

**Amendment # 2
to the Red River Authority of Texas'
Clean Rivers Program FY 2012-2013 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
apappas@rra.dst.tx.us**

Effective: Immediately Upon Approval by all parties

JUSTIFICATION

The changes outlined in this amendment represent the request of our Clean Rivers Program partners, and the required mandatory amendment to incorporate changes from our annual Coordinated Monitoring Meeting into Table B1.1.

The Authority will be conducting 24-Hour dissolved oxygen measurements at three stations within the Canadian and Red River Basins, which required the addition of several parameter codes to Table A7.1. Additionally, the Authority will begin conducting the analysis of both chlorophyll-*a* and pheophytin in-house, which will require a modification to Table A7.1. The Lower Colorado River Authority (LCRA) will still be listed within Table A7.1 for these analyses should samples need to be sub-contracted for analysis. The Texas Commission on Environmental Quality (TCEQ) has requested the addition of two parameters to Table A7.1 to facilitate the documentation of contact recreation activities occurring at waterbodies throughout the state to better determine the need for Use Attainability and Recreational Use Attainability analyses. Lastly, several dissolved metals including aluminum, arsenic, copper, nickel and zinc are being added to Table A7.1 and performed by LCRA. These parameters will be monitored at all three Smith Creek locations quarterly beginning with FY 2013. With the addition of these parameter codes arose the need for new field data sheets, specifically for 24-Hour monitoring and modification to the existing stream and lake/reservoir field data sheets for the Authority, the City of Sherman, and the North Texas Municipal Water District. The City of Sherman has also added two lake/reservoir sites for FY 2013 and required a lake/reservoir field data sheet as well. The addition of dissolved metals also required a modification to Table B2.1.

Section A7 has been modified to list LCRA as a backup laboratory in case a situation arises creating the potential for samples to exceed the specified holding time prior to analysis.

Several personnel changes within the TCEQ and the Authority will require modifications to Section A4 – Project/Task Organization and Chart 1 – Organization Chart – Lines of Communication.

The first paragraph in Section B2 was rewritten. The goal of this language is to clear up the inconsistent references, and provide a framework to incorporate any changes that may result from the updated document and any interim changes which may come along in the future.

Section B3 was modified to reflect changes in terminology and sample receiving procedures following the implementation of a Laboratory Information Management System (LIMS).

Finally, Appendix D, Chain of Custody Forms, has been updated to include the revised forms for both the Authority and the North Texas Municipal Water District.

DETAIL OF CHANGES

A4 – Project/Task Organization

Allison Woodall is no longer the TCEQ CRP Work Leader effective June 1, 2012. This position has been filled by Patricia Wise who will assume all of the duties and responsibilities outlined for this position. The City of Sherman and the North Texas Municipal Water District will be notified when this position is filled.

Jennifer Delk is no longer the TCEQ CRP Project Quality Assurance Specialist. This position has

been assumed by Allison Fischer. The duties and responsibilities outlined for the position will remain as stated within the QAPP.

W. Scott Burns will no longer be the CRP Field Supervisor for the Authority. This position has been assumed by Allen M. Pappas. The duties and responsibilities outlined for the position will remain as stated within the QAPP.

Chart 1 – Organization Chart – Lines of Communication

TCEQ – Allison Woodall is no longer the CRP Work Leader effective June 1, 2012. She has been replaced by Patricia Wise and Chart 1 will reflect this. Jennifer Delk has been replaced by Allison Fischer and will now appear in Ms. Delk’s place on Chart 1.

RRA – W. Scott Burns is no longer with the Authority and his duties have been assumed by Allen M. Pappas. Chart 1 will reflect this change by adding the title of Field Supervisor under Allen M. Pappas. The box for Field Supervisor will be removed since lines of communication already exist between Allen M. Pappas and Jill Simpson and retaining the box would be redundant. Also, W. Scott Burns and Melanie Sears will be removed from the box listing RRA Field Sampling members. Michael J. Carlo and Henry Wied will be added to the list in their place.

A7 Quality Objectives and Criteria

The Lower Colorado River Authority will be listed in this section as a backup laboratory in the event that an instrument error would prevent analysis within the specified holding times.

B2 Sampling Methods: Field Sampling Procedures

The first Paragraph in B2 Sampling Methods, Field Sampling Procedures, will be replaced with the new language from the TCEQ.

Table B2.1 - Sample Storage, Preservation and Handling Requirements

Table B2.1 is being modified to remove Calcium, Dissolved (EDTA) as this analysis will no longer be conducted by the Authority. Additionally, Dissolved Aluminum, Arsenic, Copper, Nickel, and Zinc are being added under Metals Dissolved since the chemical and thermal preservation for these parameters is the same.

B3 Sample Handling and Custody

The paragraph outlining Sample Handling has been modified to reflect changes following the full implementation of a new Laboratory Information Management System (LIMS).

Table A7.1 – Measurement Performance Specifications

Field Parameters

Table A7.1 will be modified to incorporate the following parameters for 24-Hour monitoring events and Recreational Use codes proposed by TCEQ to help better determine future assessment needs. These changes are as follows:

Description	TCEQ ID
Primary Contact, Observed Activity	Parameter Code 89978
Evidence of Primary Contact Recreation	Parameter Code 89979
Dissolved Oxygen (mg/L), 24-Hour Minimum	Parameter Code 89855
Dissolved Oxygen (mg/L), 24-Hour Maximum	Parameter Code 89856
Dissolved Oxygen (mg/L), 24-Hour Average	Parameter Code 89857
Dissolved Oxygen (mg/L), 24-Hour # of Measurements	Parameter Code 89858
Water Temperature (°C), 24-Hour Average	Parameter Code 00209
Water Temperature (°C), 24-Hour Maximum	Parameter Code 00210
Water Temperature (°C), 24-Hour Minimum	Parameter Code 00211
Water Temperature (°C), # of Measurements	Parameter Code 00221
Specific Conductance (µS/cm), 24-Hour Average	Parameter Code 00212
Specific Conductance (µS /cm), 24-Hour Maximum	Parameter Code 00213
Specific Conductance (µS /cm), 24-Hour Minimum	Parameter Code 00214
Specific Conductance (µS /cm), # of Measurements	Parameter Code 00222
pH (S.U.), 24-Hour Maximum	Parameter Code 00215
pH (S.U.), 24-Hour Minimum	Parameter Code 00216
pH (S.U.), # of Measurements	Parameter Code 00223

Conventional and Bacteriological Parameters

Table A7.1 will be modified to incorporate one analytical method to be performed by the Authority. *Enterococcus* will be utilized for high saline inland waters which require enumeration for these bacteria in lieu of *E. coli* for assessment purposes. These changes are as follows:

Metals Parameters

Table A7.1 will be modified to incorporate seven analytical methods performed by the Lower Colorado River Authority for dissolved metals in water. These parameters will begin being gathered at three locations on Smith Creek (TCEQ Stations 17044, 21026, and 21027) in FY 2013. Aluminum is listed twice due to a difference in reporting limit based on the analysis method performed.

Parameter	Methodology	TCEQ ID
Aluminum, Dissolved (ug/L)	EPA 200.8	Parameter Code 01106
Aluminum, Dissolved (ug/L)	EPA 200.7	Parameter Code 01106
Arsenic, Dissolved (ug/L)	EPA 200.8	Parameter Code 01000
Copper, Dissolved (ug/L)	EPA 200.8	Parameter Code 01040
Nickel, Dissolved (ug/L)	EPA 200.8	Parameter Code 01065
Zinc, Dissolved (ug/L)	EPA 200.8	Parameter Code 01090
Total Hardness (mg/L)	SM 2340 B	Parameter Code 82394

Table B1.1 – Sample Design and Schedule

Table B1.1 is being modified to include the changes resulting from our annual Coordinated Monitoring Meeting, which was held at the Authority’s Offices in Wichita Falls, Texas on March 28, 2012. The justification and summary of these changes have been compiled in the FY2013 Coordinated Monitoring Meeting Summary.

Appendix C – Field Data Sheets

A new Field Data Sheet will be added to Appendix C for 24-Hour dissolved oxygen measurements

that will be conducted by the Authority during FY 2013. Additionally, changes will be made to both the Stream and Lake/Reservoir Field Data Sheet utilized by the Authority, the City of Sherman, and the North Texas Municipal Water District to incorporate the two additional parameter codes TCEQ has requested (89978 and 89979).

Appendix D – Chain of Custody Forms

The Authority has revised the chain of custody to incorporate revisions made for the LIMS. The North Texas Municipal Water District has also modified their chain of custody to remove field the section for notating field parameters.

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 FY12-13 QAPP document. TCEQ and the Authority will acknowledge and accept these changes by signing this amendment.

Signed Electronically Effective August 28, 2012

Allen M. Pappas Date
RRA Project Manager

Signed Electronically Effective August 28, 2012

Allen M. Pappas Date
RRA CRP QA Officer

Red River Authority of Texas Environmental Services Laboratory

Signed Electronically Effective August 28, 2012

Michael J. Carlo Date
RRA ESD Manager

Signed Electronically Effective August 28, 2012

Allen M. Pappas Date
RRA Laboratory QA Officer

City of Sherman

Signed Electronically Effective August 28, 2012

Wayne Kuse Date
COS CRP Project Manager

Signed Electronically Effective August 28, 2012

Nathan Whiddon
COS CRP QA Officer

Lower Colorado River Authority

Signed Electronically Effective August 28, 2012

Gary Franklin Date
LCRA CRP Project Manager

Signed Electronically Effective August 28, 2012

Alicia Gill Date
Manager, LCRA Environmental Laboratory Services

North Texas Municipal Water District

Signed Electronically Effective August 28, 2012

Jerry Allen Date
NTMWD CRP Project Manager

Signed Electronically Effective August 28, 2012

Wayne Gilliland Date
NTMWD CRP QA Officer

Texas Commission on Environmental Quality

Signed Electronically Effective August 28, 2012

Julie McEntire Date
TCEQ CRP Project Manager

Signed Electronically Effective August 28, 2012

Allison Fischer Date
TCEQ CRP Project QAS

Signed Electronically Effective August 28, 2012

Patricia Wise Date
TCEQ CRP Group Leader

Signed Electronically Effective August 28, 2012

Daniel R. Burke Date
TCEQ CRP Lead QAS

A4 PROJECT/TASK ORGANIZATION

Description of Responsibilities

Texas Commission on Environmental Quality

Patricia Wise

CRP Work Leader

Responsible for TCEQ activities supporting the development and implementation of the Texas Clean Rivers Program. Responsible for verifying that the QMP is followed by CRP staff. Supervises TCEQ CRP staff. Reviews and responds to any deficiencies, corrective actions, or findings related to the area of responsibility. Oversees the development of QA guidance for the CRP. Reviews and approves all QA audits, corrective actions, reviews, 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.

Allison Fischer

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 quality assurance standards (e.g., Program Guidance, SOPs, QAPPs, QMP). Serves on planning team for CRP special projects and reviews QAPPs in coordination with other CRP staff. Coordinates documentation and implementation of corrective action for the CRP.

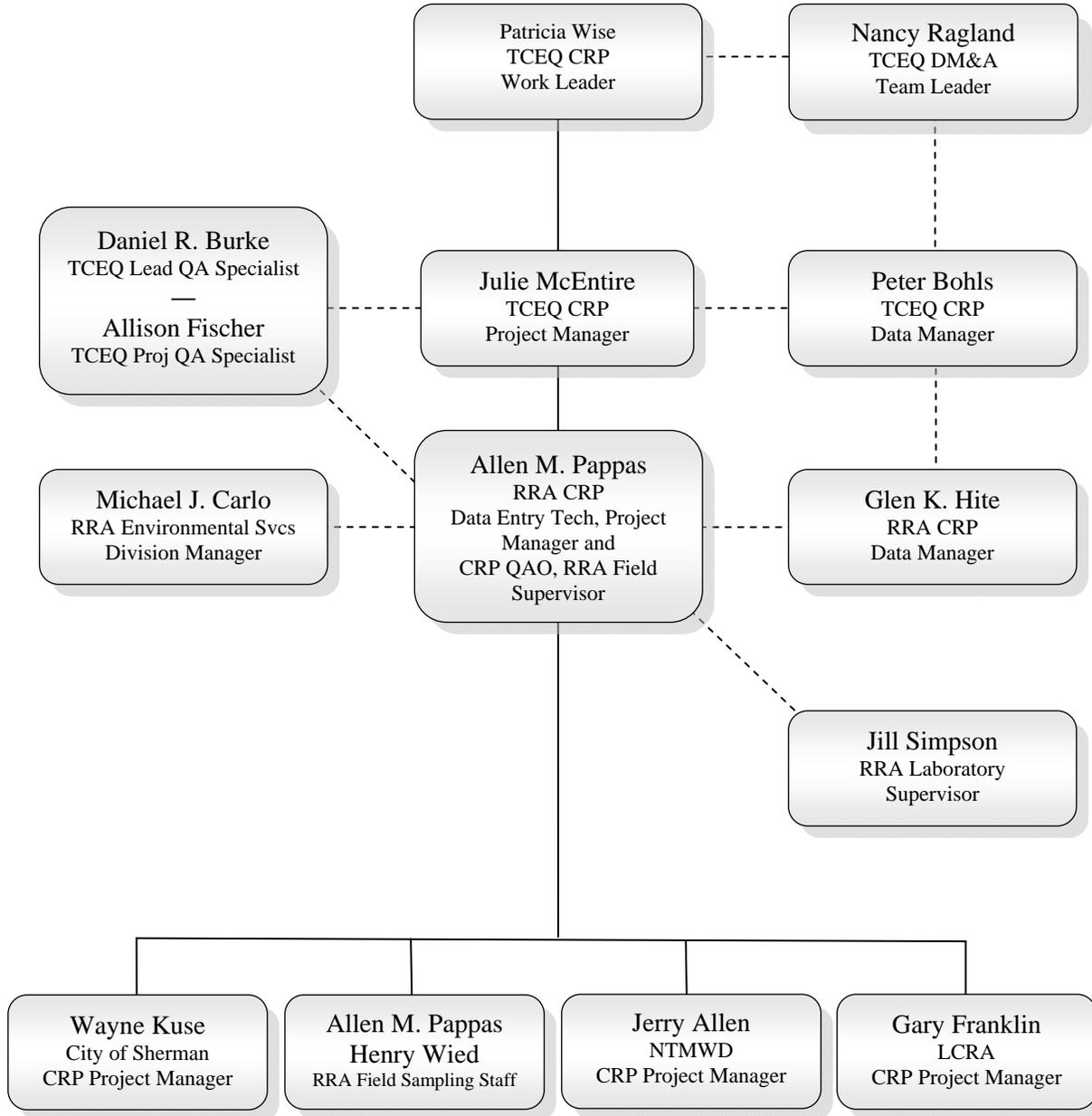
Red River Authority of Texas

Allen M. Pappas

CRP Field Supervisor

Responsible for overseeing the field personnel that conduct sampling events. Ensures that all field personnel are properly trained and that training records are maintained. Ensure that all field staff are equipped to conduct the necessary monitoring. Ensures that personnel and equipment are available at appropriate times. The Field Supervisor also ensures that all field data are collected as outlined by the QAPP and the *TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, October 2008 (RG-415)*. Serves as CRP Sample Custodian. Coordinates and maintains records of data verification and validation. Assists with monitoring systems audits on project participants to determine compliance with project and program specifications.

