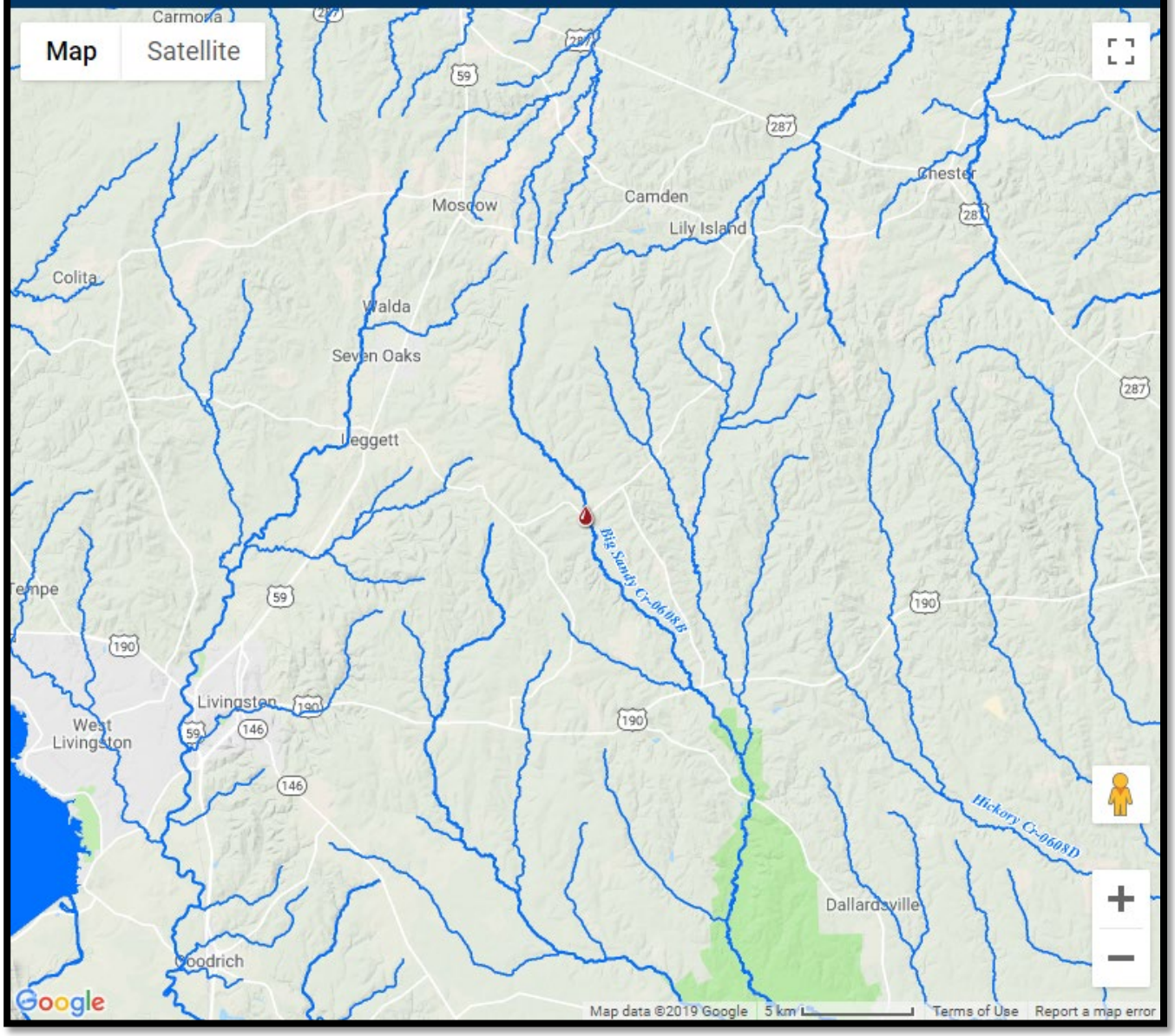

TCEQ ID: 13625
VILLAGE CREEK AT FM 418 5.04 KM NORTHEAST OF KOUNTZE
Map
Satellite
Fred
Beech Cr-0608A
Hickory Cr-0608D
287
Village Cr-0608
Big Thicket National Preserve
Honey Island
Kountze
Mill Cr-0608E
Silsbee
327
96
Lumberton
Boggy Cr-0607A
Woodcrest Acres
421
826
Google
Map data ©2019 Google, INEGI
5 km
Terms of Use
Report a map error

