

Amendment #1

Update to the San Antonio River Authority Clean Rivers Program FY 2026–2027 QAPP

Prepared by the San Antonio River Authority in Cooperation with the Texas Commission on Environmental Quality (TCEQ)

Effective: Immediately upon approval by all parties

Questions concerning this QAPP Amendment should be directed to:

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Justification

This document details the changes made to the basin-wide QAPP to update Appendix B for fiscal year 2027. Additional changes include TCEQ personnel updates, changes to the total phosphorus and total non-filterable residue performance criteria, and clarified language regarding adherence of sub-participants to the QAPP. Personnel changes in San Antonio River Authority staffing. Acceptance criteria for parameters with LOQs ≤ 1 clarified.

Green highlighting = change by San Antonio River Authority

Red font = change by TCEQ

Strikethrough font = deletion of text from previous QAPP document

Summary of Changes

Section	Sub-section/ Figure/Table	Page(s) in Basin-wide QAPP	Change	Justification	Affected Entity	Page(s) in this Amendment
A2	TCEQ sub- section	2	Replaced Sunshyne Hendrix with Jenna Wadman as the TCEQ CRP Project Quality Assurance Specialist. Replaced Sunshyne Hendrix with Leslie McSpadden as the TCEQ CRP Project Manager. Replaced Cathy Anderson, Team Leader, with Samantha Trexler, TCEQ CRP Data Manager, as the signatory for the TCEQ Data Management and Analysis (DM&A) team. Replaced D. Jody Koehler with Jason Natho as TCEQ Quality Assurance Manager.	TCEQ personnel update. TCEQ personnel update. TCEQ personnel update and internal change to the QAPP approval process. TCEQ personnel update.	TCEQ	9-12

Section	Sub-section/ Figure/Table	Page(s) in Basin-wide QAPP	Change	Justification	Affected Entity	Page(s) in this Amendment
	SPL sub- section	6 7	Replaced Loren Walker with Sagar Shrestha as the TCEQ Lead CRP Quality Assurance Specialist. Updated lab name for DHL to SPL Round Rock and updated personnel titles Added paragraph regarding adherence of sub-tier participants to the QAPP. Moved paragraph from Section B4 to Section A2.	TCEQ personnel update. Change in laboratory name. Clarified requirements for sub-tier participants who do not sign the QAPP.	DHL/SPL SARA	
List of Acronyms	List of Acronyms	9	Remove DHL and add SPL	Change in name of laboratory for DHL to SPL Round Rock	DHL/SPL	13-14
A5	Project/Task Description Amendments to the QAPP, Special Project Appendices	10-11	Update number of stations and types of monitoring for FY27 Replaced the TCEQ DM&A Team Leader with the TCEQ CRP Data Manager as the signatory for DM&A on amendments and appendices.	Update station counts and counts for types of monitoring Internal change to the approval process.	SARA TCEQ	15-16
A7	TCEQ sub-section	13-14	Replaced Sunshyne Hendrix with Leslie McSpadden as the TCEQ CRP Project Manager. Replaced Cathy Anderson, Team Leader, with Samantha Trexler, TCEQ CRP Data Manager, as the contact for the TCEQ DM&A team.	TCEQ personnel update. TCEQ personnel update and change to the QAPP distribution process.	TCEQ	17-18

Section	Sub-section/ Figure/Table	Page(s) in Basin-wide QAPP	Change	Justification	Affected Entity	Page(s) in this Amendment
	SARA Sub-section	14	Replaced Loren Walker with Sagar Shrestha as the TCEQ Lead CRP Quality Assurance Specialist.	TCEQ personnel update.	SARA	
			Replace Michelle Garza with Rebecca Reeves as the SARA CRP Data Manager	SARA personnel update.		
	SPL sub-section	15	Updated title for Austin Davis Change in name of Sub-contract Laboratory from DHL Laboratory to SPL Round Rock and updated personnel titles.	DHL/SPL Round Rock name change.	DHL/SPL	
A8	TCEQ sub-section	16-17	Replaced Sunshyne Hendrix with Jenna Wadman as the TCEQ CRP Project Quality Assurance Specialist. Replaced Sunshyne Hendrix with Leslie McSpadden as the TCEQ CRP Project Manager. Replaced Cathy Anderson with Scott Delgado as the TCEQ DM&A Team Leader. Replaced Scott Delgado with Samantha Trexler as the TCEQ CRP Data Manager. Replaced D. Jody Koehler with Jason Natho as TCEQ Quality Assurance Manager.	TCEQ personnel update. TCEQ personnel update. TCEQ personnel update. TCEQ personnel update. TCEQ personnel update.	TCEQ	19-21

Section	Sub-section/ Figure/Table	Page(s) in Basin-wide QAPP	Change	Justification	Affected Entity	Page(s) in this Amendment
	SARA sub- section	17-18	Replaced Loren Walker with Sagar Shrestha as the TCEQ Lead CRP Quality Assurance Specialist.	TCEQ personnel update.	SARA	
			Replace Michelle Garza with Rebecca Reeves as the Data Manager	SARA personnel update.		
			Update title for Austin Davis	SARA personnel update.		
	SPL sub- section	19	Updated lab name for DHL to SPL Round Rock and updated personnel titles.	Lab name change	DHL/SPL	
A10	Figure A10.1	21	Replaced Sunshyne Hendrix with Leslie McSpadden as the TCEQ CRP Project Manager. Replaced D. Jody Koehler with Jason Natho as TCEQ Quality Assurance Manager. Replaced Loren Walker with Sagar Shrestha as the TCEQ Lead CRP Quality Assurance Specialist. Replaced Sunshyne Hendrix with Jenna Wadman as the TCEQ CRP Project Quality Assurance Specialist. Replaced Cathy Anderson with Scott Delgado as the TCEQ DM&A Team Leader.	TCEQ personnel update. TCEQ personnel update. TCEQ personnel update. TCEQ personnel update. TCEQ personnel update.	TCEQ	22

Section	Sub-section/ Figure/Table	Page(s) in Basin-wide QAPP	Change	Justification	Affected Entity	Page(s) in this Amendment
			Replaced Scott Delgado with Samantha Trexler as the TCEQ CRP Data Manager. Replace Michelle Garza with Rebecca Reeves as the Data Manager Update title for Austin Davis Update laboratory name for DHL to SPL Round Rock	TCEQ personnel update. SARA personnel update. SARA personnel update. DHL/SPL Round Rock	SARA DHL/SPL	
A12	Table A12.1	22-23	Change laboratory name for DHL to SPL Round Rock	Change in laboratory name	DHL/SPL	23
B2	Recording Data	27	Update reference for electronic data recording to Portal for ArcGIS	Change in tool platform	SARA	24
B4	Quality Control or Acceptability Requirements, Deficiencies, and Corrective Actions	35	Deleted paragraph regarding the use of subcontracted labs.	Moved paragraph to Section A2.	SARA, GBRA, DHL	26
	Laboratory Duplicates	33	Clarify language regarding duplicate acceptance criteria for parameters with $LOQ \leq 1$.	Clarify criteria where parameters with low results have a higher probability of higher RPD results.		25
D1	Table D1.1	45	Changes Senior Aquatic Biologist to Watershed Monitoring Supervisor	SARA personnel update.	SARA	27-28

Section	Sub-section/ Figure/Table	Page(s) in Basin-wide QAPP	Change	Justification	Affected Entity	Page(s) in this Amendment
Appendix A	Table A6.3 Table A6.4 Table A6.6 Table A6.7	50-56	Updated the AWRL for total phosphorus in Table A6.3, A6.4. Added precision and bias % recovery of LCS criteria for total non-filterable residue in Table A6.3, A6.4. Updated Table A6.3 and A6.4 to reflect change in hardness for metals sample location for the new fiscal year (2027). Updated Table A6.6 and A6.7 to remove metals that will no longer be analyzed and update LOQs for Chromium and Aluminum. Updated Table A6.7 to replace DHL with SPL Round Rock. Update Table A6.3 and Table A6.4 Chlorophyll-α and Pheophytin method to include publication year.	Programmatic update to support the development of nutrient criteria. Update to CRP's measurement performance specifications. Update footnote to reflect which sites where hardness by titration will be analyzed. Update to metals parameters being analyzed. Change in laboratory name. Specify the method being used for Chlorophyll and Pheophytin analyses.	SARA, GBRA, SPL	29-34
Appendix B	Table B1.1	64-75	Updated Table B1.1 to reflect modifications to sampling design for FY 2027.	Sampling design has changed from FY 2026 to FY 2027 to align monitoring with assessment needs and support of other SARA monitoring efforts. Changes are detailed in	SARA	35-47

Section	Sub-section/ Figure/Table	Page(s) in Basin-wide QAPP	Change	Justification	Affected Entity	Page(s) in this Amendment
				summary of changes.		
Appendix C	Figure C2	76-77	Updated maps of monitoring stations to reflect modifications to sampling design for FY 2027.	Sites were added and dropped to align monitoring with assessment needs and support of other SARA monitoring efforts. Changes are detailed in summary of changes.	SARA	48-49
Appendix D	Field Data Sheets	125-135	Update nekton, habitat data collection screenshots for ArcGIS Portal platform	Survey moved to ArcGIS Portal platform.	SARA	50-65

Distribution

The TCEQ CRP PM will provide the approved amendment to TCEQ staff listed in A7 and the San Antonio River Authority. The San Antonio River Authority will provide copies of the amendment to each person on the distribution list and to each sub-tier project participant (e.g., subcontractors, subparticipants, or other units of government). The San Antonio River Authority will document distribution according to section A7 of the QAPP to which this amendment pertains.

These changes will be incorporated into the QAPP document and TCEQ and the San Antonio River Authority will acknowledge and accept these changes by approving the final amendment draft electronically.

A2 Approval Page

Texas Commission on Environmental Quality

Water Quality Planning Division

Electronically Approved	8/27/26
Sarah Whitley, Team Leader	Date
Water Quality Standards and Clean Rivers Program	

Electronically Approved	8/27/26
Sunshyne Hendrix Jenna Wadman	Date
Project Quality Assurance Specialist	
Clean Rivers Program	

Electronically Approved	8/27/26
Sunshyne Hendrix Leslie McSpadden	Date
Project Manager	
Clean Rivers Program	

Electronically Approved	8/27/26
Cathy Anderson Samantha Trexler	Date
Team Leader CRP Data Manager	
Data Management and Analysis	

Air Monitoring Division

Electronically Approved	8/28/26
D. Jody Koehler Jason Natho	Date
TCEQ Quality Assurance Manager	
Laboratory and Quality Assurance Section	

Electronically Approved	8/27/26
Loren Walker Sagar Shrestha	Date
Lead CRP Quality Assurance Specialist	
Quality Assurance Team	

San Antonio River Authority

<u>Electronically Approved</u>	<u>8/26/26</u>
Rebecca S. Reeves,	Date
CRP Project Manager	
San Antonio River Authority	

<u>Electronically Approved</u>	<u>8/26/26</u>
Patricia M. Carvajal	Date
CRP Quality Assurance Officer	
San Antonio River Authority	

San Antonio River Authority Regional Environmental Laboratory

<u>Electronically Approved</u>	<u>8/27/26</u>
Zachary Jendrusch	Date
Laboratory Supervisor	

<u>Electronically Approved</u>	<u>8/26/26</u>
Jeanette Hernandez	Date
Laboratory Quality Assurance Officer	

Bandera County River Authority and Groundwater District

<u>Electronically Approved</u>	<u>8/27/26</u>
David Mauk, General Manager	Date
BCRAGD	

<u>Electronically Approved</u>	<u>8/26/26</u>
Clint Carter, Field Operations	Date
Manager	
BCRAGD	

GBRA Laboratory

Electronically Approved	8/26/26
Miliana Hernandez, Lead Laboratory Analyst	Date
GBRA Laboratory	

Electronically Approved	8/26/26
Kylie Gidgell, Quality Assurance Officer	Date
GBRA Laboratory	

DHL Laboratory SPL Round Rock Environmental Laboratory

Electronically Approved	8/26/26
Karyn Lane, General Manager Lab Manager	Date
DHL Laboratory SPL Round Rock	

Electronically Approved	8/26/26
Sherri Herschmann, Quality Assurance Officer Senior Quality Specialist	Date
DHL Laboratory SPL Round Rock	

Bio-West, Inc

Electronically Approved	8/26/26
Brad Littrell	Date
Aquatic Ecologist / Project Manager	

Sub-tier participants (e.g., subcontractors, subparticipants, or other units of government) will sign the quality assurance project plan (QAPP), indicating the organization's awareness of, and commitment to requirements contained in the QAPP and any amendments or added appendices of this plan. Signatures in section A2 will eliminate the need for adherence letters to be maintained. If adherence letters are preferred, the San Antonio River Authority will secure written documentation from each sub-tier project participant stating the organization's awareness of and commitment to requirements contained in this QAPP and any amendments or added appendices of this plan. The San Antonio River Authority will maintain this documentation as part of the project's quality assurance records and will ensure the documentation is available for review.

When a laboratory that is a signatory of this QAPP finds it necessary and/or advantageous to subcontract analyses, in accordance with CRP requirements and the TNI Standard (Volume 1, Module 2, Section 4.5, Subcontracting of Environmental Tests), the laboratory must ensure and document that the subcontracting laboratory is NELAP-accredited (when required) and understands and follows the QA/QC requirements included in this QAPP. This includes confirming that the sub-contracting laboratory has LOQs at or below TCEQ AWRLs and performs all required QC analysis outlined in this QAPP. The signatory laboratory is also responsible for QA of the data prior to delivering it to the San Antonio River Authority, 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 (San Antonio River Authority) when requested.