Chart 1 – Organization Chart - Lines of Communication



----- Lines of Communication

———— Lines of Management

A7 QUALITY OBJECTIVES AND CRITERIA

The City of Sherman and the North Texas Municipal Water District are cooperating partners with the Authority. They will collect and analyze specific water quality samples under the guidance of the Authority's QAPP. The data collected will then be submitted to the Authority, quality assured, then submitted with the Authority's data submittal. The Lower Colorado River Authority will be listed within the QAPP as a backup laboratory in the event that an instrument error would prevent analysis within the specified holding times.

B2 SAMPLING METHODS

Field Sampling Procedures

Field sampling will be conducted according to procedures documented in the *TCEQ Surface Water Quality Monitoring Procedures Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue, 2008.(RG-415)* and *Volume 2: Methods for Collecting and Analyzing Biological Community and Habitat Data (RG-416)*, or the most recent version and any interim changes posted to the following Surface Water Quality Monitoring Procedures (SWQM) website:

(http://www.tceq.texas.gov/waterquality/monitoring/swqm_procedures.html).

Updates shall be incorporated into program procedures, QAPP, SOPs, etc., within 60 days of any final published version. All following references to "TCEQ Surface Water Quality Monitoring Procedures," "TCEQ Surface Water Quality Monitoring Procedures as amended," "SWQM Procedures," "SWQM Procedures Manual," "*TCEQ Surface Water Quality Monitoring Procedures Volume 1 (RG-415)*," and "*TCEQ Surface Water Quality Monitoring Procedures Volume 2: Methods for Collecting and Analyzing Biological Community and Habitat Data (RG-416)*," refer to this section and are used interchangeably. Additional aspects outlined in Section B below reflect specific requirements for sampling under the Clean Rivers Program and/or provide additional clarification.

Table B2.1 - Sample Storage, Preservation and Handling Requirements

Parameter	Container ¹	Preservation ²	Sample Volume ³	Holding Time ⁴
Bacteriological (Water)				
Escherichia coli ⁸	I	Sodium Thiosulfate, Cool < 6°C	120mL/290 mL	6+2 Hours
Fecal Coliform	I	Sodium Thiosulfate, Cool < 6°C	120mL/290 mL	6+2 Hours
Conventionals and Minerals (Water)				
Alkalinity, Total	P or G	Cool < 6°C	1.0 L	14 Days
Chloride	P or G	Field Filtered ⁵ , Cool < 6°C	125 mL	28 Days
Nitrate	P or G	Field Filtered ⁵ , Cool < 6°C	125 mL	48 Hours
Solids (TSS and VSS)	P or G	Cool < 6°C	1.0 L	7 Days
Solids, Dissolved (TDS)	P or G	Cool < 6°C	250 mL	7 Days
Sulfate	P or G	Field Filtered ⁵ , Cool < 6°C	125 mL	28 Days
Turbidity	P or G	Cool < 6°C	250 mL	48 Hours
Nutrients (Water)				
Ammonia, Total Phosphorus, TOC ¹⁰ and COD	P or G	Cool < 6°C, H2SO4 to pH<2	500 mL	28 Days
Chlorophyll <i>a</i> and Pheophytin	P or G Amber ⁶	Unfiltered, Dark, Cool < 6°C	500 mL	48 Hours
		Filtered, Dark, Frozen - EPA		24 Days ⁷
		Filtered, Dark, Frozen - SM		28 Days ⁷
Nitrate +Nitrite	P or G	Cool < 6°C, H2SO4 to pH<2	500 mL	28 Days
Orthophosphate	P or G	Field Filtered ⁵ , Cool < 6°C	125 mL	48 Hours
Total Kjeldahl Nitrogen	P or G	Cool < 6°C, H2SO4 to pH<2	500 mL	28 Days
Metals (Water)				
Hardness, Total	P or G	Cool < 6°C, H2SO4 to pH<2	250 mL	6 Months
Iron, Total	P or G	Cool < 6°C, HNO3 to pH<2	500 mL	6 Months
Manganese, Total	P or G	Cool < 6°C, HNO3 to pH<2	500 mL	6 Months
Metals, Dissolved ⁹	P or G	Cool < 6°C, HNO3 to pH<2	500 mL	6 Months

¹ Glass (G), IDEXX (I) or Polyethylene (P).

² Sample preservation is performed immediately upon sample collection.

³ Samples volumes are combined by preservative to minimize volumes and reduce container size and space.

⁴ Samples are analyzed as soon as possible after collection. The times listed are the maximum times that samples are held before sample preparation or analysis and still be considered valid.

⁵ Orthophosphate and dissolved calcium samples are field filtered within 15 minutes of sample collection. Individual filters are rinsed with collected sample prior to actual filling of the designated container.

⁶ Chlorophyll *a* and Pheophytin will be collected in amber containers.

⁷ Holding time for Chlorophyll-*a* was determined to be 24 days. EPA method 445, Section 8.3 states that samples can be analyzed up to 24 days after filtering, as long as they remain frozen. The 48 hours allotted for the samples to be filtered is not part of the 24 day holding time following filtration. NTMWD utilizes SM 10200 H for Chlorophyll-*a* and Pheophytin which has a different holding time compared to EPA method 445/446.

⁸ E.coli samples analyzed by SM 9223 B should always be processed as soon as possible and within 8 hours (6 hours transit/2 hours lab preparation) of sample collection. When transport conditions necessitate delays in delivery longer than 6 hours, the holding time may be extended and samples must be processed as soon as possible and within 48 hours.

⁹ Metals, Dissolved includes aluminum, arsenic, copper, nickel and zinc.

¹⁰ NTMWD uses HCl for TOC preservation.

B3 SAMPLE HANDLING AND CUSTODY

Sample Handling

Written SOPs have been developed for sample handling, sample receiving, and sample shipping. They are included in the QA Manual. The SOPs utilized for all Clean Rivers Program sampling include the following procedures:

During preparations for a sampling event, preliminary sample and event information is recorded on a COC form, leaving only the date, time and sample information to be recorded when the sample is collected.

1. Prior to the scheduled monitoring event(s), sample kits are prepared. The kits include sample containers with or without preservatives as required by the analysis method.
2. Samples are collected under protocols documented in the TCEQ *Surface Water Quality Monitoring Procedures Volume 1: Physical and Chemical Monitoring Methods, October 2008 (RG-415)*. Samples are packed in loose ice in accordance with the preservation (or preserved according to) criteria listed in **Table B2.1** of this QAPP.
3. The date, time and collector information is completed on the sample container labels and the COC.
4. The ice chests containing the samples are secured until delivered to the laboratory. If the samples are left overnight in a vehicle, the vehicle will be locked and monitored periodically.
5. The samples are received in the laboratory in a designated area where the Sample Collector relinquishes the samples to the sample custodian who in turn inspects the containers and signs the COC on the receiving line.
6. Each sample is logged into the Laboratory Information Management System (LIMS) and assigned a unique Sample ID Number. Information documented in the LIMS includes:
 - Date Received
 - Client
 - Sample ID Number
 - Sample Location
 - Sample Source
 - Collected by
 - Collection Date
 - Collection Time
 - Analyses
 - Time Sample Received
 - Preservative
 - Chain of Custody Number
7. The LIMS generates a label with the Sample ID Number, Analysis, Sample Location and Bottle ID Number which is placed on the sample container by the sample custodian.
8. Samples are then transferred to the laboratory storage facility by the sample custodian. Access to the storage facility is limited to authorized personnel only.
9. In the event that the Authority ships samples to LCRA for analyses, the samples to be shipped are recorded on a separate COC form with the original COC number written in the comment section. The laboratory's name and the shipping COC number will be written in the comment section of the original COC form which will remain at the Authority's laboratory. The samples along with the COC

are then packed in an insulated shipping container with ice or in a box, depending on the preservation requirements. The shipping container is then sealed, marked with an up-arrow (↑) on all four sides and labeled with LCRA's name and address. The sealed sample containers are then shipped via overnight delivery. LCRA is contacted by phone and/or e-mail informing them of the shipped sample(s) and when they should expect delivery.

Table A7.1 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 Last Significant Rain	Days	NA	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	Water	TCEQ SOP V1, SM 4500-O G	00300	NA ¹	NA	NA	NA	NA	Field
Dissolved Oxygen 24-Hour # of Measurements	#	Water	TCEQ SOP V1	89858	NA ¹	NA	NA	NA	NA	Field
Dissolved Oxygen 24-Hour Average	mg/L	Water	TCEQ SOP V1	89857	NA ¹	NA	NA	NA	NA	Field
Dissolved Oxygen 24-Hour Maximum	mg/L	Water	TCEQ SOP V1	89856	NA ¹	NA	NA	NA	NA	Field
Dissolved Oxygen 24-Hour Minimum	mg/L	Water	TCEQ SOP V1	89855	NA ¹	NA	NA	NA	NA	Field
Evidence of Primary Contact Recreation	1 - observed 0 - not observed	NA	NA	89979	NA	NA	NA	NA	NA	Field
Flow	cfs	Water	TCEQ SOP V1	00061	NA ¹	NA	NA	NA	NA	Field
Flow Estimate	cfs	Water	TCEQ SOP V1	74069	NA ¹	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	Water	TCEQ SOP V1, EPA 150.1	00400	NA ¹	NA	NA	NA	NA	Field
pH, 24-Hour Maximum	Standard Units	Water	TCEQ SOP V1,	00215	NA ¹	NA	NA	NA	NA	Field
pH, 24-Hour Minimum	Standard Units	Water	TCEQ SOP V1,	00216	NA ¹	NA	NA	NA	NA	Field
pH, 24-Hour Number of Measurements	#	Water	TCEQ SOP V1,	00223	NA ¹	NA	NA	NA	NA	Field
% Pool Coverage in 500 Meter Reach ⁶	%	Other	TCEQ SOP V2	89870	NA ¹	NA	NA	NA	NA	Field
Pool Length, Meters ⁶	Meters	Other	TCEQ SOP V2	89869	NA ¹	NA	NA	NA	NA	Field

Table A7.1 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
Present Weather	1 - clear 2 - ptly cldy 3 - cloudy 4 - rain 5 - other	NA	NA	89966	NA	NA	NA	NA	NA	Field
Primary Contact Observed Activity	# of people observed	# of people	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	NS	Other	TCEQ Drought Guidance	00051	NA ¹	NA	NA	NA	NA	Field
Secchi Depth	meters	Water	TCEQ SOP V1	00078	NA ¹	NA	NA	NA	NA	Field
Specific Conductance	µS /cm	Water	TCEQ SOP V1, SM 2510 B, EPA 120.1	00094	NA ¹	NA	NA	NA	NA	Field
Specific Conductance, 24-Hour Average	µS /cm	Water	TCEQ SOP V1	00212	NA ¹	NA	NA	NA	NA	Field
Specific Conductance, 24-Hour Maximum	µS /cm	Water	TCEQ SOP V1	00213	NA ¹	NA	NA	NA	NA	Field
Specific Conductance, 24-Hour Minimum	µS /cm	Water	TCEQ SOP V1	00214	NA ¹	NA	NA	NA	NA	Field
Specific Conductance, 24-Hour Number of Measurements	#	Water	TCEQ SOP V1	00222	NA ¹	NA	NA	NA	NA	Field
Temperature	°C	Water	TCEQ SOP V1 SM 2550 B	00010	NA ¹	NA	NA	NA	NA	Field
Temperature, 24-Hour Average	°C	Water	TCEQ SOP V1	00209	NA ¹	NA	NA	NA	NA	Field
Temperature, 24-Hour Maximum	°C	Water	TCEQ SOP V1	00210	NA ¹	NA	NA	NA	NA	Field
Temperature, 24-Hour Minimum	°C	Water	TCEQ SOP V1	00211	NA ¹	NA	NA	NA	NA	Field
Temperature, 24-Hour Number of Measurements	≤	Water	TCEQ SOP V1	00221	NA ¹	NA	NA	NA	NA	Field
Water Clarity	1 - excellent 2 - good 3 - fair 4 - poor 5 - other	NA	NA	20424	NA	NA	NA	NA	NA	Field
Water Color	1 - brownish 2 - reddish 3 - greenish 4 - blackish 5 - clear 6 - other	NA	NA	89969	NA	NA	NA	NA	NA	Field

