# Amendment #2 Update to the Trinity River Authority Clean Rivers Program FY 2020/2021 QAPP

Prepared by the Basin Planning Agency in Cooperation with the Texas Commission on Environmental Quality (TCEQ)

# Effective: Immediately upon approval by all parties

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# Justification

This document details the changes made to the basin-wide Quality Assurance Project Plan to update the following items. Section A2 is being updated to add the acronym for monitoring systems audits. Section A5 is being updated to include language for data traceability review to be conducted during monitoring systems audits. Section B2 is being updated to add language about how sample depths are being recorded. Section C2 is being updated to add language for Reports to TCEQ Project Management that indicates quarterly progress reports will include the results of quarterly check with WBPAs and labs. Section D2 is being updated to detail responsibilities for laboratory data review. Updates to Table A7.2 for changes to LLP analytical methods. Updates to Table A7.11 for changes to NTMWD analytical methods. Appendix B and C are being updated to add station 16761 to the Tarrant Regional Water District monitoring schedule. The "Changes from the FY 2019 Monitoring Schedule" list of Appendix B is being updated to clarify sampling justification for TRA sites. Field data sheets for the City of Fort Worth, the City of Grand Prairie, North Texas Municipal Water District, and Tarrant Regional Water District are being updated in Appendix D. Chain of custody forms for the City of Fort Worth and the City of Grand Prairie are being updated in Appendix E.

Section	Sub-section/ Figure/ Table	Page in Basin- Wide QAPP	Change	Justification	Affected Entity	Page in this Amendment
A2 Table of Contents	List of Acronyms	25	Add acronym for Monitoring Systems Audit (MSA)	Added language in Section A5	All Within Basin Participating Agencies	5
A5 Problem Definition/ Background	4 <sup>th</sup> Paragraph	36-37	Add language to include data traceability activities to monitoring systems audits.	As a result of a TRA corrective action plan - To ensure that lab data generated by WBPAs using labs other than TRA CRWS are also being subjected to appropriate reviews.	All Within Basin Participating Agencies	6-7
B2 Sampling Methods	Documentation of Field Sampling Activities	46	Add language about how sample depths are being reported.	To clarify details of sampling activities.	All Within Basin Participating Agencies	8
C2 Reports to Management	Reports to TCEQ Project Management: Progress Reports	60	Add language to include quarterly checks on WBPAs and labs of various items.	As a result of a TRA corrective action plan – To ensure that the QAPP is up to date and that amendments are generated in a timely manner.	TRA	9

# **Summary of Changes**

Section	Sub-section/ Figure/ Table	Page in Basin- Wide QAPP	Change	Justification	Affected Entity	Page in this Amendment
D2 Verification and Validation Methods	3 <sup>rd</sup> Paragraph	61	Second sentence of third paragraph updated to a new second and third sentence to clarify that WBPAs are responsible for reviewing lab data generated by labs other than TRA CRWS. TRA reviews lab data generated by TRA CRWS for WBPA data analyzed by CRWS.	As a result of the TCEQ Quality Systems Audit #WTR-19-08 of TRA. WBPAs that are customer cities of the TRA CRWS may utilize the lab for water quality sample analysis. In these cases, TRA receives an electronic data deliverable from this lab and TRA staff conducts lab QC checks on this data.	All Within Basin Participating Agencies	10
Appendix A: Measurement Performance Specifications (Table A7.1- A7.11)	TABLE A7.2 Measurement Performance Specifications for Lake Livingston Project	75	OP (parameter code 00671) by EPA 300.0	LLP Lab no long accredited for this parameter by this method.	LLP	11
Appendix A: Measurement Performance Specifications (Table A7.1- A7.11)	TABLE A7.11 Measurement Performance Specifications for North Texas Municipal Water District	110-111	VSS (parameter code 00535) removed. A secondary analytical method added Total Phosphorus (parameter code 00665). Changed method for Turbidity (parameter code 82079) from EPA 180.1 to SM 2130 B. Removed Calculated TDS (parameter code 70294).	NTMWD lab no longer accredited for this parameter. A second method for Total Phosphorus was added to the NELAP certificate. Method change and the lab and updated NELAP certificate. NTMWD does not report this parameter. Directly analyzed TDS (70300) is reported.	NTMWD Lab	12-13
Appendix B: Task 3 Work Plan & Sampling Process Design and Monitoring Schedule (Plan)	Changes from the FY 2019 Monitoring Schedule	116 (This page previously updated by page 4 of Amendment #1)	Justification for the addition of station 16761 in Lake Bridgeport added to the "Changes from the FY 2019 Monitoring Schedule" list. Justification for Trinity River Authority sampling on Red Oak and Ten Mile creeks clarified in the "Changes from the FY 2019 Monitoring Schedule" list.	Station added to better represent the reservoir in data analysis. To clarify that streams were not previously represented in the Integrated Reports.	TRWD TRA	14
Appendix B: Task 3 Work Plan & Sampling Process Design and Monitoring Schedule (Plan)	Table B1.1 Sample Design and Schedule, FY 2020	132 (This page previously updated by page 7 of Amendment #1)	Station 16761 in Lake Bridgeport added to the monitoring schedule.	Station added to better represent the reservoir in data analysis.	TRWD	15

Section	Sub-section/ Figure/ Table	Page in Basin- Wide QAPP	Change	Justification	Affected Entity	Page in this Amendment
Appendix C: Station Location Maps	Tarrant Regional Water District	151	Station 16761 in Lake Bridgeport added to the Tarrant Regional Water District station location map.	Station added to better represent the reservoir in data analysis.	TRWD	16
Appendix D: Field Data Sheets	City of Fort Worth	162-163	Update the City of Fort Worth field data sheet to the currently used form.	Added Sample Collector Name(s) to the field data sheet and post- calibration limits.	City of Fort Worth	17-18
Appendix D: Field Data Sheets	City of Grand Prairie	164	Update the City of Grand Prairie field data sheet to the currently used form.	Minor revisions to the field data sheet.	City of Grand Prairie	19
Appendix D: Field Data Sheets	North Texas Municipal Water District	167-168	Update the NTMWD to the current field data sheet form.	Added total depth to data sheet.	NTMWD	20-21
Appendix D: Field Data Sheets	Tarrant Regional Water District	Inserted after 169	Add field data sheet that is used for West Fork E. coli sampling and a sample field data sheet used for various reservoir tributary sites.	Stream sampling field data sheets differ from the reservoir field data sheet that has been included in the QAPP.	TRWD	22-23
Appendix E: Chain of Custody Forms	City of Fort Worth	176	Update the City of Fort Worth COC to the currently used form.	Updated to include the names of current staff members.	City of Fort Worth	24
Appendix E: Chain of Custody Forms	City of Grand Prairie	177	Update the City of Grand Prairie field data sheet to the currently used form.	Minor revisions to the field data sheet.	City of Grand Prairie	25

# **Detail of Changes**

Details of the changes listed above are shown on the following pages. These pages are intended as direct replacements for existing pages in the QAPP. Changes are noted in red text

# Replaces Page 25 of the FY 2020-2021 Basin-Wide QAPP

List of Ac	cronyms		
ALM	Aquatic Life Monitoring	FW	City of Fort Worth
ALS	ALS Environmental – Life Sciences	FY	Fiscal Year
	Division	GMT	Greenwich Mean Time
AR	City of Arlington	GP	City of Grand Prairie
AWRL	Ambient Water Reporting Limit	GPS	Global Positioning System
BLOB	Binary Large Object	$H_2SO_4$	Sulfuric Acid
BS	Biased to Season Monitoring	$HNO_3$	Nitric Acid
CAP	Corrective Action Plan	IBWC	International Boundary and Water
CE	Collecting Entity		Commission
CFR	Code of Federal Regulations	ID	Identification
CMS	Coordinated Monitoring Schedule	IR	City of Irving
COC	Chain of Custody	IT	Information Technology
COD	Chemical Oxygen Demand	LCS	Laboratory Control Sample
CRP	Clean Rivers Program	LCSD	Laboratory Control Sample
CRWS	Central Regional Wastewater		Duplicate
	System Laboratory	LIMS	Laboratory Information
CSV	Comma Separated Values		Management System
DA	City of Dallas – Dallas Water	LLP	Lake Livingston Project
	Utilities RESWS SWTT	LOD	Limit of Detection
DF	DFW Airport Environmental	LOQ	Limit of Quantitation
	Affairs Department	MPN	Most Probable Number
DFW	Dallas-Fort Worth	MS	Matrix Spike
DI	Deionized Water	MSA	Monitoring Systems Audit
DM	Data Manager	MSD	Matrix Spike Duplicate
DMRG	Surface Water Quality Monitoring	MT	Monitoring Type
	Data Management Reference	NELAC	National Environmental Lab
	Guide, December 2016, or most		Accreditation Conference
	recent version	NELAP	National Environmental Lab
DM&A	Data Management and Analysis		Accreditation Program
DO	Dissolved Oxygen	NM	North Texas Municipal Water
DT	City of Dallas - Dallas Water		District
	Utilities RESWS WETT	NOAA	National Oceanic and Atmospheric
DUP	Duplicate		Administration
DWU	Dallas Water Utilities	NPS	Non-Point Source
EAD	Environmental Affairs Department	NTMWD	North Texas Municipal Water
EPA	United States Environmental Protection Agency		District