Detail of Changes

List of Acronyms

AWRL	Ambient Water Reporting Limit
BCRAGD	Bandera County River Authority & Groundwater District
BS	Biased Season
CAP	Corrective Action Plan
CE	Collecting Entity
COC	Chain of Custody
CRP	Clean Rivers Program
DHL	DHL Laboratory
DM	Data Manager
DMRG	Surface Water Quality Monitoring Data Management Reference Guide
DM&A	Data Management and Analysis
ESD	Environmental Sciences Department
EPA	United States Environmental Protection Agency
FY	Fiscal Year
GBRA	Guadalupe Blanco River Authority
GIS	Geographical Information System
GPS	Global Positioning System
IT	Information Technology Department (SARA)
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LIMS	Laboratory Information Management System
LOD	Limit of Detection
LOQ	Limit of Quantitation
MS	Matrix spike
MSD	Matrix Spike Duplicate
MT	Monitoring Type
NELAP	National Environmental Lab Accreditation Program
PM	Project Manager
QA	Quality Assurance
QAM	Quality Assurance Manager
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
QAS	Quality Assurance Specialist
QC	Quality Control
QMP	Quality Management Plan
QM	Quality Manual
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
RT	Routine Monitoring
SAB	Senior Aquatic Biologist
SARA	San Antonio River Authority
SARA-REL	San Antonio River Authority Regional Environmental Laboratory
SARA-WM	San Antonio River Authority Watershed Monitoring
SE	Submitting Entity
SLOC	Station Location
SOP	Standard Operating Procedure
SPL	SPL Round Rock Environmental Laboratory
SQL	Structured Query Language
SSIS	SQL Server Integration Services
SWQM	Surface Water Quality Monitoring

Replaces List of Acronyms Table on Page 9 of the 2026-2027 CRP QAPP

SWQMIS	Surface Water Quality Monitoring Information System
TAC	Texas Administrative Code
TMDL	Total Maximum Daily Load
TCEQ	Texas Commission on Environmental Quality
TNI	The NELAC Institute
TSWQS	Texas Surface Water Quality Standard
TWDB	Texas Water Development Board

A5 Project/Task Description

In support of the TCEQ CRP long term goal to maintain and improve water quality within each river basin in Texas, SARA maintains routine, systematic and biological monitoring stations to help characterize and detect any water quality changes within the San Antonio River Basin. The Bandera County River Authority and Groundwater District (BCRAGD), a sub-participant under SARA's QAPP, also collects routine water quality data in the basin and submits data to the TCEQ through the SARA CRP. Routine monitoring for FY2026-FY2027 includes 69-73 stations monitored a minimum of four times per year for field, conventional, and bacteria parameter groups. Routine flow will be collected at 59-66 sites. Metals in water will be collected at 6 stations; biochemical oxygen demand will be collected at 5 stations and chlorophyll/pheophytin will be collected at 51 stations. In FY2026-FY2027, habitat and nekton will be collected at fourteen-15 stations. 24-hour diel measurements will be conducted at 17-18 stations. Benthic samples will be collected at 6-7 stations. With input from SARA's CRP Environmental Advisory Committee as well as other entities performing monitoring in the basin, the location, frequency, and variation of all monitoring sites and scheduled parameters are determined at the annual Coordinated Monitoring Meeting. Details of the monitoring schedule, parameters, and sampling locations are included in Appendix B.

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 San Antonio River Authority Project Manager (PM) to the TCEQ CRP PM electronically. The San Antonio River Authority 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 San Antonio River Authority PM, the San Antonio River Authority Quality Assurance Officer (QAO), the TCEQ CRP PM, the TCEQ CRP Lead Quality Assurance Specialist (QAS), the TCEQ CRP Project QAS, the TCEQ CRP Team Leader, the TCEQ ~~Data Management and Analysis (DM&A) Team Leader~~ CRP Data Manager (DM), and any additional parties affected by the amendment. Amendments are not retroactive. No work shall be implemented without an approved QAPP or amendment prior to the start of work. Any activities under this contract that commence prior to the approval of the governing QA document constitute a deficiency and are subject to corrective action as described in section C1 of this QAPP. Any deviation or deficiency from this QAPP which occurs after the execution of this QAPP will be addressed through a corrective action plan (CAP). An amendment may be a component of a CAP to prevent future recurrence of a deviation.

Amendments will be incorporated into the QAPP by way of attachment and distributed to personnel on the distribution list by the San Antonio River Authority PM. If adherence letters are required, the San Antonio River Authority 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 San Antonio River Authority 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 San Antonio River Authority, the TCEQ CRP PM, and TCEQ technical staff. Appendices will be written in an abbreviated format and will reference the San Antonio River Authority QAPP where appropriate. Appendices will be approved by the San Antonio River Authority PM, the San Antonio River Authority QAO, the Laboratory (as applicable), the TCEQ CRP PM, the TCEQ CRP Project QAS, the TCEQ Lead QAS, TCEQ

Replaces A5 on pages 10-11 of the FY2026-2027 CRP QAPP

CRP Team Leader, the TCEQ ~~DM&A Team Leader~~ CRP DM, and additional parties affected by the appendix, as appropriate. Copies of approved QAPP appendices will be distributed by the San Antonio River Authority to project participants before data collection activities commence. The San Antonio River Authority will secure written documentation from each sub-tier project participant (e.g., subcontractors, subparticipants, other units of government) stating the organization's awareness of and commitment to requirements contained in each special project appendix to the QAPP. The San Antonio River Authority will maintain this documentation as part of the project's QA records and ensure that the documentation is available for review.

A7 Distribution List

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Replaces TCEQ, SARA, and DHL/SPL personnel on pages 13-15 of the FY 2026-2027 CRP QAPP

DHL Laboratory SPL Round Rock Environmental Laboratory

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A8 Project/Task Organization

Description of Responsibilities

TCEQ

Jason Godeaux

Manager, Monitoring and Assessment Section

Responsible for oversight of the implementation of CRP QAPPs, directs the day-to-day management of the section.

Sarah Whitley

Team Leader, Water Quality Standards and Clean Rivers Program

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

Sunshyne-Hendrix Jenna Wadman

CRP Project Quality Assurance Specialist

Serves as liaison between CRP management and TCEQ QA management. Participates in the development, approval, implementation, and maintenance of written QA standards (e.g., Program Guidance, SOPs, QAPPs, QMP). Serves on planning team for CRP special projects. Reviews and approves CRP QAPPs in coordination with other CRP staff. Coordinates documentation and monitors implementation of corrective actions for the CRP.

Sunshyne-Hendrix Leslie McSpadden

CRP Project Manager

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

Cathy-Anderson Scott Delgado

Team Leader, Data Management and Analysis Team

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

Scott-Delgado Samantha Trexler

CRP Data Manager, Data Management and Analysis Team

Responsible for coordination and tracking of CRP data sets from initial submittal through TCEQ CRP PM review and approval. Ensures that data are reported following instructions in the Data Management Reference Guide (DMRG), July 2019 or most current version. Runs automated data

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

~~D. Jody Koehler~~ Jason Natho

TCEQ Quality Assurance Manager

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

~~Loren Walker~~ Sagar Shrestha

CRP Lead Quality Assurance Specialist

Participates in the development, approval, implementation, and maintenance of written QA standards (e.g., Program Guidance, SOPs, QAPPs, QMP). Assists program manager and TCEQ CRP Project QAS in developing and implementing the quality system. Reviews and approves CRP QAPPs, QAPP amendments, and QAPP special appendices. Prepares and distributes annual audit plans. Conducts monitoring systems audits of planning agencies. Concurs with corrective actions. Conveys QA problems to appropriate management. Recommends that work be stopped in order to safeguard programmatic objectives, worker safety, public health, or environmental protection. Ensures maintenance of audit records for the CRP.

SAN ANTONIO RIVER AUTHORITY

Rebecca S. Reeves

San Antonio River Authority 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 San Antonio River Authority participants and that projects are producing data of known quality. Ensures that subparticipants are qualified to perform contracted work. Ensures TCEQ CRP PM and/or QA Specialists are notified of deficiencies and corrective actions, and that issues are resolved.

Austin Davis

San Antonio River Authority Senior Aquatic Biologist Watershed Monitoring Supervisor

Supervises the Watershed Monitoring team which is responsible for the sample collection activities and ensures that they are performed in accordance with the appropriate Clean Rivers Program requirements. Schedules sampling runs to meet the monitoring outlines in the Coordinated Monitoring Schedule. Ensures that the SARA CRP Project Manager and/or QA staff are notified of deficiencies or corrective actions, and that issues are resolved.

Patricia M. Carvajal

San Antonio River Authority 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

Replaces TCEQ,SARA, and DHL/SPL personnel on pages 16-18 of the FY 2026-2027 CRP QAPP

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 San Antonio River Authority PM of particular circumstances that may adversely affect the quality of data. Coordinates and monitors deficiencies and corrective action. Coordinates and maintains records of data verification and validation. Coordinates the research and review of technical QA material and data related to water quality monitoring system design and analytical techniques. Conducts monitoring systems audits on project participants to determine compliance with project and program specifications, issues written reports, and follows through on findings. Ensures that field staff is properly trained and that training records are maintained.

Nicholas Johnson

San Antonio River Authority Quality Assurance Specialist

Responsible for performing data review and validation of data collected in the field including field parameters, field observations, biological, habitat and benthic macroinvertebrate data. Participates in or conducts assessments of field activities of CRP partners.

Michelle Garza Rebecca S. Reeves

San Antonio River Authority CRP Data Manager

Responsible for delivering monitoring data to TCEQ in accordance with the program's requirements and timelines. Ensures data submittals comply and reconcile with the parameters and monitoring sites identified in the QAPP and amendments and generates data summary reports to document data deliverable content, inconsistencies, and errors. Responsible for the transfer of basin water quality data to the TCEQ in a format compatible with SWQMIS. Oversees the transfer and management of program data into San Antonio River Authority public facing water quality viewers.

DHL Laboratory SPL Round Rock Environmental Laboratory

Karyn Lane

General Manager Lab Manager

Responsible for overall performance, administration, and reporting of analyses performed by DHL's SPL Round Rock Environmental Laboratory. Responsible for supervision of laboratory personnel involved in generating analytical data for the project. Ensures that laboratory personnel have adequate training and a thorough knowledge of this QAPP and related SOPs. Responsible for oversight of all laboratory operations ensuring that all QA/QC requirements are met, documentation is complete and adequately maintained, and results are reported accurately. Additionally, ensures that all laboratory data is reviewed and verified for integrity and continuity, reasonableness and conformance to project requirements, and then validated against the data quality objectives listed in Appendix A of this QAPP.

Sherri Herschmann

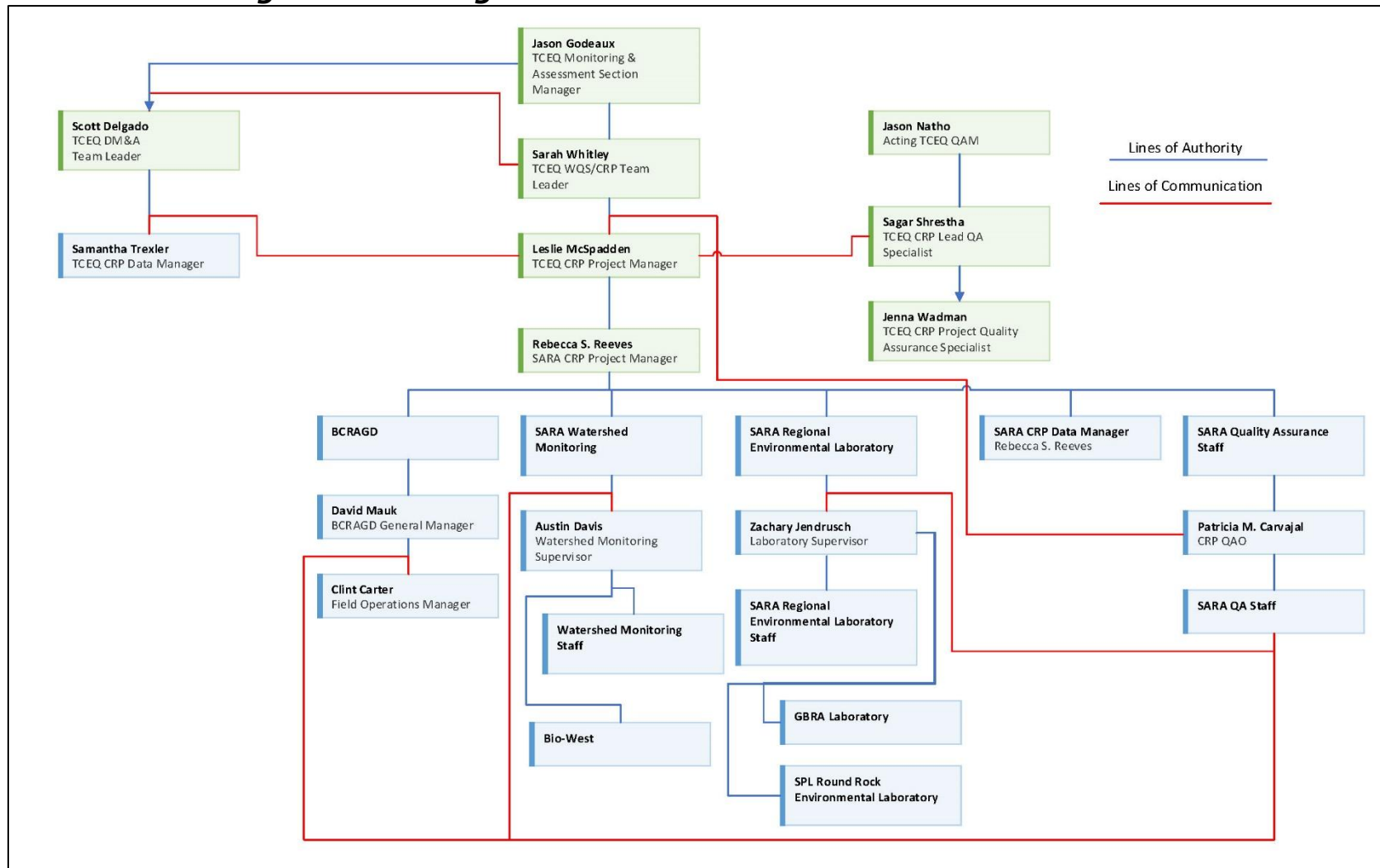
Quality Assurance Officer Senior Quality Specialist

Maintains operating procedures that are in compliance with this QAPP, amendments and appendices. Responsible for the overall quality control and quality assurance of analyses performed by DHL's SPL Round Rock Environmental Laboratory. Ensures that internal assessments are performed in accordance with laboratory accreditation requirements.