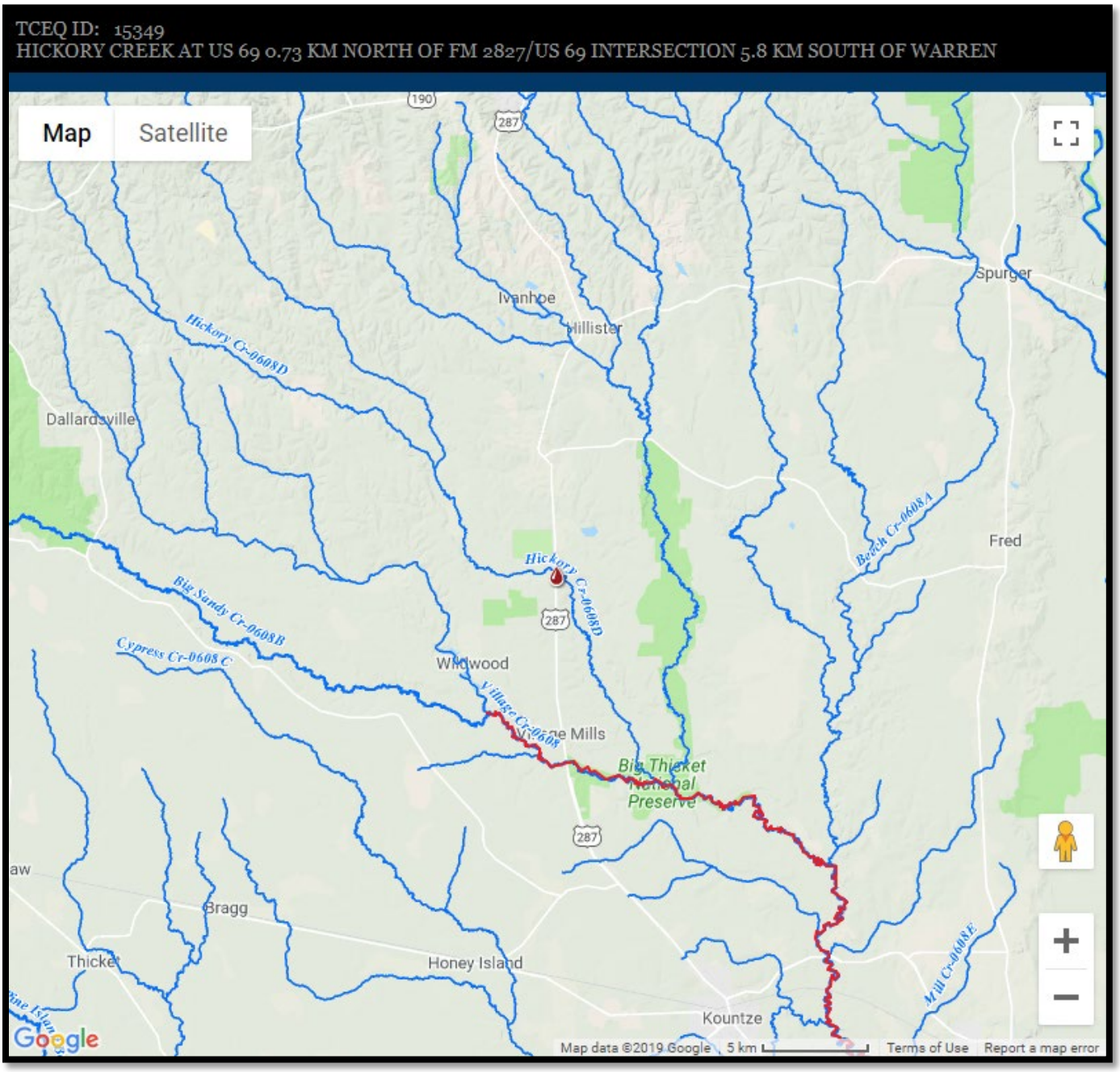

TCEQ ID: 10529
BEECH CREEK AT FM 1013 1.13 KM WEST OF SPURGER
Map
Satellite
B.A. Steinhagen Lake-0603
Science Hall
Beech Grove
Zion Hill
Woodville
Beech Cr-0608A
Magnolia Springs
Spurger
Ivanhoe
Millister
Nichols Cr-0503A
Fred
Hickory Cr-0608D
Wildwood
Google
Map data ©2019 Google
5 km
Terms of Use
Report a map error

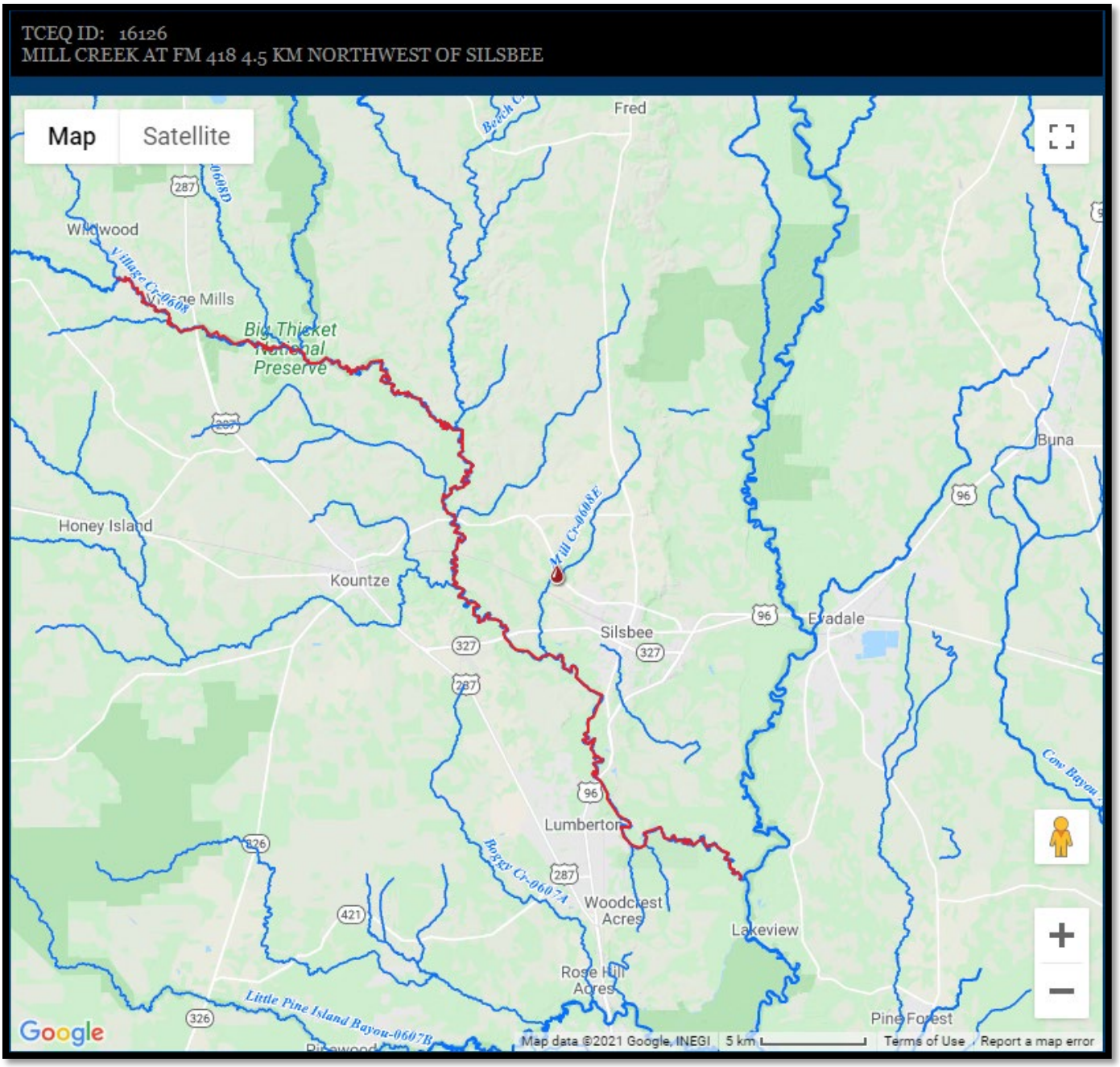
TCEQ ID: 15355
BEECH CREEK AT FM 1943 7 KM WEST OF FM 1943/ FM 92 INTERSECTION 7.3 KM WEST-SOUTHWEST OF CITY OF FRED