# Replaces Page 36 of the FY 2020-2021 Basin-Wide QAPP

# A5 Problem Definition/Background

In 1991, the Texas Legislature passed the Texas Clean River Act (Senate Bill 818) in response to growing concerns that water resource issues were not being pursued in an integrated, systematic manner. The act requires that ongoing water quality assessments be conducted for each river basin in Texas, an approach that integrates water quality issues within the watershed. The CRP legislation mandates that each river authority (or local governing entity) shall submit quality-assured data collected in the river basin to the commission. Quality-assured data in the context of the legislation means data that comply with TCEQ rules for surface water quality monitoring (SWQM) programs, including rules governing the methods under which water samples are collected and analyzed and data from those samples are assessed and maintained. This QAPP addresses the program developed between the Trinity River Authority (TRA) and the TCEQ to carry out the activities mandated by the legislation. The QAPP was developed and will be implemented in accordance with provisions of the TCEQ Quality Management Plan, January 2019 or most recent version (QMP).

The purpose of this QAPP is to clearly delineate TRA QA policy, management structure, and procedures which will be used to implement the QA requirements necessary to verify and validate the surface water quality data collected. The QAPP is reviewed by the TCEQ to help ensure that data generated for the purposes described above are of known and documented quality, deemed acceptable for their intended use. This process will ensure that data collected under this QAPP and submitted to SWQMIS have been collected and managed in a way that guarantees its reliability and therefore can be used in water quality assessments, total maximum daily load (TMDL) and water quality standards development, permit decisions, and other program activities deemed appropriate by the TCEQ. Project results will be used to support the achievement of CRP objectives, as contained in the *Clean Rivers Program Guidance and Reference Guide FY 2020 -2021*.

The Trinity River Authority recognizes that there exists, within the Trinity River basin, a great number of agencies performing routine water quality sampling for their own objectives outside of the Clean Rivers Program. Basin maps can be found in Appendix C. These agencies generate a wealth of data concerning Trinity River basin water quality. It is therefore an objective of TRA to obtain data from existing programs as part of the basin-wide CRP water quality sampling program. This avoids duplication of effort and fosters communication and sharing of data between basin water resource agencies. Towards this end, the TRA CRP will coordinate closely with local agencies conducting water quality sampling programs. Although the sampling conducted by the WBPAs is quite comprehensive, the main stem of the Trinity River from Fort Worth to Oakwood was left relatively unmonitored. TRA began monitoring this stretch of the river in-house in order to more completely monitor the basin. The participation of the WBPAs is strictly voluntary, and it is recognized by both the TRA and the TCEQ that the monitoring conducted by WBPAs exist for purposes independent of the Clean Rivers Program. However, the water quality monitoring conducted by the WBPAs is done on a routine basis and is not biased to any season or flow condition which also fulfills the requirements of CRP monitoring. At the same time, it is recognized that the CRP must generate data of a known quality to be used by the TCEQ in a regulatory or decision-making capacity. This QAPP details the quality assurance process that will be followed to ensure quality data is being generated for and by this program. All procedures outlined in this OAPP, unless specified otherwise, are the same for all WBPAs and subcontractors. It is not the desire of the TRA CRP to dictate policy, only establish minimum criteria for acceptability of data under the Clean Rivers Program. Should WBPAs, the TRA Project Manager, or the TCEQ CRP Project Manager determine that the minimum criteria established by this QAPP are not being met, data affected by this deviation will not be submitted to the TCEQ. As participation in the TRA CRP by WBPAs is voluntary, WBPAs that sign this QAPP acknowledge that they will follow procedures herein set forth. Failure to follow these procedures will result in data not being submitted to the TCEQ. WBPAs are free to leave the TRA CRP at any time if they feel they can no longer comply with the requirements set forth in this QAPP. This QAPP will initially address the routine water quality monitoring practices of the Tarrant Regional Water District, the Lake Livingston Project, the City of Arlington, the City of Dallas –Dallas Water Utilities RESWS SWTT, the City of Dallas - Dallas Water Utilities RESWS WETT, the City of Fort Worth, the City of Grand Prairie, the City of Irving, DFW Airport Environmental Affairs Department, North Texas Municipal Water District, and TRA's In-House Monitoring; other WBPAs may be added at a later date in the form of amendments to this OAPP.

It shall be the responsibility of the Project Manager of WBPAs or subcontractors employed by the TRA to ensure that project participants and laboratories used maintain adequate quality controls as specified in this document. Towards the end of assuring that guidelines set forth in this QAPP are being met, the TRA CRP Project Manager shall conduct or oversee monitoring system audits (MSAs) on subcontractors and WBPAs. Such audits will be limited to activities generating data covered by this QAPP and will be designed to assess the components of WBPA QA processes that are not directly overseen by TRA, including but not limited to data review, verification, and validation. Any non-compliance issues found during MSAs will be presented in writing to appropriate

# Replaces Page 37 of the FY 2020-2021 Basin-Wide QAPP, Section A5, Problem

# **Definition/Background**

WBPA personnel. WBPAs are under no obligations to adopt suggested changes resulting from an audit. Failure to address compliance issues could however, invalidate some or all data being generated for the CRP and may result in flagging of data collected and submitted by WBPAs during the time period between MSAs. Such data, at the discretion of the TRA Project Manager and in consultation with TCEQ, may be withheld from submission to the TCEQ CRP Data Manager.

Routine water quality grab sampling has been an ongoing effort in the TRA Clean Rivers Program. However, this type of sampling provides only a short-term view of water quality in an area; especially for streams and rivers-where flow conditions and water quality can change rapidly. Due to the dynamic nature of these systems, specific acute water quality issues may be missed due to sample timing. For example, illicit discharges or stormwater runoff may not be captured by routinely scheduled monthly or quarterly grab sampling. Biological monitoring, on the other hand, may be able to provide a broader view of water quality in these systems. Biological monitoring consists of the collection of fish and benthic macroinvertebrates which are then identified and evaluated to determine either the level of aquatic life use in a stream or if the assigned aquatic life use level is being met. Biological populations respond predictably to water quality issues and alert monitoring entities to issues that may not be captured in a water quality grab sample. For example, in a system that frequently receives discharges of poor water quality, the species present will typically be more tolerant of poor water quality. However, in a system that does not receive such discharges, the biological community may contain tolerant species but it will also contain species that are intolerant of poor water quality and therefore may indicate that the system generally maintains good water quality. As a result, biological monitoring can be used to determine the level of aquatic life use the system can sustain as well as the associated standards that are appropriate for the system.

# A6 Project/Task Description

Entities collecting routine water quality data include Tarrant Regional Water District, TRA's Lake Livingston Project, the City of Arlington, the City of Dallas - Dallas Water Utilities RESWS WETT, the City of Dallas - Dallas Water Utilities RESWS SWTT, the City of Fort Worth, the City of Irving, the City of Grand Prairie, DFW Airport EAD, NTMWD, and TRA. In all, this QAPP covers sampling activities at approximately 200 sites with a total of more than 100 routinely collected parameters. These parameters are sampled at various locations and frequencies (see Appendix B for a detailed list of routine monitoring stations and parameter groups to be monitored under this QAPP).

