

**AMENDMENT # 1 TO THE H-GAC
CLEAN RIVERS PROGRAM FY 2012/2013 QAPP**

**PREPARED BY THE HOUSTON-GALVESTON AREA COUNCIL
IN COOPERATION WITH THE
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ)**

QUESTIONS CONCERNING THIS QAPP SHOULD BE DIRECTED TO:

**JEAN WRIGHT, QUALITY ASSURANCE OFFICER
HOUSTON-GALVESTON AREA COUNCIL
P.O. Box 22777
HOUSTON, TEXAS 77227-2777
PH. (713) 499-6660
FAX (713) 993-4503
JEAN.WRIGHT@H-GAC.COM**

EFFECTIVE: IMMEDIATELY UPON APPROVAL BY ALL PARTIES

Justification: The H-GAC FY2012-2013 Regional CRP QAPP is being amended because the City of Houston, Water Quality Control Laboratory (WQC) ‘limit of quantitation’ for the parameter “nitrite” is not what TCEQ is requesting. Additionally, WQC is not NELAC accredited to analyze “nitrite” on non-potable water. WQC analyzes the water samples for both their program and the San Jacinto River Authority – Lake Conroe Division, so this amendment will include details about both local partners.

Detail of Changes: List each section in which a change is proposed and provide a description of the change(s) in the table below.

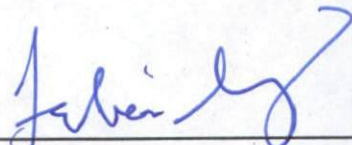
Section/Figure/Table	Page(s)	Change	Justification
Section A1 Approval Pages	6	Added Fabian Heaney and title to signature page. Changed Ying Wei’s title.	The City of Houston Water Quality Control hired a new lab director. Ying is no longer the ‘acting’ or interim director but rather the lab manager.
Section A4 Project /Task Organization	24 and 24a	Added Fabian Heaney to the QAPP list of people having duties and responsibilities. Changed Ying Wei’s duties and responsibilities.	Since Fabian Heaney was hired to be the lab director, it was appropriate to split out his responsibilities from Ying Wei’s. This made it necessary to change Ying’s duties as well.
Project Organization Charts Figures A4.1e and A4.1f	34 and 35	Changed Lab Director’s name in organization chart from Ying Wei to Fabian Heaney	Since hiring the lab director, the organization chart needed to be changed for both WQC and SJRA-Lake Conroe.
Section 2 Sampling Methods	61	Removed nitrite parameter and associated information from tables B2.1d and B2.1e.	Nitrite will not be reported by WQC as previously thought. They cannot reach the detection limit that TCEQ is asking for.
Table A7.1d – Measurement Performance Specifications for City of Houston – Water Quality Control	Appendix A	Removed nitrite from table A7.1d	WQC’s limit of quantitation is not as low as requested by TCEQ plus the parameter is not on their approved NELAP accreditation list for non-potable water.
Table A7.1d – Measurement Performance Specifications for City of Houston – Water Quality Control	Appendix A	Changed LOQ for Nitrate Nitrogen, Total from 0.05 to 0.04 mg/L	WQC has demonstrated they can reach a lower LOQ than originally thought.

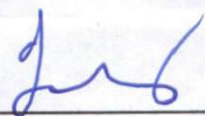
Table A7.1e – Measurement Performance Specifications for San Jacinto River Authority – Lake Conroe Division	Appendix A	Removed nitrite from table A7.1e	WQC performs all analyses for SJRA-LC program and their limit of quantitation is not as low as requested by TCEQ plus the parameter is not on WQC’s approved NELAP accreditation list for non-potable water
Table A7.1e – Measurement Performance Specifications for San Jacinto River Authority – Lake Conroe Division	Appendix A	Changed LOQ for Nitrate Nitrogen, Total from 0.05 to 0.04 mg/L	WQC has demonstrated they can reach a lower LOQ than originally thought.

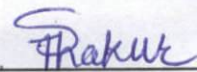
Distribution: QAPP Amendments/Revisions to Appendices will be distributed to all personnel on the distribution list maintained by the Planning Agency.