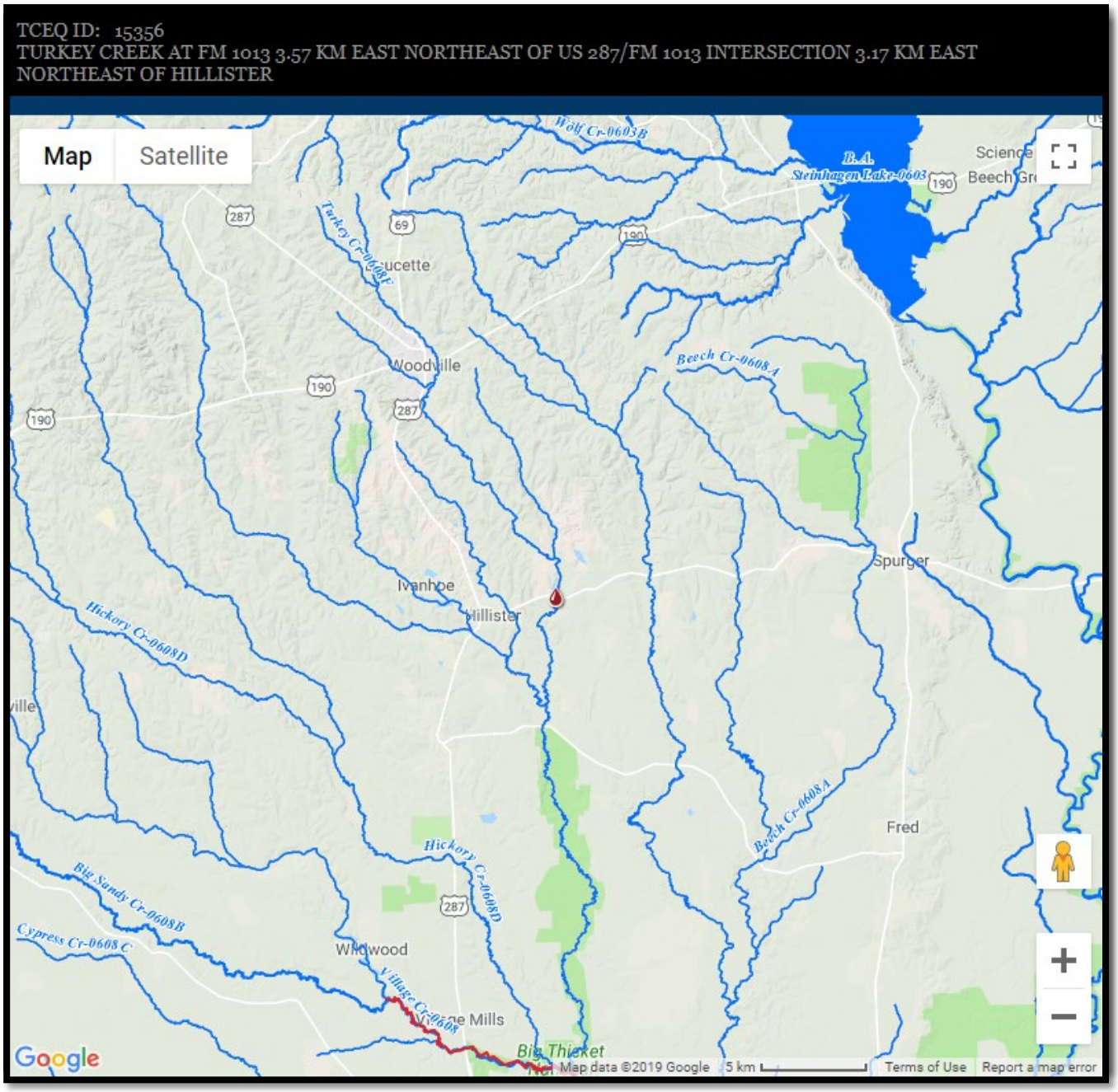
TCEQ ID: 15354
BIG SANDY CREEK AT FM 942 2.07 KM SOUTHWEST OF FM 942/FM 2500 INTERSECTION 10.47 KM SOUTHEAST OF LEGGETT