A10 Project Organizational Chart and Communication

Project Organization Chart

Figure A10.1. Organization Chart with Lines of Communication



A12 Documents and Records

Table A12.1 Project Documents and Records

Document/Record	Location	Retention (yrs)	Format
QAPPs, amendments and appendices	SARA, DHESPL Round Rock, BCRAGD, GBRA, Bio-West	Minimum 5 years	Paper/Electronic
Field SOPs	SARA, BCRAGD	Minimum 5 years	Paper/Electronic
Laboratory Quality Manuals	SARA, GBRA, DHESPL Round Rock	Minimum 5 years	Paper/Electronic
Laboratory SOPs	SARA, GBRA, DHESPL Round Rock	Minimum 5 years	Paper/Electronic
QAPP distribution documentation	SARA	Minimum 5 years	Paper/Electronic
Field staff training records	SARA, BCRAGD	Minimum 5 years	Paper/Electronic
Field equipment calibration/maintenance logs	SARA, BCRAGD	Minimum 5 years	Paper/Electronic
Field instrument printouts	SARA, BCRAGD	Minimum 5 years	Paper/Electronic
Field notebooks or data sheets	SARA, BCRAGD, Bio-West	Minimum 5 years	Paper/Electronic
Chain of custody records	SARA, GBRA, DHESPL Round Rock, Bio-West	Minimum 5 years	Paper/Electronic
Laboratory calibration records	SARA, GBRA, DHESPL Round Rock	Minimum 5 years	Paper/Electronic
Laboratory instrument printouts	SARA, GBRA, DHESPL Round Rock	Minimum 5 years	Paper/Electronic
Laboratory data reports/results	SARA, GBRA, DHESPL Round Rock	Minimum 5 years	Paper/Electronic
Laboratory equipment maintenance logs	SARA, GBRA, DHESPL Round Rock	Minimum 5 years	Paper/Electronic
Corrective Action Documentation	SARA, DHESPL Round Rock, BCRAGD, GBRA, Bio-West	Minimum 5 years	Paper/Electronic
Benthic Macroinvertebrate Identification Records	SARA, Bio-West	Minimum 5 years	Paper/Electronic

B2 Sampling Methods

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.
- Electronic worksheets (Excel or [Survey 123 Portal for ArcGIS](#)) are used by SARA to record data for routine water quality parameters, biological collections and habitat assessments; if corrections are made to the electronic field sheet, these are documented via the LIMS audit trail. In the event that electronic sheets cannot be used, hard copy forms are used to record data. Chain of custody is documented through hard copy forms.
- Sub-participants utilize paper field sheets to document field parameters, observations and chain of custody documentation.

B4 Quality Control

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:

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

For parameters that have a Limit of Quantitation ≤ 1 , an RPD criteria of 35% will be applied to results that are within 10x the limit of quantitation.

If the precision criterion is exceeded, the data are not acceptable for use under this project and are not reported to TCEQ. ~~Duplicate results that are near the LOQ will be evaluated to determine if the results will be reported.~~ 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.

Quality Control or Acceptability Requirements, Deficiencies, and Corrective Actions

Sampling QC excursions are evaluated by the SARA CRP QAO, in consultation with the SARA CRP PM. 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 SARA CRP PM and SARA CRP QAO will be relied upon in evaluating results.

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

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

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

~~Additionally, in accordance with CRP requirements and the TNI Standard (Volume 1, Module 2, Section 4.5, Subcontracting of Environmental Tests) when a laboratory that is a signatory of this QAPP finds it necessary and/or advantageous to subcontract analyses, the laboratory that is the signatory on this QAPP must ensure that the subcontracting laboratory is NELAP-accredited (when required) and understands and follows the QA/QC requirements included in this QAPP. This includes confirming that the sub-contracting laboratory has LOQs at or below TCEQ AWRLs and performs all required QC analysis outlined in this QAPP. The signatory laboratory is also responsible for QA of the data prior to delivering it to the San Antonio River Authority, 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 (San Antonio River Authority) when requested.~~

D1 Data Review, Verification, and Validation

Table D1.1: Data Review Tasks

Data to be Verified	Field Task	Laboratory Task	Quality Assurance Task	Lead Organization Data Manager Task
Sample documentation complete; samples labeled; sites identified	SARA SAE SARA WMS BCRAGD	Lab QAO	SARA QAO	
Field QC samples collected for all analytes as prescribed in the TCEQ SWQM Procedures Manual	SARA SAE SARA WMS BCRAGD		SARA QAO	
Standards and reagents traceable	SARA SAE SARA WMS BCRAGD	SARA LS Lab QAO	QA Staff	
Chain of custody complete/acceptable	SARA SAE SARA WMS BCRAGD	SARA LS Lab QAO	SARA QAO	
NELAP Accreditation is current		SARA LS	SARA QAO	
Sample preservation and handling acceptable		SARA LS Lab QAO	SARA QAO	
Holding times not exceeded		SARA LS	SARA QAO	
Collection, preparation, and analysis consistent with SOPs and QAPP	SARA SAE SARA WMS BCRAGD	SARA LS Lab QAO	SARA QAO	
Field documentation (e.g., biological, stream habitat) complete	SARA SAE SARA WMS		SARA QAO	
Laboratory Instrument calibration data complete		SARA LS Lab QAO	QA staff	
Bacteriological records complete		SARA LS Lab QAO	SARA QAO	
QC samples analyzed at required frequency		SARA LS Lab QAO	SARA QAO	
QC results meet performance and program specifications		SARA LS Lab QAO	SARA QAO	
Analytical sensitivity (Limit of Quantitation/Ambient Water Reporting Limits) consistent with QAPP		SARA LS Lab QAO	SARA QAO	
Results, calculations, transcriptions checked		SARA LS		
Laboratory bench-level review performed		SARA LS		
All laboratory samples analyzed for all scheduled parameters		SARA LS Lab QAO	SARA QAO	
Corollary data agree		SARA LS Lab QAO	SARA QAO	
Nonconforming activities documented	SARA SAE SARA WMS BCRAGD	SARA LS	SARA QAO	
Outliers confirmed and documented; reasonableness check performed		SARA LS Lab QAO	SARA QAO	SARA DM
Dates formatted correctly				SARA DM
Depth reported correctly and in correct units	SARA SAE SARA WMS BCRAGD	Lab QAO	SARA QAO	
TAG IDs correct				SARA DM
TCEQ Station ID number assigned				SARA DM
Valid parameter codes			SARA QAO	SARA DM
Codes for submitting entity(ies), collecting entity(ies), and monitoring type(s) used correctly			SARA QAO	SARA DM
Time based on 24-hour clock			SARA QAO	SARA DM
Absence of transcription error confirmed		Lab QAO	SARA QAO	
Absence of electronic errors confirmed			SARA QAO	

Replaces Data Review, Verification and Validation section on page 45 of the FY 2026-2027 CRP QAPP

Data to be Verified	Field Task	Laboratory Task	Quality Assurance Task	Lead Organization Data Manager Task
Sampling and analytical data gaps checked (e.g., all sites for which data are reported are on the coordinated monitoring schedule)			SARA QAO	SARA DM
Field instrument pre and post calibration results within limits	SARA SAB SARA WMS BCRAGD		SARA QAO	
10% of data manually reviewed		SARA LS Lab QAO	SARA QAO	
SARA SAB – SARA Senior Aquatic Biologist SARA WMS - SARA Watershed Monitoring Supervisor SARA LS - Laboratory Supervisor Lab QAO - Laboratory Quality Assurance Officer SARA QAO - SARA Quality Assurance Officer	SARA DM - SARA Data Manager BCRAGD - Bandera County River Authority & Groundwater District Field Operations Manager			

Appendix A: Measurement Performance Specifications (Table A6.1–A6.11)

TABLE A6.3 Measurement Performance Specifications for SARA-REL										
Conventional Parameters in Water										
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab
BIOCHEMICAL OXYGEN DEMAND (MG/L, 5 DAY - 20DEG C	mg/L	water	SM 5210B	00310	2	2	NA	NA	NA	SARA_REL
RESIDUE, TOTAL NONFILTRABLE (MG/L)	mg/L	water	SM 2540D	00530	5	1	NA	20% 20-25	80-120 80-120	SARA_REL
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	SM 4500NH ₃ D	00610	0.1	0.1	70–130	20% 20-25	80–120	SARA_REL
NITRITE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00615	0.05	0.05	70–130	20% 20-25	80–120	SARA_REL
NITRATE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00620	0.05	0.05	70–130	20% 20-25	80–120	SARA_REL
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	EPA 351.2	00625	0.2	0.2	70–130	20% 20-25	80–120	SARA_REL
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	EPA 365.3	00665	0.06 0.02	0.02	70–130	20% 20-25	80–120	SARA_REL
HARDNESS, TOTAL (MG/L AS CaCO ₃)*1	mg/L	water	SM 2340 C	00900	5	5	NA	20	80–120	SARA_REL
CHLORIDE (MG/L AS CL)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00940	5	5	70–130	20	80–120	SARA_REL
SULFATE (MG/L AS SO ₄)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00945	5	5	70–130	20	80–120	SARA_REL
CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	ug/L	water	SM 10200-H (2011)	32211	3	1	NA	20% 20-25	80–120	SARA_REL
PHEOPHYTIN-A UG/L SPECTROPHOTOMETRIC ACID. METH.	µg/L	water	SM 10200-H (2011)	32218	3	1	NA	NA	NA	SARA_REL
*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). ¹Only analyzed by this method for site 12883 and all metals locations ²RPD Criteria for results within 10x the LOQ is 35% RPD for parameters that have an LOQ ≤1 ³In lieu of LCS/LCSD, sample duplicates will be analyzed References: United States Environmental Protection Agency (USEPA), Clean Water Act Analytical Methods Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2022 or applicable version TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).										

TABLE A6.4 Measurement Performance Specifications for GBRA										
Conventional Parameters in Water										
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab
BIOCHEMICAL OXYGEN DEMAND (MG/L, 5 DAY - 20DEG C	mg/L	water	SM5210B	00310	2	2	NA	NA	NA	GBRA
RESIDUE, TOTAL NONFILTRABLE (MG/L)	mg/L	water	SM2540D	00530	5	1	NA	NA 20 3	NA 80-120	GBRA
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	EPA 350.1	00610	0.1	0.1	70-130	20	80-120	GBRA
NITRITE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.0 Rev2.1 (1993)	00615	0.05	0.05	70-130	20	80-120	GBRA
NITRATE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.0 Rev2.1 (1993)	00620	0.05	0.05	70-130	20	80-120	GBRA
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	EPA 351.2	00625	0.2	0.2	70-130	20	80-120	GBRA
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	EPA 365.3	00665	0.06 0.02	0.02	70-130	20	80-120	GBRA
HARDNESS, TOTAL (MG/L AS CaCO3) ¹	mg/L	water	SM 2340C	00900	5	5	NA	20	80-120	GBRA
CHLORIDE (MG/L AS CL)	mg/L	water	EPA 300.0 Rev2.1 (1993)	00940	5	1	70-130	20	80-120	GBRA
SULFATE (MG/L AS SO4)	mg/L	water	EPA 300.0 Rev2.1 (1993)	00945	5	1	70-130	20	80-120	GBRA
CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	ug/L	water	SM10200-H (2011)	32211	3	1	NA	20	80-120	GBRA
PHEOPHYTIN-A UG/L SPECTROPHOTOMETRIC ACID. METH.	ug/L	water	SM10200-H (2011)	32218	3	1	NA	NA	NA	GBRA
*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). ¹Only analyzed by this method for site 12883 and all metals locations ²RPD Criteria for results within 10x the LOQ is 35% RPD for parameters that have an LOQ ≤1 ³In lieu of LCS/LCSD, sample duplicates will be analyzed References: United States Environmental Protection Agency (USEPA), Clean Water Act Analytical Methods Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2022 or applicable version TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).										

