

# **Quality Assurance Project Plan for the Texas Commission on Environmental Quality Public Water System Supervision Program Related to the Safe Drinking Water Act**

Revision 13

Effective  
November 4, 2019

MC-155, P.O. Box 13087  
Austin, TX 78711-3087  
(512) 239-4691

## US EPA GRANTS

991020 DWSRF 10% CFDA: 66.468  
990220 - DWSRF 2% CFDA: 66.468  
991520 - DWSRF 15% CFDA: 66.468  
543220 - PWSS PPG CFDA: 66.605

US EPA Q-TRAK Number #20-054





**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**Region 6  
1201 Elm Street, Suite 500  
Dallas, Texas 75270-2902**

November 4, 2019

Mrs. Sharon Coleman  
QA Manager  
P. O. Box 13087  
Austin, Texas 78711-3087

Dear Mrs. Coleman:

We have completed our review of the Quality Assurance Project Plan (QAPP) for the Texas Commission on Environmental Quality Public Water System Supervision Program Related to the Safe Drinking Water Act which was received in this office September 27, 2019.

Enclosed are the completed QAPP signature pages for your records. In future correspondence relating to this QAPP, please reference Q-TRAK 20-054. If you have questions, please contact me at (214) 665-2775.

As a reminder, any updates required to this QAPP, prior to expiration, should be submitted to EPA, to my attention, at least 60 days prior to the expiration of this plan, or by September 04, 2020. Your assistance in ensuring that we receive an updated plan prior to the expiration of the approved plan is greatly appreciated.

Sincerely,

**DENISE  
HAMILTON**

Denise K. Hamilton  
Chief  
Community Infrastructure Section  
6WD-AI

Digitally signed by DENISE HAMILTON  
DN: c=US, o=U.S. Government,  
ou=Environmental Protection Agency,  
cn=DENISE HAMILTON,  
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Enclosure

cc: Jose Rodriguez 6WD-DD

## Introduction

This Programmatic Quality Assurance Project Plan (QAPP) documents and describes how the environmental data operations of the Texas Commission on Environmental Quality (TCEQ) Public Water System Supervision (PWSS) Program are organized, planned, implemented, and assessed. It also defines how specific quality assurance (QA) and quality control (QC) activities are conducted. This QAPP is a requirement of Environmental Protection Agency (EPA) grant funding related to the Safe Drinking Water Act (SDWA) which involves the administration and management of federal grants as listed on the cover page of this document.

This QAPP is prepared according to EPA *Requirements for QAPPs (EPA QA/R-5)*. It is updated every three years and reviewed and certified annually to incorporate organizational, program, or project changes which were implemented during the prior year. Revisions to the QAPP and annual certifications are prepared, reviewed, and submitted to the TCEQ according to the provisions of Appendix G of the TCEQ *Quality Management Plan (QMP)*.

This QAPP, effective upon EPA Approval, reflects a change in format to include individual environmental data operations of the PWSS Program within 10 separate addendums to the QAPP. The 10 PWSS Program operations are included in the TCEQ primacy agreement with the EPA. See the bulleted list in Section A5. These operations are managed by a number of different divisions and sections within the TCEQ. The PWSS Program is primarily implemented by four sections within the TCEQ Water Supply Division (WSD) of the Office of Water (OW). However, a number of sections within the Office of Compliance and Enforcement (OCE) and the Office of Waste (OOW) also have roles. The QAPP format has been revised to ensure QA and QC are adequately addressed for each operation, and to facilitate document review and future revisions. This new format does not reflect any substantive changes in how the TCEQ manages and implements the PWSS Program. For the purposes of these addenda, this document is referred to as the Programmatic QAPP.

Sections A5 and A6 provide details on the organization of the Programmatic QAPP. The Programmatic QAPP provides references to the addendums in numerous places. In general, the approval signatures on the Programmatic QAPP include section management and above. Team Leaders and program staff who are directly responsible for implementing individual programs sign the addendums. Exceptions include those addendums which address non-measurement data as described in Section B9. These are issued as laboratory guidance documents and are not signed by either the laboratories or the TCEQ. Comprehensive Compliance Investigations (CCIs) are conducted by the field offices of the OCE. CCI QA is addressed in Programmatic QAPP Addendum 5 which and is signed by both the responsible team leader and the area directors.

## List of Acronyms

<b>Acronym</b>	<b>Definition</b>
BSS	Business Support Section
CA	corrective action
CFR	Code of Federal Regulations
CMP	Contract Management Plan
CCEDS	Comprehensive Compliance and Enforcement Data System
CCI	Comprehensive Compliance Investigation
CCR	Consumer Confidence Report
COC	chain of custody
COC	contaminant of concern
CPE	Comprehensive Performance Evaluation
CRF	Change Request Form
CROMERR	Cross Media Electronic Reporting Rule
DBP	disinfection by-products
DBT	Districts Bond Team
DCRT	Districts Creation Review Team
DIR	Department of Information Resources
DLQOR	Disinfection Level Quarterly Operating Report
DS	Districts Section
DSHS	Department of State Health Services
DWAT	Drinking Water Assessment Team
DWCSC	Drinking Water Compliance Sampling Contract
DWIPT	Drinking Water Inventory and Protection Team
DWQT	Drinking Water Quality Team
DWSC	Drinking Water Sampling Contractor
DWSFS	Drinking Water Special Functions Section
DWSS	Drinking Water Standards Section
DWSRF	Drinking Water State Revolving Fund
DWTRT	Drinking Water Technical Review Team
DWSG	Drinking Water Sampling Guide
E2	Environmental Electronic Reporting System
EAR	Enforcement Action Referral
ED	Enforcement Division
EPA	Environmental Protection Agency
FOSD	Field Operations Support Division
FST	Field Support Team
GUI	groundwater under the influence of surface water
IOC	inorganic chemicals

<b>Acronym</b>	<b>Definition</b>
LAP	Laboratory Accreditation Program
LCR	Lead and Copper Rule
LCRA ELS	Lower Colorado River Authority Environmental Laboratory Services
LQAS	Laboratory and Quality Assurance Section
LT2	Long Term 2 Enhanced Surface Water Treatment Rule
MCL	maximum contaminant level
MD	Monitoring Division
mg/L	milligram per liter
NELAP	National Environmental Laboratory Accreditation Program
NDWRI	National Drinking Water Regulations Implementation
NOV	notice of violation
NPDWR	National Primary Drinking Water Regulations
NSDWR	National Secondary Drinking Water Regulations
OCE	Office of Compliance and Enforcement
OCP	Operator Certification Program
ODS	Operational Data System
OLS	Occupational Licensing Section
OOW	Office of Waste
OW	Office of Water
PDW	public drinking water
PMS	Performance Management System
PPG	Performance Partnership Grant
PRSD	Permitting and Registration Support Division
PT	proficiency testing
PRT	Plan Review Team
PTRS	Plan and Technical Review Section
PWS	public water system
PWSS	Public Water System Supervision
QA	quality assurance
QAP	quality assurance plan
QAPP	quality assurance project plan
QC	quality control
QMP	quality management plan
RAA	running annual average
RAD	radionuclides
RCDT	Response and Capacity Development Team

<b>Acronym</b>	<b>Definition</b>
RG	Regulatory Guidance
RTCR	Revised Total Coliform Rule
SDWA	Safe Drinking Water Act
SDWIS	Safe Drinking Water Information System
SOP	standard operating procedure
SPE	Special Performance Evaluation
STEERS	State of Texas Electronic Environmental Reporting System
SWA	Source Water Assessment
SWAP	Source Water Assessment and Protection
SWMOR	Surface Water Monthly Operating Report
SWP	source water protection
SWSA	Source Water Susceptibility Assessment
SWTR	Surface Water Treatment Rule
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TCR	Total Coliform Rule
THSC	Texas Health and Safety Code
TOP	Texas Optimization Program
TROT	Technical Review and Oversight Team
UTRT	Utilities Technical Review Team
WSD	Water Supply Division
WUD	Water Utilities Database

# A1 Approval Page – PWSS Programmatic QAPP

Texas Commission on Environmental Quality (TCEQ) /Office of Water (OW)

**Cari-Michel La Caille, Director**  
TCEQ/OW/Water Supply Division (WSD)

Signature:  Date: 9/23/19

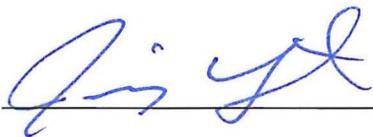
**Gary Regner, PWSS Program Quality Assurance Manager**  
TCEQ/OW/WSD

Signature:  Date: 9/13/19

**Benjamin Shields, Section Manager**  
TCEQ/OW/WSD/Business Support Section (BSS)

Signature:  Date: 9/23/19

**Jim Lancaster, Grant Manager**  
TCEQ/OW/WSD/BSS

Signature:  Date: 9/23/19

**Joel Klumpp, Manager**  
TCEQ/OW/WSD/Plan and Technical Review Section (PTRS)

Signature:  Date: 9/23/19

**Gary Chauvin, Manager**  
TCEQ/OW/WSD/Drinking Water Standards Section(DWSS)

Signature:  Date: 9/13/2019

# A1 Approval Page – PWSS Programmatic QAPP

**Michele Risko, Manager**

TCEQ/OW/WSD/Drinking Water Special Functions Section (DWSFS)

Signature:  Date: 9/19/19

**Christopher Ulmann, P.E., Manager**

TCEQ/OW/WSD/District Section (DS)