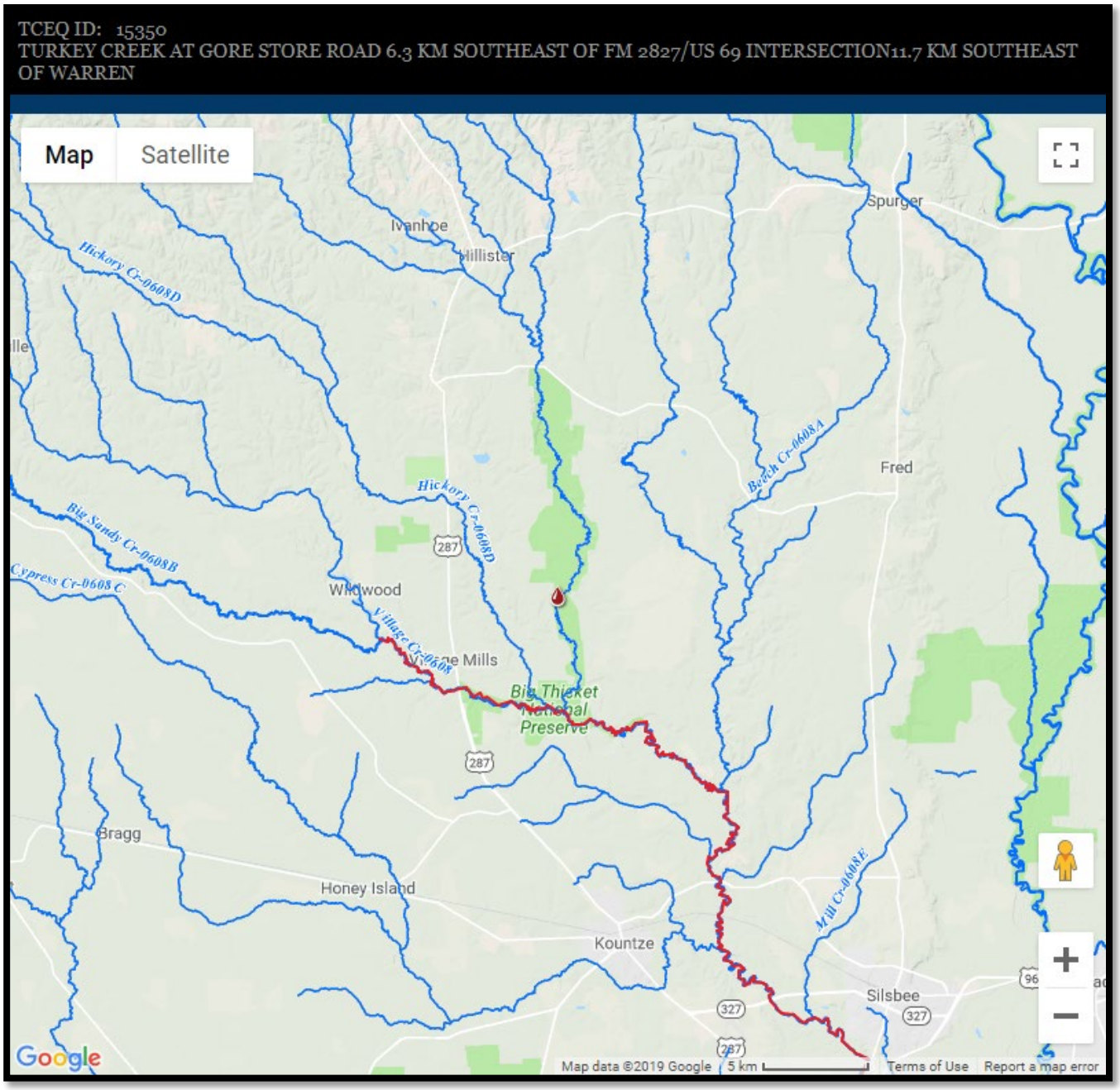

TCEQ ID: 15349
HICKORY CREEK AT US 69 0.73 KM NORTH OF FM 2827/US 69 INTERSECTION 5.8 KM SOUTH OF WARREN
Map
Satellite
Ivanhoe
Hillister
Spurger
Dallardsville
Fred
Wildwood
Bragg
Honey Island
Kountze
Big Thicket National Preserve
Hickory Cr-0608D
Big Sandy Cr-0608B
Cypress Cr-0608 C
Beech Cr-0608A
Mill Cr-0608E
Map data ©2019 Google
5 km
Terms of Use
Report a map error