At least one site per fiscal year will be selected for biological monitoring in this biennium. The sites will be selected in order to be appropriate for biological monitoring and meet the qualifications stated in the "Representativeness" section of this QAPP (A7). See Sample Design Rationale and Site Selection Criteria in section B1 for details about site selection. As part of the biological monitoring program, Aquatic Life Monitoring procedures as described in the Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, Revised May 2014 (or most recent version) will be followed and will result in data of sufficient quality to achieve the goals of this monitoring. All efforts will be made to collect one sample in the index period, between March 15 and July 1 of 2020 and 2021, as well as one sample in the critical period, between July 1 and September 30 of 2020 and between July 1 and August 31 of 2021. However, due to weather conditions samples scheduled for FY 2021 may fall in the beginning of FY 2022 since the critical and index periods do not line up with fiscal years. This project will include collection of fish and benthic macroinvertebrates for identification. In addition, physical habitat will be quantified. Instantaneous field measurements, flow measurements, and 24-hour diurnal monitoring will also be conducted. No water chemistry samples will be collected in conjunction with the biological sampling. TRA staff will conduct all field work. Fish identification will be performed in the field by TRA staff. Benthic macroinvertebrate identification will be conducted by Water Monitoring Solutions, Inc. Results will be summarized in a Biological Monitoring Reporting Packet (see Appendix H) and submitted to TCEQ in the format required by the DMRG. Results will also be submitted to the TCEQ SWQMIS database.

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

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

# Amendments to the QAPP

Revisions to the QAPP may be necessary to address incorrectly documented information or to reflect changes in

PARAMETER	MATRIX	CONTAINER	MINIMUM SAMPLE VOLUME (mL)	MAXIMUM STORAGE	PRESERVATION*
CHEMICAL OXYGEN DEMAND	Water	Amber or opaque Plastic or Glass	500	28 d	Add $H_2SO_4$ to pH < 2, place on ice to cool to < 6 °C but not frozen, dark
HARDNESS, TOTAL	Water	Plastic or Glass	500	6 months if acidified, otherwise 48 hr	Add HNO <sub>3</sub> or $H_2SO_4$ to pH < 2, place on ice to cool to < 6 °C but not frozen
DISSOLVED METALS	Water	New or 1:1 HNO $_3$ rinsed Plastic or Glass	250	6 months	Field - Filter immediately with 0.45 μm filter Lab - add ultra-pure HNO3 to pH < 2
TOTAL METALS	Water	New or 1:1 HNO <sub>3</sub> rinsed Plastic or Glass	250	6 months	Lab - add ultra-pure $HNO_3$ to $pH < 2$
TOTAL PETROLEUM HYDROCARBON	Water	Glass, VOAC (clear)	40 mL (x2)	14 d	Add HCl to pH < 2, place on ice to cool to < 6 °C but not frozen
PHYTOPLANKTON DENSITY, TOTAL	Water	Plastic or Glass	500	3 months	Formalin-Lugol's Solution and place on ice to cool to <6 °C but not frozen
FISH VOUCHERS	Fish	Plastic	As needed to submerge samples without crowding	7 days in Formalin, indefinite for isopropyl alcohol or ethanol	10% Formalin in field, store in Formalin for at least one week, soak in fresh water each day for three days, transfer to 50% isopropyl alcohol or 75% ethanol for indefinite storage.
BENTHIC MACROINVERTEBRATES	Benthics	Plastic	Plastic As needed to submerge samples without crowding (no more than 1/2 full) 7 days in Formalin, indefinite for isopropyl alcohol or ethanol		If processing in the field, 70% ethanol or 40% isopropyl alcohol. If processing in the lab immediately after collection, 95% ethanol. If processing in the lab at least a week after collection, 10% Formalin. Transfer to 70% ethanol or 40% isopropyl alcohol for indefinite storage.

Replaces Page 46 of the FY 2020-2021 Basin-Wide QAPP, Section B2, Sampling Methods

\* Preservation is performed in the field within 15 minutes of sample collection, except where otherwise indicated. \*\* E. coli samples should always be processed as soon as possible and incubated no later than 8 hours from time of collection. When transport conditions necessitate sample incubation after 8 hours from time of collection, the holding time may be extended and samples must be processed as soon as possible and within 30 hours. Extended hold times only apply to NTMWD monitoring.

# **Processes to Prevent Contamination**

SWQM Procedures outline the necessary steps to prevent contamination of samples, including: direct collection into sample containers, when possible; use of certified containers for organics; triple rinsing equipment such as buckets used for sample collection with ambient water or deionized water when the use of ambient water for rinsing is not feasible; and clean sampling techniques for metals. Field QC samples (identified in Section B5) are collected to verify that contamination has not occurred.

# **Documentation of Field Sampling Activities**

Field sampling activities are documented on hardcopy or electronic field data sheets as presented in Appendix D. Flow worksheets, aquatic life use monitoring checklists, habitat assessment forms, field biological assessment forms, and records of bacteriological analyses (if applicable) are part of the field data record. The following will be recorded for all visits:

- Station ID
- Sampling Date
- Location
  - Sampling Depth
    - Depths for TRWD, GP, and FW monitoring stations are defaulted to 0.3 meters. Depth is not recorded on the field data sheets unless the total depth of the station at the time of sampling is less than 0.3 m. In this situation, field collectors will record sampling depth of the field data sheet.
- Sampling Time

### Replaces Page 60 of the FY 2020-2021 Basin-Wide QAPP, Section C2, Reports to Management

Solutions, Inc. in a format appropriate for completing the Biological Monitoring Reporting Packet (Appendix H) in order to prepare the event/result text and BLOB files.

# **Reports to TCEQ Project Management**

All reports detailed in this section are contract deliverables and are transferred to the TCEQ in accordance with contract requirements. In addition, the completed Biological Monitoring Reporting Packet (Appendix H) will be submitted by TRA in the formats required for event/result text and BLOB files.

# **Progress Report**

Summarizes the TRA's activities for each task; reports monitoring status, problems, delays, deficiencies, status of open CAPs, and documentation for completed CAPs; documents quarterly check-ins with WBPAs and labs and internal TRA staff to ensure that various aspects of the QAPP are up to date; and outlines the status of each task's deliverables.

# Monitoring Systems Audit Report and Response

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

# Data Summary

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

# **Reports by TCEQ Project Management**

# **Contractor Evaluation**

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

# Replaces Page 61 of the FY 2020-2021 Basin-Wide QAPP

# D1 Data Review, Verification, and Validation

All field, laboratory, habitat, benthic, and nekton data will be reviewed and verified for integrity and continuity, reasonableness, and conformance to project requirements, and then validated against the project objectives and measurement performance specifications which are listed in Section A7 of this QAPP. Only those data which are supported by appropriate quality control data and meet the measurement performance specifications defined for this project will be considered acceptable and will be reported to the TCEQ for entry into SWQMIS.

# **D2** Verification and Validation Methods

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

Data review, verification, and validation will be performed using self-assessments as well as peer and management review as appropriate to the project task. The data review tasks to be performed by field and laboratory staff are listed in the first two columns of Table D2.1, respectively, and detailed in Figures D2.1 and D2.2. Potential errors are identified by examination of documentation and by manual examination of corollary or unreasonable data; this analysis may be computer-assisted. If a question arises or an error is identified, the manager of the task responsible for generating the data is contacted to resolve the issue. Issues which can be corrected are corrected and documented. If an issue cannot be corrected, the task manager consults with the higher-level project management to establish the appropriate course of action, or the data associated with the issue are rejected and not reported to the TCEQ for storage in SWQMIS. Field and laboratory reviews, verifications, and validations are documented.

After the field and laboratory data are reviewed, another level of review is performed once the data are combined into a data set. This review step as specified in in the third column of Table D2.1 and detailed in Figure D2.3 is performed by the TRA Data Manager and/or QAO. WBPA QAO and/or PM for data generated by each WBPA and for their data analyzed at labs other than TRA CRWS. For data generated by TRA or WBPA data that is analyzed by TRA CRWS, this review is conducted by the TRA PM, DM, or QAO. Data review, verification, and validation tasks to be performed on the data set include, but are not limited to, the confirmation of laboratory and field data review, evaluation of field QC results, additional evaluation of anomalies and outliers, analysis of sampling and analytical gaps, and confirmation that all parameters and sampling sites are included in the QAPP.

The Data Review Checklist (see Appendix F) covers three main types of review: data format and structure, data quality review, and documentation review. The Data Review Checklist is transferred with the water quality data submitted to the TCEQ to ensure that the review process is being performed.

