

Bryan W. Shaw, Ph.D., P.E., *Chairman*
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Richard A. Hyde, P.E., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 21, 2014

Allen M. Pappas
Red River Authority of Texas
P.O. Box 240
Wichita Falls, TX 76307-0240

Re: Amendment #2 to the RRA 2014-2015 CRP Quality Assurance Project Plan

Dear Mr. Pappas:

Enclosed is an approved copy of the referenced QA document for your files and distribution.

Please ensure that copies of this document are distributed to each project participant as required by Section A3 of the QAPP. The documentation of QAPP distribution and subcontractor commitment to QAPP requirements must be available for review during monitoring system audits.

If you have any questions, please contact your TCEQ Clean Rivers Program project manager, or you may contact me at (512) 239-0011, or by email at daniel.burke@tceq.texas.gov.

Sincerely,

A handwritten signature in black ink that reads "Daniel R. Burke".

Daniel R. Burke
Lead CRP Quality Assurance Specialist

enclosure

cc: Allison Fischer, TCEQ CRP Project Manager, MC 234

**Amendment # 2
to the Red River Authority of Texas'
Clean Rivers Program FY 2014-2015 QAPP**

**Prepared by the Red River Authority of Texas
In Cooperation with the
Texas Commission on Environmental Quality (TCEQ)**

Questions concerning this QAPP should be directed to:

**Red River Authority of Texas
Allen M. Pappas
Clean Rivers Program Project Manager
3000 Hammon Road
P.O. Box 240
Wichita Falls, Texas 76307-0240
(940) 723-8697
allen.pappas@rra.texas.gov**

Effective: Immediately Upon Approval by all parties

JUSTIFICATION

The following changes are to reflect the Authority's addition of parameter code 00021, "Temperature, Air" to **Table A7.1-A, Field Parameters** which has and shall continued to be collected during routine monitoring events by both the Authority and the City of Sherman. Additionally, **Table A7.1-C Conventional Parameters** shall be modified to reflect a change in the Authority's LOQ for Total Dissolved Solids (TDS) from 10.0 mg/L to 50.0 mg/L. TDS Concentrations below 50.0 mg/L are typically not observed within the Canadian and Red River Basins. The increase in LOQ would also aid in the prevention of LOQ failures during laboratory analysis, reducing the potential for data loss.

Finally, the North Texas Municipal Water District (NM) has appointed a new CRP Project Manager and Field Supervisor, Ms. Elizabeth Turner, as Mr. Jerry Allen has taken a new position. This change has been reflected in both **Section A4 – Project/Task Organization** and the **Chart 1 – Project Organization Chart**.

DETAIL OF CHANGES

Section A4 – Project/Task Organization

Section A4 was modified to reflect that NTMWD has added Elizabeth Turner as the new CRP Project Manager and Field Supervisor.

Project Organization Chart

Chart 1 – Project Organization – Lines of Communication has been modified to reflect the appointment of Elizabeth Turner as the NTMWD CRP project manager and Field Supervisor.

Table A7.1 – Measurement Performance Specifications

Field Parameters (Table A7.1-A)

Table A7.1-A will be modified to incorporate data under the following parameter code:

Description	TCEQ ID	LOQ
Temperature, Air	Parameter Code 00021	N/A

Conventional Parameters-RR (Table A7.1-C)

Table A7.1 will be modified to incorporate the following change in LOQ parameter:

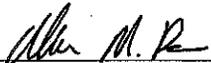
Description	TCEQ ID	LOQ
Solids, Total Dissolved	Parameter Code 70300	50 mg/L

DISTRIBUTION

QAPP Amendments/Revisions to Appendices will be distributed to all personnel on the distribution list maintained by the Authority.

These changes will be incorporated into the FY 2014-15 QAPP document and TCEQ, the Authority and all program participants will acknowledge and accept these changes by signing this amendment.