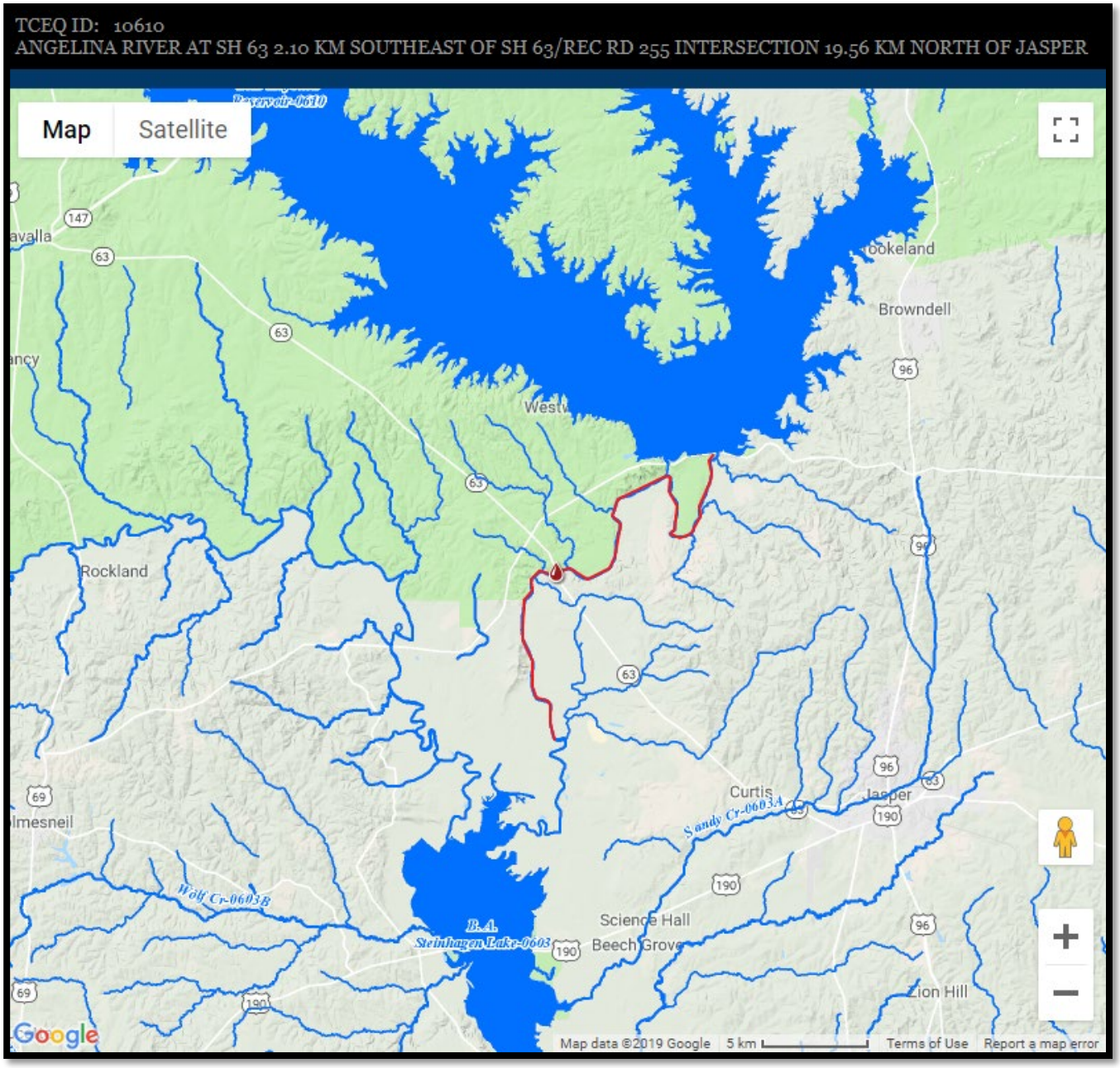

TCEQ ID: 16126
MILL CREEK AT FM 418 4.5 KM NORTHWEST OF SILSBEE
Map
Satellite
Fred
Woodville
Village Creek
Big Thicket National Preserve
Honey Island
Kountze
Mill Cr-0608E
Silsbee
Buna
Evadale
Lumberton
Boggy Cr-0607A
Woodcrest Acres
Lakeview
Rose Hill Acres
Pine Forest
Little Pine Island Bayou-0607B
Google
Map data ©2021 Google, INEGI
5 km
Terms of Use
Report a map error

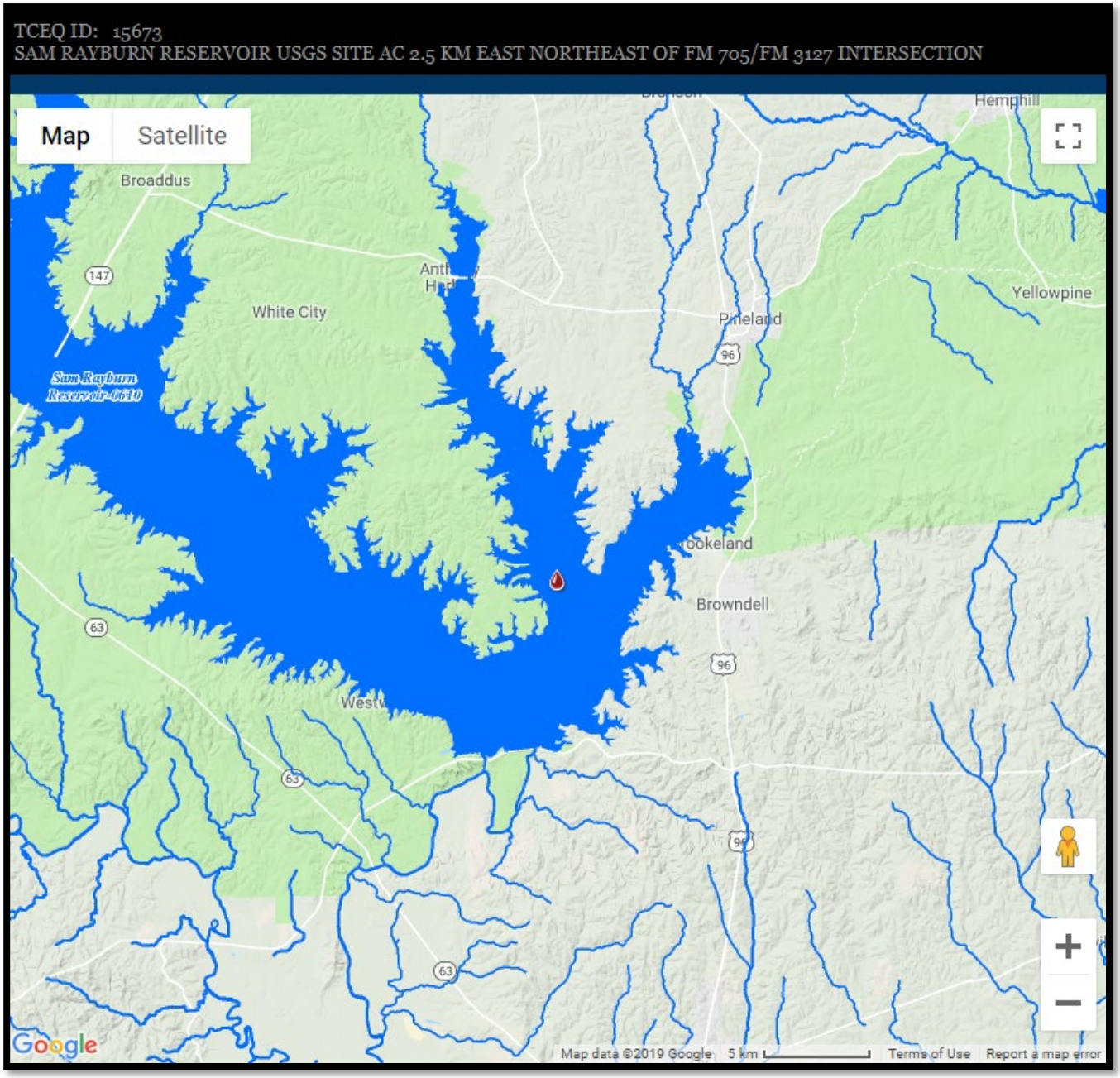
TCEQ ID: 15356
TURKEY CREEK AT FM 1013 3.57 KM EAST NORTHEAST OF US 287/FM 1013 INTERSECTION 3.17 KM EAST NORTHEAST OF HILLISTER