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

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

# <u>Replaces Page 75 of the FY 2020-2021 Basin-Wide QAPP, Appendix A: Measurement Performance</u> Specifications (Table A7.1-A7.11)

TABLE A7.2 Mea	TABLE A7.2 Measurement Performance Specifications for Lake Livingston Project (continued)											
		1	Flow Paramet	ters				1				
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	rog	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab		
FLOW MTH 1=GAGE 2=ELEC 3=MECH 4=WEIR/FLU 5=DOPPLER	NU	other	TCEQ SOP V1	89835	NA	NA	NA	NA	NA	Field		
		Bacteri	ological Parame	ters in V	Vater			-				
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	rog	LOQ Check Sample %Rec	Log Difference of Duplicates	Bias %Rec. of LCS	Lab		
E. COLI, COLILERT, IDEXX METHOD, MPN/100ML	MPN/100 mL	water	IDEXX Laboratories Colilert®	31699	1	1	NA	0.50****	NA	LLP		
Conventional Parameters in Water												
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab		
ALKALINITY, TOTAL (MG/L AS CACO3)	mg/L	water	SM 2320 B	00410	20	20	70-130	20	80-120	LLP		
RESIDUE, TOTAL NONFILTRABLE (MG/L)	mg/L	water	SM 2540 D	00530	5	2	NA	10	NA	LLP		
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	SM 4500-NH3 D	00610	0.1	0.1	70-130	20	80-120	LLP		
NITRITE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00615	0.05	0.04	70-130	10	90-110	LLP		
NITRITE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	SM 4500-NO2 <sup>-</sup> B	00615	0.05	0.04	70-130	20	80-120	LLP		
NITRATE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00620	0.05	0.04	70-130	10	90-110	LLP		
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	EPA 351.2	00625	0.2	0.2	70-130	20	80-120	CRWS		
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	SM 4500-P E	00665	0.06	0.04	70-130	20	80-120	LLP		
ORTHOPHOSPHATE PHOSPHORUS,DISS,MG/L,FLDFIL T<15MIN	mg/L	<del>water</del>	<del>EPA 300.0 Rev.</del> <del>2.1 (1993)</del>	<del>00671</del>	<del>0.04</del>	<del>0.04</del>	<del>70-130</del>	<del>10</del>	<del>90-110</del>	<u>LTb</u>		
ORTHOPHOSPHATE PHOSPHORUS,DISS,MG/L,FLDFIL T<15MIN	mg/L	water	SM 4500-P E	00671	0.04	0.04	70-130	20	80-120	LLP		
HARDNESS, TOTAL (MG/L AS CACO3)*****	mg/L	water	SM 2340 C	00900	5	5	70-130	20	80-120	LLP		
CHLORIDE (MG/L AS CL)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00940	5	5	70-130	10	90-110	LLP		

# <u>Replaces Page 110 of the FY 2020-2021 Basin-Wide QAPP, Appendix A: Measurement Performance</u> <u>Specifications (Table A7.1-A7.11)</u>

TABLE A7.11 Measurement F	Performance	Specific	ations for North	Texas N	lunici	pal W	ater Dis	trict (conti	nued)		
		Fiel	d Parameters								
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	ГОД	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab	
WATER COLOR 1=BRWN 2=RED 3=GRN 4=BLCK 5=CLR 6=OT	NU	water	NA	89969	NA	NA	NA	NA	NA	Field	
WATER ODOR (1=SEWAGE, 2=OILY/CHEMICAL, 3=ROTTEN EGGS, 4=MUSKY, 5=FISHY, 6=NONE, 7=OTHER (WRITE IN COMMENTS))	NU	water	NA	89971	NA	NA	NA	NA	NA	Field	
	Flow Parameters										
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	Тод	LOQ Check Sample %Rec	Log Difference of Duplicates	Bias %Rec. of LCS	Lab	
FLOW STREAM, INSTANTANEOUS (CUBIC FEET PER SEC)	cfs	water	TCEQ SOP V1	00061	NA	NA	NA	NA	NA	Field	
FLOW SEVERITY:1=No Flow,2=Low,3=Normal,4=Flood,5=Hig h,6=Dry	NU	water	TCEQ SOP V1	01351	NA	NA	NA	NA	NA	Field	
STREAM FLOW ESTIMATE (CFS)	cfs	Water	TCEQ SOP V1	74069	NA	NA	NA	NA	NA	Field	
FLOW MTH 1=GAGE 2=ELEC 3=MECH 4=WEIR/FLU 5=DOPPLER	NU	other	TCEQ SOP V1	89835	NA	NA	NA	NA	NA	Field	
	Bacte	eriologic	al Parameters in	Water	1		I		1	1	
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	ГОД	LOQ Check Sample %Rec	Log Difference of Duplicates	Bias %Rec. of LCS	Lab	
E. COLI, COLILERT, IDEXX METHOD, MPN/100ML	MPN/100 mL	water	IDEXX Laboratories Colilert <sup>®*****</sup>	31699	1	1	NA	0.50****	NA	NM	
E.COLI, COLILERT, IDEXX, HOLDING TIME	hours	water	NA	31704	NA	NA	NA	NA	NA	NM	
	Conv	ventiona	l Parameters in	Water				1			
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	ГОД	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab	
CHEMICAL OXYGEN DEMAND, .025N K2CR2O7 (MG/L)	mg/L	water	HACH 8000	00335	10	10	70-130	20	80-120	NM	
ALKALINITY, TOTAL (MG/L AS CACO3)	mg/L	water	SM 2320 B	00410	20	20	NA	20	NA	NM	
RESIDUE, TOTAL NONFILTRABLE (MG/L)	mg/L	water	SM 2540 D	00530	5	2.5	NA	NA	NA	NM	
RESIDUE, VOLATILE NONFILTRABLE (MG/L)	mg/L	<del>water</del>	EPA 160.4	<del>00535</del>	5	<del>2.5</del>	NA	NA	NA	NM	

# <u>Replaces Page 111 of the FY 2020-2021 Basin-Wide QAPP, Appendix A: Measurement Performance</u> <u>Specifications (Table A7.1-A7.11)</u>

TABLE A7.11 Measurement Performance Specifications for North Texas Municipal Water District (continued)											
	Conv	ventiona	l Parameters in	Water	1	1	1	r	1	1	
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	ГОД	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab	
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	EPA 350.1 Rev. 2.0 (1993)	00610	0.1	0.1	70-130	20	80-120	NM	
NITRITE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 353.2	00615	0.05	0.02	70-130	20	80-120	NM	
NITRATE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 353.2	00620	0.05	0.05	70-130	20	80-120	NM	
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	EPA 351.2	00625	0.2	0.2	70-130	20	80-120	NM	
NITRITE PLUS NITRATE, TOTAL ONE LAB DETERMINED VALUE (MG/L AS N)	mg/L	water	EPA 353.2	00630	0.05	0.05	70-130	20	80-120	NM	
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	EPA 365.3	00665	0.06	0.02	70-130	20	80-120	NM	
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	EPA 365.1	00665	0.06	0.02	70-130	20	80-120	NM	
CARBON, TOTAL ORGANIC, NPOC (TOC), MG/L	mg/L	water	SM 5310 C	00680	2	0.5	NA	NA	NA	NM	
HARDNESS, TOTAL (MG/L AS CACO3)******	mg/L	water	SM 2340 C	00900	5	5	NA	20	80-120	NM	
CHLORIDE (MG/L AS CL)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00940	5	1	70-130	20	80-120	NM	
SULFATE (MG/L AS SO4)	mg/L	water	EPA 300.0 Rev. 2.1 (1993)	00945	5	1	70-130	20	80-120	NM	
CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	μg/L	water	SM 10200 H	32211	3	3	NA	20	80-120	NM	
PHEOPHYTIN-A UG/L SPECTROPHOTOMETRIC ACID. METH.	μg/L	water	SM 10200 H	32218	3	3	NA	NA	NA	NM	
RESIDUE, TOT DISS,UNSPEC CALC BASED ON COND (MG/	mg/L	<del>water</del>	calculation	<del>70294</del>	NA	NA	NA	NA	NA	NM	
RESIDUE,TOTAL FILTRABLE (DRIED AT 180C) (MG/L)	mg/L	water	SM 2540 C	70300	10	10	NA	20	80-120	NM	
ORTHOPHOSPHATE PHOSPHORUS,DISS,MG/L,FILTER >15MIN	mg/L	water	EPA 365.3	70507	0.04	0.02	70-130	20	80-120	NM	
TURBIDITY, LAB NEPHELOMETRIC TURBIDITY UNITS, NTU	NTU	water	SM 2130 B	82079	0.5	0.1	NA	NA	NA	NM	
		Me	tals in Water				1	r	1	1	
Parameter	Units	Matrix	Method	Parameter Code	TCEQ AWRL	ГОЙ	LOQ Check Sample %Rec	Precision (RPD)	Bias %Rec. of LCS	Lab	
IRON, TOTAL (UG/L AS FE)	μg/L	water	EPA 200.8 Rev 5.4 (1998)	01045	300	200	70-130	20	80-120	NM	
MANGANESE, TOTAL (UG/L AS MN)	μg/L	water	EPA 200.8 Rev 5.4 (1998)	01055	50	1	70-130	20	80-120	NM	

# <u>Replaces Page 116 of the FY 2020-2021 Basin-Wide QAPP, Appendix B: Task 3 Work Plan &</u> <u>Sampling Process Design and Monitoring Schedule (Plan)</u>

# Appendix B Sampling Process Design and Monitoring Schedule (plan)

# Sample Design Rationale FY 2020

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

# Changes from the FY 2019 Monitoring Schedule

The following changes were made for the FY 2020 Monitoring Schedule as a result of the FY 2019 Coordinated Monitoring Meeting.