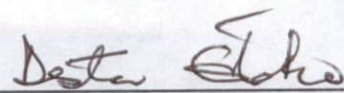
These changes will be incorporated into the QAPP document and TCEQ, H-GAC, and the City of Houston WQC will acknowledge and accept these changes by signing this amendment.

CITY OF HOUSTON, DEPARTMENT OF WATER QUALITY CONTROL (WQC)


_____ 12-5-2011
Date
Fabian Heaney
Laboratory Director


_____ 12-5-2011
Date
For: Ying Wei
Laboratory Manager / CRP Project Manager


_____ 12/5/11
Date
Shubha Thakur
Laboratory Quality Assurance Officer

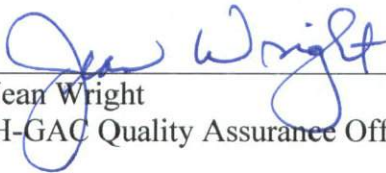

_____ 12/5/11
Date
Desta Takie
Field Quality Assurance Officer

HOUSTON-GALVESTON AREA COUNCIL (H-GAC)



Todd Running
H-GAC Project Manager

12/20/11
Date

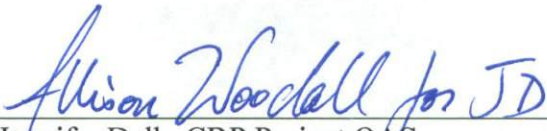


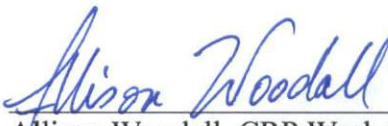
Jean Wright
H-GAC Quality Assurance Officer

12/20/11
Date

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

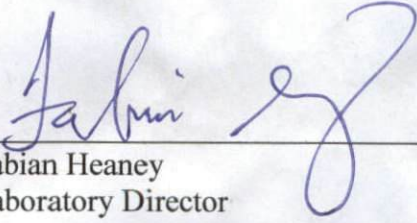

Patricia Wise, CRP Project Manager 12/21/11
Date

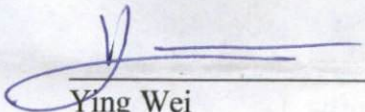

Jennifer Delk, CRP Project QAS 12/28/11
Date

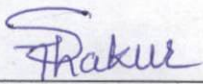

Allison Woodall, CRP Work Leader 12/28/11
Date


Daniel R. Burke, CRP Lead QAS 12/22/2011
Date

CITY OF HOUSTON DEPARTMENT OF WATER QUALITY CONTROL (WQC)


Date 11-17-2011
Fabian Heaney
Laboratory Director


Date 11-17-11
Ying Wei
Laboratory Manager / CRP Project Manager


Date 11/17/11
Shubha Thakur
Laboratory Quality Assurance Officer


Date 11/17/11
Desta Takie
Field Quality Assurance Officer

parameters and that projects are producing data of known quality. Ensures that subcontractors are qualified to perform contracted work. Ensures CRP project managers, laboratory director, and/or QA Specialists are notified of circumstances which may adversely affect quality of data derived from collection and analysis of samples. Responsible for validating that all data collected meet the data quality objectives of the project and are suitable for reporting to the TCEQ.

Linda Holman

Braeswood Laboratory Microbiology Section Technical Supervisor

Responsible for microbiology laboratory testing of samples from CRP as per CRP requirements in contracts, QAPPs, and QAPP amendments and appendices. Ensures NELAP certification in CRP parameters and that projects are producing data of known quality. Ensures that subcontractors are qualified to perform contracted work. Ensures CRP project managers, laboratory director, and/or QA Specialists are notified of circumstances which may adversely affect quality of data derived from collection and analysis of samples. Responsible for validating that all data collected meet the data quality objectives of the project and are suitable for reporting to the TCEQ.

Cyndie Boule

Braeswood Laboratory Quality Assurance Officer

Responsible for ensuring the quality system is implemented and followed. Develops, facilitates, and conducts laboratory quality assurance audits and notifies laboratory management of deficiencies (or opportunities for continuous improvement) and monitors corrective actions. Provides QC samples as per requirements of QAPP. Responsible for keeping the laboratory's *Quality Assurance Manual* current. Responsible for ensuring initial and continuing training as well as the demonstrations of capability meet NELAP acceptance criteria. Additional responsibilities include identifying, receiving, and maintaining project laboratory quality assurance records, notifying the laboratory Director, the Project Manager, and H-GAC's Project Manager of circumstances that may adversely affect the quality of data, and validating data prior to the submission of laboratory data to H-GAC.