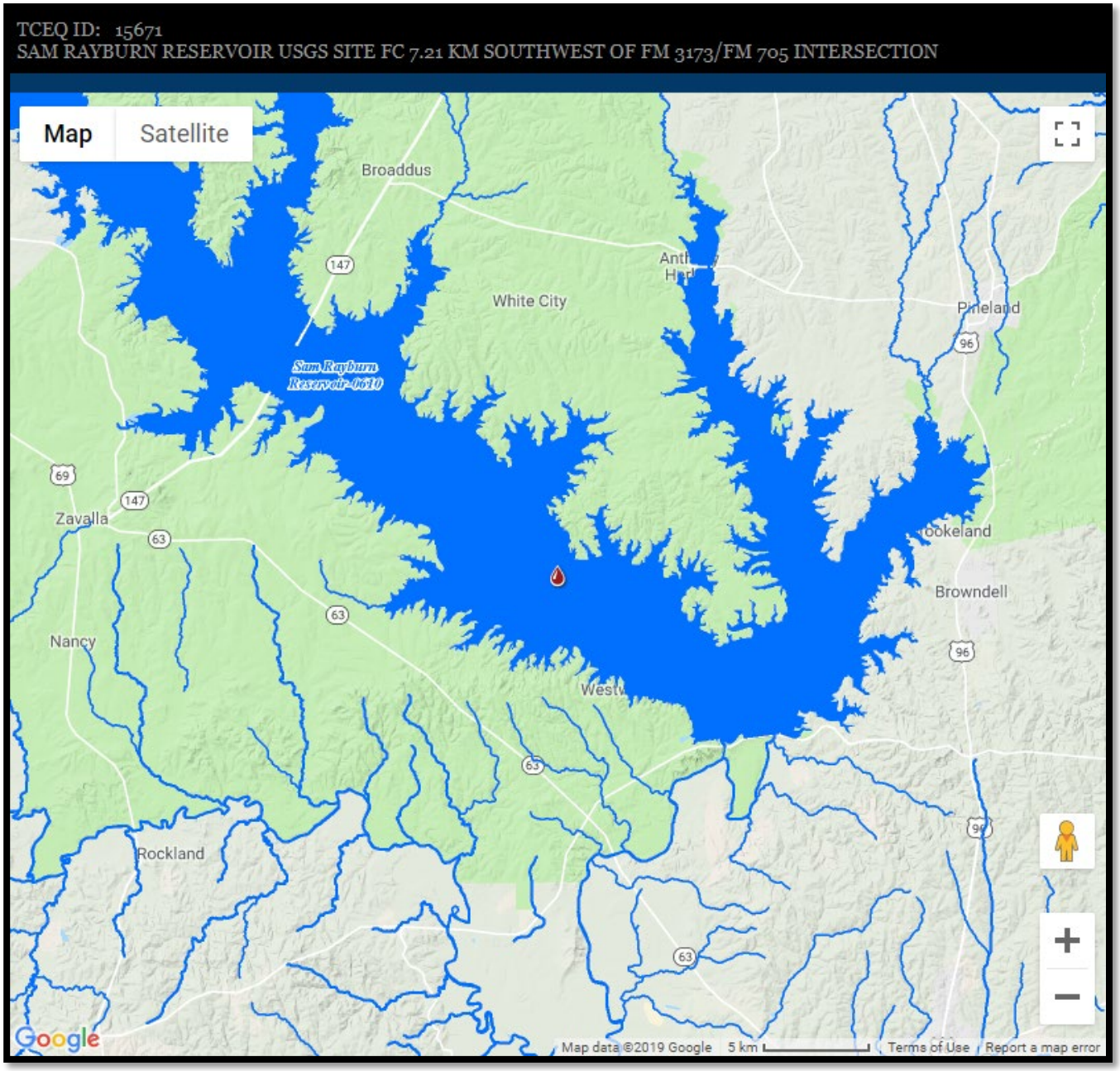
TCEQ ID: 15350
TURKEY CREEK AT GORE STORE ROAD 6.3 KM SOUTHEAST OF FM 2827/US 69 INTERSECTION11.7 KM SOUTHEAST OF WARREN