- City of Arlington no changes.
- City of Dallas-Dallas Water Utilities RESWS SWTT- no changes.
- DFW Airport EAD no changes.
- City of Dallas Dallas Water Utilities RESWS WETT no changes.
- City of Fort Worth no changes.
- City of Grand Prairie no changes.
- City of Irving no changes.
- Lake Livingston Project
  - Remove 24 hour Dissolved Oxygen monitoring at 10914, 14007, and 14014. Adequate data is now available to address concerns.
  - Add monthly bacteria monitoring at 16998. This site is routine.
- North Texas Municipal Water District no changes.
- Tarrant Regional Water District
  - No changes to monitoring stations or frequencies. The Comment field has been updated to note that at-depth samples are collected at reservoir stations as described in the Field Sample Procedures of Section B2. The Comment field has also been updated to identify which sites are located near water supply intakes.
  - Site 16761 added in Lake Bridgeport for better representation of the reservoir for data analysis.
- Trinity River Authority
  - Aquatic Life Monitoring (monitoring type "BS") at sites 20440 and 22097 has been removed. Sampling conducted at these sites in FY 2019.
  - A site on Big Bear Creek (station 22096 at Parr Park) has been added for Aquatic Life Monitoring in FY2020.
  - A site on Segment 0825 Denton Creek below Grapevine Lake (station 11034) has been added for quarterly monitoring of *E. coli*, flow, and field parameters. Currently anticipate sampling for 5 years to collect the full set of data needed for assessment (FY 2020 through FY 2024).
  - A site in AU 0805\_01 (site # 10924) has been added for quarterly monitoring of *E. coli*, conventionals, flow, and field parameters. Currently anticipate sampling for 3 years to address nutrient concerns (FY 2020 through FY 2022).
  - Sites upstream of the WWTPs on Red Oak Creek (Segment 0805A station 10842) and Ten Mile Creek (unclassified Segment in 0805 station 21287) have been added for quarterly monitoring of *E. coli*, conventionals, flow, and field. These streams are not currently assessed. Due to a lack of routine monitoring data, these streams were previously not represented in the Integrated Report.
  - Station 10815 in Segment 08410 (Mountain Creek downstream of Mountain Creek Lake) and station 17681 in Segment 0841W (Mountain Creek downstream of Joe Pool Lake) have been added for diurnal monitoring 5 times a year for two years (FY 2020 and FY 2021) to address dissolved oxygen concerns identified by the Integrated Report. These sites will be removed in FY 2022.
  - Other notes: These are intended as a record of intent for future monitoring schedule updates and do not apply to the current monitoring schedule. This information is included here as a matter of record.
    - 10756 will remain on the monitoring schedule until further notice. It is providing data that is useful for the Watershed Characterization and future Watershed Protection Plan for Rowlett Creek.
    - 13686 was added in FY 2017 for quarterly monitoring of conventionals, *E. coli*, flow, and

# <u>Replaces Page 132 of the FY 2020-2021 Basin-Wide QAPP, Appendix B: Task 3 Work Plan &</u> <u>Sampling Process Design and Monitoring Schedule (Plan)</u>

Electronically Approved	Site ID	Latitude	Longitude	Waterbody ID	Region	SE	CE	МТ	24-hr DO	<b>Metals Water</b>	Conventional	Bacteria	Flow	Field	Comment
		TARRANT	REGIONAL	WATER	DIS	TRIC	ст - І	N BA	SIN						
WEST FORK TRINITY RIVER 281 METERS DOWNSTREAM OF CONFLUENCE WITH MARTIN BRANCH 2.2 MI SE OF PARADISE	14246	33.15155	-97.655525	0810	04	TR	TD	RT				4		4	West Fork E. Coli
WEST FORT TRINITY RIVER IMMEDIATELY DOWNSTREAM OF US 380 1.8 MI SW OF BRIDGEPORT	14904	33.201962	-97.80278	0810	04	TR	TD	RT				4		4	West Fork E. Coli
WEST FORK TRINITY RIVER AT BOBO BRIDGE ON WISE CR 4668 SOUTH OF BOYD	17844	33.051849	-97.557846	0810	04	TR	TD	RT				4		4	West Fork E. Coli
WEST FORK TRINITY RIVER BELOW BRIDGEPORT RESERVOIR AT SH 114 APPROX 333 METERS SOUTH AND 647 METERS EAST OF THE INTERSECTION OF SH 114 AND INDUSTRIAL BOULEVARD IN WISE COUNTY	20840	33.191792	-97.743428	0810	04	TR	TD	RT				4		4	West Fork E. Coli
BIG SANDY CREEK 42 METERS DOWNSTREAM OF US 380 4.0 MI EAST OF BRIDGEPORT	15688	33.231667	-97.694672	0810A	04	TR	TD	RT				4	4	4	West Fork E. Coli
GARRETT/RUSH CREEK AT SH 114 NORTH OF EAGLE MOUNTAIN RESERVOIR NW OF BOYD	16767	33.105278	-97.655167	0810B	04	TR	TD	RT				4		4	West Fork E. Coli
MARTIN BRANCH CENTER CREEK AT FM 51 EAST OF PARADISE	17848	33.149624	-97.636108	0810C	04	TR	TD	RT				4		4	West Fork E. Coli
SALT CREEK AT SH 114 NORTH OF EAGLE MOUNTAIN RESERVOIR NW OF BOYD	16766	33.098415	-97.650002	0810D	04	TR	TD	RT				4		4	West Fork E. Coli
LAKE BRIDGEPORT 178 METERS WEST AND 187 METERS SOUTH OF NORTH EDGE OF DAM	10970	33.221668	-97.834	0811	04	TR	TD	BS	2						TRWD Diurnal
LAKE BRIDGEPORT 178 METERS WEST AND 187 METERS SOUTH OF NORTH EDGE OF DAM	10970	33.221668	-97.834	0811	04	TR	TD	RT		5	5	4		5	TRWD Routine Intake Conventionals, Metals in Water, and Bacteria also collected below surface depth (0.3m) at this site.
LAKE BRIDGEPORT AT NORTH END OF MAIN BODY OF RESERVOIR 10 METERS NORTH AND 1.21 KM WEST OF INTERSECTION OF VALLEY STREET AND FM 2952	15164	33.249001	-97.844673	0811	04	TR	TD	RT			5	4		5	TRWD Routine Conventionals and Bacteria also collected below surface depth (0.3m) at this site.
LAKE BRIDGEPORT WEST FORK CHANNEL 27 M WEST OF STEELE ISLAND 1.07 KM N AND 400 M W OF INTERSECTION OF EL LAGO RD AND BETTY DR	16761	33.238861	-97.876694	0811	04	TR	TD	RT			3	2		3	TRWD Routine Conventionals and Bacteria also collected below surface depth (0.3m) at this site.