TABLE A6.6 Measurement Performance Specifications for SARA-REL

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, CALCULATED (MG/L AS CaCO ₃)*	mg/L	water	SM 2340 B	82394	5	5	NA	20	80-120	SARA-REL
CALCIUM, TOTAL (MG/L AS Ca)	mg/L	water	EPA 200.8	00916	0.5	0.1	70-130	20	80-120	SARA-REL
MAGNESIUM, TOTAL (MG/L AS Mg)	mg/L	water	EPA 200.8	00927	0.5	0.1	70-130	20	80-120	SARA-REL
SODIUM, TOTAL (MG/L AS Na)	mg/L	water	EPA 200.8	00929	NA	0.1	70-130	20	80-120	SARA-REL
POTASSIUM, TOTAL (MG/L AS K)	mg/L	water	EPA 200.8	00937	NA	0.1	70-130	20	80-120	SARA-REL
ARSENIC, TOTAL (UG/L AS AS)	ug/L	water	EPA 200.8	01002	NA	1	70-130	20 ²	80-120	SARA-REL
BARIUM, TOTAL (UG/L AS BA)	ug/L	water	EPA 200.8	01007	NA	1	70-130	20 ²	80-120	SARA-REL
CHROMIUM, TOTAL (UG/L AS CR)	ug/L	water	EPA 200.8	01034	NA	1-5	70-130	20	80-120	SARA-REL
COPPER, TOTAL (UG/L AS CU)	ug/L	water	EPA 200.8	01042	NA	1	70-130	20 ²	80-120	SARA-REL
LEAD, TOTAL (UG/L AS PB)	ug/L	water	EPA 200.8	01051	NA	1	70-130	20 ²	80-120	SARA-REL
MANGANESE, TOTAL (UG/L AS MN)	ug/L	water	EPA 200.8	01055	50	1	70-130	20	80-120	SARA-REL
MOLYBDENUM, TOTAL (UG/L AS MO)	ug/L	water	EPA 200.8	01062	NA	1	70-130	20	80-120	SARA-REL
NICKEL, TOTAL (UG/L AS NI)	ug/L	water	EPA 200.8	01067	NA	5	70-130	20	80-120	SARA-REL
ZINC, TOTAL (UG/L AS ZN)	ug/L	water	EPA 200.8	01092	NA	5	70-130	20	80-120	SARA-REL
ALUMINUM, TOTAL (UG/L AS AL)	ug/L	water	EPA 200.8	01105	NA	10-100	70-130	20	80-120	SARA-REL
IRON, TOTAL (MG/L AS FE)	mg/L	water	EPA 200.8	74010	NA	0.1	70-130	20	80-120	SARA-REL
CADMIUM, TOTAL (UG/L AS CD)	ug/L	water	EPA 200.8	01027	NA	1	70-130	20 ²	80-120	SARA-REL
SELENIUM, TOTAL (UG/L AS SE)	ug/L	water	EPA 200.8	01147	2	1	70-130	20 ²	80-120	SARA-REL
SILVER, TOTAL (UG/L AS AG)	ug/L	water	EPA 200.8	01077	NA	1	70-130	20 ²	80-120	SARA-REL
ANTIMONY, TOTAL (UG/L AS SB)	ug/L	water	EPA 200.8	01097	NA	5	70-130	20	80-120	SARA-REL
THALLIUM, TOTAL (UG/L AS TL)	ug/L	water	EPA 200.8	01059	NA	1	70-130	20 ²	80-120	SARA-REL
ALUMINUM, DISSOLVED (UG/L AS AL)	ug/L	water	EPA 200.8	01106	200	10-100	70-130	20	80-120	SARA-REL
ARSENIC, DISSOLVED (UG/L AS AS)	ug/L	water	EPA 200.8	01000	5	1.0	70-130	20 ²	80-120	SARA-REL
BARIUM, DISSOLVED (UG/L AS BA)	ug/L	water	EPA 200.8	01005	1000	1.0	70-130	20 ²	80-120	SARA-REL
CADMIUM, DISSOLVED (UG/L AS CD)	ug/L	water	EPA 200.8	01025	0.1 for waters <50mg/L hardness	0.3	70-130	20 ²	80-120	SARA-REL

					0.3 for waters >50mg/L hardness ¹					
CALCIUM, DISSOLVED (MG/L AS Ca)	mg/L	water	EPA 200.8	00915	NA	0.1	70-130	20	80-120	SARA-REL

TABLE A6.6 Measurement Performance Specifications for SARA-REL

Metals in Water

Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab
CHROMIUM, DISSOLVED (UG/L AS CR)	µg/L	water	EPA 200.8	01030	10	1.0 5.0	70-130	20	80-120	SARA-REL
COPPER, DISSOLVED (UG/L AS CU)	µg/L	water	EPA 200.8	01040	1 for waters < 50mg/L hardness	1.0	70-130	20 ²	80-120	SARA-REL

					3 for waters >= 50mg/L hardness ¹					
IRON, DISSOLVED (UG/L AS Fe)	µg/L	water	EPA 200.8	01046	NA	100	70-130	20	80-120	SARA-REL
LEAD, DISSOLVED (UG/L AS PB)	µg/L	water	EPA 200.8	01049	0.1 for waters < 85 mg/L hardness	1.0	70-130	20 ²	80-120	SARA-REL

					1 for waters >= 85 mg/L hardness ¹					
MAGNESIUM, DISSOLVED (MG/L AS MG)	mg/L	water	EPA 200.8	00925	NA	0.1	70-130	20	80-120	SARA-REL
MANGANESE, DISSOLVED (UG/L AS MN)	µg/L	water	EPA 200.8	01056	NA	1	70-130	20	80-120	SARA-REL
MOLYBDENUM, DISSOLVED (UG/L AS MO)	µg/L	water	EPA 200.8	01060	NA	1.0	70-130	20	80-120	SARA-REL
NICKEL, DISSOLVED (UG/L AS NI)	ug/L	water	EPA 200.8	01065	10	5.0	70-130	20	80-120	SARA-REL
POTASSIUM, DISSOLVED (MG/L AS K)	mg/L	water	EPA 200.8	00935	NA	0.10	70-130	20	80-120	SARA-REL
SELENIUM, DISSOLVED (UG/L AS SE)	µg/L	water	EPA 200.8	01145	NA	1.0	70-130	20 ²	80-120	SARA-REL
SILVER, DISSOLVED (UG/L AS AG)	ug/L	water	EPA 200.8	01075	0.5	0.5	70-130	20 ²	80-120	SARA-REL
SODIUM, DISSOLVED (MG/L AS NA)	mg/L	water	EPA 200.8	00930	NA	0.10	70-130	20	80-120	SARA-REL
ZINC, DISSOLVED (UG/L AS ZN)	ug/L	water	EPA 200.8	01090	5	5.0	70-130	20	80-120	SARA-REL
ANTIMONY, DISSOLVED {UG/L AS SB}	ug/L	water	EPA 200.8	01095	NA	5	70-130	20	80-120	SARA-REL
THALLIUM, DISSOLVED (UG/L AS TL)	µg/L	water	EPA 200.8	01057	1	1.0	70-130	20 ²	80-120	SARA-REL

*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).

¹Historical Hardness results in the basin are >100 mg/L

²RPD Criteria for results within 10x the LOQ is 35% RPD for parameters that have an LOQ ≤1

TABLE A6.6 Measurement Performance Specifications for SARA-REL**Metals in Water**

Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab
References: United States Environmental Protection Agency (USEPA), Clean Water Act Analytical Methods Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2022 or applicable version TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).										

TABLE A6.7 Measurement Performance Specifications for DHLSPL Round Rock**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, CALCULATED (MG/L AS CaCO ₃)*	mg/L	water	SM 2340-B	82394	1	1	NA	15	85-115	DHL
CALCIUM, TOTAL (MG/L AS CA)	mg/L	water	EPA 200.8	00916	0.5	0.1	70-130	15	85-115	DHL
MAGNESIUM, TOTAL (MG/L AS MG)	mg/L	water	EPA 200.8	00927	0.5	0.1	70-130	15	85-115	DHL
SODIUM, TOTAL (MG/L AS NA)	mg/L	water	EPA 200.8	00929	NA	0.1	70-130	15	85-115	DHL
POTASSIUM, TOTAL (MG/L AS K)	mg/L	water	EPA 200.8	00937	NA	0.1	70-130	15	85-115	DHL
ARSENIC, TOTAL (UG/L AS AS)	ug/L	water	EPA 200.8	01002	NA	1	70-130	15	85-115	DHLSPL
BARIUM, TOTAL (UG/L AS BA)	ug/L	water	EPA 200.8	01007	NA	1	70-130	15	85-115	DHLSPL
CHROMIUM, TOTAL (UG/L AS CR)	ug/L	water	EPA 200.8	01034	NA	1	70-130	15	85-115	DHLSPL
COPPER, TOTAL (UG/L AS CU)	ug/L	water	EPA 200.8	01042	NA	1	70-130	15	85-115	DHLSPL
LEAD, TOTAL (UG/L AS PB)	ug/L	water	EPA 200.8	01051	NA	1	70-130	15	85-115	DHLSPL
MANGANESE, TOTAL (UG/L AS MN)	ug/L	water	EPA 200.8	01055	50	1	70-130	15	85-115	DHL
MOLYBDENUM, TOTAL (UG/L AS MO)	ug/L	water	EPA 200.8	01062	NA	1	70-130	15	85-115	DHL
NICKEL, TOTAL (UG/L AS NI)	ug/L	water	EPA 200.8	01067	NA	1	70-130	15	85-115	DHLSPL
ZINC, TOTAL (UG/L AS ZN)	ug/L	water	EPA 200.8	01092	NA	5	70-130	15	85-115	DHLSPL
ALUMINUM, TOTAL (UG/L AS AL)	ug/L	water	EPA 200.8	01105	NA	10	70-130	15	85-115	DHLSPL
IRON, TOTAL (MG/L AS FE)	mg/L	water	EPA 200.8	74010	NA	0.1	70-130	15	85-115	DHL
CADMIUM, TOTAL (UG/L AS CD)	ug/L	water	EPA 200.8	01027	NA	1	70-130	15	85-115	DHLSPL
SELENIUM, TOTAL (UG/L AS SE)	ug/L	water	EPA 200.8	01147	2	1	70-130	15	85-115	DHLSPL
SILVER, TOTAL (UG/L AS AG)	ug/L	water	EPA 200.8	01077	NA	1	70-130	15	85-115	DHLSPL
ANTIMONY, TOTAL (UG/L AS SB)	ug/L	water	EPA 200.8	01097	NA	1	70-130	15	85-115	DHLSPL
THALLIUM, TOTAL (UG/L AS TL)	ug/L	water	EPA 200.8	01059	NA	1	70-130	15	85-115	DHLSPL
ALUMINUM, DISSOLVED (UG/L AS AL)	ug/L	water	EPA 200.8	01106	200	30	70-130	15	85-115	DHLSPL
ARSENIC, DISSOLVED (UG/L AS AS)	ug/L	water	EPA 200.8	01000	5	5	70-130	15	85-115	DHLSPL
BARIUM, DISSOLVED (UG/L AS BA)	ug/L	water	EPA 200.8	01005	1000	1	70-130	15	85-115	DHLSPL
CADMIUM, DISSOLVED (UG/L AS CD)	ug/L	water	EPA 200.8	01025	0.1 for waters <50mg/L hardness	0.3	70-130	15	85-115	DHLSPL

TABLE A6.7 Measurement Performance Specifications for DHLSPL Round Rock

Metals in Water										
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab
			EPA 200.8		-----					
			EPA 200.8		0.3 for waters >50mg/L hardness ¹					
CALCIUM, DISSOLVED (MG/L AS CA)	mg/L	water	EPA 200.8	00915	NA	0.1	70-130	15	85-115	DHL
CHROMIUM, DISSOLVED (UG/L AS CR)	µg/L	water	EPA 200.8	01030	10	5	70-130	15	85-115	DHLSPL
COPPER, DISSOLVED (UG/L AS CU)	µg/L	water	EPA 200.8	01040	1 for waters < 50mg/L hardness	2	70-130	15	85-115	DHLSPL
			EPA 200.8		-----					
			EPA 200.8		3 for waters >= 50mg/L hardness ¹					
IRON, DISSOLVED (UG/L AS FE)	µg/L	water	EPA 200.8	01046	NA	150	70-130	15	85-115	DHL
LEAD, DISSOLVED (UG/L AS PB)	µg/L	water	EPA 200.8	01049	0.1 for waters < 85 mg/L hardness	1	70-130	15 ²	85-115	DHLSPL
			EPA 200.8		-----					
			EPA 200.8		1 for waters >= 85 mg/L hardness ¹					
MAGNESIUM, DISSOLVED (MG/L AS MG)	mg/L	water	EPA 200.8	00925	NA	0.1	70-130	15	85-115	DHL
MANGANESE, DISSOLVED (UG/L AS MN)	µg/L	water	EPA 200.8	01056	NA	2	70-130	15	85-115	DHL
MOLYBDENUM, DISSOLVED (UG/L AS MO)	µg/L	water	EPA 200.8	01060	NA	2	70-130	15	85-115	DHL
NICKEL, DISSOLVED (UG/L AS NI)	ug/L	water	EPA 200.8	01065	10	10	70-130	15	85-115	DHLSPL
POTASSIUM, DISSOLVED (MG/L AS K)	mg/L	water	EPA 200.8	00935	NA	0.1	70-130	15	85-115	DHL
SELENIUM, DISSOLVED (UG/L AS SE)	µg/L	water	EPA 200.8	01145	NA	2	70-130	15	85-115	DHLSPL
SODIUM, DISSOLVED (MG/L AS NA)	mg/L	water	EPA 200.8	00930	NA	0.1	70-130	15	85-115	DHL
ZINC, DISSOLVED (UG/L AS ZN)	ug/L	water	EPA 200.8	01090	5	5	70-130	15	85-115	DHLSPL
ANTIMONY, DISSOLVED (UG/L AS SB)	ug/L	water	EPA 200.8	01095	NA	2.5	70-130	15	85-115	DHLSPL
THALLIUM, DISSOLVED (UG/L AS TL)	µg/L	water	EPA 200.8	01057	1	1	70-130	15 ²	85-115	DHLSPL

*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).