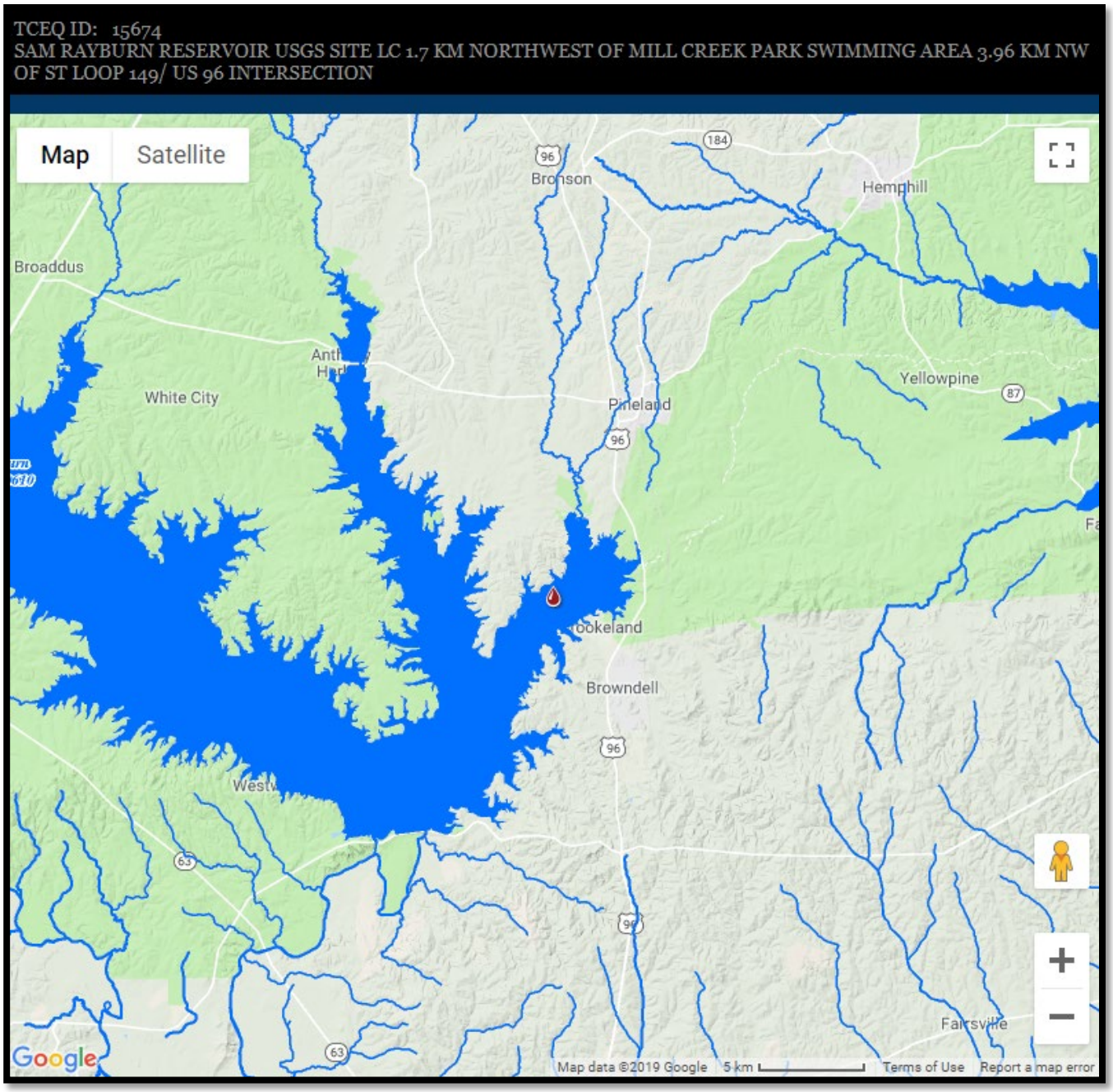

TCEQ ID: 10610
ANGELINA RIVER AT SH 63 2.10 KM SOUTHEAST OF SH 63/REC RD 255 INTERSECTION 19.56 KM NORTH OF JASPER
Map
Satellite
Reservoir-0610
Browndell
Rockland
Curtis
Jasper
Sandy Cr-0603A
Wolf Cr-0603B
B.A. Steinhagen Lake-0603
Science Hall
Beech Grove
Zion Hill
Google
Map data ©2019 Google
5 km
Terms of Use
Report a map error


TCEQ ID: 15673
SAM RAYBURN RESERVOIR USGS SITE AC 2.5 KM EAST NORTHEAST OF FM 705/FM 3127 INTERSECTION
Map
Satellite
Broaddus
White City
Pineland
Yellowpine
Browndell
Sam Rayburn Reservoir-0610
147
96
63
Google
Map data ©2019 Google
5 km
Terms of Use
Report a map error

TCEQ ID: 15671
SAM RAYBURN RESERVOIR USGS SITE FC 7.21 KM SOUTHWEST OF FM 3173/FM 705 INTERSECTION



TCEQ ID: 15674
SAM RAYBURN RESERVOIR USGS SITE LC 1.7 KM NORTHWEST OF MILL CREEK PARK SWIMMING AREA 3.96 KM NW OF ST LOOP 149/ US 96 INTERSECTION



Appendix D: Field Data Sheets

Routine Surface Water Quality Monitoring Field Sheet

SURFACE WATER QUALITY MONITORING PROGRAM FIELD DATA SHEET

Lower Neches Valley Authority-SWB-Environmental Lab, 6790 Bigner Road, Beaumont TX 77703, (409) 892-4011

Station ID:_____ Station Description:_____

Collector(s) ID:_____

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

Field Tests and Measurements:			Sample Identification:			
	Water Temperature °C	00010	LIMS TAG ID			
	Specific Conductance (µS/cm)	00094	Parameters Collected:			
	pH (standard units)	00400		*E. Coli*		*Enterococcus*
	Dissolved Oxygen (mg/L)	00300		TSS		T. Phosphorus
	Secchi Depth (meters)	00078		Ammonia-N		Hardness
	Total Water Depth (meters)	82903		Nitrate-N		Alkalinity
	Instantaneous Stream Flow (CFS)	00061		Nitrite-N		Chloride
				Turbidity		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 precipitation event (days)
	89966 – Present Weather (1-clear, 2-partly cloudy, 3-cloudy, 4-rain, 5-other)
	89965 – Wind Intensity (1=calm, 2=slight, 3=moderate, 4=strong)