Red River Authority of Texas

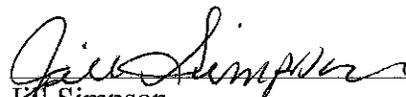


Allen M. Pappas, 4/30/2014
Red River Authority Project Manager Date



Allen M. Pappas, 4/30/2014
Red River Authority CRP QA Officer Date

Red River Authority of Texas Environmental Services Laboratory



Jill Simpson, 4/30/14
Red River Authority Laboratory Supervisor Date

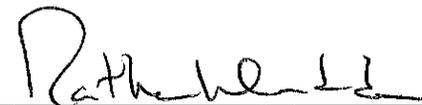


Allen M. Pappas, 4/30/2014
Red River Authority Laboratory QA Officer Date

City of Sherman

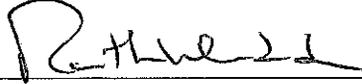


Wayne Kuse, 5 May 14
City of Sherman CRP Project Manager Date



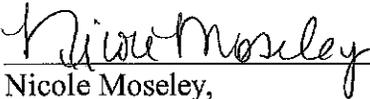
Nathan Whiddon, 5/5/14
City of Sherman CRP QA Officer Date

City of Sherman Laboratory


Nathan Whiddon,
City of Sherman Laboratory Supervisor

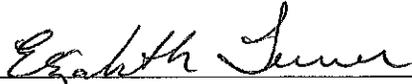
5/5/14
Date

City of Sherman Laboratory (continued)

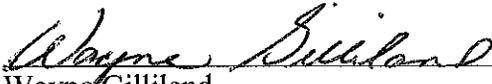

Nicole Moseley,
City of Sherman Laboratory QA Officer

5.5.14
Date

North Texas Municipal Water District

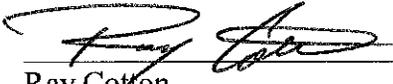

Elizabeth Turner,
NTMWD CRP Project Manager

5/6/2014
Date

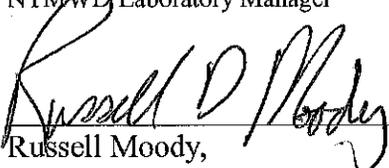

Wayne Gilliland,
NTMWD CRP QA Officer

5/7/14
Date

North Texas Municipal Water District Laboratory


Ray Cotton,
NTMWD Laboratory Manager

5/7/14
Date


Russell Moody,
NTMWD Laboratory QA Officer

5/7/14
Date

Lower Colorado River Authority, ELS


Alicia Gill,
LCRA ELS Laboratory Manager

5/9/14
Date

Lower Colorado River Authority, ELS (continued)

 5/9/14

Roland Garcia,
LCRA ELS Quality Director

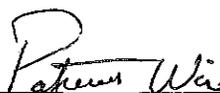
Date

Texas Commission on Environmental Quality

 5-14-2014

Allison Fischer,
CRP Project Manager
CRP Project QAS

Date

 5/15/2014

Patricia Wise,
CRP Group Leader

Date

 5/15/2014

Daniel R. Burke,
CRP Lead QAS

Date

A4 PROJECT/TASK ORGANIZATION

Description of Responsibilities

North Texas Municipal District

Collects and analyzes specific water quality samples required for their specific operations. Data which are submitted to the Authority, as identified in **Appendix A, Table A7.1** for use in the CRP, will be collected and analyzed under the guidelines set forth by this QAPP.

Elizabeth Turner

NTMWD CRP Project Manager and CRP Field Supervisor

Responsible for overall project direction. As CRP Project Manager, is responsible for all CRP related activities conducted by NTMWD. As CRP Field Supervisor, is responsible for ensuring that field samples and measurements are collected and recorded according to methodologies detailed in **Appendix A, Table A7.1**. The Field Supervisor role will have primary responsibility for initiating corrective actions in the field in support of data completeness goals of 90%. The Field Supervisor will ensure proper use of CRP Field Data Sheets, field notebooks, proper calibration of equipment and that chain-of-custody forms are correctly completed and received by the laboratory. The Field Supervisor will also oversee submittal of water quality samples to the contract laboratory, as appropriate, and will be responsible for confirming that requested analyses are carried out.