Signature:  Date: 9/19/19

# A1 Approval Page – PWSS Programmatic QAPP

Texas Commission on Environmental Quality (TCEQ) / Office of Waste (OOW)

**Jaya Zyman, P.E, Director**

TCEQ/OOW/Permitting and Registration Support Division (PRSD)

Signature:  Date: 9/16/19

**Shannon Watson, Manager**

TCEQ/OOW/PRSD/Occupational Licensing Section (OLS)

Signature: Shannon Watson Date: 9/16/19

## A1 Approval Page – PWSS Programmatic QAPP

Texas Commission on Environmental Quality (TCEQ) / Office of Compliance and Enforcement (OCE)

**Ken Lancaster, Manager**

TCEQ/OCE/Monitoring Division (MD)/ Laboratory and Quality Assurance Section (LQAS)

Signature: Ken Lancaster Date: 9/23/19

**Sharon R. Coleman, TCEQ QA Manager**

TCEQ/OCE/MD/LQAS

Signature: Sharon R. Coleman Date: 9/23/2019

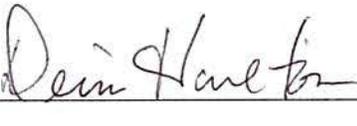
## A1 Approval Page – PWSS Programmatic QAPP

United States Environmental Protection Agency (EPA)

*for* **Javier Balli, PWSS Project Officer**  
Region 6-EPA

Signature:  Date: 10/31/2019

**Denise Hamilton, Community Infrastructure Section Chief**  
Region 6-EPA

Signature:  Date: 11/4/19

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## A3 Distribution List

The individuals listed below will receive a final copy of this QAPP, all addendums, and any subsequent revisions.

**Table A3.1. Distribution List –Internal for TCEQ**

<b>QAPP Recipients</b>	<b>Title</b>	<b>Organization</b>	<b>Contact Information</b>
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Shannon Watson	Section Manager	OOW/PRSD/OLS	<a href="mailto:Shannon.Watson@tceq.texas.gov">Shannon.Watson@tceq.texas.gov</a> (512) 239-6543

**Table A3.2. Distribution List—United States Environmental Protection Agency (Programmatic QAPP and all Addenda)**

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Amy Camacho	R6-EPA, PWSS Technical Staff	US EPA, Region 6	<a href="mailto:Camacho.Amy@epa.gov">Camacho.Amy@epa.gov</a> (214) 665-7175

## A4 Project/Task Organization

Within the TCEQ, the OW/WSD manages the PWSS Program in coordination with other groups within the agency as described in Section A6. Four sections within the TCEQ OW are primarily responsible for implementing the PWSS Program. The TCEQ OCE manages the TCEQ Laboratory Accreditation and Quality Assurance Program (LAQAP) and conducts PWS sanitary surveys (known at the TCEQ as CCIs). Although not addressed in this Programmatic QAPP, the OCE also collects complaint samples and performs enforcement activities for the PWSS Program. The OOW implements the Operator Certification Program (OCP) for the TCEQ.

The roles and responsibilities of individuals involved with the management and implementation of the PWSS Program are listed and described below. PWSS Program staff and Team Leaders involved with environmental data operations are listed and described in the Programmatic QAPP Addenda. TCEQ organizational charts are included in Exhibits A4.1 and A4.2.

### Roles and Responsibilities of Key Personnel

#### **Cari-Michel La Caille, Director, TCEQ/OW/WSD**

Supervises all sections within the WSD including the BSS, DWSS, DWSFS, DS, and the PTRS. Responsible for the implementation of the special primacy requirements related to adoption of drinking water rules, plan review and approval, compliance for chemical and microbial drinking water standards, source water assessment and protection, capacity development, inventory and grant-withholding data maintenance, and delivery of violation, action, and inventory data to EPA. Determines and documents assignments of authority and procedures concerning the development, distribution, and maintenance of standard operating procedures (SOPs) for their respective programs.

#### **Gary Regner, PWSS Program QA Manager, TCEQ/OW/WSD**

In role of PWSS Program QA Manager, coordinates development and implementation of the quality assurance program for the PWSS Program. Responsible for development and management of the QAPP, coordinating, monitoring, and reporting on corrective actions, and providing assistance and communication to program staff in areas of quality assurance.

#### **Benjamin Shields, Manager, TCEQ/OW/WSD/BSS**

Oversees staff and program activities related to federal grants to assure quality. Reviews federal grant procedures, tracks grant management and corrective actions, and ensures goals and requirement are met.

#### **Jim Lancaster, PWSS Program Grant Manager, TCEQ/OW/WSD/BSS**

Supervises the management of grants for the PWSS Program. Manager of the Performance Partnership Grant (PPG) and Drinking Water State Revolving Fund (DWSRF) Set-Aside Grants. Ensures that all deliverables are met.

#### **Gary Chauvin, Manager, TCEQ/OW/WSD/DWSS**

Manages all teams within the DWSS. Oversees the coordinated efforts of the WSD to ensure adoption of drinking water rules, compliance for chemical and microbial standards, source water assessment and protection, inventory and grant-withholding data maintenance, and delivery of action data.

**Chris Ulmann, P.E., Manager, TCEQ/OW/WSD/DS**

Manages the DS which involves monitoring water district activities, providing information to district customers, consultants, board members, and employees, reviewing applications for appointment to boards, reviewing the issuance of bonds, coordinating the review of PWS engineering plans with the Plan Review Team (PRT), and maintaining the Water District Database.

**Joel Klumpp, Manager, TCEQ/OW/WSD/PTRS**

Supervises the PTRS of the WSD, including the Technical Review and Oversight Team (TORT), the Plan Review Team (PRT), and the Response and Capacity Development Team (RCDT). The PTRS has responsibility for approval of engineered systems related to drinking water and supports capacity development through optimization, financial, managerial, and technical assistance.

**Kasy Stinson, Team Leader, TCEQ/OW/WSD/DWSS/DWQT**

Supervises the DWQT which includes compliance determination and enforcement referral support for SDWA components. Programs related to microbial and chemical drinking water quality include: Radionuclide compliance (RAD), the Revised Total Coliform Rule (RTCR), the Surface Water Treatment Rule (SWTR), the Groundwater Rule, Inorganic Chemical compliance (IOC), Disinfection By Products compliance (DBP), Organic Chemical compliance, Long Term 2 Enhanced Surface Water Treatment Rule (LT2), chlorine dioxide, chlorite, and bromate compliance, monitoring and reporting compliance, and the Consumer Confidence Report (CCR) Rule. Supervises the management and transfer of drinking water compliance data to the EPA Safe Drinking Water Information System (SDWIS).

**Emma Jones, Team Leader, TCEQ/OW/WSD/DWSFS/ DWTRT**

Supervises the DWTRT, which manages the Source Water Assessment and Protection (SWAP) Program, the Lead and Copper Rule (LCR) GIS, Groundwater Under the Influence (GUI) determinations, Section Data Support functions, and cross coordination with TROT on exception requests. The SWAP program manages related data and performs source water assessments of drinking water sources to determine their susceptibility to contaminants. Administers the source water protection program by identifying potential sources of contamination and assists water systems with best management practices. Maintains databases for SWAP data, and groundwater and surface water source locations. Provides comments regarding the geological aspects of requests for exceptions to the well construction, sanitary control easement, setback distance, and record keeping requirements of the PDW regulations.

**Patrick Kading, Team Leader, TCEQ/OW/WSD/DWSFS/DWIPT**

Supervises the DWIPT which manages all inventory tracking; monitoring plans; Notices of Violation (NOV), enforcement generation, and enforcement action referrals; and quarterly retention record keeping. Activities include registration of PWSs as regulated entities and maintaining accurate information for all PWSs in Texas, including their activity status and contact information. Oversees PWS

inventory data in SDWIS and reviews CCIs for inventory related changes and updates.

**Shannon Frazier, Public Drinking Water Liaison, TCEQ/OCE/Program Support Section (PSS)/Field Support Team (FST)**

Serves as the liaison between the TCEQ Regional Offices, the Enforcement Division, and WSD staff by providing Field Operations Support Division (FOSD) and regional office procedural updates to WSD, receiving sample collection and PWS data requirement updates from WSD, conveying SDWA rule changes to regional staff, and negotiating appropriate procedural and policy changes as programmatic needs require.

**Water Section Managers, Sixteen Regional Field Offices, TCEQ/OCE**

Responsible for supervising and monitoring the activities of field investigators to collect special investigation and complaint samples related to drinking water. Ensure completion and quality of sanitary CCIs conducted at public water systems by field investigators.

**Ken Lancaster, Manager, TCEQ/OCE/MD/ LQAS**

Supervises accreditation of laboratories used for drinking water sample analysis according to the National Environmental Laboratory Accreditation Program (NELAP). Supervises the agency-level QA functions.

**Sharon Coleman, TCEQ QA Manager, TCEQ/OCE/MD/LQAS**

Provides QA oversight for TCEQ environmental data operations in accordance with provisions of the EPA-approved QMP. Approves all QMP and QAPP documents submitted to EPA.

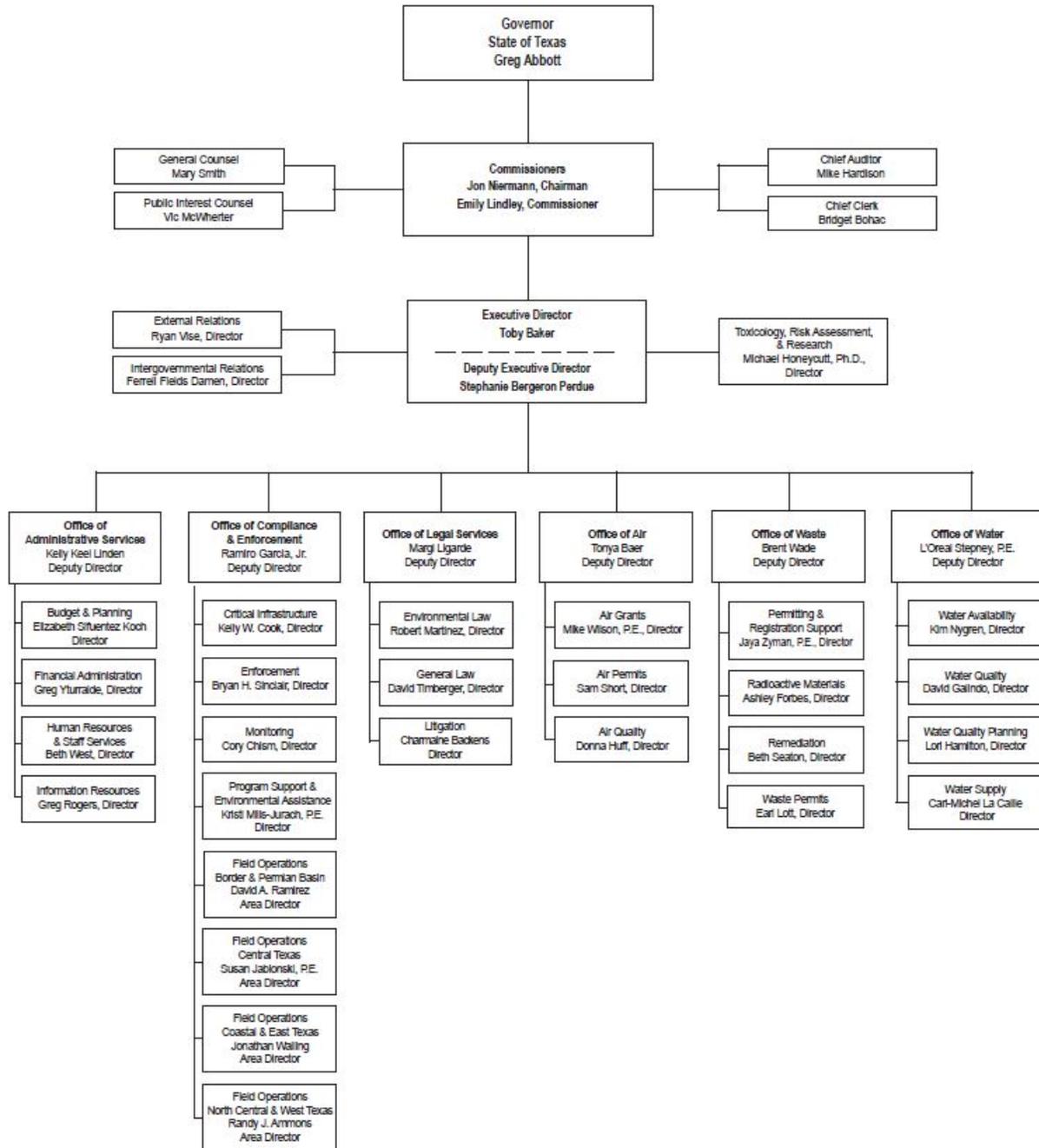
**Shannon Watson Manager, Occupational Licensing Section (OLS), TCEQ/OOW/PRSD**

Directs OLS is responsible for issuing and renewing all occupational licenses issued by the TCEQ to include Water Operators. Additionally, the section is responsible for approval of all training material and providers for both basic licensing courses and continuing education.

# Exhibits A4.1: TCEQ Organizational Chart

## TCEQ ORGANIZATION

September 1, 2019



# Exhibit A4.2: Water Supply Division Organizational Chart



**Water Supply Division**  
**Cari-Michel La Caille, Director**  
 Eria Harvey, Executive Assistant

---

**Patricia Wise, Assistant Director**  
 Jennelle Crane, Special Assistant  
 Jacolyn Saldana, Special Assistant  
 Gary Regner, PWSS Quality Assurance Specialist  
 Avery Nguyen, Rule Liaison

**OFFICE OF WATER**  
**Water Supply**  
**Division**  
**Fiscal Year 2020**



September, 2019  
117.5 FTE's

## A5 Problem Definition/Background

The SDWA, Public Law 92-523 was passed by Congress in 1974 (and amended in 1986 and 1996) to protect public health by regulating the nation's public drinking water supply. The SDWA requires many actions to protect drinking water and its sources including health based standards for drinking water to protect against both naturally-occurring and man-made contaminants. To ensure that drinking water is safe, the SDWA set up multiple barriers against pollution.

These barriers include:

- water quality testing
- source water protection
- treatment
- distribution system integrity
- public information
- water system operators certification

The most direct oversight of water systems is conducted by state drinking water programs. The State of Texas retains primary enforcement authority (primacy) for the SDWA and its regulations including Title 40 Code of Federal Regulations (CFR) Part 141, *National Primary Drinking Water Regulations* (NPDWR), 40 CFR Part 142, *NPDWR Implementation* and 40 CFR Part 143 *National Secondary Drinking Water Regulations* (NSDWR). Required elements of the TCEQ PWSS Program as follows are managed by various organizational units within the TCEQ.

- Manage and administer federal grants.
- Deliver accurate, timely PWS inventory, violation, lead/copper milestone, site visit, and action data to the EPA.
- Adopt rules at least as stringent as the NPDWRs.
- Ensure compliance monitoring and compliance determinations for chemical and microbiological standards, PWS operation and treatment technique, reporting, public notification, etc. Ensure initial raw water quality meets minimum standards before approving a new source.
- Assess the source water susceptibility of all drinking water sources in the state and provide support to help public water systems protect those source waters
- Review and approve engineering plans for PWS infrastructure.
- Support programs for capacity development including the Texas Optimization Program (TOP).
- Oversee compliance with and provide technical assistance for Homeland Security requirements for PWSs.
- Perform sanitary surveys of source, treatment, distribution, storage, pump facilities, data verification, management, operation, and operator compliance for new and existing PWSs.
- Ensure formal enforcement action for PWSs that exceed compliance trigger levels agreed upon by the TCEQ and the EPA.

- Maintain a laboratory accreditation program for the analyses in the drinking water matrix
- Maintain a licensing program for PWS operators

A number of activities (as specified in Section A6) undertaken by the TCEQ PWSS Program are considered to be environmental data operations by the TCEQ. The *TCEQ QMP*, Appendix G requires QAPPs for all environmental data operations which include, but are not limited to:

- Sampling and analysis
- Compilation or use of data collected from existing sources (acquired or secondary data)
- Development and/or use of models of environmental processes
- Collection or calculations of geospatial data

This Programmatic QAPP documents how the applicable environmental data operations are organized, planned, implemented, and assessed within the PWSS Program. It is prepared according to TCEQ and EPA requirements as specified in *EPA Requirements for QAPP (EPA QA/R-5)*. All individuals and groups who perform work related to the environmental data operations defined in this Programmatic QAPP are bound by its requirements.

All activities under the TCEQ PWSS Program and addressed under this Programmatic QAPP are funded through a combination of local and state funds, (DWSRF) Set-Aside Grants, and other PWSS Program grant funding. The funding sources for activities under the PWSS Program are identified in applicable grant work plans and award agreements on a yearly basis. The Texas PWSS Program is overseen and audited by EPA Region 6 in Dallas. EPA Region 6 performs quarterly and end-of-year reviews of the TCEQ PWSS Program.

## A6 Project/Task Description

The activities described in this section reflect the environmental data operations of the PWSS Program specified in Section A5. Note that this QAPP does not reflect all the activities of the PWSS Program, only those as defined as environmental data operations in *EPA Requirements for QAPP EPA/QA/R-5* and the *TCEQ QMP*. See Section A5.

The WSD is responsible for referring PWSs for enforcement and reporting drinking water enforcement activities to the EPA. Otherwise, enforcement is the responsibility of the OCE/Enforcement Division (ED). The OCE operates according to procedures and protocols developed by the OCE which are designed to meet their objectives. This QAPP does not include the activities of the ED regarding how PWS enforcement cases are planned, implemented, and assessed.

The PWSS Program environmental data operations listed and summarized below are performed by TCEQ staff, contractors, public water system personnel, and laboratories, both private and public. For ease of review and to facilitate future revisions, this QAPP utilizes a modular approach to organize the individual operations and describe how they are managed, implemented, and assessed. Each summary explains how the modules are organized within addendums to the Programmatic QAPP.

### Environmental Data Operation Summaries

#### 1. Collection and use of chemical compliance data, including sample collection, analysis, reporting, and compliance determination

The WSD is responsible for determining compliance of PWSs with requirements related to water quality (chemical) standards contained in the Primary and NPDWR and NSDWR (40 CFR Part 141 and 143) and 30 Texas Administrative Code (TAC) §290 Subchapter F *Drinking Water Standards Governing Drinking Water Quality and Reporting Requirements for Public Water Systems*. These rules require the collection and analysis of drinking water samples to determine whether chemical contaminants are present in public drinking water above the limits set by regulation.

The collection of chemical samples is performed by sampling staff under contract with the TCEQ. The analysis and reporting of sample results are the responsibility of TCEQ-designated drinking water compliance laboratories. The collection, analysis, and reporting of sample results are addressed in Programmatic QAPP Addendum 1—*Sampling, Analysis, and Reporting of Chemical Compliance Data*. All chemical samples collected by and analyzed for the TCEQ PWSS Program are subject to the requirements in this Programmatic QAPP Addendum 1.

The activities associated with project oversight, data management, and compliance determinations are performed by TCEQ WSD staff and are addressed within the body of this Programmatic QAPP. TCEQ personnel compare drinking water sample analysis results with 30 TAC §290.38-122 specifications. The water sample analysis results either meet or exceed the designated levels. If they exceed the maximum contaminant level (MCL), the TCEQ takes appropriate actions in accordance with 30 TAC §290.101-122. If these criteria are not met, the TCEQ will provide the system

with documentation outlining the violation that occurred and/or what corrective actions the water system must take. If a PWS' sample results exceed a primary drinking water MCL, those data will be submitted to the OCE on an Enforcement Action Referral (EAR) for development of an Agreed Order, and assessment of fines or other penalties, as appropriate. Enforcement activities performed by OCE are not addressed in this QAPP.

## **2. Acquisition and Use of Compliance Data under the Lead and Copper Rule (LCR)**

The TCEQ is responsible for determining public water system compliance with the LCR contained in the NPDWR (40 CFR Part 141) and 30 TAC §290 Subchapter F *Drinking Water Standards Governing Drinking Water Quality and Reporting Requirements for Public Water Systems*.

The EPA issued the LCR in 1991 pursuant to the SDWA following studies that concluded that elevated concentrations of lead and copper have an adverse effect on individuals. The LCR sets action levels for lead of 0.015 milligrams per liter (mg/L) and copper of 1.3 mg/L in public drinking water at the consumer's tap. The LCR limits lead and copper by improved water treatment, determining copper and lead levels for customers who use lead plumbing parts, and eliminating the water source as a source of lead and copper. Exceedance of the action levels are based on 90th percentile level of first-draw, tap water samples. An exceedance of the action level is not a violation but can trigger other requirements that include water quality parameter monitoring, corrosion control treatment, source water monitoring and treatment, public education, and lead service line replacement.

The LCR requires that first draw samples be collected by property owners in homes or buildings from taps that have been dormant for at least six hours. PWSs acquire the samples from the homeowners and deliver the samples to one of approximately 30 accredited laboratories. The laboratories analyze the samples for lead and copper content and report the results to the TCEQ. TCEQ personnel manage the data, make compliance determinations, and take exceedance actions as needed, including water quality parameter monitoring.

The sampling, analysis, and reporting of lead and copper data and the water quality parameters are addressed in Section B9 as "non-measurement" data because they are generated by third parties and no TCEQ funding is tied to sample collection, analysis, and reporting. However, for the data to be used by the TCEQ, specific collection, analysis, and reporting requirements must be followed by all the participants, including PWS personnel, the homeowners, and the laboratories. The requirements are included in the Programmatic QAPP Addendum 2—*Guidance for Collection, Analysis and Reporting of Lead and Copper Tap Water Samples under the Lead and Copper Rule*, and Addendum 3—*Guidance for Collection, Analysis and Reporting of Water Quality Parameters under the Lead and Copper Rule*. All lead and copper and water quality parameter samples collected and analyzed for the TCEQ PWSS Program are subject to the requirements in these documents.

The activities associated with oversight, data management, and compliance determinations are performed by various TCEQ WSD staff and are addressed within

the body of this Programmatic QAPP. Enforcement activities performed by OCE are not addressed in this QAPP.

### **3. Acquisition and Use of Data under the RTCR**

The TCEQ is responsible for determining PWS compliance with requirements related to the RTCR contained in the NPDWR (40 CFR Part 141). The EPA published the RTCR in the Federal Register on February 13, 2013 with minor corrections on February 26, 2014. The RTCR is the revision to the 1989 Total Coliform Rule (TCR) and is intended to improve public health protection. The RTCR became effective on April 1, 2016.

Key provisions of the RTCR include:

- Setting a maximum contaminant level goal and Maximum Contaminant Level (MCL) for *E. coli* for protection against potential fecal contamination.
- Setting a total coliform treatment technique requirement.
- Requirements for monitoring total coliforms and *E. coli* according to a sample siting plan and schedule specific to the PWS.
- Provisions allowing PWSs to transition to the RTCR using their existing TCR monitoring frequency, including PWSs on reduced monitoring under the existing TCR.
- Requirements for seasonal systems (such as Non-Community Water Systems not operated on a year-round basis) to monitor and certify the completion of a state-approved start-up procedures.
- Requirements for assessments and corrective action when monitoring results show that PWSs may be vulnerable to contamination.
- Public notification requirements for violations.
- Specific language for community water systems to include in their CCRs if they must conduct an assessment or there's an *E. coli* MCL violation.

The sampling, analysis, and reporting requirements for total coliforms and *E. coli* are addressed in Section B9 of this document as non-measurement data because they are collected by third parties and no state or federal funding is tied to their collection, analysis, and reporting. However, for the data to be used by the TCEQ, collection, analysis, and reporting requirements must be followed by all the participants, including the PWS personnel and the laboratories. These requirements are provided in Programmatic QAPP Addendum 4—*Guidance for Collection, Analysis and Reporting under the Revised Total Coliform Rule*.

The activities associated with oversight, data management, and compliance determinations are performed by TCEQ staff and are addressed within the body of this Programmatic QAPP. Enforcement activities performed by OCE are not addressed in this document.

### **4. Comprehensive Compliance Investigations (CCI)**

The TCEQ conducts CCIs to evaluate the adequacy of public water systems to produce and deliver safe drinking water on a sustainable basis. CCIs are conducted by the TCEQ Regional Offices of the OCE. The requirements for CCIs are contained within 40 CFR Part 142 *National Drinking Water Regulations Implementation*

(NDWRI), and 30 TAC §290 Subchapter F *Drinking Water Standards Governing Drinking Water Quality and Reporting Requirements for Public Water Systems*.

Data related to the investigations are transferred from OCE/Area & Regional Offices for data entry and quality control within the Water Utilities Database (WUD) and SDWIS. Compliance data from CCIs that are required for Texas legislative reporting and enforcement are maintained in the Comprehensive Compliance and Enforcement Data System (CCEDS). Data that are gathered or confirmed through CCIs and required to be reported to the EPA are maintained in SDWIS.

Within this QAPP, all TCEQ activities associated with CCIs (with the exception of enforcement) are addressed in Programmatic QAPP Addendum 5—*Comprehensive Compliance Investigations*. This includes the WSD activities to receive, migrate, and manage CCI data in SDWIS.

## **5. Source Water Assessments**

The TCEQ WSD is responsible for implementing the SDWA amendments of 1996, which require States to prepare a source-water susceptibility assessment (SWSA) for each PWS to protect them from contamination. The amendments require the determination of source water for each PWS, the origin of any potential source of contamination (PSOC), and the susceptibility of the PWS to PSOC exposure. In 2003, the TCEQ sent out SWSA Reports to more than 6,000 PWSs, representing more than 18,000 surface-water intakes or groundwater wells and 247 individual PSOCs. Currently, SWSAs are prepared for systems wishing to participate in the SWAP; approximately 12-15 water systems a year.

The source water protection element of the SWAP program was originally established as a well head protection program, but has been expanded to include surface water protection activities. Source Water Protection (SWP) is a voluntary program, so efforts to improve protection consist of technical assistance and providing information on the benefits of source water protection to the regulated community through direct outreach from the DWSFS. The SWP aspect of the SWAP Program is a public outreach activity rather than an environmental data operation. As such, it is not addressed in this QAPP.

Within this QAPP, the TCEQ activities associated with WSAs (with the exception of enforcement) are addressed in Programmatic QAPP Addendum 6—*Source Water Susceptibility Assessments*.

## **6. Review and Approval of Engineering Plans for Public Water Systems**

The TCEQ processes for reviewing engineering plans for new and modified PWSs ensure that facilities meet TCEQ minimum design requirements, as established in 30 TAC §290, consistent with the primacy requirements of 40 CFR Part 142. The regulations require that TCEQ review completed plans and specifications and business plans for all contemplated PWSs not exempted by the *Texas Health and Safety Code* (THSC), §341.035(d). The statute also requires the TCEQ be notified so it can review and approve subsequent material changes, improvements, additions, or alterations in existing systems and consider compliance history in approving new or modified PWS.

Within this QAPP, all TCEQ activities associated with engineering plan review and approval are addressed in Programmatic QAPP Addendum 7—*Review and Approval of Public Water System Engineering Plans*.

## **7. Texas Optimization Program Performance Evaluations**

The TOP is designed to improve the performance of existing surface water treatment plants without major capital improvements. Specifically, the goal of optimization is to lower the risk of waterborne disease by reducing the number of pathogenic organisms that pass through a treatment plant. The TOP is an element of the TCEQ capacity development function under the primacy agreement with the EPA for the PWSS Program.

Optimization activities in Texas focused initially on conducting Comprehensive Performance Evaluations (CPEs), and gradually expanded into a multifaceted, statewide effort which also includes Special Performance Evaluations (SPEs).

To conduct both SPEs and CPEs, TCEQ personnel develop performance targets for each major unit in the surface water treatment plant; monitor the performance of each major treatment unit within the plant; analyze the data to determine if each unit is achieving the desired performance level; and report optimization activities related to compliance with SWTR compliance to PWSs for their appropriate follow up.

Within this QAPP, the TCEQ activities associated with the Texas Optimization Program (TOP) performance evaluations are addressed in Programmatic QAPP Addendum 8—*Texas Optimization Program Evaluations*. The implementation of corrective action recommendations of both CPEs and SPEs are the responsibility of the PWS. As such, they are not addressed in this QAPP.

## **8. Treatment Technique and Disinfectant Residual Data**

The TCEQ WSD is responsible for determining compliance of PWSs with requirements related to treatment and disinfectant residual standards contained in the NPDWR (40 CFR Part 141) and 30 TAC §290 Subchapter F *Drinking Water Standards Governing Drinking Water Quality and Reporting Requirements for Public Water Systems*. These include:

- §290.110 Disinfection Residuals
- §290.111 Surface Water Treatment
- §290.112 Total Organic Carbon
- §290.116 Groundwater Corrective Action and Treatment Techniques

These rules include requirements for PWSs to analyze samples and/or measure other variables (e.g., flow) to determine whether the PWS is operating correctly and/or treating water within the regulation limits. These data and information are reported to the TCEQ for maintenance and compliance determinations.

Within this QAPP, acquisition of these data and information by the TCEQ is addressed in Section B9 as non-measurement data because their collection is performed by PWS facility personnel, rather than by the TCEQ. However, for the data to be acquired and used by the TCEQ, rules regarding collection, analysis, and reporting requirements apply and must be followed by all participants. These

include the TCEQ requirements for “approved laboratories.” These requirements are provided in Addendum 9—*Acquisition of Treatment Technique and Disinfectant Residual Data*.

### **9. Special Studies and Investigations**

The TCEQ WSD staff collects process control and special request samples, and conducts special investigations as needed. These events are “out of the ordinary” and sometimes involve public health and environment issues of immediate concern. When these events occur, a QAPP template is used to document the quality assurance requirements associated with the environmental data collection activities. The QAPP template is designed as a fill in the blank document that can be prepared quickly with an expedited signature process so that field activities are not delayed. The template includes the instructions for completing, signing, and distributing the template. The completed Special Investigation QAPPs are maintained by the PWSS Program QA Manager with the Programmatic QAPP. The QAPP template is provided in Addendum 10-- *Special Investigation QAPP Template*.

## **A7 Quality Objectives and Criteria**

### **PWSS Program Objective**

The objective of the PWSS Program is to fulfill the requirements of the SDWA to ensure that water produced and distributed by PWSs is safe to drink. The data and information collected by and for the PWSS Program are used to determine the compliance status of all PWSs. Consequently, as the state's environmental agency, the TCEQ can provide better protection of the health of all Texas citizens currently served by a public water system and all those who consume water from such systems.

All operations outlined in this QAPP are also consistent with the following TCEQ philosophies of how to accomplish its clean water mission by:

- Basing decisions on the law, common sense, sound science, and fiscal responsibility
- Applying regulations clearly and consistently
- Ensuring consistent, just, and timely enforcement when environmental laws are violated

The users of the data collected for the PWSS Program include, but are not limited to:

- TCEQ staff
- EPA staff and EPA SDWIS
- public drinking water industry members
- PWS users and operators
- Texas citizens
- environmental groups

### **Environmental Data Operation Objectives and Criteria**

All environmental data operations undertaken by the PWSS Program are designed to meet its overall objective to ensure that water produced and distributed by a PWS is safe to drink. In addition, all operations employ only methods and techniques determined to produce measurement data of a known and verifiable quality that will meet the overall objectives of the SDWA. Most of the operations of the PWSS Program include but are not limited to the quality objectives stated below. Their applicability to specific data operations are described in the addendums to this QAPP.

#### **Accuracy**

Accuracy is a reflection of bias and precision of a product or measurement, which reflects the closeness of the product or measurement to a true value. It is the policy of the TCEQ PWSS Program not to use estimated data ("J" flagged) for compliance purposes as reflected in the laboratory addendums to this document.

#### **Comparability**

Comparability refers to the degree in which results are considered to be similar under similar circumstances.

## **Completeness**

The completeness of the data and information is basically a relationship of how much of the data or information is available for use compared to the total potential data.

## **Representativeness**

Representativeness refers to the degree to which the data and information accurately represent a specific variable in the population (i.e., how well the data reflects the conditions where it was collected).

## **Data Integrity**

Drinking water data and information are managed in such a way to ensure the confidentiality, integrity, and availability of data and information. Data management policies and procedures ensure data and information are recoverable and only used for their intended purposes.

## **Compliance**

All TCEQ requirements associated with its environmental data operations have been developed to be consistent with state rules and federal regulations pursuant to the SDWA. This ensures all compliance and enforcement actions taken by the TCEQ are fair and justifiable.

## **Constraints on Meeting Objectives**

Time constraints for this program are set by the SDWA and 30 TAC §290.38-275. Resource constraints including staff, salaries, vehicles, travel, outside contracts, other private labs, and the drinking water compliance sampling contractor, are determined by TCEQ *Operating Policies and Procedures* (OPP) and by the Texas State Legislature.

## **A8 Special Training/Certification**

All individuals performing work under this QAPP have the experience and technical competency to satisfactorily perform all tasks assigned. In general, TCEQ staff performing work for the PWSS Program meet job qualifications as described in functional job descriptions, and participate in training programs as defined by the *TCEQ QMP*. Applicable training and certification for the individual environmental data operations are addressed within the addendums to this QAPP listed below.

- Addendum 1—*Sampling, Analysis, and Reporting of Chemical Compliance Data*
- Addendum 2—*Guidance for Collection, Analysis and Reporting of Lead and Copper Tap Water Samples under the Lead and Copper Rule*
- Addendum 3—*Guidance for Collection, Analysis and Reporting of Water Quality Parameters Analysis under the Lead and Copper Rule*
- Addendum 4—*Guidance for Collection, Analysis and Reporting under the Revised Total Coliform Rule*
- Addendum 5—*Comprehensive Compliance Investigations*
- Addendum 6—*Source Water Susceptibility Assessments*
- Addendum 7—*Review and Approval of Public Water System Engineering Plans*
- Addendum 8—*Texas Optimization Program Evaluations*
- Addendum 9—*Acquisition of Treatment Techniques and Disinfectant Residual Data*
- Addendum 10—*Special Investigation QAPP Template*

## **TCEQ Accreditation of Drinking Water Laboratories**

To receive and retain primacy, Texas [40 CFR Part 142.10(b)(4)] retains laboratory facilities capable of performing analytical measurements for all the federally mandated contaminants specified in the drinking water regulations. The TCEQ is responsible for accrediting drinking water laboratories consistent with the requirements of 30 TAC §25. A current list of accredited laboratories is maintained with the analytes, methods, and matrices for which accreditations are established. The EPA maintains authority for certification of microbiological testing and for organic, inorganic, and radiochemical testing according to 40 CFR Parts 141 and 142 at the State's principal compliance laboratory, the Laboratory Services Section of the Texas Department of State Health Service (DSHS).

At the TCEQ, the accreditation of laboratories is the primary responsibility of the LQAS within the MD of the OCE. The LQAS is responsible for auditing and accrediting laboratories per state rule 30 TAC §25. TCEQ implements a detailed application and audit process to grant accredited status. TCEQ laboratory audit reports for accredited laboratories are retained by the Laboratory Accreditation Program's Records Specialist for ten years.

The LQAS also assists, when requested, the WSD in ensuring that drinking water samples are analyzed at accredited laboratories.

The rules, checklists, and procedures by which the LQAS operates the TCEQ Accreditation Program are on the TCEQ web site at [https://www.tceq.texas.gov/field/qa/env\\_lab\\_accreditation.html](https://www.tceq.texas.gov/field/qa/env_lab_accreditation.html).

How this program is organized, planned, implemented, and assessed is not addressed in this *Programmatic QAPP*.

### **TCEQ Laboratory Approval**

PWS samples used to determine compliance with treatment techniques and disinfectant residual requirements under 30 TAC §110, 30 TAC §111, 30 TAC §112, and 30 TAC §116, as well as the water quality parameters under 30 TAC §117, must be run at a laboratory “approved by the Executive Director.” These samples include but are not limited to turbidity, free chlorine, chlorine dioxide, combined chlorine, alkalinity, total organic carbon, entry point chlorite, pH, conductivity, calcium, phosphate, and silica. PWSs are required to submit a laboratory approval form as part of their monitoring plan. The TCEQ work instruction *Laboratory Approval* includes the form and provides instructions for entering related information in the SDWIS. The DWQT is responsible for implementing the laboratory approval process.

### **PWS Operator Certification**

The production, treatment, and distribution facilities at the PWSs must be operated at all times (with some exceptions) under the direct supervision of a water works operator who holds an applicable, valid license issued by the TCEQ. To become licensed as a public water system operator, an applicant must: complete the required course training, meet the required education, meet the required experience, complete the TCEQ application and pay the fee, and pass the applicable exam (minimum score of 70 percent). The TCEQ Occupational Licensing Section of the Permitting and Registration Support Division of the Office of Waste implements the agency program for licensing PWS operators at PWSs, including a list of current licenses in accordance with the requirements of 40 CFR Parts 141 and 142, and 30 TAC §30 Subchapters A & K. The WSD assists with aspects of operator certification in coordination with the OCE by identifying, whenever possible, operators misusing their licenses. Otherwise, how this program is organized, planned, implemented, and assessed is not addressed in this QAPP.

## **A9 Documents and Records**

Documents that specify quality-related instructions and requirements of the PWSS Program are consistent with state and federal statutory, regulatory, and contractual requirements and serve their intended use. Records are prepared and maintained so as to reflect the achievement of the required quality for the completed work and also to fulfill statutory, regulatory, and contractual requirements. This section of the QAPP summarizes the quality-related documents and records affecting the quality of work for all the PWSS Program environmental data operations which are conducted by the WSD. Program-specific documents are described in the individual program addendums to this QAPP.

### **PWSS Program Documents**

PWSS Program documents that specify quality-related requirements and instructions include: the TCEQ QMP, this PWSS Program QAPP, Program Guidance, SOP, TCEQ Regulatory Guides, and grants and contracts. These documents are summarized below. TCEQ WSD staff prepare and maintain separate documents and records for each data operation defined in Section A6. These documents and records are listed and described in general below.

#### **TCEQ QMP**

The *TCEQ QMP* documents and describes the organizational arrangement, processes, procedures, and requirements of the TCEQ QA Program. The document reflects the TCEQ commitment to the principles of quality assurance and quality control for all applicable programs, including the PWSS Program.

#### **QAPP**

The PWSS Program QAPP is prepared, reviewed, approved, distributed, maintained, and revised according to EPA requirements and procedures described in the TCEQ QMP. The QAPP is effective for three years after the EPA approval date with annual review and certification. After the QAPP is approved by EPA, the PWSSP QA Manager distributes copies to each individual referenced in Section A3 by agency mail, e-mail, or posting on the TCEQ's website. The QAPP is maintained according to the TCEQ Records Retention Schedule.

#### **SOPs**

WSD SOPs are proposed, reviewed, and approved by staff and managers of various programs and reflect current practices. New SOPs and revisions to existing SOPs are uniquely identified. Each new SOP (and revision of an existing SOP) must be approved, prior to issuance, by the Division Director, or designee(s), and division or agency QA staff where appropriate. SOPs include the following, as appropriate: purpose; scope and applicability; personnel qualifications/training; definitions; procedure; safety; records; references; and tables, diagrams, flowcharts and forms.

#### **Program Guidance**

The TCEQ WSD provides numerous program guidance documents and forms on their website at <<https://www.tceq.texas.gov/drinkingwater>>. These documents pertain to environmental data operations described in this *Programmatic QAPP* and

include links to rules and regulations, the lead and copper program, source water protection, requirements for new systems, and PWS operation and treatment.

### **TCEQ Regulatory Guidance**

The TCEQ has developed a number of regulatory guidance (RG) documents related to the PWSS Program as listed below which direct quality-related activities. RG documents are maintained according to the TCEQ Records Retention Schedule and can be accessed at <<https://www.tceq.texas.gov/publications/rg>>. They are designed to help PWSs know and understand the federal and state rules and regulations as well as TCEQ requirements that apply to PWS operation and testing, records management, and TCEQ Reporting.

- RG-211—*Monthly Testing and Reporting of Surface Water Treatment Plants*
- RG-407—*Disinfectant Residual Reporting for Public Water Systems*
- RG-421—*Coliform Sampling for Public Water Systems*
- RG-384—*How to Develop a Monitoring Plan for a Public Water System*
- RG-195—30 TAC Chapter 290 Subchapter D: *Rules and Regulations for Public Water Systems*
- RG-346—30 TAC 290 Subchapter F: *Drinking Water Standards Governing Drinking Water Quality and Reporting Requirements for Public Water Systems*
- RG-379—*Total Organic Carbon Guidance Manual*
- RG-496—*You're a Public Water System, Now What?*
- RG-501—*Managing Small Public Water Systems*
- RG-459—*Small Public Water System Training Manual*

### **Grants and Contracts**

A number of PWSS Program grants and contracts govern PWSS Program environmental operations. TCEQ procurements procedures are documented in Chapter 2.0 of the TCEQ OPPs and the TCEQ *Guide for Administrative Procedures Manual*. Grants and contracts are implemented according to EPA (as applicable) and TCEQ requirements per the TCEQ *Contract Management Handbook* at <<http://www.tceq.texas.gov/adminservices/contracts/>>. Grants and contracts contain QA terms and conditions to ensure adequate quality.

### **PWSS Program QA Records**

QA records furnish objective evidence of the quality of items or of activities that have been verified and authenticated as technically complete and correct. WSD QA records include letters, reports, as well as manual and electronically recorded data. Official State Records Assignments of authority and procedures concerning the identification, verification, authentication, handling, retention, and disposition of records needed to safeguard the legal and financial rights of the State of Texas and any person directly affected by activities of the TCEQ are contained in TCEQ OPP 13.02. Program designees maintain program-specific QA records and ensure that these records are identified in the Records Retention Schedule. Within the PWSS Program, the responsibility of quarterly retention record keeping falls to the Drinking Water Inventory and Enforcement Team. All records, as applicable, are maintained according to SDWA requirements.

## Document and Record Summaries by Operation

### 1. Collection and use of chemical compliance data

Documents and records associated with chemical sampling, analysis, and reporting that describe, specify, certify, and report on related activities are addressed in Programmatic QAPP Addendum 1—*Sampling, Analysis, and Reporting of Chemical Compliance Data*. Documents and records supporting TCEQ management and oversight of sampling, analysis, and reporting as well as the receipt, migration, quality assurance, management, and analysis of data and information by WSD staff are listed in this section.

Document or Record	Description	Location
<b>WSD Management and Oversight</b>		
<i>PWSS Program Addendum 1 - Sampling, Analysis, and Reporting of Chemical Compliance Data</i>	QAPP Addendum to PWSSP QAPP documenting QA/QC practices related to chemical sampling, analysis, and reporting. Distributed to each person/organization on the list in Section A3.	J:\PDW\QualityAssurance\PWSSP_QAPP\QAPP for EPA\2019 QAPP
Drinking Water Compliance Sampling Contract	Contract between the TCEQ and the sampling contractor authorizing chemical sampling of drinking water to ensure protection of public health. Signed and retained by the TCEQ and Antea.	J:\PDW\1 D W Q\Contractors\Sampling Contract\582-14-40020_FY14-FY16
Sampling Schedule and Amendments	List of PWS sampling sites compiled by the TCEQ from PWS Monitoring Plans. The TCEQ provides to Antea at the beginning of the fiscal year with monthly updates thereafter.	J:\PDW\1 D W Q\Chem\Data
TCEQ #12-06 Authorization to Collect Chemical Compliance Water Samples	TCEQ document distributed to the sampling contractor to train and certify samplers. Used by the contractor to demonstrate proficiency of its samplers in data collection and site identification techniques, basic PWS information, etc.	J:\PDW\1 D W Q\SOPs and WIs\SampleCollection\Approved
Drinking Water Sampling Guide	Primary TCEQ Sampling Guidance based on state and federal rules, regulations, and requirements, including analytical method requirements. Distributed to all sampling personnel.	J:\PDW\QualityAssurance\PWSSP_QAPP\QAPP for EPA\2019 QAPP
<b>WSD Receipt, Migration, Quality Assurance, Management, and Analysis of Data</b>		
Document or Record	Description	Location
Hard copies of sampling results, site selection forms and records, corrected reports, and corrective action reports from contractor	Maintenance of records according to SDWA requirements. Filed at the Central Office of TCEQ in Austin, Texas according to official state records program. Records are retained at the central office and are transferred to microfiche or scanned to electronic format as time and monetary constraints allow.	Central File Room
Hard copy analysis reports and records from laboratories	Maintenance of records according to SDWA requirements. Filed at the Central Office of TCEQ in Austin, Texas according to official state records program. Records are retained at the central office and are transferred to microfiche or scanned to electronic format as time and monetary constraints allow.	Central File Room

Document or Record	Description	Location
<b>WSD Receipt, Migration, Quality Assurance, Management, and Analysis of Data (continued)</b>		
Electronic data from laboratories	Sample and result records containing sampling and analytical results.	J:\PDW\IDWQ\Chem\Data\LABDATA\SDWIS\Data Files
SDWIS Lab Data Import Log	Records the file name, # of sample/results, and date received.	J:\PDW\4 Data Quality\1SDWIS\Laboratory Data\SDWIS_DataImportModule.accdb
SDWIS Data Import Module	Database used to quality-assure data.	J:\PDW\4 Data Quality\1SDWIS\Laboratory Data\SDWIS_DataImportModule.accdb
SDWIS_DataQC.xlsx	Tracks 5% review of migrated data.	J:\PDW\4 Data Quality\1SDWIS\Laboratory Data

## 2. Acquisition and Use of Lead and Copper and Water Quality Parameter Data under the LCR

Documents and records associated with sampling, analysis, and reporting that describe, specify, certify, and report on these activities are addressed in Addendum 2 –*Guidance for Collection, Analysis and Reporting of Tap Water Samples under the Lead and Copper Rule*, and Programmatic QAPP Addendum 3—*Guidance for the Collection, Analysis and Reporting of Water Quality Parameters under the Lead and Copper Rule*.

Documents, records, and forms associated with the TCEQ LCR management and oversight as well as the receipt, migration, quality assurance, management, and analysis of data and information by WSD staff are listed in this section.

Document or Record	Description	Location
<b>WSD Management and Oversight</b>		
<i>Addendum2—Guidance for Collection, Analysis and Reporting of Tap Water Samples under the Lead and Copper Rule</i>	QAPP Addendum to PWSSP QAPP documenting QA/QC practices related to lead and copper sampling, analysis, and reporting. Distributed to each person/organization on the List in Section A3.	J:\PDW\QualityAssurance\PWSSP_QAPP\QAPP for EPA\2019 QAPP
<i>Addendum3—Guidance for Analysis and Reporting of Water Quality Parameters under the Lead and Copper Rule</i>	QAPP Addendum to PWSSP QAPP documenting QA/QC practices related to water quality parameter sampling, analysis, and reporting. Distributed to each person/organization on the List in Section A3.	J:\PDW\QualityAssurance\PWSSP_QAPP\QAPP for EPA\2019 QAPP
PWS Sampling Instructions	Sampling Instructions for PWSs corresponding to initial monitoring (6M1 and 6M2) and reduced monitoring.	<a href="https://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper/lead-copper.html">https://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper/lead-copper.html</a>
Initial and Reduced Sampling Schedules	List of PWSs that must have lead and copper samples collected and analyzed in a given monitoring period.	<a href="https://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper/lead-copper.html">https://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper/lead-copper.html</a>
TCEQ Lead and Copper Program Homeowner Tap Sample collection Procedures (English and Spanish)	Instructions for homeowners on how to collect samples and coordinate with the PWS.	<a href="https://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper/lead-copper.html">https://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper/lead-copper.html</a>

Document or Record	Description	Location
<b>WSD Management and Oversight (continued)</b>		
PDW Work Instruction - Laboratory Approval	TCEQ procedures designed to help the TCEQ review, grant, or deny lab approval for commercial and PWS laboratories that wish to test public drinking water compliance samples.	J:\PDW\1 D W Q\Programs\Labs and Lab Approval\Wi\LabApproval_WI_draft_V2
TCEQ Form 20967	Form for PWSs to provide to TCEQ with addresses from previously approved sampling pool.	chemicals/lead_copper/lead-copper.html
TCEQ Form 20683	LCR Chain of Custody, accompanies sample bottles to the laboratory for analysis.	<a href="https://www.tceq.texas.gov/drinkingwater/">https://www.tceq.texas.gov/drinkingwater/</a>
TCEQ Form 20495	Form and instructions to document corrosion control studies to be used when action levels for lead and copper are exceeded.	chemicals/lead_copper/lead-copper.html
TCEQ Form 20680a	Lead Consumer Notice for community water systems. Used by PWSs to report and certify customer lead results after the PWS receives the analytical results back from the laboratory.	<a href="https://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper/lead-copper.html">https://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper/lead-copper.html</a>
TCEQ Form 20680b	Lead Consumer Notice for NTNC. Used by PWSs to report and certify customer lead results after the PWS receives the analytical results back from the laboratory.	<a href="https://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper/lead-copper.html">https://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper/lead-copper.html</a>
TCEQ Form 20679	Collection and reporting form for PWSs to use for water quality parameter field and laboratory results.	<a href="https://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper/lead-copper.html">https://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper/lead-copper.html</a>
TCEQ Form 20507	Form for PWSs to use when requesting nine year monitoring schedules.	<a href="https://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper/lead-copper.html">https://www.tceq.texas.gov/drinkingwater/chemicals/lead_copper/lead-copper.html</a>
PDWS Work Instruction Laboratory Approval	Form and Instructions for PWSs, commercial laboratories, or water treatment facilities to use when analyzing water quality parameters by a TCEQ "approved" laboratory rather than a TCEQ accredited laboratory.	J:\PDW\1DWQ\Programs\Lab and Lab Approval\WI
<b>WSD Receipt, Migration, Quality Assurance, Management, and Analysis of Data</b>		
PDWS Work Instruction Template – Chemical Data Migration and Quality Control.	Describes the process to quality-assure and migrate chemical data into SDWIS.	J:\PDW\1 D W Q\SOPs and WIs
Hard copies of sampling results, site selection forms and records, corrected reports, and corrective action reports from sampling contractor	Maintenance of scanned records according to SDWA requirements filed at the Central Office of TCEQ in Austin, Texas according to official state records requirements.	Central File Room
Hard copy analysis reports and records from laboratories	Maintenance of scanned records according to SDWA requirements filed at the Central Office of TCEQ in Austin, Texas according to official state records program.	Central File Room
Electronic data from laboratories, compliance determination data, TCEQ data verification data, etc.	Data maintained in SDWIS per SDWA requirements.	J:\PDW\1DWQ\PBCU\LCR EDD

Document or Record	Description	Location
<b>WSD Receipt, Migration, Quality Assurance, Management, and Analysis of Data (continued)</b>		
SDWIS Lab Data Import Log	Records the file name, # of sample/results, and date received.	J:\PDW\4 Data Quality \1SDWIS\Laboratory Data\SDWIS_DataImportModule.accdb
SDWIS Data Import Module	Database used to quality-assure data.	J:\PDW\4 Data Quality \1SDWIS\Laboratory Data\SDWIS_DataImportModule.accdb
SDWIS_DataQC.xlsx	Track 5% review of migrated data.	J:\PDW\IDWQ\PBCU\LCR Data QAQC

### 3. Acquisition and use of compliance data under the RTRC, including sample collection, analysis, reporting, and compliance

Documents and records associated with sampling, analysis, and reporting that describe, specify, certify, and report on these activities are addressed in Programmatic QAPP Addendum 4—*Guidance for Analysis and Reporting under the Revised Total Coliform Rule*. Documents, records, and forms associated with management and oversight of sampling, analysis, and reporting as well as the receipt, migration, quality assurance, management, and analysis of data and information by WSD staff are listed in this section.

Document or Record	Description	Location
<b>TCEQ Management and Oversight</b>		
<i>Addendum 4 Guidance for Collection, Analysis and Reporting under the Revised Total Coliform Rule</i>	QAPP Addendum to PWSSP QAPP documenting QA/QC practices by PWSs and laboratories for sampling, analysis, and reporting. Distributed to each person/organization on the List in Section A3	J:\PDW\QualityAssurance\PWSSP_QAPP\QAPP for EPA\2019 QAPP
<i>State of Texas Environmental Reporting System</i>	Web-based tool maintained by the TCEQ for laboratories to report total coliform/E.coli data.	<a href="https://www3.tceq.texas.gov/steers/">https://www3.tceq.texas.gov/steers/</a>
<i>Electronic Environmental Drinking Water Report (E2-DWR) System Laboratory User Guide</i>	TCEQ Guide for laboratories to use when reporting electronic total coliform and <i>E. coli</i> data.	<a href="https://www.tceq.texas.gov/drinkingwater/e2-reporting-system">https://www.tceq.texas.gov/drinkingwater/e2-reporting-system</a>
E2 Online Data Entry Quick Reference Guide – Option 1	TCEQ Guide for online data entry by laboratories using the online Microbial Monitoring Form.	<a href="https://www.tceq.texas.gov/drinkingwater/e2-reporting-system">https://www.tceq.texas.gov/drinkingwater/e2-reporting-system</a>
E2 Online Data Upload Quick Reference Guide – Option 2	TCEQ Guide for online data entry by laboratories that create their own CSV file consistent with TCEQ schema structure and data formats/attributes.	<a href="https://www.tceq.texas.gov/drinkingwater/e2-reporting-system">https://www.tceq.texas.gov/drinkingwater/e2-reporting-system</a>
TCEQ Form 10525 Microbial Monitoring Form	TCEQ Form for PWSs to document the collection of samples. Submitted to the laboratories with samples and serves as Chain of Custody Form.	J:\PDW\2DWPT\TCR\Forms\TCR lab forms\Microbial Monitoring Form
Drinking Water Watch	Web-enabled application that retrieves drinking water related information from SDWIS including name of system, addresses, type, contact information, sources(s) of water, number of monthly routine samples required, etc.	<a href="http://dww2.tceq.texas.gov/DWW/">http://dww2.tceq.texas.gov/DWW/</a>
SDWIS/State/3.33	Database of record for drinking water compliance information.	<a href="http://sdwis2.tceq.tx.gov:8090/SDWIS/jsp/secure/index.jsp">http://sdwis2.tceq.tx.gov:8090/SDWIS/jsp/secure/index.jsp</a>