¹Historical Hardness results in the basin are >100 mg/L

²RPD Criteria for results within 10x the LOQ is 35% RPD for parameters that have an LOQ ≤1

References:

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

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

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

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

Sample Design Rationale FY 2027

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

San Antonio River Basin FY27 Coordinated Monitoring Meeting Summary of Changes

The following **changes**, **additions**, or **deletions** have been made to the FY2027 Coordinated Monitoring Schedule to address monitoring issues identified by the involved monitoring entities or steering committee members:

1. 1902 (Lower Cibolo Creek)
 - a. 1902_01: **Flow collection method for Station 12797, Cibolo Creek at FM 81, will change from manual doppler collection to USGS gage 08186000. Twice yearly dissolved and total metals analysis for Ag, Al, As, Ba, Cd, Cr, Cu, Ni, Pb, Sb, Se, Tl, Zn will be added. Hardness titration will be added.**
 - b. 1902_04: **Twice yearly dissolved and total metals collection and hardness will be removed from Station 12805, Cibolo Creek at FM 539. All other parameters remain the same.**
 - c. 1902_05: **Twice yearly dissolved and total metals analysis for Ag, Al, As, Ba, Cd, Cr, Cu, Ni, Pb, Sb, Se, Tl, Zn will be added at Station 14197, Cibolo Creek at Scull Crossing. Hardness titration will be added.**
 - d. 1902A_02: **Twice yearly dissolved and total metals analysis for Ag, Al, As, Ba, Cd, Cr, Cu, Ni, Pb, Sb, Se, Tl, Zn will be added at Station 14203, Martinez Creek at Abbott Road East of San Antonio. Hardness titration will be added.**
 - e. 1902B_01: **Twice yearly dissolved and total metals analysis for Ag, Al, As, Ba, Cd, Cr, Cu, Ni, Pb, Sb, Se, Tl, Zn will be added at Station 14202, Salitrillo Creek at Autumn Run. Hardness titration will be added.**
2. 1903 (Medina River below Medina Diversion Lake)
 - a. 1903_03: **Flow collection method for Station 12814, Medina River at Applewhite Rd, will change from manual doppler collection to USGS gage 08180800. Hardness analysis method will change from calculated hardness to hardness titration. Parameters Ca, Fe, K, Mg, Mn, Mo, Na will be removed from the dissolved and total metals analysis, all other parameters remain the same.**
3. 1905 (Medina River above Medina Lake)
 - a. 1905_02: **Twice yearly biological monitoring for nekton, habitat, and 24 hour dissolved oxygen will be added for Station 21125, Medina River at Patterson Ave.**
4. 1906 (Lower Leon Creek)
 - a. 1906_01: **Twice yearly dissolved and total metals collection and hardness will be removed from Station 14198, Leon Creek upstream Leon Creek WWTP. All other parameters remain the same.**
 - b. 1906_06: **Quarterly water quality monitoring will be added for Station 14209, Leon Creek upstream from Rodriguez Park, including conventionals, chlorophyll a, pheophytin, field parameters, and flow.**
5. 1910 (Salado Creek)
 - a. 1910_02: **Twice yearly dissolved and total metals collection and hardness will be removed from Station 14929, Salado Creek at Comanche Park. All other parameters remain the same.**
6. 1911 (Upper San Antonio River)
 - a. 1911_08: **Twice yearly biological monitoring for macrobenthic communities will be added for Station 12903, San Antonio River at Theo Ave.**

Replaces Sample Design Rationale on pages 64-65 of the FY 2026–2027 CRP QAPP

- b. 1911_08: Quarterly water quality monitoring will be added for Station 22669, San Antonio River 116 meters downstream of Southeast Military Drive in San Antonio, including conventionals, chlorophyll a, pheophytin, and field parameters. Weekly water quality monitoring will also be added for E. coli and field observations. Flow measurements are not possible at this site.
 - c. 1911A_01: Quarterly water quality monitoring will be added for Station 22656, Olmos Creek at Jones Maltsberger Rd 180 m West of St Lukes Lane, including conventionals, chlorophyll a, pheophytin, field parameters, and flow.
 - d. 1911D_01: Twice yearly dissolved and total metals collection and hardness will be removed from Station 12707, San Pedro Creek at Furnish. All other parameters remain the same.
7. 1912 (Medio Creek)
- a. 1912_01: Twice yearly dissolved and total metals collection and hardness will be removed from Station 12916, Medio Creek at Hidden Valley Campground. All other parameters remain the same.
8. 1913 (Mid Cibolo Creek)
- a. 1913_01: Twice yearly dissolved and total metals analysis for Ag, Al, As, Ba, Cd, Cr, Cu, Ni, Pb, Sb, Se, Tl, Zn will be added at Station 12919, Cibolo Creek downstream IH-10 US 90. Hardness titration will be added.

Monitoring Sites for FY 2027

Table B1.1 Sample Design and Schedule, FY 2027

Site Description	Station ID	Waterbody ID	AU	Region	SE	CE	MT	24 hr DO	AqHab	Benthics	Nekton	MIW	Chlorophyll/ Pheophytin	BOD	Conv	Bacteria	Flow	Field	Comments
SAN ANTONIO RIVER BRIDGE ON US 77-A AND 183 SOUTHEAST OF GOLIAD	12791	1901	1901_02	14	SA	SA	RT						4		4	52	52	52	River Recreation Bacteria Station. Flow reported from USGS gage 08188500.
SAN ANTONIO RIVER AT SOUTHERN PACIFIC RR BRIDGE IN GOLIAD	12792	1901	1901_02	14	SA	SA	BS	2	2		2						2	2	Flow reported from USGS gage 08188500.
SAN ANTONIO RIVER AT SH 72 NEAR RUNGE	12794	1901	1901_04	13	SA	SA	RT						4	4	4	52	52	52	River Recreation Bacteria station. BOD will be collected 4x/yr. Flow reported from USGS gage 08188060.
SAN ANTONIO RIVER AT CONQUISTA CROSSING 2.4 KM DOWNSTREAM OF FM 791 SW OF FALLS CITY	16580	1901	1901_05	13	SA	SA	BS	2	2		2								BS samples will be collected along with RT field and flow.
SAN ANTONIO RIVER AT CONQUISTA CROSSING 2.4 KM DOWNSTREAM OF FM 791 SW OF FALLS CITY	16580	1901	1901_05	13	SA	SA	RT						4	4	4	4	4	4	BOD, Flow will be collected from USGS gage 08183500.
SAN ANTONIO RIVER AT NORTH RIVERDALE RD 15 KM WEST OF GOLIAD TEXAS	17859	1901	1901_03	14	SA	SA	RT						4		4	52		52	River Recreation Bacteria site. Flow severity will be recorded. Flow estimate reported from USGS 08188500.
ESCONDIDO CREEK AT KARNES CR 331	18402	1901A	1901A_01	13	SA	SA	RT						4		4	4	4	4	
ECLETO CREEK AT FM 81 424 METERS EAST AND 103 METERS NORTH TO THE INTERSECTION OF KARNES CR 334 AND FM 81	20539	1901F	1901F_01	13	SA	SA	BS	2											BS samples will be collected along with RT field and flow.
ECLETO CREEK AT FM 81 424 METERS EAST AND 103 METERS NORTH TO THE INTERSECTION OF KARNES CR 334 AND FM 81	20539	1901F	1901F_01	13	SA	SA	RT						4		4	4	4	4	Flow will be reported from USGS gage 08186500.

Site Description	Station ID	Waterbody ID	AU	Region	SE	CE	MT	24 hr DO	AqHab	Benthics	Nekton	MIW	Chlorophyll/ Pheophytin	BOD	Conv	Bacteria	Flow	Field	Comments
CIBOLO CREEK AT FM 81 EAST OF PANNA MARIA	12797	1902	1902_01	13	SA	SA	RT					2	4		4	4	4	4	Metals = total and dissolved +hardness titration. Flow will be reported from USGS gage 08186000.
CIBOLO CREEK AT FM 541 WEST OF KOSCIUSKO	12802	1902	1902_03	13	SA	SA	BS	2	2		2						2	2	
CIBOLO CREEK AT FM 539	12805	1902	1902_04	13	SA	SA	RT						4		4	4	4	4	Flow reported from USGS gage 08185500.
CIBOLO CREEK AT SCULL CROSSING	14197	1902	1902_05	13	SA	SA	BS	2	2		2								BS samples will be collected along with RT field and flow.
CIBOLO CREEK AT SCULL CROSSING	14197	1902	1902_05	13	SA	SA	RT					2	4		4	4	4	4	Metals = total and dissolved +hardness titration.
CIBOLO CREEK AT CR389 NEAR CESTOWA TEXAS	14211	1902	1902_02	13	SA	SA	BS			2									BS samples will be collected along with RT field and flow.
CIBOLO CREEK AT CR389 NEAR CESTOWA TEXAS	14211	1902	1902_02	13	SA	SA	RT						4	4	4	52	52	52	River Recreation Bacteria station. BOD, Flow reported from USGS gage 08186000.
MARTINEZ CREEK ON NORTH GABLE ROAD SOUTH OF ZUEHL	12741	1902A	1902A_01	13	SA	SA	RT								4	4	4	4	Flow reported from USGS gage 08185100.
SALATRILLO CREEK AT AUTUMN RUN	14202	1902B	1902B_01	13	SA	SA	RT					2	4		4	4	4	4	Metals = total and dissolved +hardness titration.
SAN ANTONIO RIVER AUTHORITY'S SALATRILLO WWTP 249 METERS DWSTRN FROM SCHAEFER RD	14923	1902B	1902B_01	13	SA	SA	RT								4	4	4	4	
CLIFTON BRANCH AT OLD FLORESVILLE ROAD/WILSON COUNTY ROAD 401 2.7 KILOMETERS WEST OF STOCKDALE	20776	1902C	1902C_01	13	SA	SA	RT								4	4	4	4	
MARTINEZ CREEK AT ABBOTT ROAD EAST OF SAN ANTONIO	14203	1902A	1902A_02	13	SA	SA	RT					2	4		4	4	4	4	Metals = total and dissolved +hardness titration.
MARTINEZ CREEK AT SHUWIRTH ROAD	12745	1902A	1902A_03	13	SA	SA	RT						4		4	4	4	4	
MEDINA RIVER AT FM 1937 NEAR LOSOYA	12811	1903	1903_01	13	SA	SA	RT						4		4	4	4	4	Flow information will be reported from USGS gauge 08181500.

Site Description	Station ID	Waterbody ID	AU	Region	SE	CE	MT	24 hr DO	AqHab	Benthics	Nekton	MIW	Chlorophyll/ Pheophytin	BOD	Conv	Bacteria	Flow	Field	Comments
MEDINA RIVER AT APPLEWHITE ROAD APPROXIMATELY 1.16 KILOMETERS NORTH OF NEAL ROAD AT THE SOUTHERN BOUNDARY OF THE TOYOTA PROPERTY CAMS ID 0769 USGS SITE ID 08180850	12814	1903	1903_03	13	SA	SA	RT					2	4		4	4	4	4	Metals = total and dissolved +hardness titration. Flow will be reported from USGS gage 081808000.
MEDINA RIVER 28 METERS UPSTREAM FROM LOOP 1604 ON NORTH BANK	12819	1903	1903_04	13	SA	SA	RT						4		4	4	4	4	Flow will be reported from USGS gage 08180700.
MEDINA RIVER AT CR 2615 APPROX .5 MI DOWNSTREAM OF DIVERSION DAM NEAR RIO MEDINA	12824	1903	1903_05	13	SA	BA	RT						4		4	4	4	4	
MEDINA RIVER AT CR 484	14200	1903	1903_05	13	SA	SA	BS	2	2	2	2								BS samples will be collected along with RT field and flow.
MEDINA RIVER AT CR 484	14200	1903	1903_05	13	SA	SA	RT						4		4	4	4	4	Flow will be reported from USGS gage 08180640.
CITY OF SAN ANTONIO DOS RIOS WWTP DISCHARGE INTO MEDINA RIVER PERMIT WQ0010137-033	16584	1903	1903_01	13	SA	SA	RT								4	4	4	4	
MEDINA RIVER 500 METERS DOWNSTREAM OF PLEASANTON ROAD IN BEXAR COUNTY	22225	1903	1903_02	13	SA	SA	RT						4		4	4	4	4	Flow will be reported from USGS gage 08181500.
MEDINA LAKE AT MEDINA LAKE DAM WEST OF SAN ANTONIO	12825	1904	1904_01	13	SA	BA	RT						4		4	4		4	
MEDINA LAKE NEAR RED COVE	12826	1904	1904_01	13	SA	BA	RT								4	4		4	
MEDINA LAKE AT MORMON BLUFF	12827	1904	1904_03	13	SA	BA	RT								4	4		4	

Site Description	Station ID	Waterbody ID	AU	Region	SE	CE	MT	24 hr DO	AqHab	Benthics	Nekton	MIW	Chlorophyll/ Pheophytin	BOD	Conv	Bacteria	Flow	Field	Comments
MEDINA LAKE BETWEEN CYPRESS AND SPETTEL COVES	12828	1904	1904_03	13	SA	BA	RT								4	4		4	
MEDINA LAKE MID LAKE NEAR HEADWATER	12829	1904	1904_02	13	SA	BA	RT						4		4	4		4	
MEDINA RIVER AT OLD ENGLISH CROSSING ABOVE BANDERA FALLS	12830	1905	1905_01	13	SA	BA	RT								4	4	4	4	
MEDINA RIVER AT FM 470 WEST OF BANDERA	12832	1905	1905_02	13	SA	BA	RT								4	4	4	4	
MEDINA RIVER AT SH 173 1.9 MI UPSTREAM FROM BANDERA CREEK 5.6 MI DOWNSTREAM FROM INDIAN CREEK	13638	1905	1905_01	13	SA	BA	RT								4	4	4	4	
MEDINA RIVER AT PATTERSON AVENUE IN MOFFETT PARK MEDINA TEXAS	21125	1905	1905_02	13	SA	SA	BS	2	2		2								BS samples will be collected along with RT field and flow.
MEDINA RIVER AT PATTERSON AVENUE IN MOFFETT PARK MEDINA TEXAS	21125	1905	1905_02	13	SA	BA	RT								4	4	4	4	
MEDINA RIVER AT NORTH SIDE OF MAYAN RANCH, WEST OF CITY OF BANDERA AND 2.16 KILOMETERS UPSTREAM OF SCHMIDTKE ROAD CROSSING	21631	1905	1905_01	13	SA	BA	RT						4		4	4	4	4	
MEDINA RIVER AT NORTH SIDE OF MAYAN RANCH, WEST OF CITY OF BANDERA AND 2.16 KILOMETERS UPSTREAM OF SCHMIDTKE ROAD CROSSING	21631	1905	1905_01	13	SA	SA	BS	2	2		2								BS samples will be collected along with RT field and flow.
NORTH PRONG MEDINA RIVER AKA WALLACE CREEK IMMEDIATELY UPSTREAM OF SH 16	18447	1905A	1905A_01	13	SA	BA	RT						4		4	4	4	4	

