

**Amendment #1 to the ANRA Clean Rivers Program
FY 2006/2007 QAPP**

**Prepared by the Angelina & Neches River Authority (ANRA)
In Cooperation with the Texas Commission on Environmental Quality (TCEQ)**

Questions concerning this QAPP should be directed to:

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Effective: December 1, 2005

Justification: An amendment to ANRA's QAPP is necessary because the Chlorophyll-a samples will be analyzed by a contract laboratory instead of ANRA's laboratory. In addition, ANRA will also be reporting pheophytin values.

Detail of Changes:

1. Section A4: Project/Task Organization

- a. The names and responsibilities of the Lower Colorado River Authority's (LCRA) Laboratory Manager and Quality Assurance Manager were added.
- b. Figure A4.1: Project Organization Chart was revised to include LCRA Environmental Laboratory Services.

2. Section A7: Quality Objectives and Criteria

The following revisions were made to Table A7.1:

- a. Column indicating the Laboratory analyzing Chlorophyll-a (spectrophotometric method) was changed to LCRA.
- b. The Pheophytin parameter was inserted into the table.

3. Section B2: Sampling Methods

The following revision was made to Table B2.1:

- a. Pheophytin was added to the table with Chlorophyll-a since they have identical sample storage, preservation, and handling requirements.

4. Appendix C: Field Data Sheet

A revision was made to the ANRA Field Data Sheet to include Collector(s) Name/Signature in accordance with the Documentation of Field Sampling Activities in Section B2 of the QAPP.

Copies of the revised sections are attached.

Distribution: QAPP Amendments will be distributed to all personnel on the distribution list maintained by ANRA.

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

David Hancock, ANRA Project Manager Date

Brian Sims, ANRA QAO Date

Greg Bryant, CRP Project Manager Date

Sharon Coleman, CRP Lead QAS Date

Laurie Curra, CRP Project QAS Date

A4 PROJECT/TASK ORGANIZATION

Description of Responsibilities

LOWER COLORADO RIVER AUTHORITY

Alicia Gill

LCRA Laboratory Manager

Responsible for ensuring adequate training and supervision of all activities involved in generating analytical data and for all laboratory personnel having a thorough knowledge of the laboratory QM/QAP and all SOP's specific to the analyses or task performed and/or supervised. Ensure that analytical tests are performed in accordance with approved methods. Ensures that the laboratory maintains adequate Quality Assurance/Quality Control (QA/QC) procedures during the time samples are being analyzed and that all results are presented in an organized manner. Responsible for oversight of all operations, ensuring that all requirements are met and documentation related to the analyses is completely and accurately reported. Enforces corrective action as required.

Hollis Pantalion

LCRA Laboratory Quality Assurance Manager

Monitor the implementation of the QA Plan within the laboratory to ensure complete compliance with QA objectives as defined by the contract and in the QAPP. Conduct in-house audits to identify potential problems and ensure compliance with written SOP's. Responsible for supervising all aspects of the QA/QC in the laboratory. Perform validation and verification of data before the report is sent to the Laboratory Manager.