Table A7.1 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
Wind Intensity	1 - calm 2 - slight 3 - moderate 4 - strong	NA	NA	89965	NA	NA	NA	NA	NA	Field
Water Odor	1 - sewage 2 - chemical 3 - rotten egg 4 - musky 5 - fishy 6 - none 7 - other	NA	NA	89971	NA	NA	NA	NA	NA	Field
Water Surface	1 - calm 2 - ripples 3 - waves 4 - white cap	NA	NA	89968	NA	NA	NA	NA	NA	Field
CONVENTIONAL AND BACTERIOLOGICAL PARAMETERS										
Alkalinity, total	mg/L	Water	SM 2320 B	00410	20	20	NA	20	NA	RR,
					20	20	NA	20	NA	NM
					20	10	NA	20	NA	LC ⁵
Ammonia-N, total	mg/L	Water	SM 4500-NH3D	00610	0.1	0.1	70-130	20	80-120	RR
			EPA 350.1		0.1	0.1	70-130	20	80-120	NM
			EPA 350.1		0.1	0.02	70-130	20	80-120	LC ⁵
Chemical Oxygen Demand	mg/L	Water	HACH 8000	00335	10	10	70-130	20	80-120	RR
					10	10	70-130	20	80-120	NM
Chloride	mg/L	Water	EPA 300.0	00940	5	10 ⁴	70-130	20	80-120	RR
					5	1	70-130	20	80-120	NM
					5	5	70-130	20	80-120	LC ⁵
Chlorophyll-a	ug/L	Water	EPA 445.0	70953	3	2	NA	20	80-120	RR
			EPA 446.0 (Backup Method)	32211	3	2	NA	20	80-120	LC ⁵
					3	2	NA	20	80-120	RR
					3	2	NA	20	80-120	LC ⁵
Chlorophyll-a, (Spectrophotometric Method)	ug/L	Water	SM 10200 H	32211	3	3	NA	20	80-120	NM
<i>E. coli</i> , IDEXX Colilert ³	MPN/100 mL	Water	SM 9223 B	31699	1	1	NA	.5 ²	NA	RR
<i>E. coli</i> , IDEXX Colilert ³	MPN/100 mL	Water	Colilert®	31699	1	1	NA	.5 ²	NA	SH
					1	1	NA	.5 ²	NA	NM
<i>E. coli</i> , IDEXX Colilert ³ , Holding Time	Hours	Water	NA	31704	NA	NA	NA	NA	NA	RR
					NA	NA	NA	NA	NA	SH
					NA	NA	NA	NA	NA	NM
Fecal Coliform, (membrane filtration)	org/100mL	Water	SM 9222-D	31616	1	1	NA	.5 ²	NA	RR
Kjeldahl Nitrogen, Total	mg/L	Water	EPA 351.2	00625	0.2	0.2	70-130	20	80-120	NM
Nitrate-N, Total	mg/L	Water	EPA 300.0	00620	0.05	0.04	70-130	20	80-120	RR
			EPA 353.2		0.05	0.05	70-130	20	80-120	NM
Nitrate + nitrite-N, Total	mg/L	Water	EPA 353.2	00630	0.05	0.05	70-130	20	80-120	NM
			SM 4500 NO ₃ H	00630	0.05	0.02	70-130	20	80-120	LC ⁵
Nitrite-N, Total	mg/L	Water	SM 4500 NO ₂ B	00615	0.05	0.02	70-130	20	80-120	NM
O-Phosphate-P, (Diss. field filter <15 min)	mg/L	Water	EPA 365.3	00671	0.04	0.02	70-130	20	80-120	NM
Organic Carbon, Total	mg/L	Water	SM 5310 B	00680	2	1	70-130	20	80-120	RR
			SM 5310 C	00680	2	0.5	70-130	20	80-120	NM
			SM5310D	00680	2	0.5	NA	NA	NA	LC ⁵
Pheophytin	ug/L	Water	EPA 445.0	32213	3	2	NA	NA	NA	RR
					3	2	NA	NA	NA	LC ⁵
					EPA 446.0	32218	3	2	NA	NA

Table A7.1 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
			(Backup Method)		3	2	NA	NA	NA	LC ⁵
			SM 10200 H	32218	3	3	NA	NA	NA	NM
Sulfate	mg/L	Water	EPA 300.0	00945	5	10 ⁴	70-130	20	80-120	RR
						1	70-130	20	80-120	NM
						5	70-130	20	80-120	LC ⁵
Total Dissolved Solids	mg/L	Water	SM 2540 C	70300	10	10	NA	20	80-120	RR
					10	10	NA	20	80-120	NM
Total Dissolved Solids	mg/L	Water	Calculation	70294	NA	NA	NA	NA	NA	RR
					NA	NA	NA	NA	NA	NM
Total Phosphorus-P	mg/L	Water	SM 4500 P E	00665	0.06	0.06	70-130	20	80-120	RR
			EPA 365.3	00665	0.06	0.02	70-130	20	80-120	NM
			EPA 365.4	00665	0.06	0.02	70-130	20	80-120	LC ⁵
Total Suspended Solids	mg/L	Water	SM 2540 D	00530	4	2.5	NA	20	NA	RR
					4	2.5	NA	20	NA	SH
					4	2.5	NA	20	NA	NM
Turbidity	NTU	Water	SM 2130 B	82079	0.5	0.5	70-130	20	80-120	RR
			EPA 180.1		0.5	0.5	70-130	20	80-120	SH
					0.5	0.2	70-130	20	80-120	NM
Volatile Suspended Solids	mg/L	Water	EPA 160.4	00535	4	2.5	NA	NA	NA	RR, NM
METAL PARAMETERS										
Aluminum, Dissolved	ug/L	Water	EPA 200.8	01106	200	4	70-130	20	80-120	LC
			EPA 200.7	01106	200	50	70-130	20	80-120	LC
Arsenic, Dissolved	ug/L	Water	EPA 200.8	01000	5	2	70-130	20	80-120	LC
Copper, Dissolved	ug/L	Water	EPA 200.8	01040	1 for waters < 50 mg/L hardness	1	70-130	20	80-120	LC
					3 for waters ≥ 50 mg/L hardness					
Iron, Total	ug/L	Water	EPA 200.8	01045	300	200	70-130	20	80-120	NM
Hardness, Total	mg/L	Water	SM 2340 C	00900	5	5	NA	20	80-120	NM
Hardness, Total	mg/L	Water	SM 2340 B	82394	5	1.32	NA	20	80-120	LC
Manganese, Total	ug/L	Water	EPA 200.8	01055	50	1	70-130	20	80-120	NM
Nickel, Dissolved	ug/L	Water	EPA 200.8	01065	10	1	70-130	20	80-120	LC
Zinc, Dissolved	ug/L	Water	EPA 200.8	01090	5	5	70-130	20	80-120	LC

RR – Red River Authority of Texas

LC – Lower Colorado River Authority

SH – City of Sherman

NM – North Texas Municipal Water District

¹ Reporting to be consistent with SWQM guidance and based on measurement capability.

² Based on a range statistic as described in Standard Methods, 21st Edition, Section 9020-B, “Quality Assurance/Quality Control – Intra-laboratory Quality Control Guidelines”. This criterion applies to bacteriological duplicates with concentrations >10 MPN/100mL or >10 organisms/100mL.

³ *E. coli* samples analyzed by SM 9223-B should always be processed as soon as possible and within eight hours. When transport conditions necessitate delays in delivery longer than six hours, the holding time may be extended and samples must be processed

as soon as possible and within 48 hours.

- ⁴ The LOQ for chloride, sulfate and calcium 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.
- ⁵ Listed as a backup in case instrument error would prevent samples from being analyzed within specified holding times

Final FY 2013 Coordinated Monitoring Meeting Summary For the Canadian and Red River Basins

Canadian River Basin

The monitoring sites for the Canadian River Basin will remain the same as in FY 2012 for all participating entities, with some exceptions. This is due to the lack of water present at other non-monitored stations and the need for additional data by Texas Commission on Environmental Quality (TCEQ) at other sites. The schedule for TCEQ, Region 1 (as of May 1, 2012) and the United States Geological Survey (USGS) will remain the same.

The Authority will not be adding any additional sites to its existing monitoring schedule. While it is the desire of the Authority to expand its monitoring efforts within the Canadian River Basin, the ongoing drought conditions have made water resources scarce, and have severely impacted the locations where water monitoring can be performed. It has been determined that a better use of CRP funds would be to increase monitoring within the Red River Basin where water is reliably present.

Red River Basin

While water is more prevalent in the Red River Basin, the monitoring sites for the basin will remain the same as in FY 2012 for all participating entities, with the following exceptions:

Red River Authority of Texas

The Authority will add eleven (11) sites to its existing monitoring schedule in FY 2013. These additions will increase monitoring efforts on sites with new and/or existing concerns and impairments. The Authority will also expand monitoring efforts at eight (8) sites, incorporating several additional analyses to assist in the characterization of water quality, in order to benefit future assessments.

The following sites are being added:

<u>Description</u>	<u>Station ID</u>
Hicks Creek Upstream of Pine Creek	10121
Red River at US 75	21031
Wichita River at FM 1919	10161
North Wichita River at SH 6	10162
North Fork Wichita River Near Paducah	15119
Middle Wichita River NE of Guthrie	14900
South Fork Wichita River at SH 6	10185
Lake Texoma at Dam, North of FM 1310	20545
Unnamed Tributary of Buffalo Creek	21172
Barkman Creek E of Richmond	15059*
Pecan Bayou at Blanton Creek	14472*
Panther Creek at US 82	10106*

**Sites will be evaluated in June, 2012 to determine if sampling is feasible during FY 2013*

The following sites will be scheduled for 24-Hour dissolved oxygen measurements:

<u>Description</u>	<u>Segment</u>	<u>Station ID</u>	<u>Quantity</u>
Dixon Creek NE of Borger	0101A_01	10016	5*
Mud Creek at US 259 N of DeKalb	0201A_01	15319	4*

**Quantity is the number scheduled. However, stream conditions may prevent this from being achieved.*

The following sites will have increased monitoring efforts:

<u>Description</u>	<u>Station ID</u>	<u>Analyses</u>
Smith Creek at US 271	17044	Dissolved (Al, As, Cu, Ni, Zn), Total Hardness
Smith Creek at County Road 31700	21026	Dissolved (Al, As, Cu, Ni, Zn), Total Hardness
Smith Creek at Loop 286 / US 82	21027	Dissolved (Al, As, Cu, Ni, Zn), Total Hardness

City of Sherman

The City of Sherman will add two (2) sites for FY 2013, in addition to those monitored during FY 2012. The City of Sherman will also be making changes to the analyses they conduct.

FY 2012 Analyses

E. coli, MPN

Turbidity

Total Suspended Solids*

Chlorophyll-*a* / pheophytin* – performed by the Lower Colorado River Authority in Austin, Texas

FY 2013 Analyses

E. coli, MPN

Turbidity

Total Kjeldahl Nitrogen – performed by the Lower Colorado River Authority in Austin, Texas

**Both Total Suspended Solids and Chlorophyll-*a* / Pheophytin will be sent to the Authority for analysis.*

The following sites are being added:

<u>Description</u>	<u>Station ID</u>
Dean Gilbert Lake Near Dam	21130
Pickens Lake Mid Lake	16945

The following sites will have increased monitoring efforts:

<u>Description</u>	<u>Station ID</u>	<u>Analyses</u>
Post Oak Creek at First County Road	10114	TDS, TSS, VSS, COD, TOC, Alkalinity, Cl, SO ₄
Post Oak Creek at FM 1147	10115	TDS, TSS, VSS, COD, TOC, Alkalinity, Cl, SO ₄
Post Oak Creek at FM 1417	17599	TDS, TSS, VSS, COD, TOC, Alkalinity, Cl, SO ₄
Choctaw Creek at SH 11	10111	TDS, TSS, VSS, COD, TOC, Alkalinity, Cl, SO ₄
Choctaw Creek at Luella Road	10112	TDS, TSS, VSS, COD, TOC, Alkalinity, Cl, SO ₄

North Texas Municipal Water District

The North Texas Municipal Water District will continue to monitor the same sites as in FY 2013, with the exception of the Red River at US 75, TCEQ Station 21031. The Authority has agreed to add this station to their FY 2013 monitoring schedule to keep at least one monitoring station in each segment the Red River is located within.

Additional Notes

Pat Bohannon, TCEQ Central Office, will be researching how to handle existing ortho-phosphorus concerns, since ortho-phosphorus monitoring has been replaced with total phosphorus monitoring beginning in FY2012.

Data review has shown that Whitedeer Creek at Jeep Crossing, Station ID 18195, is actually not the location on Whitedeer Creek where the Authority has been monitoring. A SLOC has been processed through TCEQ and the new station, which will accurately reflect where the Authority has been monitoring, has been created, Station ID 21174. Pat Bohannon, TCEQ Central Office, will work on migrating the data that has been collected by Authority staff (2007 – present), so it is associated with the correct station.