# <u>Replaces Page 162 of the FY 2020-2021 Basin-Wide QAPP, Appendix D: Field Data Sheets</u> City of Fort Worth

# Fort Worth

Trinity River Bacteria Assessment (Project CEC01) Collection Date: Sample Collector Name(s):

Electronically Approved

Station 16120 West Fork Trinity River at Handley Ederville Roa											
Water Temp		°C	Sample ID:				Time:				
Air Temp		°C		FIEL	D BL	ANK	Time:				
Conductivity		μS	Primary Cont	tact?	Y	Ν					
Dissolved O <sub>2</sub>		mg/L	Notes:								
pН		SU									
Turbidity		NTU									
Flow											
Flow Severity											

Station 10938	Station 10938 West Fork Trinity River at Beach Street											
Water Temp		°C	Sample ID:				Time:					
Air Temp		°C					Time:					
Conductivity		μS	Primary Cont	act?	Υ	Ν						
Dissolved O <sub>2</sub>		mg/L	Notes:									
рH		SU										
Turbidity		NTU										
Flow												
Flow Severity												

Station 17369			Syca	more	Creek	at Scott Avenue (SYC3)
Water Temp	°C	Sample ID:				Time:
Air Temp	°C					Time:
Conductivity	μS	Primary Cont	act?	Υ	Ν	
Dissolved O <sub>2</sub>	mg/L	Notes:				
pH	SU					
Turbidity	NTU					
Flow						
Flow Severity						

Station 17368	 			West	Fork	Trinity River at 4 <sup>th</sup> Street
Water Temp	°C	Sample ID:				Time:
Air Temp	°C					Time:
Conductivity	μS	Primary Cont	act?	Y	Ν	
Dissolved O <sub>2</sub>	mg/L	Notes:				
pH	SU					
Turbidity	NTU					
Flow						
Flow Severity						

Flow Severity: 1=No Flow 2=Low Flow 3=Normal Flow 4=Flood 5=High Flow 6=Dry \*correct errors with a single line cross-out, date, and initial DSLR:

# <u>Replaces Page 163 of the FY 2020-2021 Basin-Wide QAPP, Appendix D: Field Data Sheets</u> City of Fort Worth

Α	nr	oro	ve	d
			• •	S

### Station 21801 Marine Creek at concrete apron in Stockyards (MAR3) Time: °C Sample ID: Water Temp Air Temp °C Time: Conductivity μS Primary Contact? Y N Notes: mq/L Dissolved O<sub>2</sub> pН SU Turbidity NTU Flow Flow Severity

Station 21558		West Fork	Trinity	y Rive	er upst	tream of Jacksboro Hwy
Water Temp	°C	Sample ID:				Time:
Air Temp	°C					Time:
Conductivity	μS	Primary Cont	act?	Υ	Ν	
Dissolved O <sub>2</sub>	mg/L	Notes:				
pH	SU					
Turbidity	NTU					
Flow						
Flow Severity						

Station 18456		0	Clear F	Fork T	rinity	River above Trinity	y Park
Water Temp	°C	Sample ID:				Time:	
Air Temp	°C					Time:	
Conductivity	μS	Primary Cont	act?	Υ	Ν		
Dissolved O <sub>2</sub>	mg/L	Notes:					
pH	SU						
Turbidity	NTU						
Flow							
Flow Severity							

		Post	t-Calibration C	heck	
	Meter #	Standard	Reading	Acceptable	Date/Time/Initials
pH					
Conductivity					
DO					

	Error limits
Parameter	Value
pН	± 0.5 standard units
Conductivity	± 5%
DO	± 6% saturation, ± 0.5 mg/L

# <u>Replaces Page 164 of the FY 2020-2021 Basin-Wide QAPP, Appendix D: Field Data Sheets</u> City of Grand Prairie

( ) ) ) ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (		
LAB CONTOL NO .:		CHAIN OF CUSTODY: YES:NO:
SITE NO .: GP-		
Electronically Approvedcally	ApprovedCITY OF GRAND PRAIRIE ENVIRONMENTAL SERVICES DEPARTMENT STEFAM ANALYSIS REQUEST FORM	
CRAND RRAIDE SAMPLE NO -		COLLECTED BY:
GRAND FRAIRE SAMPLE NO.		
GRAB: COMPOSITE:		DATE COLLECTED:
LOCATION:		TIME COLLECTED:
MATERIAL SAMPLED:		TRANSPORTED BY:
PRESERVATIVE:		DATE RECEIVED:
CONTAINER TYPE: GLASS PLASTIC	VOA VOLUME	RECEIVED BY:
LABORATORY PARAMETERS:		
SOLIDS TESTING	ROUTINE TESTING	METAL DISS: TOTAL:
TOTAL SUSPENDED SOLIDS	ALKALINITY phph as CaCO3	ALUMINUM
VOLATILE SUSPENDED SOLIDS	ALKALINITY-TOTAL as CaCO3	ANTIMONY
TOTAL DISSOLITED SOLIDS	RICARBONATE	RARIM
TOTAL VOLATILE SOLIDS	CARBONATE	BERYLLIUM
PERCENT TOTAL SOLIDS	CHEMICAL OXYGEN DEMAND	BORON
PERCENT VOLATILE SOLIDS	CHLORIDES	CADMIUM
	CHLOROPHYLL A	CALCIUM
SUDAY TOTAL	GREASE & OIL	CHROMIUM
5-DAY CARBONACEOUS	FLOURIDES	COBALT
7-DAY TOTAL	HYDROGEN SULFIDE	COPPER
7-DAY CARBONACEOUS	HARDNESS	IRON
	INFRARED	LEAD
TOTAL COLLEGEMS (FILTERED)	NITRATE NITROGEN	MAUNESUM
TOTAL COLFORMS (MM0-MUG)	NITRITE NITROGEN	MOLYBDENUM
E.COLIFORM	TOTAL NITROGEN	MERCURY
FECAL COLIFORMS	PH	NICKEL
FECAL STREPTOCOCCUS	PHENOLS	POTASSIUM
MICROSCOPIC EXAMINATION	PHEOPHYTIN DUOCDUODUC COTUD	SELENIUM
GAS CHROMATOGRAPHY	PHOSPHORUS-ORTHO PHOSPHORUS.TOTAL	SUCA
PESTICIDE SCAN	SPECIFIC CONDUCTANCE	SODUM
HERBICIDE SCAN	SULFATES	THALLIUM
PCBs	SULFIDES	TIN
THMS	TOTAL ORGANIC CARBON	VANADIUM
YOC'S	TOTAL PETROLEUM HYDROCARBONS	ZINC
	TTO VOLATILE SCAN	
	BASE NEUTRALS SCAN	
	ACID EXTRACTABLE SCAN	
FIELD PARAMETERS:	DEC ( Circle One Number (1) No Flow (2) Law Flow (2)	New Street Street (S) Net Street (S) Dec
DAYS SINCE LAST RAIN: FLOW SEVER	RITY:CIFCle One Number (1) No Flow (2) Low Flow (3	) Normal Flow (4) Flood (5) High Flow (6) Dry
Water Temp: DO;	pH: DO % Saturation:	Other ():
Conductivity: Turbidity:	Ammonia: Air Temperature:	Secchi Disk Depth:
LEGACY FIELD PARAMETERS (indicate wi	th an X):	
STREAM STAGE: WEATHER: Total	Cloud Cover Cloudy but Broken Clou	dy Suppy Clear
	Cloud CoverCloudy but brokenClou	
WATER COLOR: Clear Light Brown	_ Medium Brown Dark Brown Miky L	ight Green Dark Green Other
VELOCITY: NoneSluggish	ModerateRapid	
TRA TEST PARAMETERS: Monthly	_QuarterlyAnnual	
FIELD OBSERVATIONS:		

SPECIAL TESTING:

LABORATORY OFFICIAL:

\*\*SEE ATTACHMENT FOR ANALYTICAL RESULTS DATE REPORTED:\_\_\_\_\_ GP-ESR-0001 REV 05/19

# <u>Replaces Page 167 of the FY 2020-2021 Basin-Wide QAPP, Appendix D: Field Data Sheets</u> North Texas Municipal Water District