Wayne Gilliland

NTMWD CRP Quality Assurance Officer

Responsible for coordinating the implementation of the CRP QA program. Responsible for maintaining the CRP QAPP and monitoring its implementation. Responsible for maintaining records of QAPP distribution, including appendices and amendments. Responsible for maintaining written records of sub-tier commitment to requirements specified in this QAPP. Responsible for identifying, receiving, and maintaining project quality assurance records. Responsible for coordinating with the TCEQ QAS to resolve QA-related issues. Notifies the CRP Project Manager of particular circumstances which may adversely affect the quality of data. Coordinates with the CRP Project Manager to monitor 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 are properly trained and that training records are maintained

Katie McElroy

NTMWD CRP Backup to the Field Supervisor and Quality Assurance Officer

Assists and serves as a backup to carry out the functions and responsibilities of the Field Supervisor or Quality Assurance Officer. See description of responsibilities for the Field Supervisor and Quality Assurance Officer.

Ray Cotton

NTMWD Laboratory Manager

Serves as primary laboratory contact. Responsible for ensuring that all samples received in the NTMWD Environmental Laboratory are within the allotted time, and that the chain-of-custody has been observed. Ensures that the samples are analyzed in accordance with standard accepted methods as described in the SOP manual. Ensures all analysis results are correctly performed and properly recorded on the laboratory data sheets and in the appropriate analytical log books. Responsible for the implementation of the QA program for the NTMWD Environmental Laboratory. Ensures laboratory staff is properly trained. Responsible for distribution of hardcopy and electronic reports to customers.

Kelly Harden**NTMWD CRP Laboratory Operations Manager**

Responsible for ensuring that all samples received in the NTMWD Environmental Laboratory are within the allotted time, and that the chain-of-custody has been observed. Ensures that the samples are analyzed in accordance with standard accepted methods as described in the SOP manual. Ensures all analysis results are correctly performed and properly recorded on the laboratory data sheets and in the appropriate analytical log books. Responsible for the implementation of the QA program for the NTMWD Environmental Laboratory. Ensures laboratory staff is properly trained. Generates laboratory reports.

Russell Moody**NTMWD CRP Laboratory Quality Assurance / Quality Control Officer**

Responsible for coordinating the implementation of the Laboratory QA program. Notifies NTMWD Laboratory Manager of particular circumstances which may adversely affect the quality of data. Coordinates and monitors deficiencies and corrective action. Coordinates and maintains records of data verification and validation. Coordinates the research and review of technical QA material and data related to water quality monitoring system design and analytical techniques. Conducts internal monitoring systems audits to determine compliance with project and program specifications related to laboratory analysis. Responsible for identifying, and maintaining Laboratory quality assurance records. Maintains laboratory training records.