TABLE B1.1
Sample Design and Schedule
FY 2013

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0101	1	1	CANADIAN RIVER BRIDGE AT US 60-83 AT CANADIAN	10032	RR	RT									4			4	4		4
0101	1	1	CANADIAN RIVER BRIDGE ON SH 70 NORTH OF PAMPA	10033	RR	RT									4			4	4		4
0101A	1	1	DIXON CREEK AT SH 152 WEST OF RR2171 EAST OF BORGER	17045	RR	RT									4			4	4		4
0101A	1	1	DIXON CREEK 150 M UPSTREAM OF HUTCHINSON COUNTY ROAD, UPSTREAM OF CANADIAN RIVER CONFLUENCE NE OF BORGER	10016	RR	RT	5												5		5
0101B	1	1	ROCK CREEK 15 M DOWNSTREAM OF CHICKASAW RD BRIDGE IN ELECTRIC CITY NEAR BORGER	10024	RR	RT									4			4	4		4
0101C	1	1	WHITE DEER CREEK AT JEEP TRAIL CROSSING APPROX 0.45 KM EAST OF THE DUNCAN RANCH COMPLEX AT THE END OF HUTCHINSON COUNTY ROAD 26	21174	RR	RT									4			4	4		4
0102A	1	1	BIG BLUE CREEK 250 YDS UPSTREAM OF FM 1913 APPROXIMATELY 21 MI SE OF DUMAS	15270	RR	RT									4			4	4		4
0103	1	1	CANADIAN RIVER BRIDGE AT US 87-287 NORTH OF AMARILLO	10054	RR	RT												4	4		4
0103A	1	1	EAST AMARILLO CREEK 15 METERS UPSTREAM OF CITY OF AMARILLO RIVER ROAD WWTP OUTFALL	10017	RR	RT									4			4	4		4
0103A	1	1	EAST AMARILLO CREEK IMMEDIATELY DOWNSTREAM OF US 287 NORTH OF AMARILLO	10018	RR	RT									4			4	4		4
0103A	1	1	EAST AMARILLO CREEK AT LOOP 335 AND US 287 IN AMARILLO	21024	RR	RT									4			4	4		4
0103A	1	1	THOMPSON PARK LAKE NORTH END OF NORTH LAKE 213 M W OF US 87 FRONTAGE RD AND 1.34 KM NORTH OF NE 24TH ST IN AMARILLO	15775	RR	RT									4			4			4
0103C	1	1	UNNAMED TRIBUTARY OF WEST AMARILLO CREEK AT LOOP 335 EASTBOUND ACCESS ROAD 470 M EAST OF ITS INTERSECTION WITH FM/RM 1061 NORTHWEST OF AMARILLO	17056	RR	RT									4			4	4		4
0104	1	1	WOLF CREEK BRIDGE AT SH 305 NORTH OF LIPSCOMB	10058	RR	RT									4			4	4		4
0104	1	1	WOLF CREEK 50 M UPSTREAM OF FM 1454 APPROXIMATELY 27.4 KM/17 MI EAST OF LIPSCOMB	10059	RR	RT									4			4	4		4
0201A	5	2	MUD CREEK AT US 259 3.1 KM NORTH OF DE KALB	15319	RR	RT	4								4			4	4		4
0201	5	2	PANTHER CREEK AT ESATBOUND US 82 2 KM WEST OF CITY OF HOOKS AT US82/ST SPUR 86 INTERSECTION	10106	RR	RT									4			4	4		4

TABLE B1.1
Sample Design and Schedule
FY 2013

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0201	5	2	BARKMAN CREEK 35 M EAST OF RICHMOND RD OVERPASS/FM 599 0.97 KM NW OF FM 559/HOLLY CREEK ROAD INTERSECTION 11.5KM NW OF TEXARKANA	15059	RR	RT									4			4	4		4
0202	5	2	RED RIVER DOWNSTREAM LAKE TEXOMA AT US 259 9.3 KM NORTH OF US 259/FM 114 INTERSECTION 21 KM NORTH OF DEKALB	10125	RR	RT									4			4	4		4
0202	5	2	RED RIVER AT NORTHBOUND US 271 IN ARTHUR CITY 0.75 KM NORTH OF FM 197/US 271 INTERSECTION	10126	RR	RT									4			4	4		4
0202	4	2	RED RIVER AT SH 78 355 M NORTHWEST OF FANNIN CR 200/SH 78 INTERSECTION AT TEXAS STATE LINE 10 KM NORTHEAST OF CITY OF RAVENNA	10127	RR	RT									4			4			4
0202	4	2	RED RIVER AT US 75 NORTH OF DENISON	21031	RR	RT									4			4			4
0202A	4	2	BOIS D' ARC CREED AT FM 1396 NORTHWEST OF HONEY GROVE	20167	NM	RT					12				12			12	12		12
0202A	4	2	BOIS D'ARC CREEK AT US 82 NEAR BONHAM	21028	NM	RT					12				12			12	12		12
0202A	4	2	BOIS D'ARC CREEK AT FM 409 NORTHWEST OF HONEY GROVE	21029	NM	RT					12				12			12	12		12
0202A	4	2	BOIS DARC CREEK AT FM 898/OAK HILL ROAD 1.4 KM NORTHEAST OF CITY OF WHITEWRIGHT	15036	RR	RT									4			4	4		4
0202A	4	2	BOIS D'ARC CREEK AT SH 78 SOUTH OF BONHAM	18652	RR	RT									4			4	4		4
0202A	4	2	HONEY GROVE CREEK AT FANNIN CR 2770	21030	NM	RT					12				12			12	12		12
0202A	4	2	LAKE BONHAM APPROX 265 METERS NORTH AND 165 METERS EAST OF THE INTERSECTION OF FM 273 AND WESTVIEW DRIVE	21032	NM	RT					12				12			12			12
0202C	5	2	PECAN BAYOU AT FM 1159 9.62 KM NORTHEAST OF CLARKSVILLE IN RED RIVER COUNTY	16001	RR	RT									4			4	4		4
0202C	5	2	PECAN BAYOU AT BLANTON CREEK CEMETARY ROAD/RED RIVER CR 2235 11.65 KM NORTH OF CITY OF BAGWELL	14472	RR	RT									4			4	4		4
0202D	5	2	HICKS CREEK APPROX 400 M UPSTREAM OF PINE CREEK CONFLUENCE AT PRIVATE ROAD 1.55 KM EAST OF US 271 10 KM NNE OF THE CITY OF PARIS	10121	SH	RT									4			4	4		4
0202D	5	2	PINE CREEK AT SOUTHBOUND US 271 APPROX 7.8 KM NORTH OF THE CITY OF PARIS PERMIT WQ001012-000 CAMPBELL SOUP SUPPLY COMPANY	10120	RR	RT									4			4	4		4
0202E	4	2	DEAN GILBERT LAKE NEAR THE DAM SOUTHWEST OF THE HWY 82 AND FM 1417 INTERSECTION IN SHERMAN TEXAS	21130	SH	RT									4			4			4

TABLE B1.1
Sample Design and Schedule
FY 2013

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0202E	4	2	POST OAK CREEK AT FIRST COUNTY ROAD CROSSING DOWNSTREAM SHERMAN WWTP 0.33 KM SOUTH OF E FM 1417/SH 11 INTERSECTION 5.75 KM SE OF SHERMAN	10114	SH	RT									4			6	6		6
0202E	4	2	POST OAK CREEK AT FM 1417 0.25 KM WEST OF SH 11/FM 1417 INTERSECTION 5.3 KM SOUTHEAST OF SHERMAN	10115	SH	RT									4			6	6		6
0202E	4	2	POST OAK CREEK AT FM 1417 0.95 KM SOUTH OF FM 1417/US 82 INTERSECTION 4.75 KM NORTHWEST OF SHERMAN	17599	SH	RT									2			4	4		4
0202F	4	2	CHOCTAW CREEK AT SH 11 1.6 KM SOUTHEAST OF FM 1417/SH 11 INTERSECTION 7 KM SOUTHEAST OF SHERMAN	10111	SH	RT									4			6	6		6
0202F	4	2	CHOCTAW CREEK AT LUELLA ROAD 7.3 KM SSE OF SHERMAN FIRST CROSSING UPSTREAM CONFLUENCE WITH POST OAK CREEK	10112	SH	RT									4			6	6		6
0202F	4	2	CHOCTAW CREEK AT US 82 5.07KM DOWNSTREAM OF SH 56 EAST OF SHERMAN	18370	SH	RT									4			6	6		6
0202G	5	2	SMITH CREEK AT SOUTHBOUND US 271 385 M UPSTREAM OF THE CONFLUENCE WITH PINE CREEK 7 KM NORTH OF CITY OF PARIS	17044	RR	RT					4				4			4	4		4
0202G	5	2	SMITH CREEK AT LAMAR CR 31700 NEAR CITY OF PARIS	21026	RR	RT					4				4			4	4		4
0202G	5	2	SMITH CREEK AT LOOP 286/US 82 IN THE CITY OF PARIS	21027	RR	RT					4				4			4	4		4
0202J	4	2	PICKENS LAKE MID LAKE AT HERMAN BAKER PARK 1.0 KM EAST OF FM 1417 AND 700 M NORTHEAST OF END OF SOUTHRIDGE LANE SOUTHWEST OF SHERMAN	16945	SH	RT									4			4			4
0202J	4	2	SAND CREEK AT SH 56 1.35 KM WEST OF SH 56/US 75 INTERSECTION WEST OF SHERMAN	15446	SH	RT									2			4	4		4
0203	4	2	LAKE TEXOMA NEAR BIG MINERAL ARM 4.1KM EAST OF US 377/OXFORD DRIVE INTERSECTION 1.5 KM E OF WEST SHORE 15 KM NORTHWEST OF POTTSBORO	10130	RR	RT									4			4			4
0203	4	2	LAKE TEXOMA AT US 377 0.42 KM NORTH OF TEXAS BANK ON US 377 8.05 KM NORTH OF GORDONVILLE	10131	RR	RT									4			4			4
0203	4	2	LAKE TEXOMA-LITTLE MINERAL ARM AT BOAT RAMP AT SIMMONS SHORE IN PRESTON 4.5 KM E OF FM 120 5.5 KM N OF FM 406 12.5 KM NNW OF	15388	NM	RT					12				12			12			12

TABLE B1.1
Sample Design and Schedule
FY 2013

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
			DENISON																		
0203	4	2	LAKE TEXOMA LITTLE MINERAL ARM SOUTHEAST OF PRESTON SHORE NEAR INTAKE STRUCTURE EQUIDISTANT BETWEEN SHORELINES 1.5 KM EAST OF FM 120	17480	RR	RT									4			4			4
0203	4	2	LAKE TEXOMA 260 METERS DUE WEST FROM LAKE TEXOMA DAM 282 METERS EAST AND 392 METERS NORTH TO THE INTERSECTION OF FM 1310 AND NORTH SH 91 NORTH OF DENISON	20545	NM	RT					12				12			12			12
0203	4	2	LAKE TEXOMA 260 METERS DUE WEST FROM LAKE TEXOMA DAM 282 METERS EAST AND 392 METERS NORTH TO THE INTERSECTION OF FM 1310 AND NORTH SH 91 NORTH OF DENISON	20545	RR	RT									4			4			4
0204	3	2	RED RIVER AT US 81 2.1 KM NORTH OF US 81/PARR ROAD INTERSECTION 6.5 KM NORTH OF RINGGOLD	10133	RR	RT									4			4	4		4
0204	3	2	RED RIVER AT FM677 NORTHWEST OF SAINT JO	20168	RR	RT									4			4	4		4
0205	3	2	RED RIVER BRIDGE ON IH 44/US 277/US 281 313 M NORTHEAST OF TEXAS SHORE NEAR MID BRIDGE 4.0 KM NORTHEAST OF CITY OF BURKBURNETT	10134	RR	RT									4			4	4		4
0205	3	2	RED RIVER AT US 183/US 70 N 10.5 KM NORTH NORTHEAST OF OKLAUNION	16733	RR	RT									4			4	4		4
0205	3	2	WILDHORSE CREEK AT US 281/277/IH44 3.1 KM NORTHEAST OF BURKBURNETT	10096	RR	RT									4			4	4		4
0206	3	2	PRAIRIE DOG TOWN FORK RED RIVER AT SH 6 12.75 KM NORTH OF QUANAH	10135	RR	RT									4			4	4		4
0206A	3	2	GROESBECK CREEK AT SH6 NORTH OF QUANAH	20166	RR	RT									4			4	4		4
0207	1	2	LOWER PRAIRIE DOG TOWN FORK RED RIVER AT US 62-83 3.4 KM NORTH OF US 83/RR 2465 INTERSECTION 16 KM NORTH OF CHILDRESS	10136	RR	RT									4			4	4		4
0207	1	2	LOWER PRAIRIE DOG TOWN FORK RED RIVER AT SH 207 10 KM SOUTHWEST OF FM 2272/SH 207 INTERSECTION 30.45 KM SOUTH OF CLAUDE	13637	RR	RT									4			4	4		4
0210	3	2	FARMERS CREEK RESERVOIR/NOCONA LAKE MID LAKE NEAR DAM 1.3 KM SW OF OAK SHORES ROAD/FM 2953 INTERSECTION 0.36 KM SOUTH OF MID DAM	10139	RR	RT									4			4			4
0211	3	2	LITTLE WICHITA RIVER AT FM 2332 0.63 KM UPSTREAM FROM MOUTH AT RED RIVER CONFLUENCE 9.2 KM NORTHWEST OF RINGGOLD	10140	RR	RT									4			4			4