# North Texas Municipal Water District Stream

# CRP Field Data Reporting Form

Date:		Station Location:				TCEQ	Site ID:	
Tim	e:	Basin/Segme	nt:		Tech	nicians (Pr	int/Sign):	
Cou	nty:	Monitoring Ty	pe:	-				
NM Labora	tory ID #:			Stream Wid	Ith (ft):		Section Width (ft):	
Chain of C	ustody #:			Time Start:			Time End:	
Parameter Code		Parameter		Sample Depth (m)	Temp. (℃) 00010	рН (s.u.) 00400	D.O (mg/L) 00300	Conductivity (uS/cm) 00094
		Flow Severity						
01351		1- No Flow 2-Low Flow 3 - Normal 4 - Flood 5 - High 6 - Dry						
00061		Flow (CFS)						
74069		Flow Estimate						
00005		Flow Measurement Meth	hod					
89835		1 - Gauge 2 - Electronic 3 - Mecha 4 - Weir/Flume 5 - Doppler	nical					
20424		Water Clarity						
20424		1 - Excellent 2 - Good 3 - Fair4 - P	oor 5 - Other"					
		Water Color						
89969		1 - Brown 2 - Reddish 3 - Green 4 - Black 5 - Clear 6 - Other"						
		Water Odor						
89971		1 - Sewage 2 - Olly/Chem 3 - Rot 4 - Musky 5 - Fishy 6 - None 7 - O	ten Egg ther'					
00020		Air Temperature ( <sup>o</sup> Celsi	us)					
000000		Weather						
89900		1 - Clear 2 - Partly Cloudy 3 - Clou 4 - Rain 5 - Other"	dy					
00005		Wind Direction:						
89900		1 - Caim 2 - Slight 3 - Moderate 4	- Strong					
72053		Significant Precipitation	(Days)					
00078		Transparency, Secchi D	isk (m)					
-		Total Depth (m)						
Comments ar	nd details/desc	ription for parameter codes ma	rked other*:		Tech Tal	king Flow:		Total Flow (CFS)

# Replaces Page 168 of the FY 2020-2021 Basin-Wide QAPP, Appendix D: Field Data Sheets

North Texas Municipal Water District

Electroniciala/IAApparoved MECIPHic	ளூரிற்றின் and Field Obs	ervations
Biological Activities:		
Aquatic Vegetation:		
Terrestrial Vegetation:		
Aquatic Animals:		
Terrestrial Animals:		
Aquatic Insects:		
Terrestrial Insects:		
Left Bank:		
Right Bank:		
Watershed Activities:		
Water Quality/ Stream Use:		
Specific Sample Info:		
Missing Parameters:		
Notes:		
Drought Parameters (if applicable)	Parameter Code	Result
Maximum Pool Width (m)	89864	
Maximum Pool Depth (m)	89865	
Pool Length (m)	89869	
% Pool Coverage in a 500 m Reach	89870	
Drought Conditions:		
Sonde Depth in Air (m):		

Date:	Station Location:			TCEQ Site ID:	
		Final	Review		

						50						
Sample Date:		Sampler:			BP Release(c	fs):		DSLR:			Rain(inches)	
SITE LOCATION	SITE ID	Flow cfs	Flow Severity	TIME	Temp°C	pH units	DO mg/L	Cond µs/cm	Turbidity NTU	Contact Recreat ion	Number People Observed	Sample ID
W. Fork Trinity@ Van Meter Bridge	10967			2								
W. Fork Trinity@ Bobo Bridge	17844											
W. Fork Trinity @ FM 730	10969											
Salt Creek @ SH 114	16766											
Garrett Creek @ SH 114	16767											
Martin Branch @ SH 51	17848											
W. Fork Trinity @ FM 3390	14246											
Big Sandy Creek @ SH 380	15688											
W. Fork Trinity @ SH 380	14904											
W. Fork Trinity @ SH 114 BP	20840											
Replicate												
Primary Contact Recreation Flow Severity: 1-no flow 2	: 0-not ob -low 3-no	served 1-ot ormal 4-floc	sserved od 5-high	6-dry								

West Fork E. Coli

Comments :

# Insert After Page 169 of the FY 2020-2021 Basin-Wide QAPP, Appendix D: Field Data Sheets Tarrant Regional Water District

			_	EAGLE MC	ARRANT I TF UNTAINV	REGIONAL V RIBUTARY P VEST FORK	VATER DIS ROFILE TRIBUTAR	TRICT IES/RAIN	GAGE						
DATE:	DAYS SIN	CE LAST R	AINFALL (I	OSLR):		RAINFALL (i	nches):	I			SAMPLE				
	TCEQ	BASE TAPE DOWN	C STAFF or WIRE	DOWN	FLOW	FLOW	TIME	TEMP	H	8	COND	Turbidity	Primary Contact	# of People	SAMPLE
		(11)	- COLO	(01)	100			,	(ne)	(nißin)	(III)/OII)		Vacieation	Onserved	*
Ash Creek															
@ HWY 199	10854	23.67	0.5'												
LAN MALOCO 280	Ì		Ī	T	T	T			T	T		Ī	Ī	T	
Walnut Creek															
@ FM 1542	10853	29.04	30.47"												
FW MAPSCO 29K															
W. Fork Trinity River															
@ FM 730 near Boyd	10969	25.58'	AN												
Wise Cty MAPSCO 24															
USGS (08044500)															
Derrett Creek															
@ Central Ave. (Newark)	10858	19.81	¥												
Wise Cty MAPSCO 25															
Dosier Creek															
@ FM 1220	10855	10.6'	0.0				0								
FW MAPSCO 32E															
Rain Collector															
EM Office		AA	AA	AN	AA	AA									
DSLR: Days since last rai	nfall. Rai	nge is from	ı <1 (rainir	ig at samp	ole) to > 7	5.									
FLOW SEVERITY: 1-no f	ow 2-lo	w 3-norn	nal 4-floc	od 5-hig	h 6-dry										
PRIMARY CONTACT RECR	PATION 0	not observe	of 1-ohsen	pa											
COMMENTS:															ĩ

# Insert After Page 169 of the FY 2020-2021 Basin-Wide QAPP, Appendix D: Field Data Sheets Tarrant Regional Water District

Page 23 of 31

REVISED 07/15

# FORT WORTH

# Centralized Water and Wastewater Laboratory

2600 S.E. Loop 820 Fort Worth, TX 76140 Phone (817) 392-5900 Fax (817) 392-5920

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			sia	aboC	0.0 TR	2 W	3	2	N 1	N 1	1	3	1	3	>	3	3	3	3	3	3									
						Sample Remarks																	iject Information Update: 01/08/19			PT (Check One)	C Upon Receipt			THE RIGHT TO RETURN UNUSED PORTIONS OF MAGNIFOUS SAMPLES TO GUENT
	AREAFORLABUSEONLY																					edba	LABCOMMENTS Pro	5	IB Thermometer:	CONDITIONS UPON RECEI	lce Ambien			LAB RESERVES No
•						st Name																shipp		22	AM PA	AM				
ORD	inted)	ller				٦ ۳																Date	Time		Tine	Time				
JSTODY REC	Sampler (Pr	Kayla Mi					9223B-QT	9223B-QT	9223B-QT	9223B-QT	9223B-QT	9223B-QT	9223B-QT										Date		Date	Date		Container Types	V=VOA Vials AG=Amber Glass	CG=Clear Glass P=Plastic
CHAIN OF CL	Project Name	CRP Bacteria Monitoring				Sampling Site	छ Handley Ederville Rd.	ହି Beach St	ek @ Scott Ave	e dth St	ම 23rd St	nity River @ boat ramp	a University									Cooler No.	Received By: (Signature)	5	Received By: (Signature)	Received By: (Signature)				
	(iii						River @	Biver (	nore Cre	Biver @	e Creek	Fork Tri	Biver @											21	AM PN	AM PN				
	State imple ori		ž				): Trinity	8: Trinity	9: Sycar	8: Trinity	l: Marin	8: West	8: Trinity									bill No_	Time		Ĩ	Time		le Type:	nposite b	
	(of sa					шe	и РМ 16120	и РМ 10938	и РМ 17369	и РМ 17368	и РМ 21801	и РМ 21558	и РМ 18456	M PM	M PM	M PM	M PM	M PM	M PM	M PM	4 PM	Airl	a		a	a		Samp	505 505	
	Information	nitez .	nce Vept. Iality Division	be St.	X 76102	Collection Til	AN	AA	NA.	AA.	AA	AA	AN	AA	AA.	AN	AN	AN	AN	AN	AN	<u>ه</u>	Date		م ۳	Date				
ise print legibly	t Contact	Nixa Ber	le Compliai neental Qu	908 Monre	rt Worth, T	Date																s: Carrie	öignature)		öignature)	Signature)			r Water	
Ples	Clien		Enviror		Fo	Sample ID #																Field Comment	Relinquished By: (?		Relinquished By: (;	Relinquished By: (\$		Matrix Codes:	DV=Urinking Vate NP=Non-Potable	S=Solid Waste WW=Wastewater