Site Description	Station ID	Waterbody ID	AU	Region	SE	CE	MT	24 hr DO	AqHab	Benthics	Nekton	MIW	Chlorophyll/ Pheophytin	BOD	Conv	Bacteria	Flow	Field	Comments
NORTH PRONG MEDINA RIVER AT FM 2107 APPROX 80 METERS NORTHEAST OF THE INTERSECTION OF BREWINGTON CREEK ROAD AND FM 2107 NORTHWEST OF MEDINA TEXAS	21126	1905A	1905A_01	13	SA	BA	RT								4	4	4	4	
WEST PRONG MEDINA RIVER 11M UPSTREAM FROM COALKILN RD 3 KM WEST OF MEDINA AND IMMEDIATELY SOUTH OF SH337	15736	1905B	1905B_01	13	SA	BA	RT								4	4	4	4	
LEON CREEK 24 METERS DOWNSTREAM FROM APPLEWHITE ROAD IN SAN ANTONIO	12835	1906	1906_02	13	SA	SA	RT								4	4	4	4	For high flow events where flow is not possible, flow information will be reported from USGS gage 08181480.
LEON CREEK IMMEDIATELY UPSTREAM OF LOOP 13 SOUTH OF SAN ANTONIO	12844	1906	1906_05	13	SA	SA	BS			2									
LEON CREEK UPSTREAM FROM LEON CREEK WWTP AND APPROX 980 METERS UPSTREAM OF THE CONFLUENCE WITH COMANCHE CREEK	14198	1906	1906_01	13	SA	SA	BS	2	2		2								BS samples will be collected along with RT field and flow.
LEON CREEK UPSTREAM FROM LEON CREEK WWTP AND APPROX 980 METERS UPSTREAM OF THE CONFLUENCE WITH COMANCHE CREEK	14198	1906	1906_01	13	SA	SA	RT						4		4	4	4	4	
LEON CREEK UPSTREAM RODRIGUEZ PARK	14209	1906	1906_06	13	SA	SA	RT						4		4	4	4	4	

Site Description	Station ID	Waterbody ID	AU	Region	SE	CE	MT	24 hr DO	AqHab	Benthics	Nekton	MIW	Chlorophyll/ Pheophytin	BOD	Conv	Bacteria	Flow	Field	Comments
LEON CREEK IN RAYMOND RUSSELL PARK AT LOW WATER BRIDGE	12851	1907	1907_01	13	SA	SA	RT						4		4	4	4	4	
CIBOLO CREEK AT LOW WATER CROSSING ON LINDE RANCH APPROXIMATELY 1.2 KM UPSTREAM OF HERFF FALLS AND APPROXIMATELY 1.5 KM DOWNSTREAM OF CIBOLO NATURE CENTER IN BOERNE, TX	20649	1908	1908_01	13	SA	SA	BS	2	2	2	2						2	2	
MEDINA RIVER DOWNSTREAM MEDINA RESERVOIR IN MICO TX AT LOW WATER CROSSING	14205	1909	1909_01	13	SA	BA	RT								4	4	4	4	
MEDINA DIVERSION LAKE NEAR WEST BANK 40 M UPSTREAM OF DAM AND APPROXIMATELY 1 MI UPSTREAM OF MEDINA RIVER CROSSING AT MEDINA CR 2615	18407	1909	1909_01	13	SA	BA	RT						4		4	4		4	No flow possible.
SALADO CREEK AT SOUTHTON ROAD IN SAN ANTONIO	12861	1910	1910_01	13	SA	SA	RT						4		4	4	4	4	
SALADO CREEK AT RITTIMAN ROAD IN SAN ANTONIO	12874	1910	1910_03	13	SA	SA	BS	2											BS samples will be collected along with RT field and flow.
SALADO CREEK AT RITTIMAN ROAD IN SAN ANTONIO	12874	1910	1910_03	13	SA	SA	RT						4		4	4	4	4	
SALADO CREEK AT EISENHAUER ROAD IN SAN ANTONIO	12875	1910	1910_04	13	SA	SA	BS	2											BS samples will be collected along with RT field and flow.
SALADO CREEK AT EISENHAUER ROAD IN SAN ANTONIO	12875	1910	1910_04	13	SA	SA	RT						4		4	4	4	4	

Site Description	Station ID	Waterbody ID	AU	Region	SE	CE	MT	24 hr DO	AqHab	Benthics	Nekton	MIW	Chlorophyll/ Pheophytin	BOD	Conv	Bacteria	Flow	Field	Comments
SALADO CREEK AT COMANCHE PARK	14929	1910	1910_02	13	SA	SA	BS	2	2	2	2								BS samples will be collected along with RT field and flow.
SALADO CREEK AT COMANCHE PARK	14929	1910	1910_02	13	SA	SA	RT						4		4	4	4	4	
SAN ANTONIO RIVER AT SH 97 NEAR FLORESVILLE	12881	1911	1911_03	13	SA	SA	RT						4	4	4	52	52	52	River Recreation Bacteria Station. BOD, Flow reported from USGS gage 08183200.
SAN ANTONIO RIVER AT DIETZFIELD ROAD CR 117 NORTHWEST OF FLORESVILLE	12883	1911	1911_04	13	SA	SA	RT						4		4	4	4	4	Hardness Titration will be collected 4x/yr. Flow reported from USGS gage 08183200.
SAN ANTONIO RIVER MID CHANNEL 30 M DOWNSTREAM OF ST LOOP 1604 WEST OF ELMENDORF RT/CONTINUOUS MONITORING SITE CAMS 715	12886	1911	1911_05	13	SA	SA	RT						4	4	4	4	4	4	BOD, Flow will be reported from USGS gage 08181800.
SAN ANTONIO RIVER AT IH 410 LOW WATER CROSSING CAMINO COAHUILATECHAN 0.25 KM BELOW THE BRIDGE IN SAN ANTONIO	12897	1911	1911_07	13	SA	SA	RT						4		4	52	52	52	River Recreation Bacteria Station. Flow reported from USGS gage 08178565.
SAN ANTONIO RIVER 116 METERS DOWNSTREAM OF SOUTHEAST MILITARY DRIVE IN SAN ANTONIO	22669	1911	1911_08	13	SA	SA	RT						4		4	52		52	River Recreation Bacteria Station. Flow not possible.
SAN ANTONIO RIVER AT ALAMO ST IN SAN ANTONIO	12904	1911	1911_09	13	SA	SA	RT						4		4	4	4	4	Flow reported from USGS gage 08178000.
SAN ANTONIO RIVER AT WOODLAWN AVE IN SAN ANTONIO	12908	1911	1911_09	13	SA	SA	BS	1	1		1								BS samples will be collected along with RT field and flow.
SAN ANTONIO RIVER AT WOODLAWN AVE IN SAN ANTONIO	12908	1911	1911_09	13	SA	SA	RT						4		4	4	4	4	

Site Description	Station ID	Waterbody ID	AU	Region	SE	CE	MT	24 hr DO	AqHab	Benthics	Nekton	MIW	Chlorophyll/ Pheophytin	BOD	Conv	Bacteria	Flow	Field	Comments
SAN ANTONIO RIVER AT MULBERRY ST IN SAN ANTONIO	12909	1911	1911_09	13	SA	SA	BS	1	1		1								BS samples will be collected along with RT field and flow.
SAN ANTONIO RIVER AT MULBERRY ST IN SAN ANTONIO	12909	1911	1911_09	13	SA	SA	RT								4	4	4	4	
SAN ANTONIO RIVER AT WELL NO. 2 AT JOSKES PAVILLION	12911	1911	1911_09	13	SA	SA	RT						4		4	4	4	4	
SAN ANTONIO RIVER AT W. MITCHELL STREET IN DOWNTOWN SAN ANTONIO	14256	1911	1911_09	13	SA	SA	RT						4		4	52	52	52	River Recreation Bacteria Station. Flow reported from USGS gage 08178050.
SAN ANTONIO RIVER APPROX 835 METERS UPSTREAM OF THE MEDINA RIVER CONFLUENCE	16731	1911	1911_06	13	SA	SA	BS	2	2		2								BS samples will be collected along with RT field and flow.
SAN ANTONIO RIVER APPROX 835 METERS UPSTREAM OF THE MEDINA RIVER CONFLUENCE	16731	1911	1911_06	13	SA	SA	RT						4		4	4	4	4	
SAN ANTONIO RIVER AT MISSION ROAD IMMEDIATELY UPSTREAM OF RIVERSIDE MUNICIPAL GOLF COURSE 1.65 KM DOWNSTREAM OF SAN ANTONIO RIVER/SAN PEDRO CREEK CONFLUENCE IN SAN ANTONIO TX	17066	1911	1911_08	13	SA	SA	RT						4		4	52	52	52	River Recreation Bacteria Station. Flow will be reported from USGS gage 08178050 and 08178500.

Site Description	Station ID	Waterbody ID	AU	Region	SE	CE	MT	24 hr DO	AqHab	Benthics	Nekton	MIW	Chlorophyll/ Pheophytin	BOD	Conv	Bacteria	Flow	Field	Comments
SAN ANTONIO RIVER AT MISSION ROAD IMMEDIATELY UPSTREAM OF RIVERSIDE MUNICIPAL GOLF COURSE 1.65 KM DOWNSTREAM OF SAN ANTONIO RIVER/SAN PEDRO CREEK CONFLUENCE IN SAN ANTONIO TX	17066	1911	1911_08	13	SA	SA	BS	2	2		2								BS samples will be collected along with RT field and flow.
SAN ANTONIO RIVER AT THEO AVE IN SAN ANTONIO	12903	1911	1911_08	13	SA	SA	BS			2									
SAN ANTONIO RIVER 57 METERS UPSTREAM OF LEXINGTON STREET BRIDGE AND APPROXIMATELY 1.3 KILOMETERS DOWNSTREAM OF IH 35	18865	1911	1911_09	13	SA	SA	RT						4		4	4		4	No Flow Possible - Barge Traffic
SAN ANTONIO RIVER LOOP 111 METERS DOWNSTREAM OF MARKET STREET AT LITTLE RHEIN STEAKHOUSE IN SAN ANTONIO	20122	1911	1911_09	13	SA	SA	RT						4		4	4		4	No Flow Possible - Barge Traffic
SAN ANTONIO RIVER 450 METERS DOWNSTREAM OF FM541 5 KM WEST AND 3.5 KM SOUTH OF POTH	22419	1911	1911_02	13	SA	SA	RT						4		4	4	4	4	Flow information will be collected from USGS gage 08183500.
OLMOS CREEK AT JONES MALTSBERGER	22656	1911	1911A_01	13	SA	SA	RT						4		4	4	4	4	

Site Description	Station ID	Waterbody ID	AU	Region	SE	CE	MT	24 hr DO	AqHab	Benthics	Nekton	MIW	Chlorophyll/ Pheophytin	BOD	Conv	Bacteria	Flow	Field	Comments
ROAD 88 METERS NORTH AND 139 METERS WEST OF THE INTERSECTION OF CORONA AVENUE AND JONES MALTSBERGER ROAD IN SAN ANTONIO																			
ELMENDORF LAKE NEAR NORTHEAST BANK 25 M UPSTREAM OF DAM NEAR 19TH STREET BRIDGE	18733	1911B	1911B_01	13	SA	SA	RT						4		4	4		4	No flow possible.
APACHE CREEK AT BRAZOS STREET APPROXIMATELY 0.7 KM UPSTREAM OF THE CONFLUENCE WITH ALAZAN CREEK	18735	1911B	1911B_01	13	SA	SA	RT						4		4	4	4	4	
ALAZAN CREEK AT TAMPICO ST IN SAN ANTONIO	12715	1911C	1911C_01	13	SA	SA	RT						4		4	4	4	4	
SAN PEDRO CREEK AT FURNISH ST IN SAN ANTONIO PERMIT 0000968 UNION STOCK YARDS	12707	1911D	1911D_01	13	SA	SA	RT								4	4	4	4	Flow reported from USGS gage 08178500.
MARTINEZ CREEK AT RUIZ STREET IN SAN ANTONIO	12751	1911I	1911I_01	13	SA	SA	RT								4	4	4	4	
MEDIO CREEK AT HIDDEN VALLEY CAMPGROUND	12916	1912	1912_01	13	SA	SA	BS	2	2	2	2								BS samples will be collected along with RT field and flow.
MEDIO CREEK AT HIDDEN VALLEY CAMPGROUND	12916	1912	1912_01	13	SA	SA	RT						4		4	4	4	4	
MEDIO CREEK AT US 90 WEST	12735	1912A	1912A_01	13	SA	SA	RT						4		4	4	4	4	
CIBOLO CREEK 40 METERS DOWNSTREAM	12919	1913	1913_01	13	SA	SA	RT					2	4		4	4	4	4	Metals = total and dissolved +hardness titration. Flow