CITY OF HOUSTON – DEPARTMENT OF WATER QUALITY CONTROL (WQC)

Fabian Heaney

Laboratory Director

Responsible for producing quality analytical data and maintaining verification of procedures for establishing the level of quality. This position supervises, manages, and provides guidance to administrative and operational support staff regarding laboratory operations, practices/policies, quality assurance, safety/security/training, information technology, legislation/regulation, and procurement/billing functions to ensure high-quality internal and external customer service. Oversees planning, development, and supervision of operational and administrative programs, evaluates, and makes improvements to operational procedures, policies, and services provided to internal and external stakeholders/customers.

Ying Wei**Laboratory Manager / CRP Project Manager**

Responsible for the day-to-day operations of the lab and supervision of lab personnel to produce quality analytical data. Maintains verification of procedures for establishing the level of quality. Ensures staff are properly trained according to prescribed procedures and laboratory techniques. Develops and revises standard operating procedures, techniques, policies and reports. Responsible for coordinating CRP activities with H-GAC Project Manager and QA Officer.

Shubha Thakur**Lab QAO / CRP QAO**

Checks training, competency, and re-training of technicians. Performs verification and validation procedures to confirm quality data is issued to clients. Performs other QA/QC duties and checks associated with lab activities. Resolves out-of-control issues. Conducts internal lab audits. Provides QC samples as per requirements of QAPP. Responsible for keeping the laboratory's *Quality Assurance Manual* current. Responsible for ensuring initial and continuing training as well as the demonstrations of capability meet NELAP acceptance criteria.

Figure A4.1e. The City of Houston, Water Quality Control (WQC) CRP Organizational Chart.