TABLE B1.1
Sample Design and Schedule
FY 2013

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0212	3	2	LAKE ARROWHEAD MID LAKE NEAR DAM 609 M SOUTH OF MID DAM 765 M SE OF LITTLE WICHITA R INTAKE STRUCTURE 14 KM NE OF SCOTLAND	10142	RR	RT									4			4			4
0213	3	2	LAKE KICKAPOO NEAR MID DAM 521 M SOUTH OF NORTH FORK LITTLE WICHITA RIVER INTAKE STRUCTURE 13.8 KM SOUTH OF US 82/SH 25 INTERSECTION	10143	RR	RT									4			4			4
0214	3	2	WICHITA RIVER AT FM 368 325 M NORTH OF FM 368/FM 1206 INTERSECTION 7.38 KM SOUTHWEST OF CITY OF IOWA PARK 9.15 KM NORTH OF HOLLIDAY	10154	RR	RT									4			4	4		4
0214	3	2	WICHITA RIVER AT SH 25 1.3 KM NORTH OF SH 258/SH 25 INTERSECTION 14.5 KM NORTHWEST OF CITY OF HOLLIDAY	10155	RR	RT									4			4			4
0214	3	2	WICHITA RIVER AT FM 810 1.25 KM SOUTH OF FM 1740/FM 810 INTERSECTION 9.65 KM WEST OF BYERS	10145	RR	RT									4			4	4		4
0214	3	2	WICHITA RIVER AT END OF EASTLAND LANE 0.75 KM SE OF RIVER ROAD/EASTLAND LANE INTERSECTION 5.5 KM NORTH NORTHEAST OF WICHITA FALLS	10148	RR	RT									4			4	4		4
0214	3	2	WICHITA RIVER AT SH 240 345 M NORTHWEST OF SH 240/EASTSIDE DRIVE/FRONT STREET INTERSECTION IN WICHITA FALLS	10150	RR	RT									4			4	4		4
0214A	3	2	BEAVER CREEK AT FM 2326 2.0 KM SOUTHWEST OF SH 25/FM 2326 INTERSECTION 22 KM NORTHWEST OF HOLLIDAY	15120	RR	RT	5								4			4	4		4
0214A	3	2	BEAVER CREEK AT US 283/US183 2.23 KM SOUTH OF FM 1763/US 283 INTERSECTION 22.1 KM SOUTH SOUTHEAST OF VERNON	15121	RR	RT									4			4			4
0214B	3	2	BUFFALO CREEK AT FM 1814/BELL ROAD 3.6 KM SOUTH OF CITY OF IOWA PARK	10097	RR	RT									4			4	4		4
0214B	3	2	BUFFALO CREEK AT COLEMAN PARK ROAD 2.95 KM SOUTHWEST OF IOWA PARK 1.7 KM UPSTREAM OF FM 368	16036	RR	RT									4			4	4		4
0214B	3	2	UNNAMED TRIBUTARY OF BUFFALO CREEK AT COLEMAN PARK ROAD DOWNSTREAM OF THE CITY OF IOWA PARK	21172	RR	RT									12			12	12		12
0214C	3	2	HOLLIDAY CREEK AT HARDING STREET 97 M EAST OF WILLIAMS AVENUE/HARDING STREET INTERSECTION IN WICHITA FALLS	10095	RR	RT									4			4	4		4
0214C	3	2	HOLLIDAY CREEK AT WICHITA FALLS COUNTRY	21025	RR	RT									4			4	4		4

TABLE B1.1
Sample Design and Schedule
FY 2013

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
			CLUB GOLF COURSE APPROX 120 METERS NORTH AND 10 METERS WEST OF THE INTERSECTION OF BRIDWELL STREET AND 30TH STREET IN WICHITA FALLS																		
0214E	3	2	SOUTH CANAL 80 M DOWNSTREAM OF LAKE DIVERSION SPILLWAY NEAR DUNDEE	18831	RR	RT									4			4	4		4
0215	3	2	DIVERSION LAKE NEAR DAM 0.64 KM NORTHWEST OF SPILLWAY FACE 390 M WEST OF DAM EQUIDISTANT BETWEEN SHORELINES 22.8 KM WEST OF HOLLIDAY	10157	RR	RT									4			4			4
0217	3	2	LAKE KEMP NEAR DAM 0.80 KM SW OF WATER INTAKE STRUCTURE AT WICHITA RIVER 0.72 KM NORTH OF WILLINGHAM LOOP 1.64 KM WEST OF US 283	10159	RR	RT									4			4			4
0217	3	2	LAKE KEMP AT NORTH WICHITA RIVER HEADWATERS 2.6 KM NORTHWEST OF PINE TREE ROAD CIRLCE 16 KM NORTH OF CITY OF SEYMOUR	10160	RR	RT									4			4			4
0218	3	2	NORTH WICHITA RIVER AT FM 1919 5.25 KM NORTHWEST OF BAYLOR CR 129/FM 1919 INTERSECTION 16.8 KM NORTHWEST OF SEYMOUR	10161	RR	RT									4			4	4		4
0218	3	2	NORTH WICHITA RIVER AT SH 6 19KM SOUTH OF CROWELL AND 7.5 KM NORTH OF TRUSCOTT	10162	RR	RT									4			4	4		4
0218	3	2	NORTH FORK WICHITA RIVER 6 KM DOWNSTREAM OF COTTONWOOD CREEK 2.04KM UPSTREAM OF COTTLE CR 493 NEAR PADUCAH	15119	RR	RT									4			4	4		4
0218A	3	2	MIDDLE WICHITA RIVER 240 M UPSTREAM OF FARRER CREEK 24.25KM EAST OF US 83/FM 1168 INTERSECTINO 30.15 KM NORTHEAST OF GUTHRIE	14900	RR	RT									4			4	4		4
0219	3	2	LAKE WICHITA NEAR MID DAM 376 M SE OF END OF CITY ACCESS RD IN WICHITA FALLS 2.94KM SW OF SOUTHWEST PKWY/LAKE PARK DR INTERSECTION	10163	RR	RT									4			4			4
0220	3	2	PEASE RIVER AT FM 104/RR 104 16.7 KM SOUTH OF KIRKLAND	10167	RR	RT									4			4	4		4
0222	1	2	SALT FORK RED RIVER 80 M DOWNSTREAMM OF US 83 AT SOUTH BANK 11 KM NORTH OF WELLINGTON	10171	RR	RT									4			4	4		4
0224	1	2	NORTH FORK RED RIVER AT US 83 4.25 KM NORTH OF SHAMROCK	10178	RR	RT									4			4	4		4
0224A	1	2	MCCLELLAN CREEK AT SH 273 0.22 KM SOUTH OF SH	10064	RR	RT									4			4	4		4

**TABLE B1.1
Sample Design and Schedule
FY 2013**

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
			273/HUDGINS ROAD INTERSECTION 10.5 KM NORTH OF CITY OF MCLEAN																		
0226	3	2	SOUTH FORK WICHITA RIVER AT SH 6 6.7 KM NORTH OF BENJAMIN	10185	RR	RT									4			4	4		4
0230	3	2	PEASE RIVER AT US 287 0.91 KM SOUTHEAST OF RR 925/US 287 INTERSECTION 4.6 KM NORTHWEST OF DOWNTOWN VERNON	10166	RR	RT									4			4	4		4
0230A	3	2	PARADISE CREEK AT US 287 3.75 KM EAST OF VERNON	10094	RR	RT									4			4	4		4
0299A	1	2	SWEETWATER CREEK AT RR 592/FM 592 3.33 KM NORTH OF SH 152/RR 592 INTERSECTION 14.15 KM EAST OF WHEELER	10070	RR	RT									4			4	4		4
0299A	1	2	SWEETWATER CREEK AT US 83 6.25 KM NORTH NORTHWEST OF WHEELER	10072	RR	RT									4			4	4		4
0299A	1	2	SWEETWATER CREEK AT SH 152 4.75 KM SOUTHEAST OF MOBEETIE	10074	RR	RT									4			4	4		4

Segment: State river segment where station is located

Collecting Entity: Entity conducting surface water quality monitoring

Metals Water: Samples collected by NTMWD will be analyzed by NTMWD. Samples collected by the Authority will be analyzed by LCRA.

Conventional: Samples of nutrients, minerals and dissolved calcium collected and analyzed by laboratory

Ind Bact: Indicator Bacteria

Inst Flow: Instantaneous flow measurement at time of sampling

Field: Parameters measured in the field; i.e. temperature, pH, dissolved oxygen, conductivity, etc.

Region: TCEQ Region where station is located

Basin: (1) Canadian (2) Red

Site Description: Description of sampling site

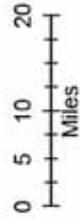
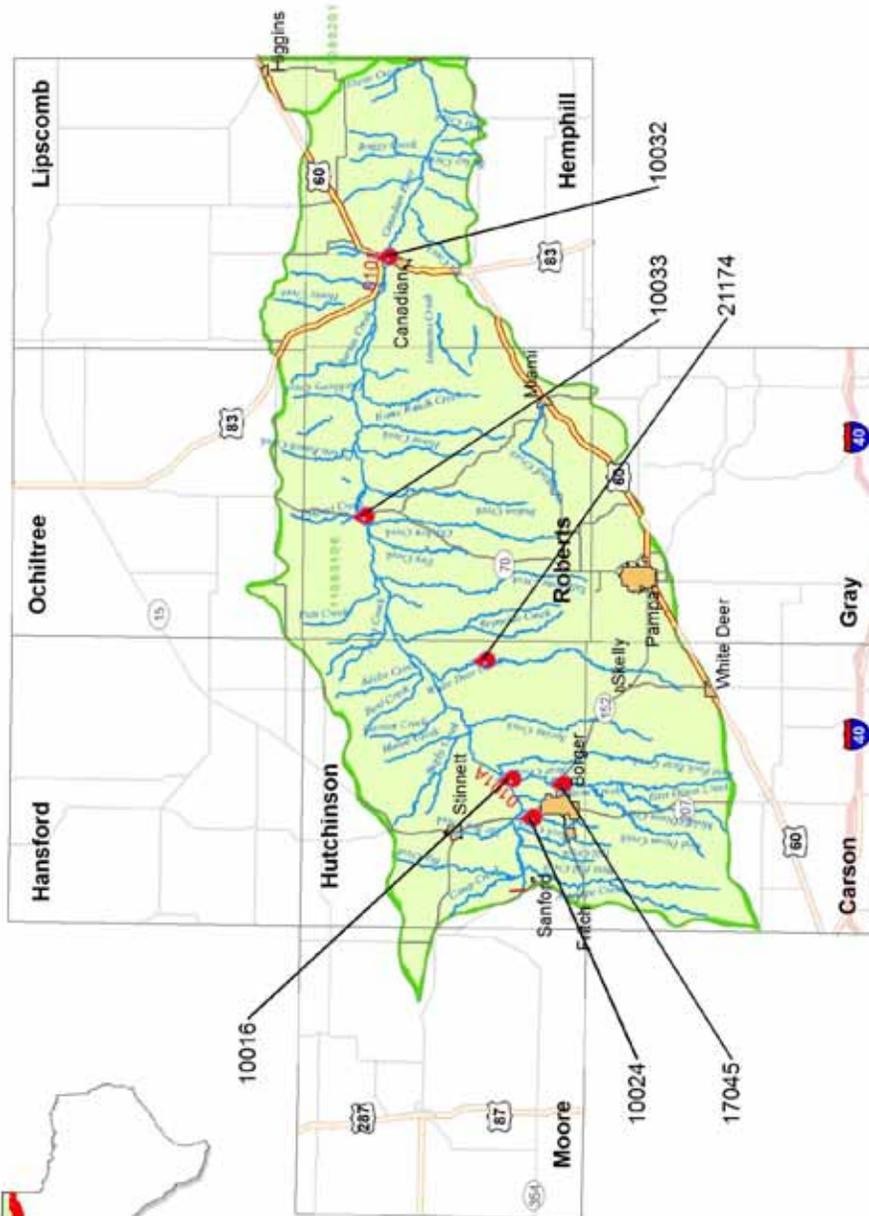
Station ID: TCEQ Station ID numbers

(RR) Red River Authority of Texas

(SH) City of Sherman

(NM) North Texas Municipal Water District

Canadian River Basin Reach I FY2013

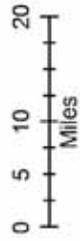


Legend

- Monitoring Station
- Segment Boundary
- Hydrology
- Urbanized Area
- County Boundary
- HUA Boundary
- Canadian Reach I