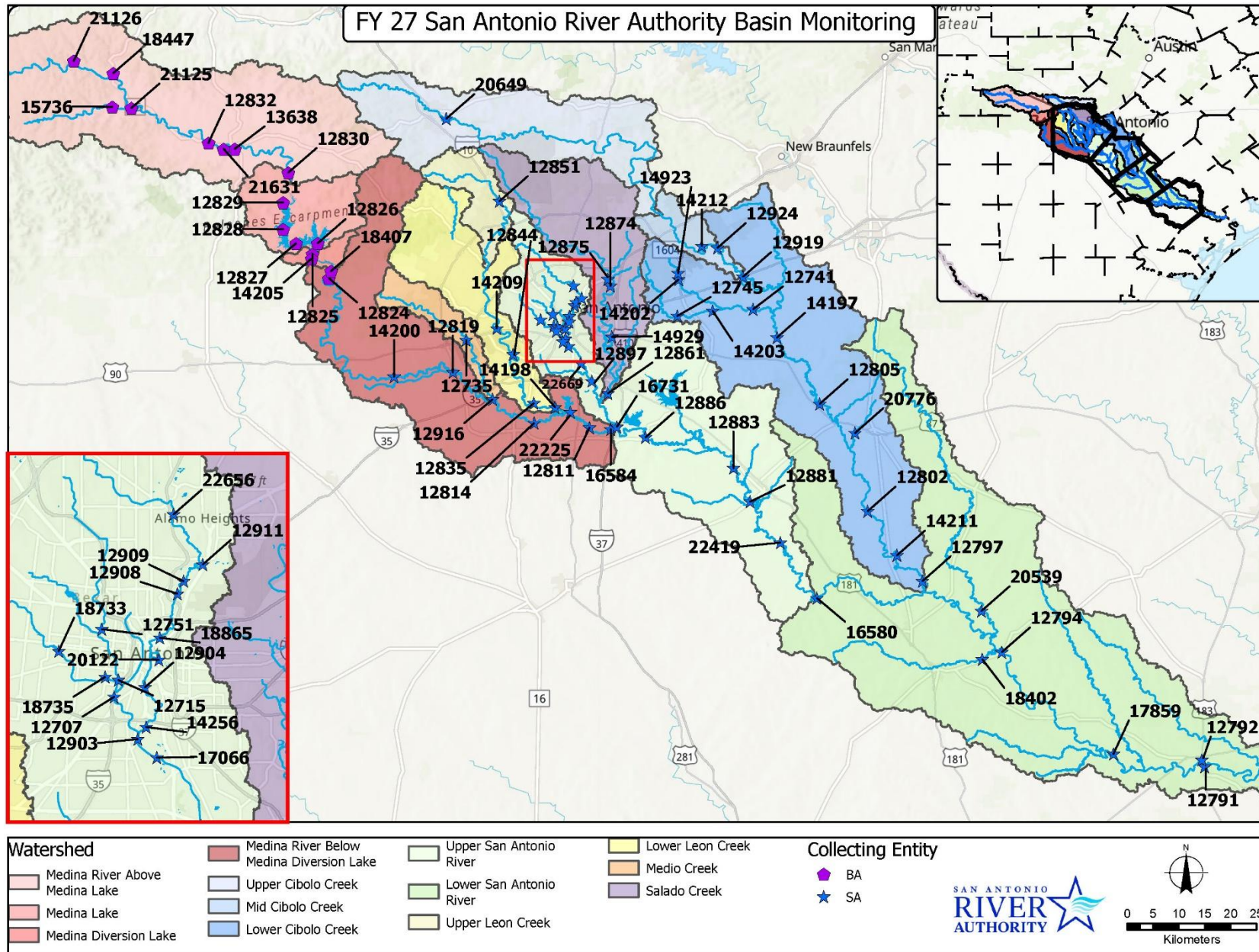
Replaces pages 67-75 of the FY 2026-2027 CRP QAPP

Site Description	Station ID	Waterbody ID	AU	Region	SE	CE	MT	24 hr DO	AqHab	Benthics	Nekton	MIW	Chlorophyll/ Pheophytin	BOD	Conv	Bacteria	Flow	Field	Comments
FROM IH 10/US 90 ON EAST BANK																			reported from USGS gage 08185065.
CIBOLO CREEK AT SCHAEFFER RD 3 MI EAST OF RANDOLPH AIR FORCE BASE	12924	1913	1913_02	13	SA	SA	RT						4		4	4	4	4	
CIBOLO CREEK UPSTREAM CIBOLO CREEK MUNICIPAL AUTHORITY'S WWTP PERMIT 0011269-001 OFF RIVER ROAD	14212	1913	1913_03	13	SA	SA	RT						4		4	4	4	4	

Appendix C: Station Location Maps

Station Location Maps

Maps of stations monitored by the San Antonio River Authority are provided below. The maps were generated by the San Antonio River Authority. 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 Caille Marshall at 210-302-4249



Appendix D: Field Data Sheets

TESTNekton Electrofishing			
Sample Information			
LIMS Sample # (XX#####) *		Station ID (#####) *	
AB38525		12861	
Start Date *		End Date *	
Thursday, June 9, 2022		Thursday, June 9, 2022	
Start Time *		End Time *	
9:10 AM		11:22 AM	
Start Depth (#.##) *		End Depth (#.##) *	
0.01		0.75	
Collectors (AB/XYZ/LM/EFG/PQ...) *		Sample Comments	
ZN/SB/AR/OR		1 Guadalupe bass x Spotted bass	
Data Recorder Initials *	Data Reviewer Initials *		
SB	ZN		
Nekton Method*			
☐ Seining ☒ Electrofishing			
Nekton method is locked once effort parameters are entered; to unlock, clear all effort parameters.			
Electrofishing Effort	Method *	Duration *	
	☐ 1 (Boat)	(seconds, min 900)	

Nekton Counts

▼ **Master List Selection**

► **Help**

Lock Master List Selections?

☐ Lock
☐ Unlock

Choose Species Sort Order *

☐ Sorted by Family/Group
☒ Sorted Alphabetically

Select All Species to Include

☐ Alligator Gar	☐ Amazon Molly	☐ American eel
☐ Bigscale Logperch	☐ Black Bullhead	☐ Blackstripe Topminnow
☐ Blacktail Shiner	☐ Blue Catfish	☐ Blue Tilapia
☐ Bluegill	☒ Bullhead Minnow	☐ Burrhead Chub
☒ Central Stoneroller	☒ Channel Catfish	☐ Common Carp
☐ Fathead Minnow	☒ Flathead Catfish	☐ Freckled Madtom
☐ Freshwater Drum	☐ Ghost Shiner	☐ Gizzard Shad
☐ Golden Shiner	☐ Goldfish	☒ Green Sunfish
☐ Green Swordtail	☐ Greenthroat Darter	☒ Grey Redhorse
☒ Guadalupe Bass	☐ Inland Silverside	☒ Largemouth Bass
☒ Longear Sunfish	☐ Longnose Gar	☐ Mexican Tetra
☒ Mimic Shiner	☐ Mountain Mullet	☐ Mozambique Tilapia
☐ Orangespotted Sunfish	☐ Orangethroat Darter	☐ <i>Pterygoplichthys</i> sp.
☐ Red Belly Tilapia	☒ Red Shiner	☒ Redbreast Sunfish
☐ Redear Sunfish	☐ Redspotted Sunfish	☐ Ribbon Shiner
☐ Rio Grande Cichlid	☐ River Carpsucker	☐ River darter
☐ Sailfin Molly	☐ Sand Shiner	☐ Sheepshead Minnow
☐ Slough Darter	☐ Smallmouth Bass	☐ Smallmouth buffalo

Species * ☐ Bullhead Minnow ☐ Central Stoneroller ☐ Channel Catfish ☐ Flathead Catfish ☐ Green Sunfish ☐ Grey Redhorse ☐ Guadalupe Bass ☐ Largemouth Bass ☒ Longear Sunfish ☐ Mimic Shiner ☐ Red Shiner ☐ Redbreast Sunfish ☐ Texas Logperch ☐ Spotted x Guadalupe	Longear Sunfish Count * 3
--	--

Record is read-only. Only the current (last) record may be modified. This record may be deleted. To adjust counts, create a new record and use +/- as necessary.

1 of 160

Stream Physical Habitat

▼
Site-Wide Information

▼
Overall Sample and Station Info

LIMS Sample # (XX#####) * AB38528	Station ID (#####) * 12861	Sample Comments
Collectors (AB/XYZ/LM/EFG/PQ...) * ZN/SB/AR/OR		
Data Recorder Initials * ZN	Data Reviewer Initials * SB	

Start Date * Thursday, June 9, 2022	End Date * Thursday, June 9, 2022
Start Time * 1:12 PM	End Time * 3:15 PM
Start Depth (###) * 0.01	End Depth (###) * 1.46

Stream Type* ☒ Perennial ☐ Intermittent ☐ Intermittent w/ Pools ☐ Unknown		Ecoregion* ☐ 30 ☐ 31 ☒ 32 ☐ 33 ☐ 34	
Stream Segment ID* 1910	Stream Order (#)* 5	Streambed Slope over Evaluated Reach (m/km; #.###)* 2.340	Approximate Drainage Area (sq. km; #.####)* 573.2048
Dominant Substrate* ☐ Clay ☐ Silt ☐ Sand ☒ Gravel ☐ Cobble ☐ Boulder ☐ Bedrock ☐ Other		Aesthetics* ☐ Wilderness ☒ Natural ☐ Common ☐ Offensive	
		Land Development Impact* ☐ Unimpacted ☒ Low ☐ Moderate ☐ High	
		Habitat Flow Status* ☐ No Flow ☐ Low ☒ Moderate ☐ High	

Reach Length of Stream Evaluated* 200 Depth of Bottom at Sample Point (#.##)* 0.52 Channel Obstructions or Modifications* BRIDGE Observed Stream Uses* NONE	Riparian Vegetation for Entire Reach	
	Left Bank	Right Bank
	Grasses, Forbs (%) * 35	Grasses, Forbs (%) * 25
	Trees (%) * 60	Trees (%) * 70
	Shrubs (%) * 5	Shrubs (%) * 5
	Cultivated Field (%) * 0	Cultivated Field (%) * 0
	Other (%) * 0	Other (%) * 0

Pools and Geomorphology			
Pool Dimensions*			
Pool # Enter 0's if no pools exist	Width * (##.##) 25.0	Length * (##.##) 36.0	Depth * (#.##) 1.46
1 of 1			
Largest Pool	Width 25.0 m	Length 36.0 m	Depth 1.46 m
Stream Geomorphology			
Number of Riffles in Reach* 5	# of Stream Bends		
	Well-defined*	Moderately-defined*	
	2	0	
	Poorly defined*	Total	
	0	2	
Transect 1 Data*			
Transect Location			
Coordinates			
Latitude (###.#####) *	Get GPS Coordinates		
29.297350			
Longitude (-##.#####) *			
-98.422260			
Transect Photos			
Have all photos for this transect been taken? *			
☒ Yes ☐ No			

Stream Physical Characteristics									
Depths Across Transect (m; #.##)		Start Edge* ☐ RES ☒ LES		Cover Types* (select all present)					
1	4.50* 0.05	Stream Width (m; #.##)* 11.6		☐ NO COVER PRESENT		☒ Undercut Banks			
2	5.66* 1.00	Depth Increments (m; #.##)* 1.16		☒ Gravel		☐ Macrophytes			
3	6.82* 1.40	Tape Measurement at Edge (m; #.##)* 4.5		☒ Woody Debris		☒ Boulders			
4	7.98* 1.60	Habitat Type* ☐ Riffle ☐ Run ☒ Glide ☐ Pool		Erosion Potential (%)					
5	9.14* 1.62			Left Bank* 80		Right Bank* 40			
6	10.30* 1.70	Dominant Substrate* ☐ Mud silt ☐ Sand ☐ Gravel ☐ Cobble ☒ Boulders ☐ Lg Boulders ☐ Bedrock		Riparian Vegetation					
7	11.46* 1.80			Left Bank		Right Bank			
8	12.62* 1.62	% Gravel or Larger* 80		Instream Cover (%)* 2		Grasses,Forbs (%)* 20		Grasses,Forbs (%)* 5	
9	13.78* 1.28			Shrubs (%)* 5		Shrubs (%)* 10			
	14.94* 	Macrophyte Abundance* ☐ Abundant ☐ Common		Cultivated Field (%)* 		Cultivated Field (%)* 			

Replaces pages 125-135 of the FY 2026-2027 CRP QAPP

10	14.94 *	☐ Abundant ☐ Common ☐ Rare ☒ Absent		Field (%) *	Field (%) *
	0.73			0	0
11	16.10 *	Algae Abundance* ☐ Abundant ☐ Common ☒ Rare ☐ Absent		Other (%) *	Other (%) *
	0.10			0	0
Thalweg (m; #.##) *					
1.80					
		Left Bank * ☒ > 20		Right Bank * ☒ > 20	
		Riparian Buffer Width (m; 0-20, >20)			
Bank Slope (°)		Tree Canopy Coverage (#/17)			
Left Bank *	Right Bank *	Left Bank *	Left Center *	Right Center *	Right Bank *
20	75	16	7	10	17
1 of 6 >					
--End of Transect 1 Data--					
FXXX_RevXX		Issued by SARA QA: XX		Effective: m/d/yyyy	

Transects 2-6 are identical to the screenshots above.

Addition of Survey123 as an option for collection of routine water quality field parameters and field observations are included below.