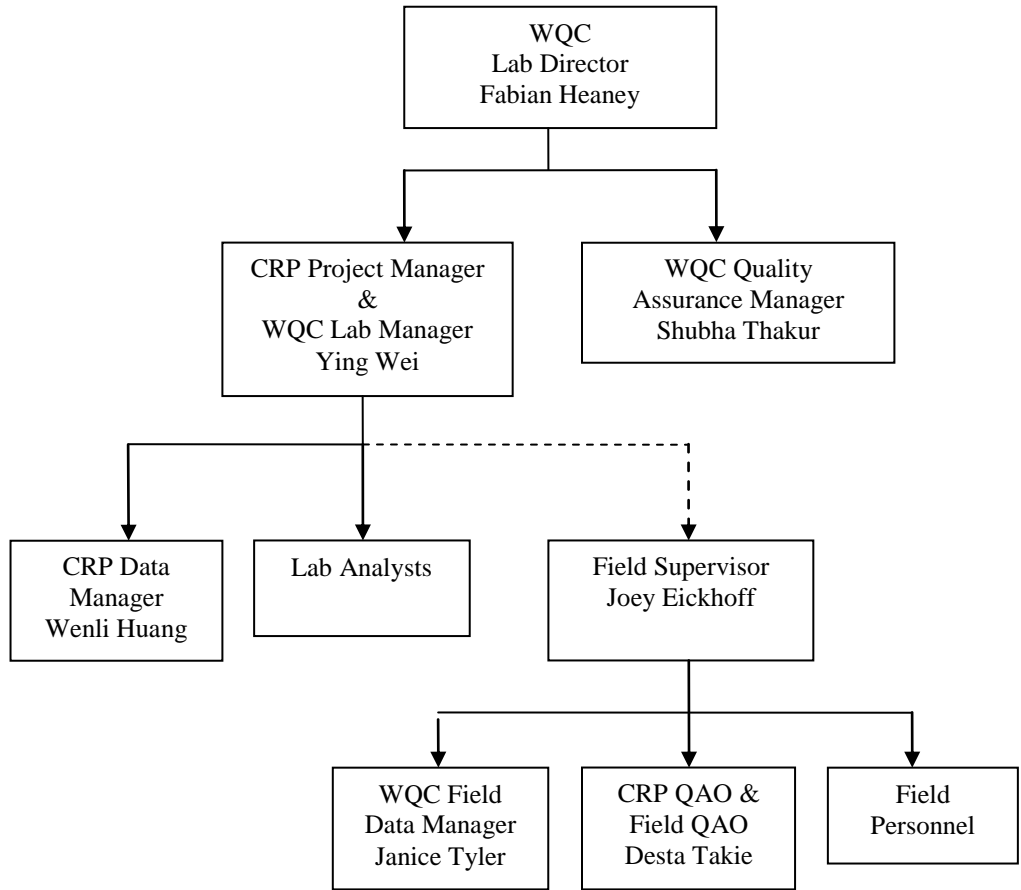


Figure A4.1f. San Jacinto River Authority, Lake Conroe Division (SJRA-LC) CRP Organizational Chart.