Preservation/Checks:		Comments/Observations:
pH indicator strips ID or Lot#		
Nitric acid (HNO3) ID or Lot#		
pH		
Sulfuric acid (HSO4) ID or Lot#		
pH		
Sodium Thiosulfate (Na2S2O3) ID or Lot#		
Chlorine indicator strips ID or Lot#		
Residual		

Form ID: CRP_SWQM_FDS
Revision #: 3
Approved by: BP
Effective: FY 2024

	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 a 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)

Form ID: CRP_SWQM_FDS
Revision #: 3
Approved by: BP
Effective: FY 2024

24 Hour DO Monitoring Field Sheet

24 HOUR DO FIELD DATA SHEET

Lower Neches Valley Authority-SWB-Environmental Lab, 6790 Bigner Road, Beaumont TX 77703, (409) 892-4011

Station ID:____ Station Description:_____

Collector(s) ID:_____

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

Field Tests and Measurements:			Sample Identification:	
	Water Temperature °C	00010	LIMS TAG ID	
	Specific Conductance (µS/cm)	00094	Sonde SN	
	pH (standard units)	00400	**Deployment**	
	Dissolved Oxygen (mg/L)	00300	Deployment Time	
	Secchi Depth (meters)	00078	Start Time (1 hour after Deployment)	
	Total Water Depth (meters)	82903	End Date	
	Instantaneous Stream Flow (CFS)	00061	End Time	

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 precipitation event (days)
	89966 – Present Weather (1-clear, 2-partly cloudy, 3-cloudy, 4-rain, 5-other)
	89965 – Wind Intensity (1=calm, 2=slight, 3=moderate, 4=strong)

Comments and Observations

Form ID: CRP_SWQM_24HR_FDS
Revision #: 0
Approved by: BP
Effective: FY 2024

Appendix E: Chain of Custody Forms

EASTEX ENVIRONMENTAL LABORATORY, INC.

P.O. Box 1089 * Coldspring, TX 77331 — (936) 653-3249 * (800) 525-0508

P.O. Box 631375 * Nacogdoches, TX 75963-1375 — (936) 569-8879 * FAX (936) 569-8951

www.eastexlabs.com

White Copy-Follows Samples
Yellow Copy-Laboratory
Pink Copy-Client Copy

REPORT TO:	INVOICE TO:	Remarks:
Company:	Company:	
Address:	Address:	
Attn:	Attn:	
Phone#:	Phone#:	
Email:	INSTRUCTIONS:	
P.O. #:		
Sampler's Name (print):		
Sampler's Signature:		
Project Name:		

INSTRUCTIONS:

- C or G: C= Composite G= Grab
- Matrix: DW=Drinking Water WW=Wastewater SO=Soil/Sludge OT= Other
- Container Size: 1=Gallon 2=1/2 Gallon 3=Quart/Liter 4=500mL 5=250mL 6=125mL (4oz) 7=60mL (2 oz) 8= 40mL Vial 9=Other
- Type: P= Plastic G= Glass T= Teflon S= Sterile
- Preservatives: C=Chilled S=Sulfuric Acid N=Nitric Acid B=Base/Caustic Z= Zn Acetate ST=Sodium Thiosulfate H=HCL O= Other

ANALYSIS REQUESTED

					Field Data						Containers				ANALYSIS REQUESTED									
Work Order ID	Sample ID	Date	Time	Matrix	C or G	DO	pH	Cl2	Flow	Temp	#	Size	Type	Pres										

Relinquished By:	Received By:	Date	Time	Received Iced: YES / NO
Relinquished By:	Received By:	Date	Time	Received Iced: YES / NO
Relinquished By:	Received By and/or Checked in By:	Date	Time	Received Iced: YES / NO

LAB USE ONLY	Sample Condition Acceptable: YES / NO	Temp °C	*Therm ID	Logged In By:	Date	Time
Alternate Check In:	Date / Time					

*Thermometer has 0.0 factor and recorded temperature is actual temperature

Chain of Custody Revision 3: 05/01/18

Eastex Environmental Laboratory, Inc.

Client Name _____

Address _____

City _____ State _____ Zip _____

Contact Name _____

Phone _____ Fax _____

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

SAMPLER (S) SIGNATURE:

SRA Environmental Services Division

CHAIN OF CUSTODY RECORD

1895 I-P Way
Orange, Texas 77632
409–746–3284
Fax 409–746–2249

Parameter List Requisition

CHEMISTRY

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

METALS

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

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

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

Client Specific Notes:	Requested Turnaround Time:

Appendix F: Data Review Checklist and Summary Data Review Checklist

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

LNVA CRP Lab QA Checklist

Item	Date/Signature
LNVA LIMS ID's	
Lab Data Reviewed (Lab Name:)	
LNVA field sheet Data Reviewed	
LNVA/Lab Data Entry	
Data Entry Review	
QAO Approval	
SWQMIS submittal	

Event Date/Sampling Run: _____ # of Monitoring Stations_____

Tag Number	LNVA Sample ID	TCEQ Station ID

COMMENTS

Deviations

Sample ID	Parameter	DUP RPD	MS % Rec	LOQS % Rec	LCS % Rec	Hold Time

ATTACHMENT 1 Example Letter to Document Adherence to the QAPP

TO: (name)
(organization)

FROM: (name)
(organization)

RE: LNVA Fiscal Year 2024-25 CRP QAPP

Please sign and return this form by (date) to:

(address)

I acknowledge receipt of the "LNVA QAPP, FY24-25". I understand the document(s) describe quality assurance, quality control, data management and reporting, and other technical activities that must be implemented to ensure the results of work performed will satisfy stated performance criteria. My signature on this document signifies that I have read and approved the document contents pertaining to my program. Furthermore, I will ensure that all staff members participating in CRP activities will be required to familiarize themselves with the document contents and adhere to them as well.

_____

Name Date

Copies of the signed forms should be sent by the LNVA to the TCEQ CRP Project Manager within 60 days of TCEQ approval of the QAPP.