PROJECT ORGANIZATION CHART

Chart 1 – Organization Chart - Lines of Communication

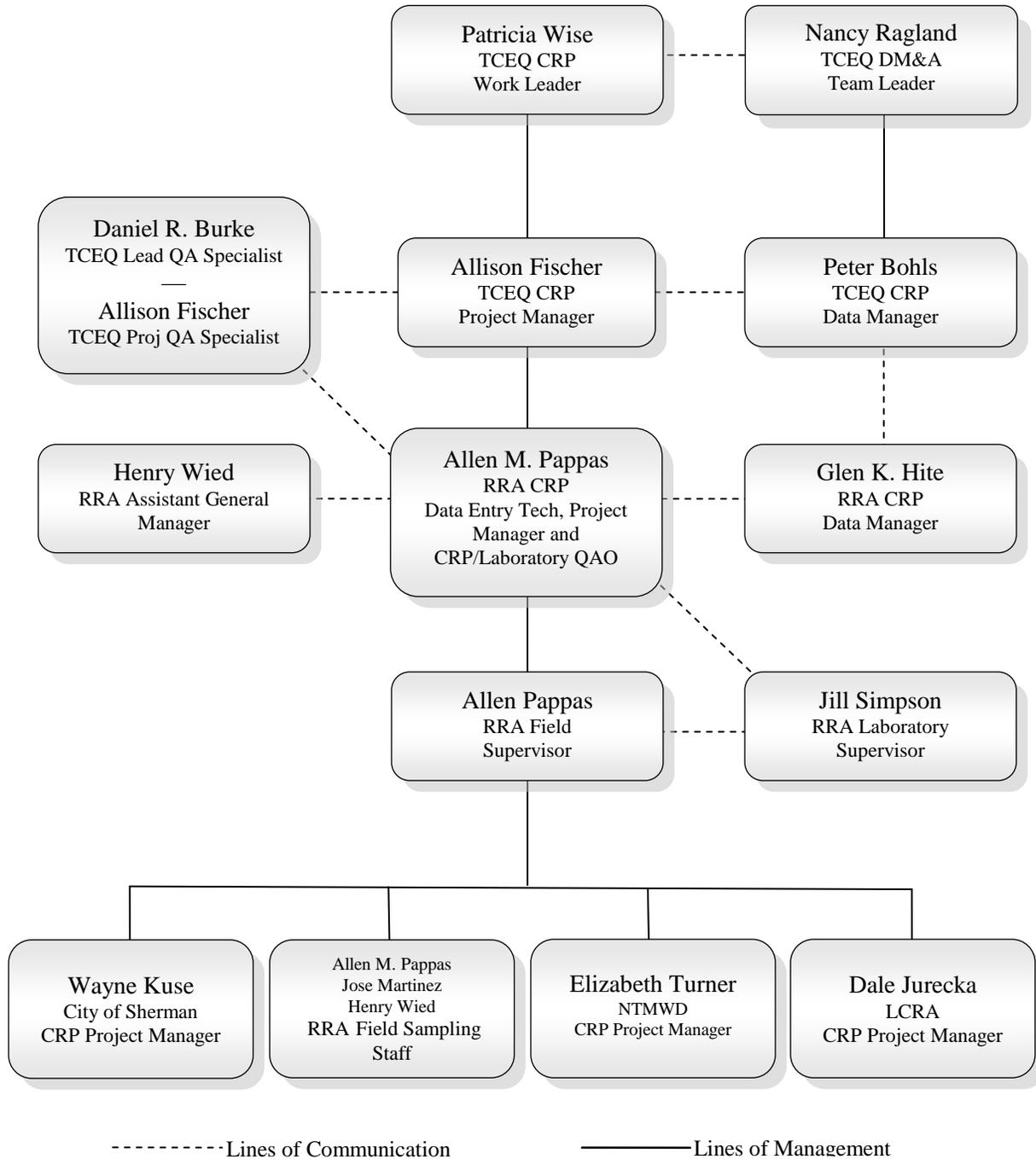


Table A7.1-A Measurement Performance Specifications

Parameter	Units	Matrix	Method	Parameter Code	AWRL	Limit of Quantitation (LOQ)	LOQ Check Standard %Rec	Precision (RPD of LCS/LCSD)	Bias % Rec. of LCS	Lab
FIELD PARAMETERS										
Days Since Precipitation Event (days)	Days	Other	TCEQ SOP V1	72053	NA ¹	NA	NA	NA	NA	Field
Depth of Bottom of Water Body at Sample Site	Meters	Water	TCEQ SOP V2	82903	NA ¹	NA	NA	NA	NA	Field
Dissolved Oxygen (mg/L)	mg/L	Water	TCEQ SOP V1, SM 4500-O G	00300	NA ¹	NA	NA	NA	NA	Field
Evidence of Primary Contact Recreation	1 - observed 0 - not observed	Other	NA	89979	NA	NA	NA	NA	NA	Field
Flow Measurement Method	1 - gage 2 - electric 3 - mechanical 4 - weir/flume 5 - doppler	Water	TCEQ SOP V1	89835	NA ¹	NA	NA	NA	NA	Field
Flow Severity	1 - no flow 2 - low 3 - normal 4 - flood 5 - high 6 - dry	Water	TCEQ SOP V1	01351	NA ¹	NA	NA	NA	NA	Field
Maximum Pool Width at Time of Study (Meters)	Meters	Other	TCEQ SOP V2	89864	NA ¹	NA	NA	NA	NA	Field
Maximum Pool Depth at Time of Study (Meters)	Meters	Other	TCEQ SOP V2	89865	NA ¹	NA	NA	NA	NA	Field
pH (Standard Units)	Standard Units	Water	TCEQ SOP V1, EPA 150.1	00400	NA ¹	NA	NA	NA	NA	Field
% Pool Coverage in 500 Meter Reach ⁷	%	Other	TCEQ SOP V2	89870	NA ¹	NA	NA	NA	NA	Field
Pool Length, Meters ⁷	Meters	Other	TCEQ SOP V2	89869	NA ¹	NA	NA	NA	NA	Field
Present Weather	1 - clear 2 - ptly cldy 3 - cloudy 4 - rain 5 - other	Other	NA	89966	NA	NA	NA	NA	NA	Field
Primary Contact Observed Activity	# of people observed	Other	NA	89978	NA	NA	NA	NA	NA	Field
Reservoir Stage (Feet Above Mean Sea Level) ⁵	FT Above MSL	Water	TWDB	00052	NA ¹	NA	NA	NA	NA	Field