✕
ESD Routine Water Quality
📶 ☰

▼ Sample 1 of 4

LIMS Sample # (XX#####) * AB45678	Date * Wednesday, May 22, 2024
Station ID (#####) * 17066	Time * 10:57 AM
Collectors (AB/XYZ/LM/EFG/PQ...) * AD/CP	Sample Comments
Field Dissolved Oxygen * mg/L, #.# 5.3	Field Water Temperature * °C, ##.# 22.4
Field pH * #.# 8.1	Field Conductivity * µS/cm, #####0, ###0, ###, ##, #.# 1030
Secchi Depth * m, #.# or 0.## 0.85	End Depth m, ### or 0.3 0.14

Flow Severity* ☐ No Flow ☐ Low ☒ Normal ☐ Flood ☐ High ☐ Dry ☐ Not Recorded	Field Water Color* ☐ Brown ☐ Reddish ☒ Green ☐ Black ☐ Clear ☐ Other ☐ Not Recorded	Field Water Odor* ☐ Sewage ☐ Oily/Chemical ☐ H2S ☐ Musky ☐ Fishy ☒ None ☐ Other ☐ Not Recorded
---	---	---

✕

ESD Routine Water Quality

📶 ☰

Present Weather * ☐ Clear ☒ Partly Cloudy ☐ Cloudy ☐ Rain ☐ Other ☐ Not Recorded	Rainfall (Inches, Gauge Data) previous 24 hours * ### Not Recorded 243														
Days Since Last Precipitation Event * <1, 1-75, >75 5	Rainfall in 1 day Inclusive Prior to Sample * ### Not Recorded														
Instantaneous Flow * see rules to right 9.8	<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; padding: 5px;">Flow Rounding Value</th> <th style="text-align: left; padding: 5px;">Report</th> </tr> <tr> <td style="padding: 5px;">>=10</td> <td style="padding: 5px;">round to whole number</td> </tr> <tr> <td style="padding: 5px;"><10, >=0.1</td> <td style="padding: 5px;">#.#</td> </tr> <tr> <td style="padding: 5px;"><0.1, >=0.01</td> <td style="padding: 5px;">do not round</td> </tr> <tr> <td style="padding: 5px;"><0.01</td> <td style="padding: 5px;"><0.01</td> </tr> <tr> <td style="padding: 5px;">no flow/pools</td> <td style="padding: 5px;">0.0</td> </tr> <tr> <td style="padding: 5px;">dry</td> <td style="padding: 5px;">Not Recorded</td> </tr> </table>	Flow Rounding Value	Report	>=10	round to whole number	<10, >=0.1	#.#	<0.1, >=0.01	do not round	<0.01	<0.01	no flow/pools	0.0	dry	Not Recorded
Flow Rounding Value		Report													
>=10		round to whole number													
<10, >=0.1	#.#														
<0.1, >=0.01	do not round														
<0.01	<0.01														
no flow/pools	0.0														
dry	Not Recorded														
Estimated Flow * see rules to right Not Recorded															
Flow Method * ☒ Gauge ☐ Mechanical ☐ Doppler ☐ Electric ☐ Weir/Flume ☐ Not Recorded															

1 of 4
>

Enter number of samples below to activate data entry section.

Number of Samples *

(1-9; all samples must be completed)

4

Form Revision: FXXX_01

Issued By SARA QA: XX, Effective Date: M/D/YYYY

✓

Replaces pages 125-135 of the FY 2026-2027 CRP QAPP

Nekton Seining

☐ Redbreast x Green	☐ Green x Longear	☐ Redbreast x Longear
☐ Spotted x Largemouth	☐ Largemouth x Guadalupe	☐ Spotted x Guadalupe
☐ Red x Blacktail		

Species *

- ☒ Bullhead Minnow
- ☒ Central Stoneroller
- ☒ Mimic Shiner
- ☒ Red Shiner
- ☒ Green Sunfish
- ☒ Largemouth Bass
- ☒ Longear Sunfish
- ☒ Channel Catfish
- ☒ Flathead Catfish
- ☒ Sailfin Molly
- ☒ Western Mosquitofish
- ☒ Rio Grande Cichlid

Green Sunfish

Count *

—

+

1 of 1

Diseased Fish Counts
(not calculated as part of counts above; species counts must be entered separately)

Disease 1 Fish Count

—

+

Disease 1 Description

🗨️ / 50 characters

Help

Lock Master List Selections?

☒ Lock ☐ Unlock

Choose Species Sort Order *

☒ Sorted by Family/Group
☐ Sorted Alphabetically

Select All Species to Include

☐ Blacktail Shiner	☒ Bullhead Minnow	☐ Burrhead Chub
☒ Central Stoneroller	☐ Common Carp	☐ Fathead Minnow
☐ Ghost Shiner	☐ Golden Shiner	☐ Goldfish
☒ Mimic Shiner	☒ Red Shiner	☐ Ribbon Shiner
☐ Sand Shiner	☐ Texas Shiner	☐ Weed Shiner
☐ Bluegill	☒ Green Sunfish	☐ Guadalupe Bass
☒ Largemouth Bass	☒ Longear Sunfish	☐ Orangespotted Sunfish
☐ Redbreast Sunfish	☐ Redear Sunfish	☐ Redspotted Sunfish
☐ Smallmouth Bass	☐ Spotted Bass	☐ Warmouth
☐ White Crappie	☐ Black Bullhead	☐ Blue Catfish
☒ Channel Catfish	☒ Flathead Catfish	☐ Freckled Madtom
☐ Tadpole Madtom	☐ Yellow Bullhead	☐ Amazon Molly
☐ Green Swordtail	☒ Sailfin Molly	☒ Western Mosquitofish
☐ Bigscale Logperch	☐ Greenthroat Darter	☐ Orangethroat Darter
☐ River darter	☐ Slough Darter	☐ Texas Logperch
☐ Blue Tilapia	☐ Mozambique Tilapia	☐ Red Belly Tilapia
☒ Rio Grande Cichlid	☐ Alligator Gar	☐ Longnose Gar
☐ Spotted Gar	☐ Grey Redhorse	☐ River Carpsucker
☐ Smallmouth buffalo	☐ Pterygoplichthys sp.	☐ Suckermouth Catfish
☐ Gizzard Shad	☐ Threadfin Shad	☐ Blackstripe Topminnow
☐ Sheepshead Minnow	☐ American eel	☐ Freshwater Drum
☐ Inland Silverside	☐ Mexican Tetra	☐ White Bass

Replaces pages 125-135 of the FY 2026-2027 CRP QAPP

Nekton Seining			
Start Date *		End Date *	
Start Time *		End Time *	
Start Depth (###) *		End Depth (###) *	
Collectors (AB/XYZ/LM/EFG/PQ...) *		Sample Comments	
Data Recorder Initials *	Data Reviewer Initials *		
Nekton Method* ☒ Seining ☐ Electrofishing			
Seining Effort Information Unlock Net Dimensions? ☒ Lock ☐ Unlock	Hauls * (#) 		Net Length * (m; default = 3.048) 3.048
	Total Length of Hauls * (m; min 60) 		Min Mesh Size * (in.; default = 0.12) 0.12
	Seining Distance * (m) 		Max Mesh Size * (in.; default = 0.16) 0.16

Nekton Electrofishing			
Sample Information			
LIMS Sample # (XX#####)		Station ID (#####) *	
Start Date *		End Date *	
Start Time *		End Time *	
Start Depth (###) *		End Depth (###) *	
Collectors (AB/XYZ/LM/EFG/PQ...) *		Sample Comments	
Data Recorder Initials *	Data Reviewer Initials *		
Nekton Method* ☐ Seining ☒ Electrofishing			
Electrofishing Effort Information	Method * ☐ 1 (Boat) ☐ 2 (Backpack) ☐ 3 (Tote Barge)		Duration * (seconds, min 900)
	End Sample Information		

Replaces pages 125-135 of the FY 2026-2027 CRP QAPP

6		Dominant Substrate*		Grasses, Forbs (%) *		Grasses, Forbs (%) *	
7		☐ Mud silt ☐ Sand ☐ Gravel ☐ Cobble ☐ Boulders ☐ Lg Boulders ☐ Bedrock		Trees (%) *		Trees (%) *	
8		% Gravel or Larger *		Instream Cover (%) *		Shrubs (%) *	
9		Macrophyte Abundance*		Cultivated Field (%) *		Cultivated Field (%) *	
10		☐ Abundant ☐ Common ☐ Rare ☐ Absent		Other (%) *		Other (%) *	
11		Algae Abundance*		Riparian Buffer Width (m; 0-20, >20)		Right Bank *	
		☐ Abundant ☐ Common ☐ Rare ☐ Absent		☐ >		☐ >	
Thalweg (m; #.##) *							
Bank Slope (°)		Tree Canopy Coverage (#/17)					
Left Bank *		Left Bank *		Left Center *		Right Center *	
Right Bank *		Right Bank *		Right Center *		Right Bank *	

1 of 1

--End of Transect 1 Data--

Stream Physical Characteristics									
Depths Across Transect (m; #.##)			Start Edge* ☐ RES ☐ LES Stream Width (m; #.##)*			Cover Types* (collect all present) ☐ NO COVER PRESENT ☐ Gravel ☐ Woody Debris ☐ Ledges ☐ Litter ☐ Other ☐ Undercut Banks ☐ Macrophytes ☐ Boulders ☐ Tree Roots ☐ Overhanging Vegetation			
1						Erosion Potential (%) Left Bank* Right Bank*			
2			Depth Increments (m; #.##)* 						
3			Tape Measurement at Edge (m; #.##) 			Riparian Vegetation Left Bank Grasses, Forbs (%)* Trees (%)* Shrubs (%)* Cultivated Field (%)*			
4			Habitat Type* ☐ Riffle ☐ Run ☐ Glide ☐ Pool Dominant Substrate* ☐ Mud silt ☐ Sand ☐ Gravel ☐ Cobble ☐ Boulders ☐ Lg Boulders ☐ Bedrock						
5			% Gravel or Larger* Instream Cover (%)*			Right Bank Grasses, Forbs (%)* Trees (%)* Shrubs (%)* Cultivated Field (%)*			
6			Macrophyte Abundance* ☐ Abundant ☐ Common ☐ Rare ☐ Absent						
7			Algae Abundance* 						
8									
9									

Replaces pages 125-135 of the FY 2026-2027 CRP QAPP

Stream Physical Habitat			
Stream Geomorphology Number of Riffles in Reach* # of Stream Bends Well-defined* Moderately-defined* Poorly-defined* Total			
Transect 1 Data* Transect Location Coordinates Latitude (##.#####)* Longitude (-##.#####)* Get GPS Coordinates Transect Photos Have all photos for this transect been taken? * ☐ Yes ☐ No			
Stream Physical Characteristics			

Stream Physical Habitat															
Reach Length of Stream Evaluated*	Riparian Vegetation for Entire Reach <table border="1"> <thead> <tr> <th>Left Bank</th> <th>Right Bank</th> </tr> </thead> <tbody> <tr> <td>Grasses,Forbs (%) *</td> <td>Grasses,Forbs (%) *</td> </tr> <tr> <td>Trees (%) *</td> <td>Trees (%) *</td> </tr> <tr> <td>Shrubs (%) *</td> <td>Shrubs (%) *</td> </tr> <tr> <td>Cultivated Field (%) *</td> <td>Cultivated Field (%) *</td> </tr> <tr> <td>Other (%) *</td> <td>Other (%) *</td> </tr> </tbody> </table>			Left Bank	Right Bank	Grasses,Forbs (%) *	Grasses,Forbs (%) *	Trees (%) *	Trees (%) *	Shrubs (%) *	Shrubs (%) *	Cultivated Field (%) *	Cultivated Field (%) *	Other (%) *	Other (%) *
Left Bank	Right Bank														
Grasses,Forbs (%) *	Grasses,Forbs (%) *														
Trees (%) *	Trees (%) *														
Shrubs (%) *	Shrubs (%) *														
Cultivated Field (%) *	Cultivated Field (%) *														
Other (%) *	Other (%) *														
Depth of Bottom at Sample Point (##.##) *															
Channel Obstructions or Modifications*															
Observed Stream Uses*															
Pools and Geomorphology Pool Dimensions* <table border="1"> <thead> <tr> <th>Pool #</th> <th>Width * (##.#)</th> <th>Length * (##.#)</th> <th>Depth * (##.##)</th> </tr> </thead> <tbody> <tr> <td>1 Enter 0's if no pools exist</td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> 1 of 1				Pool #	Width * (##.#)	Length * (##.#)	Depth * (##.##)	1 Enter 0's if no pools exist							
Pool #	Width * (##.#)	Length * (##.#)	Depth * (##.##)												
1 Enter 0's if no pools exist															
Largest Pool <table border="1"> <thead> <tr> <th>Width</th> <th>Length</th> <th>Depth</th> <th>Total Pool Length</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				Width	Length	Depth	Total Pool Length								
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Replaces pages 125-135 of the FY 2026-2027 CRP QAPP

Stream Physical Habitat				
Site-Wide Information				
Overall Sample and Station Info				
LIMS Sample # (XX#####)	Station ID (#####) *	Sample Comments		
Collectors (AB/XYZ/LM/EFG/PQ...) *				
Data Recorder Initials *	Data Reviewer Initials *			
Start Date *		End Date *		
Start Time *		End Time *		
Start Depth (#.#)# *		End Depth (#.#)# *		
Dominant Substrate*	Aesthetics*	Land Development Impact*	Habitat Flow Status*	Stream Type*
☐ Clay ☐ Sand ☐ Cobble ☐ Bedrock	☐ Wilderness ☐ Natural ☐ Common ☐ Offensive	☐ Unimpacted ☐ Low ☐ Moderate ☐ High	☐ No Flow ☐ Low ☐ Moderate ☐ High	☐ Perennial ☐ Intermittent ☐ Intermittent w/ Pools ☐ Unknown
☐ Silt ☐ Gravel ☐ Boulder ☐ Other				