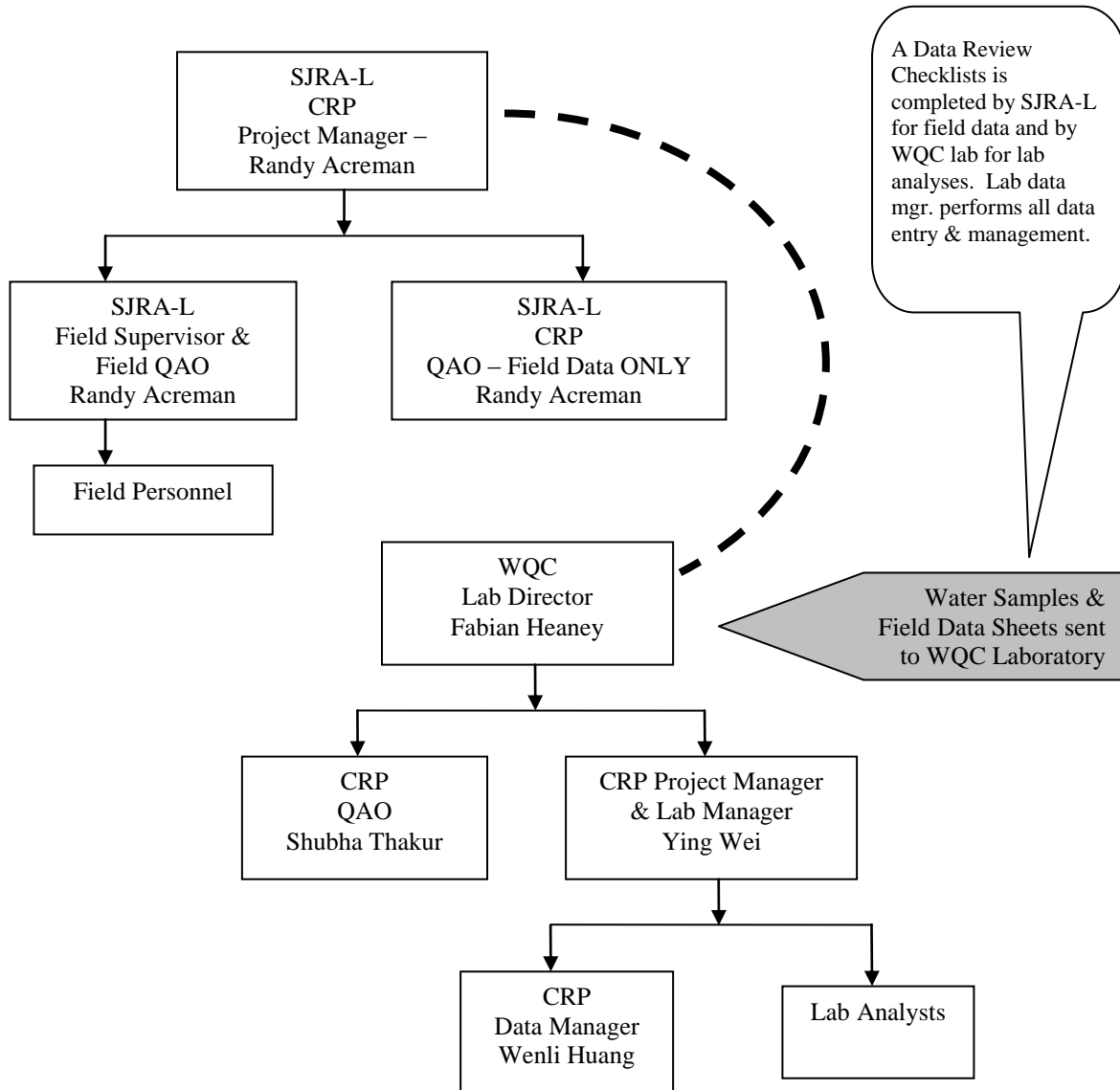


Table B2.1d Sample Storage, Preservation and Handling Requirements for WQC

Parameter	Matrix	Container	Preservation	Sample Volume	Holding Time
TSS	water	Plastic	Cool to 4°C	100 mL***	7 days
Sulfate	water	Plastic	Cool to 4°C	50 mL***	28 days
Chloride	water	Plastic	Cool to 4°C	50 mL***	28 days
<i>E. coli</i> IDEXX Colilert	water	Sterile Plastic	Cool to 4°C	100 mL	6 + 2 hours*
Enterococci IDEXX Enterolert	water	Sterile Plastic	Cool to 4°C	100 mL	6 + 2 hours
TKN	water	Plastic	Cool to 4°C H ₂ SO ₄ to pH <2	250 mL	28 days**
Ammonia-N	water	Plastic	Cool to 4°C H ₂ SO ₄ to pH <2	500 mL	28 days
Nitrate-N	water	Plastic	Cool to 4°C,	50 mL***	48 hours
Phosphorus-P, total	water	Brown, glass bottle	Cool to 4°C H ₂ SO ₄ to pH <2	125 mL	28 days
Chlorophyll- <i>a</i>	water	Brown plastic	Dark & iced before filtration; Dark & frozen after filtration	4 L	Filtered w/in 48 hours; after filtered, then frozen up to 23 days**
Alkalinity, Total	water	Plastic	Cool to 4°C	50 mL***	28 days

**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.

** Contract lab will pick up sample(s) and filter within 48 hours.

*** All tests are collected in one 500 mL plastic bottle.

Table B2.1e Sample Storage, Preservation and Handling Requirements for SJRA-Lake Conroe. Samples analyzed by WQC Laboratory

Parameter	Matrix	Container	Preservation	Sample Volume	Holding Time
TSS	water	Plastic	Cool to 4°C	100 mL***	7 days
Sulfate	water	Plastic	Cool to 4°C	50 mL***	28 days
Chloride	water	Plastic	Cool to 4°C	50 mL***	28 days
<i>E. coli</i> IDEXX Colilert	water	Sterile Plastic	Cool to 4°C	100 mL	6 + 2 hours*
TKN	water	Plastic	Cool to 4°C H ₂ SO ₄ to pH <2	250 mL	28 days**
Ammonia-N	water	Plastic	Cool to 4°C H ₂ SO ₄ to pH <2	500 mL	28 days
Nitrate-N	water	Plastic	Cool to 4°C,	50 mL***	28 days
Phosphorus-P, total	water	Brown, glass bottle	Cool to 4°C H ₂ SO ₄ to pH <2	125 mL	28 days
Chlorophyll- <i>a</i>	water	Brown plastic	Dark & iced before filtration; Dark & frozen after filtration	4 L	Filtered w/in 48 hours; after filtered, then frozen up to 23 days**
Alkalinity, Total	water	Plastic	Cool to 4°C	50 mL***	28 days

**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.

** Contract lab will pick up sample(s) and filter within 48 hours.

*** All tests are collected in one 500 mL plastic bottle.

**TABLE A7.1d - Measurement Performance Specifications for City of Houston - Water Quality Control
Conventional and Bacteriological Parameters in Water**

Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
RESIDUE, TOTAL NONFILTRABLE (MG/L) [TSS]	mg/L	water	SM 2540 D	00530	4	4	NA	NA	NA	WQC
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	EPA 350.3	00610	0.1	0.1	70-130	20	80-120	WQC
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	SM 4500-NH ₃ C *	00625	0.2	0.2	70-130	20	80-120	Eastex
NITRATE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.1 Rev. 2.1 (1993)	00620	0.05	0.04	70-130	20	80-120	WQC
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	EPA 365.3	00665	0.06	0.02	70-130	20	80-120	WQC
CHLORIDE (MG/L AS CL)	mg/L	water	EPA 300.1 Rev. 2.1 (1993)	00940	5	5	70-130	20	80-120	WQC
SULFATE (MG/L AS SO ₄)	mg/L	water	EPA 300.1 Rev. 2.1 (1993)	00945	5	5	70-130	20	80-120	WQC
E. COLI, COLILERT, IDEXX METHOD, MPN/100ML	MPN/100 mL	water	SM 9223-B***	31699	1	1	NA	0.50*	NA	WQC
E.COLI, COLILERT, IDEXX, HOLDING TIME ***	hours	water	NA	31704	NA	NA	NA	NA	NA	WQC
ENTEROCOCCI, ENTEROLERT, IDEXX, (MPN/100 ML) ****	MPN/100 mL	water	Enterolert	31701	1	1	NA	0.50*	NA	WQC
CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	ug/L	water	EPA 446.0	32211	3	3	NA	20	80-120	Eastex
ALKALINITY, TOTAL (MG/L AS CaCO ₃)	mg/L	water	SM 2320B	00410	20	20	NA	20	NA	WQC

* Eastex is accredited for SM 4500-NH₃ C but TCEQ does not accredit the prep method SM4500-Norg C which is the digestion step.
 ** This value is not expressed as a relative percent difference. It represents the maximum allowable difference between the logarithm of the result of a sample and the logarithm of the duplicate result. See Section B5.
 *** 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.
 ****Hardness is not used for regulatory purposes but is used to assess metals in water at inland sites (estuarine sites do not require hardness analysis).
 References:
 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, 2008 (RG-415).

TABLE A7.1e - Measurement Performance Specifications for San Jacinto River Authority - Lake Conroe Division

Conventional and Bacteriological Parameters in Water										
Parameter	Units	Matrix	Method	Parameter Code	AWRL	LOQ	LOQ Check Sample %Rec	Precision (RPD of LCS/LCSD)	Bias %Rec. of LCS	Lab
RESIDUE, TOTAL NONFILTRABLE (MG/L) [TSS]	mg/L	water	SM 2540 D	00530	4	4	NA	NA	NA	WQC
NITROGEN, AMMONIA, TOTAL (MG/L AS N)	mg/L	water	EPA 350.3	00610	0.1	0.1	70-130	20	80-120	WQC
NITROGEN, KJELDAHL, TOTAL (MG/L AS N)	mg/L	water	SM 4500-NH ₃ C *	00625	0.2	0.2	70-130	20	80-120	Eastex
NITRATE NITROGEN, TOTAL (MG/L AS N)	mg/L	water	EPA 300.1 Rev. 2.1 (1993)	00620	0.05	0.04	70-130	20	80-120	WQC
PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	mg/L	water	EPA 365.3	00665	0.06	0.02	70-130	20	80-120	WQC
CHLORIDE (MG/L AS CL)	mg/L	water	EPA 300.1 Rev. 2.1 (1993)	00940	5	5	70-130	20	80-120	WQC
SULFATE (MG/L AS SO ₄)	mg/L	water	EPA 300.1 Rev. 2.1 (1993)	00945	5	5	70-130	20	80-120	WQC
E. COLI, COLILERT, IDEXX METHOD, MPN/100ML	MPN/100 mL	water	SM 9223-B***	31699	1	1	NA	0.50* *	NA	WQC
E.COLI, COLILERT, IDEXX, HOLDING TIME ***	hours	water	NA	31704	NA	NA	NA	NA	NA	WQC
CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	ug/L	water	EPA 446.0	32211	3	3	NA	20	80-120	Eastex
ALKALINITY, TOTAL (MG/L AS CaCO ₃)	mg/L	water	SM 2320B	00410	20	20	NA	20	NA	WQC

* Eastex is accredited for SM 4500-NH₃ C but TCEQ does not accredit the prep method SM 4500- Norg C which is the digestion step.
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 *** 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.
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 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, 2008 (RG-415).