Reservoir Percent Full ⁵	% Reservoir Capacity	Water	TWDB	00053	NA ¹	NA	NA	NA	NA	Field
Reservoir Access Not Possible Level Too Low Enter 1 if Reporting	NS	Other	TCEQ Drought Guidance	00051	NA ¹	NA	NA	NA	NA	Field
Secchi Depth (m)	meters	Water	TCEQ SOP V1	00078	NA ¹	NA	NA	NA	NA	Field
Specific Conductance, Field (µS/cm @ 25°C)	µS/cm	Water	TCEQ SOP V1, SM 2510 B, EPA 120.1	00094	NA ¹	NA	NA	NA	NA	Field
Stream Flow, Instantaneous (CFS)	cfs	Water	TCEQ SOP V1	00061	NA ¹	NA	NA	NA	NA	Field
Stream Flow, Estimate (CFS)	cfs	Water	TCEQ SOP V1	74069	NA ¹	NA	NA	NA	NA	Field

Table A7.1-A Measurement Performance Specifications

Parameter	Units	Matrix	Method	Parameter Code	AWRL	Limit of Quantitation (LOQ)	LOQ Check Standard %Rec	Precision (RPD of LCS/LCSD)	Bias % Rec. of LCS	Lab
Temperature, Air (Degrees Fahrenheit)	°F	Air	NA	00021	NA	NA	NA	NA	NA	Field
Temperature, Water (Degrees Celcius)	°C	Water	TCEQ SOP V1 SM 2550 B	00010	NA ¹	NA	NA	NA	NA	Field
Water Clarity	1 - excellent 2 - good 3 - fair 4 - poor	Water	NA	20424	NA	NA	NA	NA	NA	Field
Water Color	1 - brownish 2 - reddish 3 - greenish 4 - blackish 5 - clear 6 - other	Water	NA	89969	NA	NA	NA	NA	NA	Field
Water Odor	1 - sewage 2 - chemical 3 - rotten egg 4 - musky 5 - fishy 6 - none 7 - other	Water	NA	89971	NA	NA	NA	NA	NA	Field
Water Surface	1 - calm 2 - ripples 3 - waves 4 - white cap	Water	NA	89968	NA	NA	NA	NA	NA	Field
Wind Intensity	1 - calm 2 - slight 3 - moderate 4 - strong	Other	NA	89965	NA	NA	NA	NA	NA	Field

¹ To be routinely reported when collecting data from perennial pools.

² As published by the Texas Water Development Board on their website <http://waterdatafortexas.org/reservoirs/statewide>.

³ Reporting to be consistent with SWQM guidance and based on measurement capability.