PROJECT ORGANIZATION CHART

Figure A4.1. Organization Chart - Lines of Communication

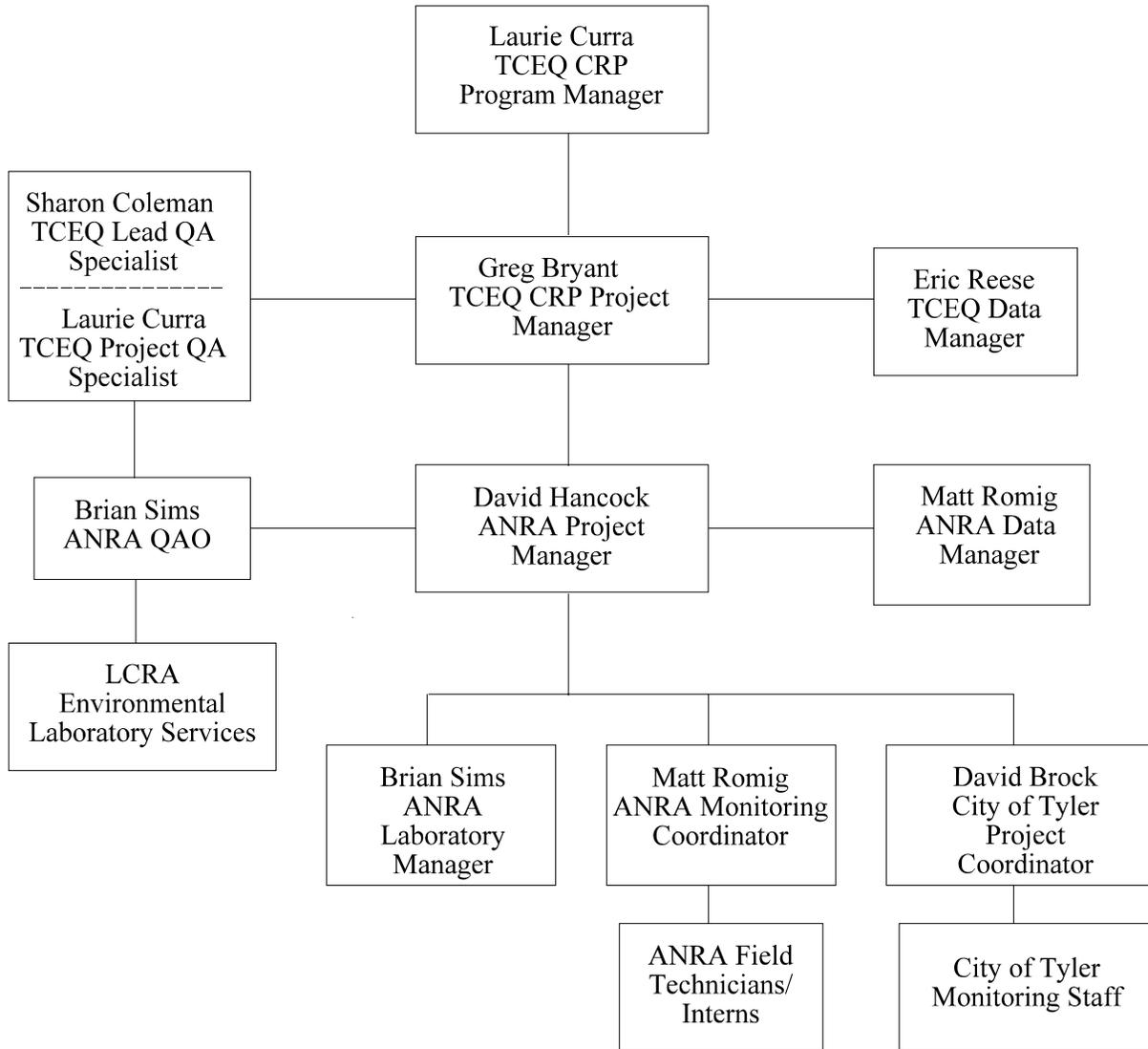


Table A7.1 - Measurement Performance Specifications

PARAMETER	UNITS	MATRIX	METHOD	PARAMETER CODE	AWRL	Lab Reporting Limit (RL)	RECOVERY AT RLs	PRECISION (RPD of LCS/LCS dups)	BIAS %Rec. of LCS	Lab
Conventional and Bacteriological Parameters										
TSS	mg/L	water	EPA 160.2	00530	4	1.0	NA	20	NA	ANRA
TDS, dried at 180 degrees C	mg/L	water	EPA 160.1	70300	10	1.0	NA	20	NA	ANRA
Sulfate	mg/L	water	EPA 375.4	00945	10	10	75-125	20	80-120	ANRA
Chloride	mg/L	water	EPA 325.3	00940	10	10	75-125	20	80-120	ANRA
Chlorophyll-a, spectrophotometric method	ug/L	water	EPA 446.0	32211	5	5	75-125	20	NA	LCRA
Pheophytin, spectrophotometric method	ug/L	water	EPA 446.0	32218	3	3	75-125	20	NA	LCRA
E. coli, IDEXX Colilert	MPN/100 mL	water	SM 9223-B	31699	1	1	NA	.5****	NA	ANRA
Ammonia-N, total	mg/L	water	EPA 350.3	00610	.02	.02	75-125	20	80-120	ANRA
Hardness, total (as CaCO3)	mg/L	water	EPA 130.2	00900	5	5	NA	20	80-120	ANRA
Nitrate/nitrite-N, total	mg/L	water	EPA 353.3	00630	.04	.04	75-125	20	80-120	ANRA
O-phosphate-P, field filter <15 min.	mg/L	water	EPA 365.2	00671	.04	.04	75-125	20	80-120	ANRA
Total Phosphorus	mg/L	water	EPA 365.2	00665	.06	.06	75-125	20	80-120	ANRA

- * Reporting to be consistent with SWQM guidance and based on measurement capability.
- ** Chlorine residual to be collected downstream of chlorinated outfalls.
- *** To be routinely reported when collecting data from perennial pools.
- **** Based on a range statistic as described in Standard Methods, 20th Edition, Section 9020-B, "Quality Assurance/Quality Control - Intralaboratory Quality Control Guidelines. This criterion applies to bacteriological duplicates with concentrations >10 MPN/100mL or 10 organisms/100mL.

References for Table A7.1:

United States Environmental Protection Agency (USEPA) "Methods for Chemical Analysis of Water and Wastes," Manual #EPA-600/4-79-020

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.)

TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue, 2003 (RG-415).

American Society for Testing and Materials (ASTM) Annual Book of Standards, Vol. 11.02

APPENDIX C: FIELD DATA SHEET

**ANGELINA & NECHES RIVER AUTHORITY
SURFACE WATER QUALITY MONITORING PROGRAM
FIELD DATA SHEET**

Sample Location: _____

Station ID: _____

Date Collected: _____

Sample Matrix: Water

Time Collected: _____

Collector(s) Name/Signature: _____

Sample Type: _____

Sample Depth: _____

Field Tests and Measurements:			Parameters Collected:		
	pH (standard units)	00400		E. Coli	Chloride
	Water Temperature °C	00010		TSS	Sulfate
	Air Temperature °C	00020		TDS	Other:
	Dissolved Oxygen (mg/L)	00300		Ammonia-N	Field Split
	Specific Conductance (µS/cm)	00094		T. NO ₃ +NO ₂	
	Secchi Depth (meters)	00078		D. Orthophosphate	
	Total Water Depth (meters)	82903		T. Phosphorus	
	Instant. Stream Flow (cfs)	00061		Chlorophyll-a	

Field Observations:	
	01351 - Flow Severity (1-no flow, 2- low, 3-normal, 4-flood, 5-high, 6-dry)
	89835 - Flow measurement method (1-gage, 2-electric, 3-mechanical, 4-weir/flume, 5-doppler)
	72053 - Days since last significant rainfall
	89966 - Present Weather (1-clear, 2-partly cloudy, 3-cloudy, 4-rain, 5-other)
	74069 - Stream Flow Estimate (cfs) **Required measurements to calculate flow estimates
	Stream Width (feet)**
	Average Depth of Stream (feet)**
	Distance Object Travels (feet)**
	Time for Object to Travel Distance (seconds)**
	COMMENTS: