

**Amendment # 1
to the Red River Authority
Clean Rivers Program FY 2010/2011 QAPP**

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

Questions concerning this QAPP should be directed to:

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Effective: Date to be inserted by TCEQ Lead QA Specialist

Justification: This amendment will allow for the correction of AWRL values for Total Nitrate/Nitrite-N and Total Nitrate-N on Table A7.1 of the FY10-11 QAPP. Secondly, this amendment will also allow for the establishing of lower laboratory LOQ values for Total Suspended Solids, Volatile Suspended Solids, and Total Organic Carbon. It will also allow for the establishing of a higher LOQ value for Total Nitrate-N on Table A7.1 of the FY10-11 QAPP. Thirdly, this amendment will allow for the removal of Total Fluoride from Table A7.1 and Table B2.1 of the FY10-11 QAPP. Finally, as granted by TCEQ, this amendment will allow for the establishing of a higher laboratory LOQ for Dissolved Calcium.

Detail of Changes:

Table A7.1 – Measurement Performance Specifications:

Table A7.1 was modified to correct the AWRL values for Total Nitrate/Nitrite-N and Total Nitrate-N. The table was also modified to show the lower LOQ values for Total Suspended Solids, Volatile Suspended Solids, and Total Organic Carbon. Table A7.1 was also modified to show the higher LOQ values for Total Nitrate-N and Dissolved Calcium. Additionally, Total Fluoride was removed from Table A7.1 and Table B2.1.

Distribution: QAPP Amendments/Revisions to Appendices will be distributed to all personnel on the distribution list maintained by the Red River Authority of Texas.

These changes will be incorporated into the FY10-11 QAPP document and TCEQ and the Red River Authority will acknowledge and accept these changes by signing this amendment.

 11-17-09
James E. Wright, Date
Red River Authority Project Manager

 11/17/09
W. Scott Burns, Date
Red River Authority QA Officer

Red River Regional Environmental Services Laboratory

 11-17-09
James E. Wright, Date
Red River Authority ESD Manager

 11-17-09
James J. Quashnock, Date
Red River Authority Laboratory QA Officer

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Natalie Bell, CRP Project Manager	Date
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Jennifer Delk, CRP Project QAS	Date
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Allison Woodall, CRP Group Leader	Date
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Daniel R. Burke, CRP Lead QAS	Date
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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										
pH	pH/units	Water	TCEQ SOP V-1 and EPA 150.1	00400	NA*	NA	NA	NA	NA	Field
DO	mg/L	Water	TCEQ SOP V-1 SM 4500-O C	00300	NA*	NA	NA	NA	NA	Field
Specific Conductance	μS/cm	Water	TCEQ SOP V-1 SM 2510 B	00094	NA*	NA	NA	NA	NA	Field
Temperature	° C	Water	TCEQ SOP V-1 SM 2550 B	00010	NA*	NA	NA	NA	NA	Field
Secchi Depth	meters	Water	TCEQ SOP V-1	00078	NA*	NA	NA	NA	NA	Field
Days Since Last Significant Rain	Days	NA	TCEQ SOP V-1	72053	NA*	NA	NA	NA	NA	Field
Flow	cfs	Water	TCEQ SOP V-1	00061	NA*	NA	NA	NA	NA	Field
Flow Measurement Method	1 - gage 2 - electric 3 - mechanical 4 - weir/flume 5 - doppler	Water	TCEQ SOP V-1	89835	NA*	NA	NA	NA	NA	Field
Flow Severity	1 - no flow 2 - low 3 - normal 4 - flood 5 - high 6 - dry	Water	TCEQ SOP V-1	01351	NA*	NA	NA	NA	NA	Field
Flow Estimate	cfs	Water	TCEQ SOP V-1	74069	NA*	NA	NA	NA	NA	Field
Present Weather	1 - clear 2 - ptly cldy 3 - cloudy 4 - rain 5 - other	NA	NA	89966	NA	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
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

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 Surface	1 - calm 2 - ripples 3 - waves	NA	NA	89968	NA	NA	NA	NA	NA	Field
Turbidity	NTU	Water	SM 2130B	82079	.5	.5	70-130	20	80-120	Field
CONVENTIONAL AND BACTERIOLOGICAL PARAMETERS										
TSS	mg/L	Water	SM 2540 D	00530	4	1	NA	20	NA	RRA
TDS, Dried at 180 Degrees C	mg/L	Water	SM 2540 C	70300	10	10	NA	20	NA	RRA
TDS, calculated	mg/L	Water	Calculation	70294	NA	NA	NA	NA	NA	RRA
Sulfate	mg/L	Water	EPA 300.0	00945	5	10****	70-130	20	80-120	RRA
Chloride	mg/L	Water	EPA 300.0	00940	5	10****	70-130	20	80-120	RRA
Chlorophyll-a, Fluorometric Method	µg/L	Water	EPA 445.0	70953	3	2	NA	20	80-120	LCRA
Pheophytin, Fluorometric Method	µg/L	Water	EPA 445.0	32213	3	2	NA	NA	NA	LCRA
Chlorophyll-a, Spectrophotometric Method (Backup)	µg/L	Water	EPA 446.0	32211	3	2	NA	20	80-120	LCRA
Pheophytin, Spectrophotometric Method (Backup)	µg/L	Water	EPA 446.0	32218	3	2	NA	NA	NA	LCRA
<i>E. coli</i> , IDEXX Colilert***	MPN/100 mL	Water	SM 9223-B	31699	1	1	NA	.5 **	NA	RRA
Holding time, <i>E. coli</i> , IDEXX Colilert ***	Hours	Water	NA	31704	NA	NA	NA	NA	NA	RRA
<i>E. coli</i> , IDEXX Colilert	MPN/100 mL	Water	Colilert® Colilert 18®	31699	1	1	NA	.5 **	NA	SH
Fecal coliform, membrane filtration	org/100mL	Water	SM 9222-D	31616	1	1	NA	.5 **	NA	RRA
Ammonia-N, total	mg/L	Water	SM 4500-NH3D	00610	.1	.1	70-130	20	80-120	RRA
Alkalinity, total	mg/L	Water	SM 2320 B	00410	20	20	NA	20	80-120	RRA
COD	mg/L	Water	Hach 8000	00335	10	10	70-130	20	80-120	RRA
O-Phosphate-P, Diss. field filter <15 min	mg/L	Water	EPA 300.0	00671	.04	.04	70-130	20	80-120	RRA

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
Total Phosphorus-P	mg/L	Water	SM 4500-P E	00665	.06	.06	70-130	20	80-120	RRA
Nitrate/nitrite-N, Total	mg/L	Water	SM 4500-NO3-H	00630	.05	.02	70-130	20	80-120	LCRA
Nitrate-N, Total	mg/L	Water	EPA 300.0	00620	.05	.04	70-130	20	80-120	RRA
TOC	mg/L	Water	SM 5310B	00680	2.0	1.0	70-130	20	80-120	RRA
VSS	mg/L	Water	EPA 160.4	00535	4	1	NA	20	80-120	RRA
Calcium, dissolved	mg/L	Water	SM 3500CaB	00915	0.5	2.0*****	70-130	20	80-120	RRA

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

** 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.

*** *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.

***** TCEQ has granted permission to have an LOQ higher than the established AWRL.

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

Parameter	Container ¹	Preservation ²	Sample Volume ³	Holding Time ⁴
Bacteriological (Water)				
Escherichia coli*, Fecal Coliform	P or G	Sodium Thiosulfate, Cool < 6°C	120mL/290 mL	6 Hours
Conventionals and Minerals (Water)				
Alkalinity, Total	P or G	Cool < 6°C	1.0 L	14 Days
Calcium, Dissolved (EDTA)	P or G	HNO3 to pH<2 Field Filtered ⁵	250 mL	6 Months
Solids (TSS, VSS, TDS)	P or G	Cool < 6°C	1.0 L	7 Days
Chloride	P or G	None Required	1.0 L	28 Days
Turbidity	P or G	Cool < 6°C	250 mL	48 Hours
Chloride, Nitrate, O-Phosphorus, Sulfate	P or G	None Required Field Filtered ⁵ , Cool < 6°C	125 mL	48 Hours for Ion Chromatography
Nutrients (Water)				
Ammonia, Total Phosphorus, TOC & COD	P or G	Cool < 6°C, H2SO4 to pH<2	500 mL	28 Days
Chlorophyll <i>a</i> and Pheophytin	P or G Opaque ⁶	Unfiltered, Dark, Cool < 6°C	500 mL	48 Hours
		Filtered, Dark, Frozen		28 Days

¹ Polyethylene (P) or Glass (G).

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 Orthophosphorus and dissolved calcium samples are field filtered within 15 minutes of sample collection. DI blanks are run on filter lots to ensure quality control. Individual filters are rinsed with collected sample prior to actual filling of the designated container.

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

*E.coli samples analyzed by SM 9223-B should always be processed as soon as possible and within 8 hours. When transport conditions necessitate delays in delivery longer than 6 hours, the holding time may be extended and samples must be processed as soon as possible and within 48 hours.