References:

1. TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, 2012 (RG-415).
2. TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Community and Habitat Data, 2007 (RG-416)

Table A7.1-C Measurement Performance Specifications

Parameter	Units	Matrix	Method	Parameter Code	AWRL	Limit of Quantitation (LOQ)	LOQ Check Standard %Rec	Precision (RPD of LCS/LCSD)	Bias % Rec. of LCS	Lab
CONVENTIONAL PARAMETERS										
Alkalinity, Total (mg/L as CaCO ₃)	mg/L	Water	SM 2320 B	00410	20	20	NA	20	NA	RR,
Carbon, Total Organic, NPOC (TOC) (mg/L)	mg/L	Water	SM 5310 B	00680	2	1	70-130	20	80-120	RR
Chemical Oxygen Demand, 0.025N K ₂ CR ₂ O ₇ (mg/L)	mg/L	Water	HACH 8000	00335	10	10	70-130	20	80-120	RR
Chloride (mg/L as Cl)	mg/L	Water	EPA 300.0	00940	5	10 ¹	70-130	20	80-120	RR
Chlorophyll-A, Fluorometric Method, (ug/L)	ug/L	Water	EPA 445.0	70953	3	2	NA	20	80-120	RR
Chlorophyll-A, Spectrophotometric Acid Method, (ug/L)	ug/L	Water	EPA 446.0	32211	3	2	NA	20	80-120	RR ²
Nitrate Nitrogen, Total (mg/L as N)	mg/L		EPA 300.0	00620	0.05	0.05	70-130	20	80-120	RR
Nitrite Plus Nitrate-N, Total One Lab Determined Value (mg/L as N)	mg/L	Water	EPA 353.2	00630	0.05	0.05	70-130	15	90-110	RR
Nitrogen, Ammonia, Total (mg/L as N)	mg/L	Water	SM 4500-NH3D	00610	0.1	0.1	70-130	20	80-120	RR
Pheophytin-A, Fluorometric Method, (ug/L)	ug/L	Water	EPA 445.0	32213	3	2	NA	NA	NA	RR
Pheophytin-A, Spectrophotometric Acid Method, (ug/L)	ug/L	Water	EPA 446.0	32218	3	2	NA	NA	NA	RR ²
Phosphorus, Total, Wet Method (mg/L as P)	mg/L	Water	SM 4500 P E	00665	0.06	0.06	70-130	20	80-120	RR
Residue, Total Dissolved, Unspec. Calculation Based on Conductivity (mg/L)	mg/L	Water	Calculation	70294	NA	NA	NA	NA	NA	RR
Residue, Total Filterable (Dried at 180°C) (mg/L)	mg/L	Water	SM 2540 C	70300	10	50 ¹	NA	20	80-120	RR
Residue, Total Non-Filterable (mg/L)	mg/L	Water	SM 2540 D	00530	4	2.5	NA	20	NA	RR
Residue, Volatile Non-Filterable (mg/L)	mg/L	Water	EPA 160.4	00535	4	2.5	NA	NA	NA	RR
Sulfate (mg/L as SO ₄)	mg/L	Water	EPA 300.0	00945	5	10 ¹	70-130	20	80-120	RR
Turbidity, Lab Nephelometric Turbidity Units (NTU)	NTU	Water	SM 2130 B	82079	0.5	0.5	70-130	20	80-120	RR

RR – Red River Authority of Texas

¹ The LOQ for chloride, sulfate and total dissolved solids (TDS) is higher than the established AWRL since concentrations for these parameters are extremely high in both the Canadian and Red River Basins and values are typically not observed at concentrations below 10 mg/L.

² Listed as a backup in case instrument error would prevent samples from being analyzed within specified holding times

References:

1. United States Environmental Protection Agency (USEPA) Methods for Chemical Analysis of Water and Wastes, Manual #EPA-600/4-79-020
2. American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998. (Note: The 21st edition may be cited if it becomes available.)
3. TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, 2012 (RG-415).
TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Community and Habitat Data, 2007 (RG-416)