# Replaces Page 176 of the FY 2020-2021 Basin-Wide QAPP, Appendix E: Chain of Custody Forms **City of Fort Worth**

# Replaces Page 177 of the FY 2020-2021 Basin-Wide QAPP, Appendix E: Chain of Custody Forms **City of Grand Prairie**

ITE NO.:GP		
	CITY OF GRAND PRAIRIE ENVIRONMENTAL SERVICES DEPARTMENT STREAM ANALYSIS REQUEST FORM	t
RAND PRAIRIE SAMPLE NO .:		COLLECTED BY:
PAR COMPOSITE		DATE COLLECTED:
JCATION.		
ATERIAL SAMPLED:		TRANSPORTED BY:
RESERVATIVE:		DATE RECEIVED:
ONTAINER TYPE: GLASS PLASTIC	VOA VOLUME	RECEIVED BY:
BORATORY PARAMETERS:		
SOLIDS TESTING	ROUTINE TESTING	METAL DISS: TOTAL:
TOTAL SUSPENDED SOLIDS	ALKALINITY phph as CaCO3	ALUMINUM
TOTAL DISSOLVED SOLIDS	AMMONIA NITROGEN	ARSENIC
TOTAL SOLIDS	BICARBONATE	BARIUM
TOTAL VOLATILE SOLIDS	CARBONATE	BERYLLIUM
PERCENT TOTAL SOLIDS	CHEMICAL OXYGEN DEMAND	BORON
PERCENT VOLATILE SOLIDS	CHLORIDES	CADMIUM
	CHLOROPHYLL A	CALCIUM
BIOCHEMICAL OXYGEN DEMAND	CYANDES GDEASE + OIL	CHROMUM
5-DAY CARBONACEOUS	FLOURIDES	COBALT
7-DAY TOTAL	HYDROGEN SULFIDE	COPPER
7-DAY CARBONACEOUS	HARDNESS	IRON
	INFRARED	LEAD
BIOLOGICAL TESTING	TOTAL KJELDAHL NITROGEN	MAGNESIUM
TOTAL COLIFORMS (FILTERED)	NITRATE NITROGEN	MANGANESE
TOTAL COLIFORMS (MMO-MUG)	NITRITE NITROGEN	MOLYBDENUM
E.COLFORM	TOTAL NITROGEN	MERCURY
FECAL STREPTOCOCCUS	PHENOLS	POTASSIIM
MICROSCOPIC EXAMINATION	PHEOPHYTIN	SELENIUM
	PHOSPHORUS-ORTHO	SILICA
GAS CHROMATOGRAPHY	PHOSPHORUS-TOTAL	SILVER
PESTICIDE SCAN	SPECIFIC CONDUCTANCE	SODIUM
HERBICIDE SCAN	SULFATES	THALLIUM
PCBs	SULFIDES	TIN
VOC'S	TOTAL PETROLEUM HVDBOCABBONS	ZINC
1000	GC/MS	2100
	TTO VOLATILE SCAN	
	BASE NEUTRALS SCAN	
	ACID EXTRACTABLE SCAN	
FLD PARAMETERS:		
AVS SINCE LAST RAIN: FLOW SEV	ERITY:Circle One Number (1) No Flow (2) Low Flow (	(3) Normal Flow (4) Flood (5) High Flow (6) D
	(.,	(c)
ater Temp: DO:	pH: DO % Saturation:	Other ():
nductivity: Turbidity:	Ammonia: Air Temperatura:	Secchi Diek Denth
Turbuty	Air remperature.	Gecon Disk Depui
GACY FIELD PARAMETERS (indicate v	vith an X):	
TREAM STAGE: WEATHER: Tota	al Cloud CoverCloudy but BrokenClo	oudy SunnyClear
ATER COLOR: Clear Light Brown	Medium Brown Dark Brown Miky	Light Green Dark Green Other
ELOOTTY: Nees	Nederate David	
ELOCITY: NoneSluggish	Kaplo	
RA TEST PARAMETERS: Monthly	QuarterlyAnnual	

SPECIAL TESTING:

LABORATORY OFFICIAL:

\*\*SEE ATTACHMENT FOR ANALYTICAL RESULTS GP-ESR-0031 REV 05/19

DATE REPORTED:

# Distribution

QAPP Amendments and Revisions to Appendices will be distributed to all personnel on the distribution list maintained by the Planning Agency.

These changes will be incorporated into the QAPP document and TCEQ and the Trinity River Authority will acknowledge and accept these changes by signing this amendment.

# **Texas Commission on Environmental Quality**

# Water Quality Planning Division

Electronically Approved	9/3/2020
Rebecca Dupont, Work Leader & Project Manage Clean Rivers Program	Date er
Electronically Approved	9/8/2020
Kelly Rodibaugh Project Quality Assurance Spec Clean Rivers Program	Date ialist
Electronically Approved	9/3/2020
Cathy Anderson, Team Leader Data Management and Analysi	Date s
Monitoring Division	
Electronically Approved	9/3/2020
Sharon Coleman TCEQ Quality Assurance Manag	Date ger
Electronically Approved	9/3/2020
Dana Squires CRP Lead Quality Assurance Sp	Date ecialist

# **Trinity River Authority**

Approved	Electronically Approved	9/3/2020
	Angela Kilpatrick	Date
	TRA Project Manager	

Electronically Approved	9/3/2020
Hong Wu	Date
TRA QA Officer	

Electronically Approved	9/3/2020
Carion Taylor	Date
TRA Data Manager	

# **TRA Lake Livingston Project and Laboratory**

Electronically Approved 9/3/2020 Mike Knight Date TRA LLP Project Manager and Laboratory Manager

Electronically Approved 9/3/2020

Sheryl Hanks TRA LLP QA Officer Date

Electronically Approved 9/4/2020

Thresa Aguayo Date TRA LLP Laboratory QA Officer

# **City of Arlington**

Electronically Approved	9/3/2020	
Brigette Gibson City of Arlington Project Mar	Date nager	-
Electronically Approved	9/3/2020	
Dylan Tissue City of Arlington QA Officer	Date	-

# **City of Fort Worth**

Electronically Approved	9/3/2020
Nixalis Benitez	Date
City of Fort Worth Project M	anager

Electronically Approved	9/3/2020
Kayla Miller	Date
City of Fort Worth QA Officer	

# North Texas Municipal Water District

Electronically Approved	9/3/2020
Kristen Suprobo NTMWD Project Manager	Date
Electronically Approved	9/3/2020
Katie McElroy NTMWD QA Officer	Date

# North Texas Municipal Water District Laboratory

Electronically Approved 9/3/2020 Ray Cotton Date NTMWD Laboratory Manager QA Officer

Electronically Approved 9/3/2020 Kevin Frantz Date NTMWD Laboratory QA Officer

# **Tarrant Regional Water District**

Electronically Approved	9/3/2020
Mark Ernst	Date
TRWD Project Manager	

Electronically Approved	9/3/2020
Jennifer Owens	Date
TRWD QA Officer	

# **City of Dallas - Dallas Water Utilities RESWS SWTT**

Date

Electronically Approved9/4/2020Alfonso MoruaDateCity of Dallas Project Manager

Electronically Approved 9/4/2020

Jessica Staggs City of Dallas QA Officer

# City of Dallas – Dallas Water Utilities RESWS WETT

Electronically Approved9/3/2020Nusrat MunirDateCity of Dallas Project Manager

Electronically Approved	9/3/2020
Jonathan Pasley	Date
City of Dallas QA Officer	

# **DFW International Airport Environmental Affairs Department**

Electronically Approved	9/3/2020	
Chris Hughes	Date	
DFW EAD Project Manager		
	9/3/2020	
	Date	
DFW EAD QA Officer		
City of Grand Prairie		
Electronically Approved	9/5/2020	
Cindy Mendez	Date	
City of Grand Prairie Project Manager		
Electronically Approved	9/4/2020	
Chandani Rana	Date	
City of Grand Prairie QA Officer		

# **City of Irving**

Electronically Approved 9/3/2020

Jeffrey Shiflet Date City of Irving Project Manager & QA Officer

Sub-tier participants (e.g., subcontractors, subparticipants, or other units of government) will sign the QAPP, indicating the organization's awareness of, and commitment to requirements contained in this quality assurance project plan and any amendments or added appendices of this plan. Signatures in section A1 will eliminate the need for adherence letters to be maintained.