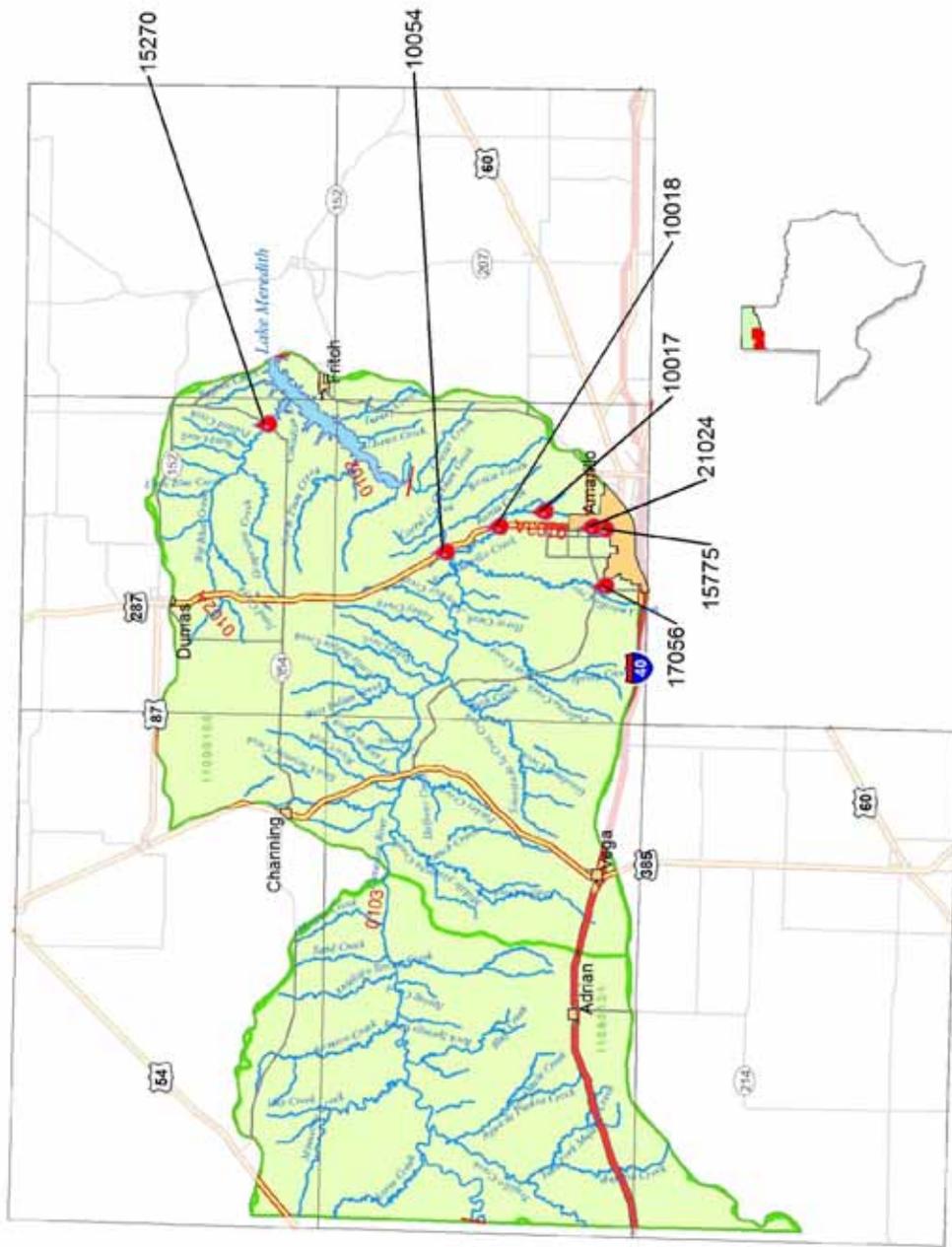
0101 Segment ID

Canadian River Basin Reach II FY2013

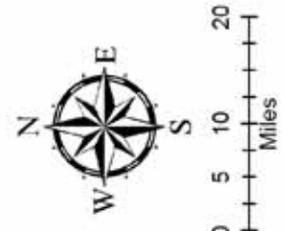


Legend

- Monitoring Station
- Segment Boundary
- Segment ID
- Hydrology
- Urbanized Area
- County Boundary
- HUA Boundary
- Canadian Reach II

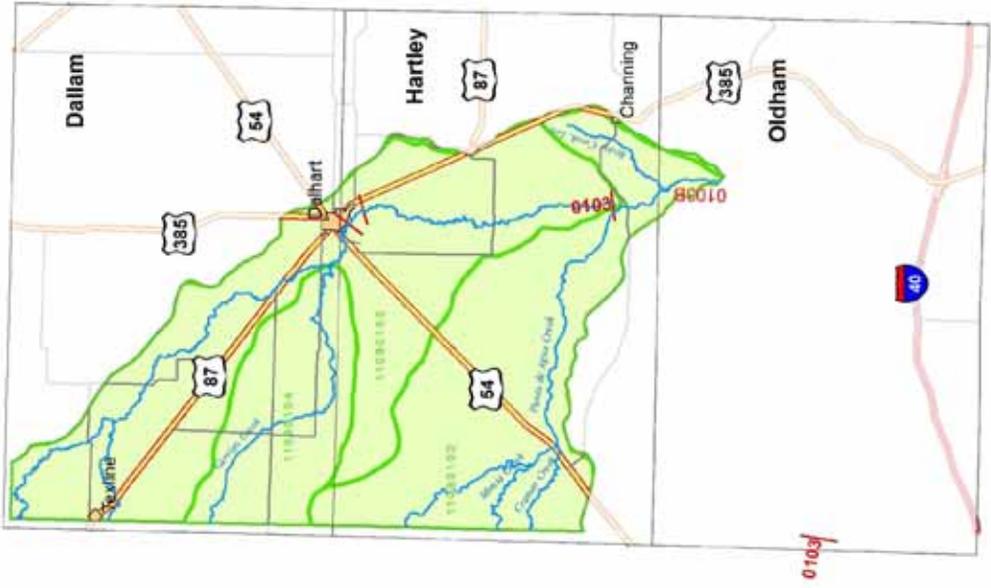


Canadian River Basin Reach III FY2013



Legend

- Monitoring Station
- Segment Boundary
- Segment ID
- Hydrology
- Urbanized Area
- County Boundary
- HUA Boundary
- Canadian Reach III



This Reach Monitored by TCEQ Field Office.

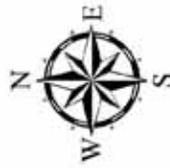




Canadian River Basin Reach IV FY2013



 This Reach Monitored by TCEQ Field Office.

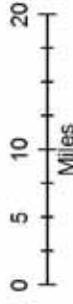
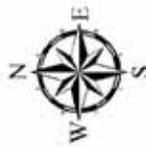
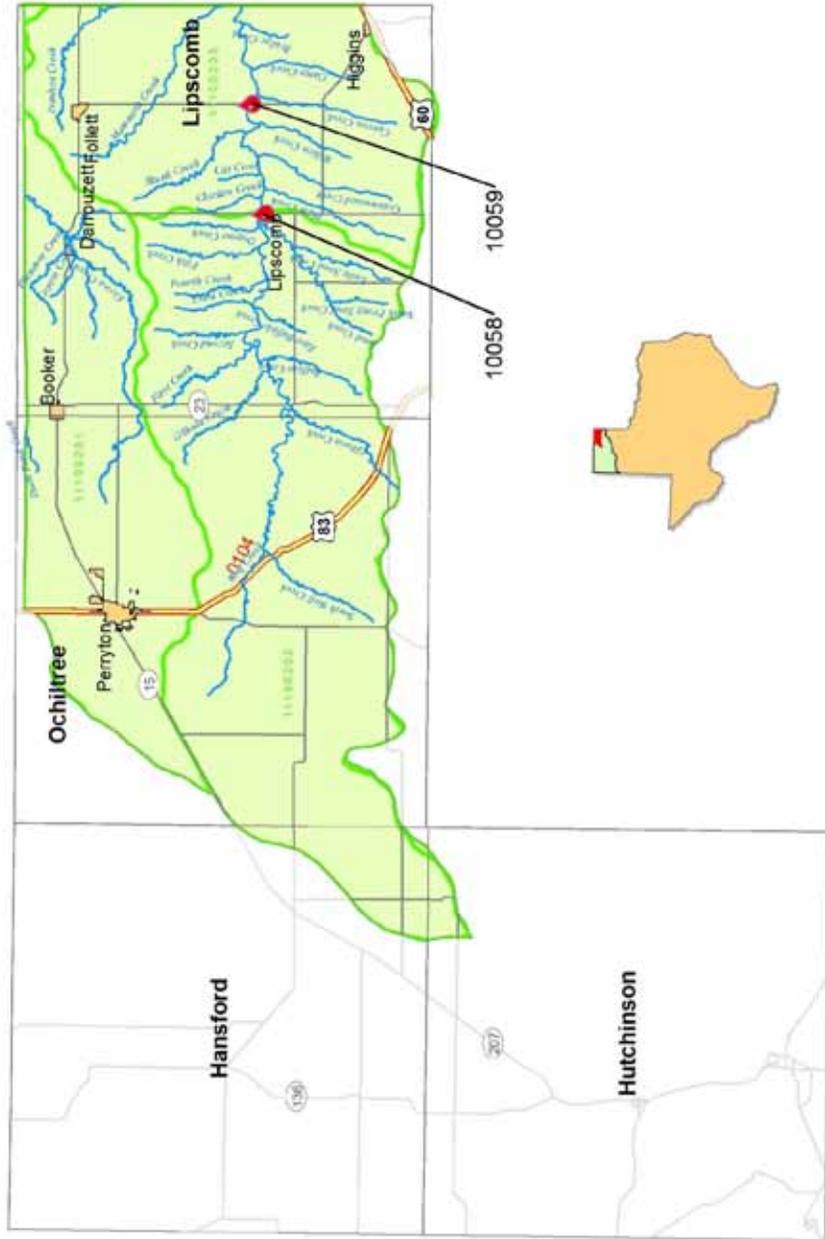


Legend

-  Monitoring Station
-  Segment Boundary
-  Segment ID
-  Hydrology
-  County Boundary
-  Urbanized Area
-  HUA Boundary
-  Canadian Reach IV



Canadian River Basin Reach V FY2013



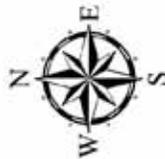
Legend

- Monitoring Station
- Segment Boundary
- Segment ID
- Hydrology
- Urbanized Area
- County Boundary
- HUA Boundary
- Canadian Reach V



Red River Basin Upper Reach I

FY2013



Legend

- Monitoring Station
- Segment Boundary
- Segment ID
- Hydrology
- Urbanized Area
- County Boundary
- HUA Boundary
- Red Upper Reach I



** Denotes site monitored by both RRA and North Texas Municipal Water District.

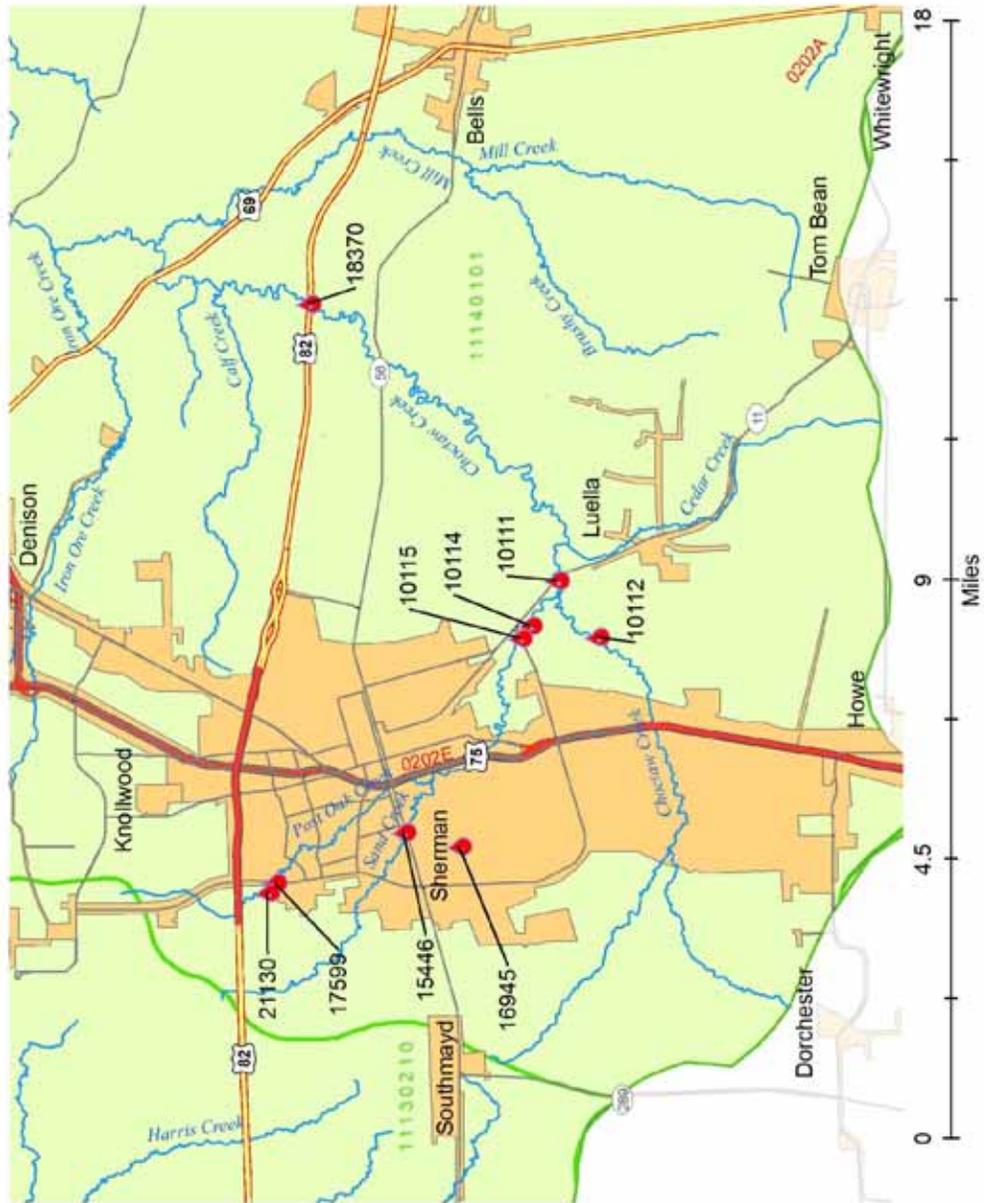
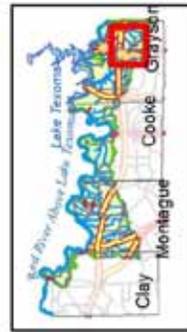


Red River Basin Upper Reach I (Sites Monitored by City of Sherman) FY2013



Legend

- Monitoring Station
- Segment Boundary
- Segment ID
- Hydrology
- Urbanized Area
- County Boundary
- HUA Boundary
- Red Upper Reach I

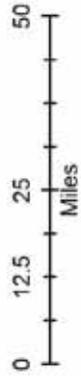
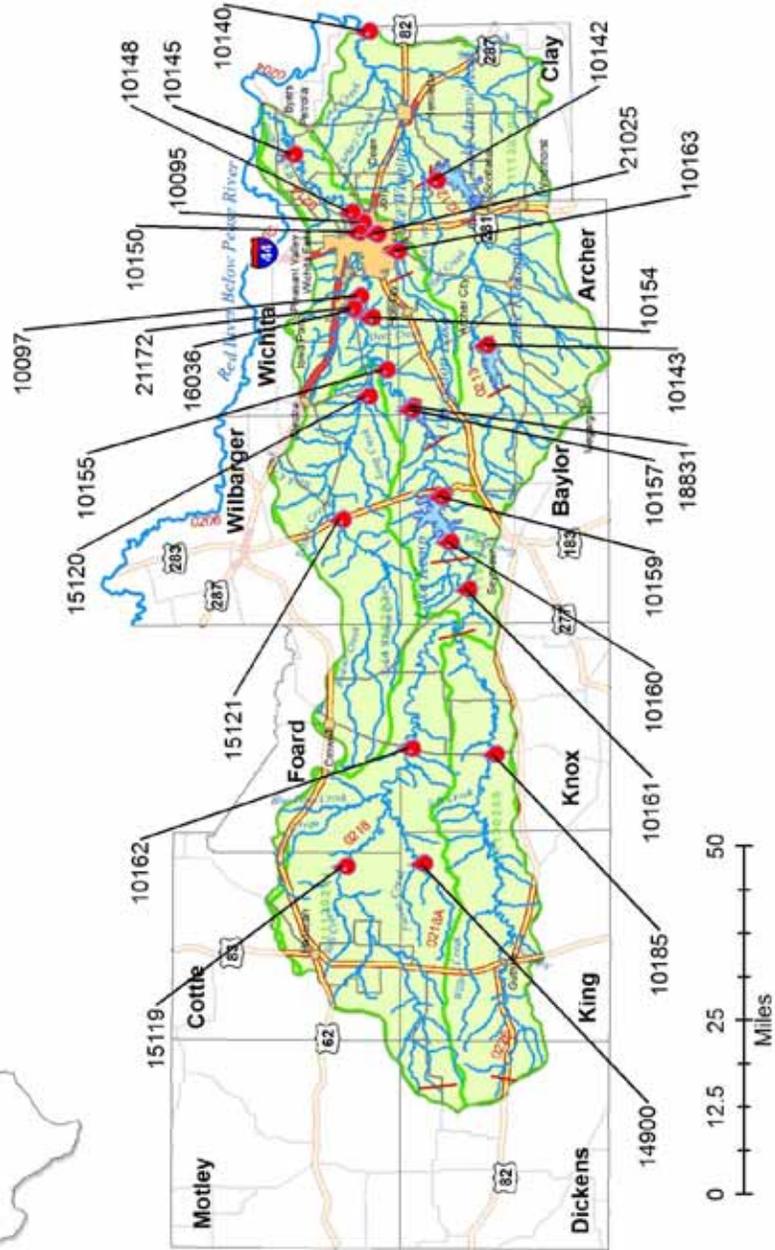




Legend

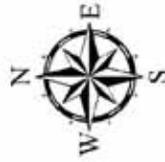
- Monitoring Station
- Segment Boundary
- Segment ID
- Hydrology
- Urbanized Area
- County Boundary
- HUA Boundary
- Red Reach II

Red River Basin Reach II FY2013



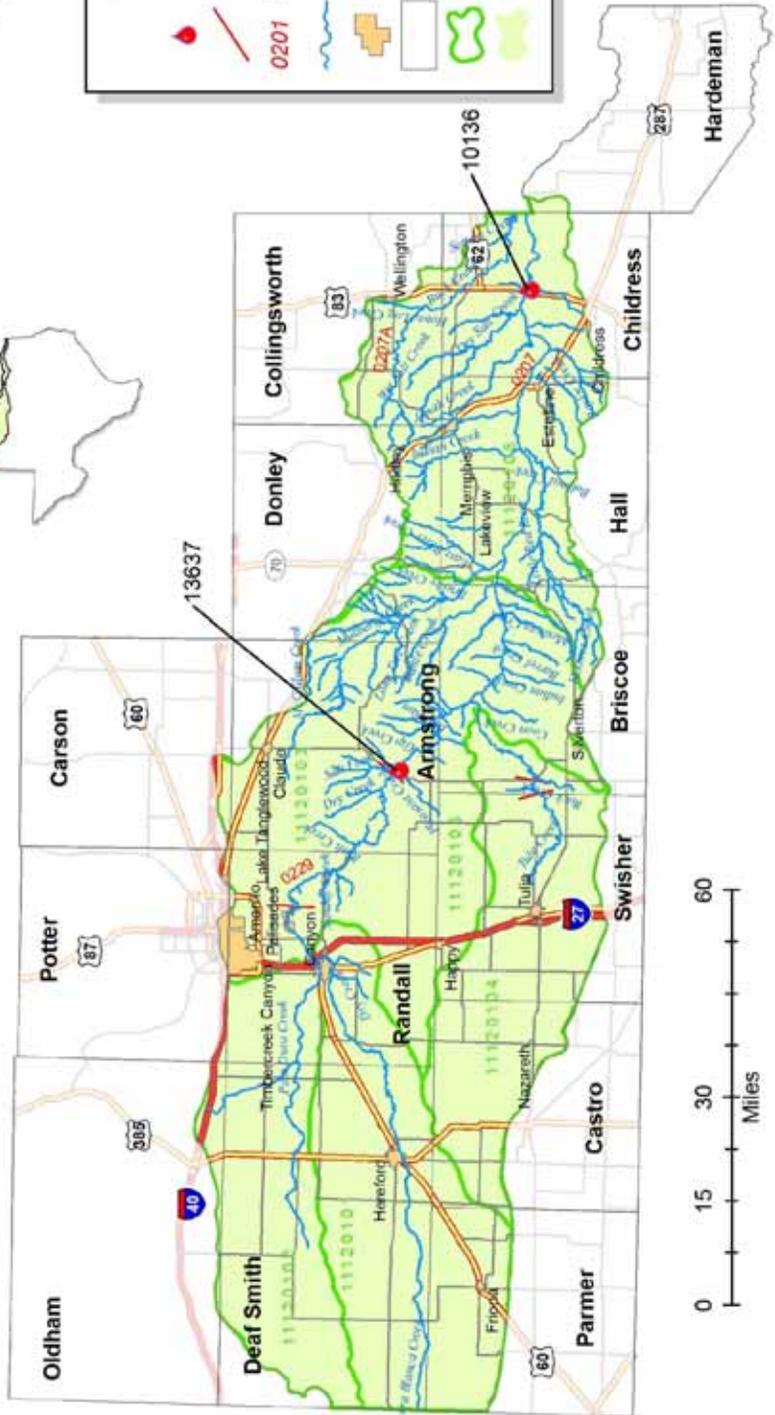


Red River Basin Reach IV FY2013

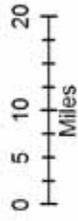


Legend

- Monitoring Station (Red dot)
- Segment Boundary (Red line)
- Segment ID 0201 (Red line with '0201' label)
- Hydrology (Blue wavy line)
- Urbanized Area (Orange square)
- County Boundary (Black outline)
- HUA Boundary (Green outline)
- Reach IV (Light green shaded area)

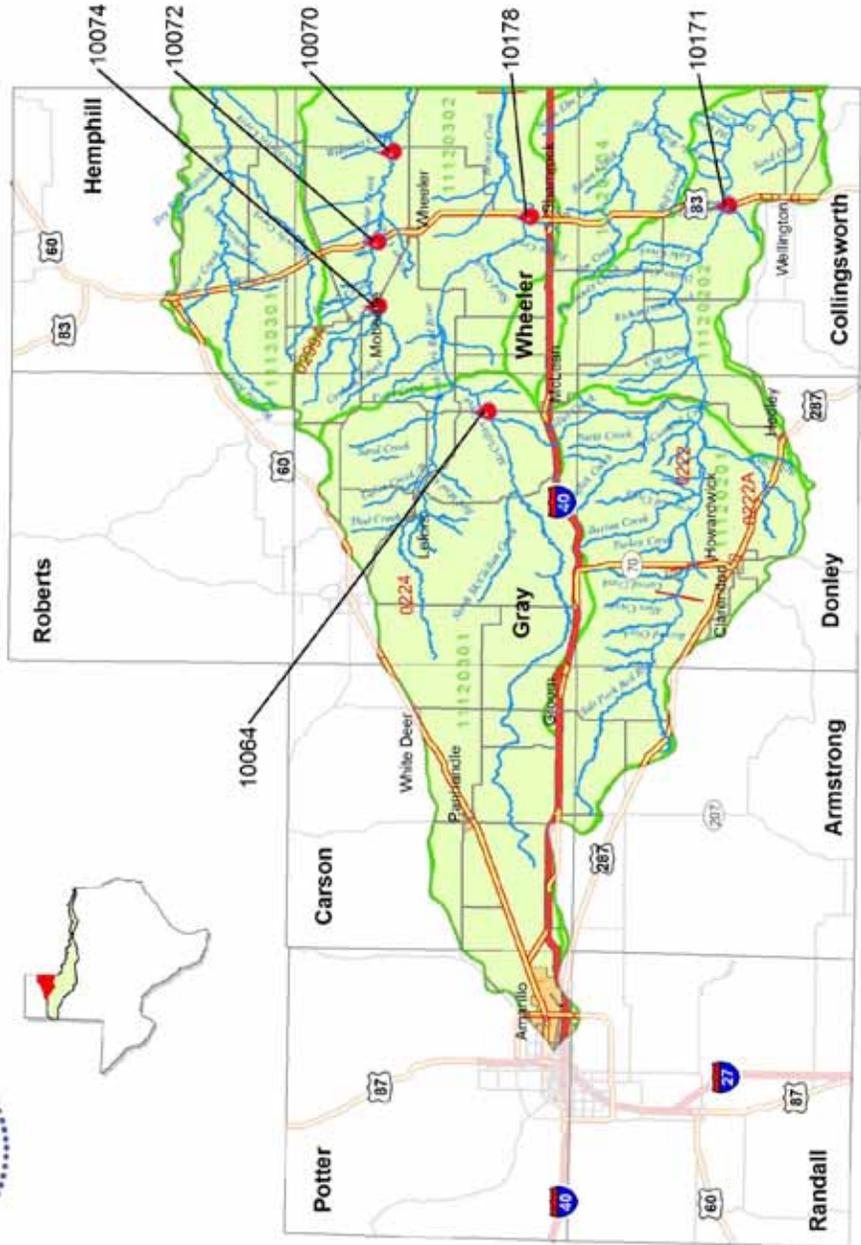


Red River Basin Reach V FY2013



Legend

- Monitoring Station
- Segment Boundary
- 0201 Segment ID
- Hydrology
- Urbanized Area
- County Boundary
- HUA Boundary
- Red Reach V





**RED RIVER AUTHORITY OF TEXAS
24 Hour Monitoring
CRP FIELD DATA REPORTING FORM**



Date:		Station Location:			TCEQ Site ID:	
Time:		Basin/Reach/Segment:		HUA No.		RRA Tag No:
County:		Monitoring Type:		QAO:		DE:
24 Hour Start Date/Time:				Stream Width: (ft)		Section Width: (ft)
24 Hour End Date/Time:				Time Start:		Time End:
Tech(s):				Section Midpoint	Section Depth (ft)	Velocity (ft/S)
Parameter Code	Sample Collection Depth _____ Meters					Discharge (CFS)
01351	Flow Severity 1 - No Flow 2 - Low Flow 3 - Normal 4 - Flood 5 - High 6 - Dry			1		
				2		
				3		
00061	Flow (CFS)			4		
89835	Flow Measurement Method 1 - Gauge 2 - Electronic 3 - Mechanical 4 - Weir/Flume 5 - Doppler			5		
				6		
20424	Water Clarity 1 - Excellent 2 - Good 3 - Fair 4 - Poor 5 - Other*			7		
				8		
89969	Water Color 1 - Brown 2 - Reddish 3 - Green 4 - Black 5 - Clear 6 - Other*			9		
				10		
89971	Water Odor 1 - Sewage 2 - Oily/Chem 3 - Rotten Eggs 4 - Musky 5 - Fishy 6 - None 7 - Other*			11		
				12		
00021	Air Temperature (° Fahrenheit)			13		
89966	Weather 1 - Clear 2 - Partly Cloudy 3 - Cloudy 4 - Rain 5 - Other*			14		
				15		
89965	Wind Condition 1 - Calm 2 - Slight 3 - Moderate 4 - Strong Direction _____			16		
				17		
72053	Significant Precip. (< or > Days)			18		
7Q2 For Site:				19		
				20		
Does Flow Meet/Exceed 7Q2 Criteria: Yes / No				Total Flow in CFS		
Comments and details/descriptions for parameter codes marked other*:						

24 HOUR MEASUREMENT RESULTS SUMMARY

Parameter Description	Parameter Code	Result
Dissolved Oxygen (mg/L), 24-Hour Minimum	89855	
Dissolved Oxygen (mg/L), 24-Hour Maximum	89856	
Dissolved Oxygen (mg/L), 24-Hour Average	89857	
Dissolved Oxygen (mg/L), 24-Hour # of Measurements	89858	
Water Temperature (°C), 24-Hour Minimum	00211	
Water Temperature (°C), 24-Hour Maximum	00210	
Water Temperature (°C), 24-Hour Average	00209	
Specific Conductance (uS/cm), 24-Hour Minimum	00214	
Specific Conductance (uS/cm), 24-Hour Maximum	00213	
Specific Conductance (uS/cm), 24-Hour Average	00212	
pH (S.U.), 24-Hour Minimum	00216	
pH (S.U.), 24-Hour Maximum	00215	
Primary Contact, Observed Activity	89978	
Evidence of Primary Contact Recreation	89979	
MISSING PARAMETERS		
NOTES		



CITY OF SHERMAN LAKE / RESERVOIR CRP FIELD DATA REPORTING FORM



Date:		Station Location:			TCEQ Site ID:			
Time:		Basin/Reach/Segment:		HUA No.		RRA Tag No:		
County:		Monitoring Type:		QAO:		DE:		
COS Laboratory ID #:				Total Depth: (m)		Total Measurements:		
Chain of Custody #:				Time Start:		Time End:		
Tech(s):				Sample Depth (m)	Temp (°C)	pH (s. u.)	D.O. (mg/L)	Conductivity (uS/cm)
Parameter Code	Sample Collection Depth _____ Meters							
20424	Water Clarity 1 – Excellent 2 – Good 3 – Fair 4 – Poor 5 – Other*							
89965	Wind Condition 1 – Calm 2 – Slight 3 – Moderate 4 – Strong Direction _____							
89966	Weather 1 – Clear 2 – Partly Cloudy 3 – Cloudy 4 – Rain 5 – Other*							
89968	Water Surface 1 – Calm 2 – Ripple 3 – Wave 4 – Whitecap							
89969	Water Color 1 – Brown 2 – Reddish 3 – Green 4 – Black 5 – Clear 6 – Other*							
89971	Water Odor 1 – Sewage 2 – Oily/Chem 3 – Rotten Eggs 4 – Musky 5 – Fishy 6 – None 7 – Other*							
00078	Secchi Disk (m)							
72053	Significant Precip. (< or > Days)							
00021	Air Temperature (° Fahrenheit)							
00051	Reservoir Access Not Possible							
00052	Reservoir Stage (TWDB Website)							
00053	Reservoir Percent Full (TWDB Website)							
82903	Depth of Bottom of Water Body							
89978	Primary Contact Observed Act. # of people observed 0 – 10 > 10							
89979	Evidence of Prim. Contact Rec. 1 – Observed 2 – Not Observed							
Comments and details/descriptions for parameter codes marked other*:								

MEASUREMENT COMMENTS AND FIELD OBSERVATIONS

Biological Activities:	
Aquatic Vegetation:	
Terrestrial Vegetation:	
Aquatic Animals:	
Terrestrial Animals:	
Aquatic Insects:	
Terrestrial Insects:	
Watershed Activities:	
Water Body Uses Observed:	
Specific Sample Info:	
Missing Parameters:	
Notes:	



**NORTH TEXAS MUNICIPAL WATER DISTRICT
LAKE / RESERVOIR
CRP FIELD DATA REPORTING FORM**



Date:		Station Location:			TCEQ Site ID:	
Time:		Basin/Reach/Segment:		HUA No.	RRA Tag No:	
County:		Monitoring Type:		QAO:	DE:	
NTMWD Laboratory ID #:				Total Depth: (m)		Total Measurements:
Work Order #:				Time Start:		Time End:
Tech(s):				Sample Depth (m)	Temp (°C)	pH (s. u.)
D.O. (mg/L)				Conductivity (uS/cm)		
Parameter Code	Sample Collection Depth _____ Meters					
20424	Water Clarity 1 – Excellent 2 – Good 3 – Fair 4 – Poor 5 – Other*					
89965	Wind Condition 1 – Calm 2 – Slight 3 – Moderate 4 – Strong Direction _____					
89966	Weather 1 – Clear 2 – Partly Cloudy 3 – Cloudy 4 – Rain 5 – Other*					
89968	Water Surface 1 – Calm 2 – Ripple 3 – Wave 4 – Whitecap					
89969	Water Color 1 – Brown 2 – Reddish 3 – Green 4 – Black 5 – Clear 6 – Other*					
89971	Water Odor 1 – Sewage 2 – Oily/Chem 3 – Rotten Eggs 4 – Musky 5 – Fishy 6 – None 7 – Other*					
00078	Secchi Disk (m)					
72053	Significant Precip. (< or > Days)					
00021	Air Temperature (° Fahrenheit)					
00051	Reservoir Access Not Possible					
00052	Reservoir Stage (TWDB Website)					
00053	Reservoir Percent Full (TWDB Website)					
82903	Depth of Bottom of Water Body					
89978	Primary Contact Observed Act. # of people observed 0 – 10 > 10					
89979	Evidence of Prim. Contact Rec. 1 – Observed 2 – Not Observed					
Comments and details/descriptions for parameter codes marked other*:						

MEASUREMENT COMMENTS AND FIELD OBSERVATIONS

Biological Activities:	
Aquatic Vegetation:	
Terrestrial Vegetation:	
Aquatic Animals:	
Terrestrial Animals:	
Aquatic Insects:	
Terrestrial Insects:	
Watershed Activities:	
Water Body Uses Observed:	
Specific Sample Info:	
Missing Parameters:	
Notes:	



**RED RIVER AUTHORITY OF TEXAS
LAKE / RESERVOIR
CRP FIELD DATA REPORTING FORM**



Date:		Station Location:			TCEQ Site ID:			
Time:		Basin/Reach/Segment:		HUA No.		RRA Tag No:		
County:		Monitoring Type:		QAO:		DE:		
RRA Laboratory ID #:				Total Depth: (m)		Total Measurements:		
Chain of Custody #:				Time Start:		Time End:		
Tech(s):				Sample Depth (m)	Temp (°C)	pH (s. u.)	D.O. (mg/L)	Conductivity (uS/cm)
Parameter Code	Sample Collection Depth _____ Meters							
20424		Water Clarity 1 - Excellent 2 - Good 3 - Fair 4 - Poor 5 - Other*						
89965		Wind Condition 1 - Calm 2 - Slight 3 - Moderate 4 - Strong Direction _____						
89966		Weather 1 - Clear 2 - Partly Cloudy 3 - Cloudy 4 - Rain 5 - Other*						
89968		Water Surface 1 - Calm 2 - Ripple 3 - Wave 4 - Whitecap						
89969		Water Color 1 - Brown 2 - Reddish 3 - Green 4 - Black 5 - Clear 6 - Other*						
89971		Water Odor 1 - Sewage 2 - Oily/Chem 3 - Rotten Eggs 4 - Musky 5 - Fishy 6 - None 7 - Other*						
00078		Secchi Disk (m)						
72053		Significant Precip. (< or > Days)						
00021		Air Temperature (° Fahrenheit)						
00051		Reservoir Access Not Possible						
00052		Reservoir Stage (TWDB Website)						
00053		Reservoir Percent Full (TWDB Website)						
82903		Depth of Bottom of Water Body						
89978		Primary Contact Observed Act. # of people observed 0 - 10 > 10						
89979		Evidence of Prim. Contact Rec. 1 - Observed 2 - Not Observed						
Comments and details/descriptions for parameter codes marked other*:								

MEASUREMENT COMMENTS AND FIELD OBSERVATIONS

Biological Activities:	
Aquatic Vegetation:	
Terrestrial Vegetation:	
Aquatic Animals:	
Terrestrial Animals:	
Aquatic Insects:	
Terrestrial Insects:	
Watershed Activities:	
Water Body Uses Observed:	
Specific Sample Info:	
Missing Parameters:	
Notes:	



CITY OF SHERMAN STREAM CRP FIELD DATA REPORTING FORM



Date:		Station Location:			TCEQ Site ID:		
Time:		Basin/Reach/Segment:		HUA No.	RRA Tag No:		
County:		Monitoring Type:		QAO:	DE:		
COS Laboratory ID #:				Stream Width: (ft)		Section Width: (ft)	
Chain of Custody #:				Time Start:		Time End:	
Tech(s):			Section Midpoint	Section Depth (ft)	Velocity (ft/S)	Discharge (CFS)	
Parameter Code	Sample Collection Depth _____ Meters		1				
00010		Water Temp (°C)	2				
00094		Conductivity (uS/cm)	3				
00300		Dissolved Oxygen (mg/L)	4				
00400		pH (Standard Units)	5				
01351	Flow Severity 1 - No Flow 2 - Low Flow 3 - Normal 4 - Flood 5 - High 6 - Dry		6				
			7				
00061		Flow (CFS)	8				
74069		Flow Estimate	9				
89835	Flow Measurement Method 1 - Gauge 2 - Electronic 3 - Mechanical 4 - Weir/Flume 5 - Doppler		10				
			11				
20424	Water Clarity 1 - Excellent 2 - Good 3 - Fair 4 - Poor 5 - Other*		12				
			13				
89969	Water Color 1 - Brown 2 - Reddish 3 - Green 4 - Black 5 - Clear 6 - Other*		14				
			15				
89971	Water Odor 1 - Sewage 2 - Oily/Chem 3 - Rotten Eggs 4 - Musky 5 - Fishy 6 - None 7 - Other*		16				
			17				
00021		Air Temperature (° Fahrenheit)	18				
89966	Weather 1 - Clear 2 - Partly Cloudy 3 - Cloudy 4 - Rain 5 - Other*		19				
			20				
89965	Wind Condition 1 - Calm 2 - Slight 3 - Moderate 4 - Strong Direction		Tech taking flow:				Total Flow in CFS
72053	Significant Precip. (< or > Days)		Tech recording measurements:				
89978	Primary Contact Observed Act. # of people observed 0 - 10 > 10		Tech calculating flow:				
89979	Evidence of Prim. Contact Rec. 1 - Observed 2 - Not Observed		Comments and details/descriptions for parameter codes marked other*:				

MEASUREMENT COMMENTS AND FIELD OBSERVATIONS

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:	



**NORTH TEXAS MUNICIPAL WATER DISTRICT
STREAM
CRP FIELD DATA REPORTING FORM**



Date:		Station Location:			TCEQ Site ID:	
Time:		Basin/Reach/Segment:		HUA No.		RRA Tag No:
County:		Monitoring Type:		QAO:		DE:
NTMWD Laboratory ID #:				Stream Width: (ft)		Section Width: (ft)
Work Order #:				Time Start:		Time End:
Tech(s):			Section Midpoint	Section Depth (ft)	Velocity (ft/S)	Discharge (CFS)
Parameter Code	Sample Collection Depth _____ Meters		1			
00010		Water Temp (°C)	2			
00094		Conductivity (uS/cm)	3			
00300		Dissolved Oxygen (mg/L)	4			
00400		pH (Standard Units)	5			
01351		Flow Severity 1 - No Flow 2 - Low Flow 3 - Normal 4 - Flood 5 - High 6 - Dry	6			
			7			
00061		Flow (CFS)	8			
74069		Flow Estimate	9			
89835		Flow Measurement Method 1 - Gauge 2 - Electronic 3 - Mechanical 4 - Weir/Fume 5 - Doppler	10			
			11			
20424		Water Clarity 1 - Excellent 2 - Good 3 - Fair 4 - Poor 5 - Other*	12			
			13			
89969		Water Color 1 - Brown 2 - Reddish 3 - Green 4 - Black 5 - Clear 6 - Other*	14			
			15			
89971		Water Odor 1 - Sewage 2 - Oily/Chem 3 - Rotten Eggs 4 - Musky 5 - Fishy 6 - None 7 - Other*	16			
			17			
00021		Air Temperature (° Fahrenheit)	18			
89966		Weather 1 - Clear 2 - Partly Cloudy 3 - Cloudy 4 - Rain 5 - Other*	19			
			20			
89965		Wind Condition 1 - Calm 2 - Slight 3 - Moderate 4 - Strong Direction	Tech taking flow:			Total Flow in CFS
			Tech recording measurements:			
72053		Significant Precip. (< or > Days)	Tech calculating flow:			
89978		Primary Contact Observed Act. # of people observed 0 - 10 >10	Comments and details/descriptions for parameter codes marked other*:			
89979		Evidence of Prim. Contact Rec. 1 - Observed 2 - Not Observed				

MEASUREMENT COMMENTS AND FIELD OBSERVATIONS

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:	



**RED RIVER AUTHORITY OF TEXAS
STREAM
CRP FIELD DATA REPORTING FORM**



Date:		Station Location:			TCEQ Site ID:	
Time:		Basin/Reach/Segment:		HUA No.	RRA Tag No:	
County:		Monitoring Type:		QAO:	DE:	
RRA Laboratory ID #:				Stream Width: (ft)		Section Width: (ft)
Chain of Custody #:				Time Start:		Time End:
Tech(s):			Section Midpoint	Section Depth (ft)	Velocity (ft/S)	Discharge (CFS)
Parameter Code	Sample Collection Depth _____ Meters		1			
00010		Water Temp (°C)	2			
00094		Conductivity (uS/cm)	3			
00300		Dissolved Oxygen (mg/L)	4			
00400		pH (Standard Units)	5			
01351		Flow Severity 1 - No Flow 2 - Low Flow 3 - Normal 4 - Flood 5 - High 6 - Dry	6			
			7			
00061		Flow (CFS)	8			
74069		Flow Estimate	9			
89835		Flow Measurement Method 1 - Gauge 2 - Electronic 3 - Mechanical 4 - Weir/Flume 5 - Doppler	10			
			11			
20424		Water Clarity 1 - Excellent 2 - Good 3 - Fair 4 - Poor 5 - Other*	12			
			13			
89969		Water Color 1 - Brown 2 - Reddish 3 - Green 4 - Black 5 - Clear 6 - Other*	14			
			15			
89971		Water Odor 1 - Sewage 2 - Oily/Chem 3 - Rotten Eggs 4 - Musky 5 - Fishy 6 - None 7 - Other*	16			
			17			
00021		Air Temperature (° Fahrenheit)	18			
89966		Weather 1 - Clear 2 - Partly Cloudy 3 - Cloudy 4 - Rain 5 - Other*	19			
			20			
89965		Wind Condition 1 - Calm 2 - Slight 3 - Moderate 4 - Strong Direction	Tech taking flow:			Total Flow in CFS
			Tech recording measurements:			
72053		Significant Precip. (< or > Days)	Tech calculating flow:			
89978		Primary Contact Observed Act. # of people observed 0 - 10 > 10	Comments and details/descriptions for parameter codes marked other*:			
89979		Evidence of Prim. Contact Rec. 1 - Observed 2 - Not Observed				

MEASUREMENT COMMENTS AND FIELD OBSERVATIONS

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:	