Document or Record	Description	Location
<b>TCEQ Management and Oversight</b>		
Negative Sample Entry Work Instruction	TCEQ document that describes the protocol for manually entering negative compliance samples into the SDWIS database on a monthly basis. The samples are received via mail by TCEQ within the first 10 days of the month following the prior compliance period on Microbial Monitoring Forms. These samples include positive, negative, repeat, raw well, construction, and special samples. The sample data are used to determine compliance for routine and repeat violations for each system.	J:\PDW\1 D W Q\SOPs and WIs\TCR\Working
TCEQ Microbial Monitoring Positive Result Report Form	TCEQ form provided to laboratories for them to report positive results.	J:\PDW\2-DWPT\TCR\Form\TCR lab form\Positive fax form
TCR Positive Sample Invalidation Request Form	TCEQ form to be used by PWSs to request that a sample result be invalidated in accordance with 40 CFR §141.853(c).	J:\PDW\1 D W Q\TCR\Invalidation
<b>WSD Receipt, Migration, Quality Assurance, Management, and Analysis of Data</b>		
SOP #01-06 Daily List Positives	Describes the protocol for TCEQ staff to follow when they receive a faxed notification of a positive sample.	J:\PDW\1 D W Q\TCR\TCR SOPs
Electronic data from laboratories.		SDWIS
Hard copies of positive sampling results from laboratories and Microbial Monitoring Positive Report Form	Used to perform daily List Procedure and maintain records according to SDWA requirements	Central File Room
Compliance Sampling Tracking Spreadsheet	TCEQ spreadsheet used to track PWSs that need to be checked once compliance samples have been received.	J:\PDW\ 1 D W Q\TCR\CALL LIST
Copies of acute MCL and non-acute letters sent to PWSs.	Documentation of TCEQ actions following positive samples.	J:\PDW\eBusiness
Records of phone conversations with PWS following verifications of violations	Documentation of TCEQ actions following positive samples.	J:\PDW\eBusiness
Records of phone conversations with laboratories following E. coli positives	Documentation of TCEQ actions following positive samples	J:\PDW\eBusiness
Daily List	List of all positive TC and E. coli samples that have been entered into SDWIS. Allows TCR FTE to perform a quality-assurance check on the data entry. Used by Administrative Staff to generate letter to PWSs.	J:\PDW\2 DWPT\TCR\Daily Lists
Bridge Schedule	Modified sampling schedule when repeat samples are required.	SDWIS
Compliance Decision Support (CDS) Report	CDS is executed on a daily basis (Monday – Friday). It generates candidate violations for compliance officers to review. Compliance officers determine the validity of the violation(s) and take the appropriate action.	SDWIS

#### **4. Sanitary Surveys (CCIs)**

All documents and records associated with CCIs that describe, specify, certify, and report on assessment information and data are addressed in Programmatic QAPP Addendum 5—*Comprehensive Compliance Investigations*.

#### **5. Source Water Susceptibility Assessments**

Documents and records associated with Source Water Susceptibility Assessments that describe, specify, certify, and report on assessment activities are addressed in Programmatic QAPP Addendum 6—*Source Water Susceptibility Assessments*.

#### **6. Review and Approval of PWS Engineering Plans**

Documents and records associated the TCEQ review and approval of engineering plans that describe, specify, certify, and report on environmental activities are addressed in Programmatic QAPP Addendum 7—*Review and Approval of Public Water System Engineering Plans*.

#### **7. TOP**

Documents and records associated with the Texas Optimization Program that describe, specify, certify, and report on programmatic evaluations are addressed in Programmatic QAPP Addendum 8—*Texas Optimization Program Evaluations*.

#### **8. Acquisition and Use of PWS Treatment Technique and Disinfectant Residual Data**

Documents and records associated with the TCEQ oversight and acquisition of PWS treatment technique and disinfectant residual data that describe, specify, certify, and report on activities are addressed in Programmatic QAPP Addendum 9—*Acquisition of Treatment Technique and Disinfectant Residual Data*.

#### **9. WSD Special Investigation Data**

Documents and records associated with WSD special studies and investigations that describe, specify, certify, and report on activities are addressed in completed Special Investigation QAPPs as described in Programmatic QAPP Addendum 10—*Special Investigation QAPP Template*.

## B1 Sampling Process Design

This section of the QAPP addresses the PWSS Program data collection designs for applicable environmental data operations involving the collection of samples. All PWSS Program sample process designs are consistent with SDWA requirements. Sampling and sample management of drinking water for analysis and testing pursuant to the criteria of this section is performed in accordance with the sample planning, methodology and equipment, and the sample processing, documentation and custody procedures specified in federal regulations related to PDW (40 CFR Parts 141, 142 and 143) as well as state rules pertaining to PDW monitoring plans (30 TAC §290.121).

The development of sample designs within the PWSS Program involves the submittal of monitoring plans by the PWS to the TCEQ which the WSD incorporates into sampling plans and maintains. The TCEQ provides guidance to PWSs on how to develop a monitoring plan in their regulatory guidance RG-384—*How to Develop a Monitoring Plan for a Public Water System*.

The NPDWR specifies sampling sites whereby spatial variability is related to the locations at which samples are collected. The TCEQ maintains GPS location data for source and entry point locations. Locational data are used during sampling to ensure accuracy and consistency. Every water system is required to maintain an up-to-date monitoring plan listing all sample sites.

A list of sample sites for bacteriological monitoring is maintained by the system and reviewed during the CCI. Chemical sampling sites located within the drinking water distribution system are reviewed by DWQT staff on a case-by-case basis. Microbial sub-team staff members review a subset of sampling site lists. Sample sites for turbidity, disinfectant residual, total organic carbon, and disinfection byproducts (trihalomethanes and haloacetic acids) are included as part of the monitoring plan. Unless specifically required by rule, all drinking water quality chemical monitoring is conducted at sample sites representing entry points to the water distribution system. These locations provide the most representative data for water quality that has been treated and is available for human consumption. Entry point sample sites for inorganic and organic chemicals are reviewed by the DWQT. Sampling sites for the lead/copper monitoring are submitted on the Lead/Copper Sample Site Selection form and every form submitted is reviewed by staff. The proposed lead/copper sample sites are reviewed and approved by staff. As stated above, all sample collection site arrangements are either specified or presented as guidelines provided in the federal regulations to minimize spatial variability.

The sampling process designs applicable to individual PWSS Program operations are described in the addendums of this QAPP as indicated below. The individual addendums listed below include applicable sampling design information such as sampling schedule, types of samples, number of samples, sampling locations, quality control samples, replacement samples, etc. Note that all but the first addendum involve the acquisition and use of non-measurement data by the TCEQ as described in Section B9.

- Addendum 1—*Sampling, Analysis, and Reporting Requirements for Chemical Compliance Data*

- *Addendum 2—Guidance for Collection, Analysis and Reporting of Lead and Copper Samples under the Lead and Copper Rule*  
*Addendum 3—Guidance for Collection, Analysis and Reporting of Water Quality Parameters under the Lead and Copper Rule*
- *Addendum 4—Guidance for Collection, Analysis and Reporting under the Revised Total Coliform Rule*
- *Addendum 9—Acquisition and Use of Treatment Technique and Disinfectant Residual Data*

## B2 Sampling Methods

Sampling and sample management of drinking water for analysis and testing pursuant to the criteria of this section is performed in accordance with the sample planning, methodology and equipment, and the sample processing, documentation and custody procedures specified in federal regulations related to PDW (40 CFR Parts 141, 142 and 143) and state rules (30 TAC §290).

The sampling methods for individual PWSS Program operations are described in the addendums of this Programmatic QAPP as indicated below. The individual addendums listed below include or reference applicable sampling method information and requirements such as descriptions of sample/field measurement collection procedures, use of forms, lists of equipment needed, identification of performance requirements, decontamination procedures, contingency plans, etc. The sampling methods help to ensure that samples will be comparable and representative by specifying requirements for consistent sample collection by all collectors with no contamination being introduced during collection.

- Addendum 1—*Sampling, Analysis, and Reporting of Chemical Compliance Data including the Drinking Water Sampling Guide*
- Addendum 2—*Guidance for Collection, Analysis and Reporting of Lead and Copper Samples under the Lead and Copper Rule*
- Addendum 3—*Guidance for Collection, Analysis and Reporting of Water Quality Parameters under the Lead and Copper Rule*
- Addendum 4—*Guidance for Collection, Analysis and Reporting under the Revised Total Coliform Rule*
- Addendum 9—*Acquisition and Use of Treatment Technique and Disinfectant Residual Data*

## **B3 Sample Handling and Custody**

The principle of sample custody accounts for a sample's integrity from the moment the portion of drinking water is placed in a sample container until all analytical tests have been completed and the results recorded. This means that proper sample custody is a joint effort of the sample collector, shipper, and laboratory staff.

This section of the QAPP references how sample custody is implemented within the PWSS Program, including the use of TCEQ standardized forms, signature requirements, sample labels, etc. Sample custody is implemented in accordance with sample handling and custody procedures specified in federal regulations related to public drinking water (40 CFR Parts 141, 142 and 143) and state rules (30 TAC §290).

The sample custody requirements and protocols for individual PWSS Program operations are described in the addendums of this QAPP as indicated below.

- Addendum 1—*Sampling, Analysis, and Reporting of Chemical Compliance Data including the Drinking Water Sampling Guide*
- Addendum 2—*Guidance for Collection, Analysis and Reporting of Lead and Copper Samples under the Lead and Copper Rule*
- Addendum 3—*Guidance for Collection, Analysis and Reporting of Water Quality Parameters under the Lead and Copper Rule*
- Addendum 4—*Guidance for Collection, Analysis and Reporting under the Revised Total Coliform Rule*
- Addendum 9—*Acquisition and Use of Treatment Technique and Disinfectant Residual Data*

## B4 Analytical Methods

This section of the QAPP describes the analytical method requirements applicable to laboratories and others that perform analyses for the PWSS Program. The EPA-approved analytical methods for drinking water analyses are specified in 40 CFR Part 141 *NPDWR* and 40 CFR Part 142 *NSDWR*. Each laboratory that is used for compliance is required to be fully compliant with all federal regulations regarding analytical methods. This includes, but is not limited to, adherence to EPA-approved drinking water methods, required detection limits, and reporting requirements. Adherence to the approved methods is the responsibility of the QA Officer of each individual laboratory. The analytical methods used by each laboratory have been reviewed by the TCEQ for acceptability. Methods are verified by the TCEQ during sample/result QC and migration. Lab employees refer method failure to their respective QA Officers. If the issue will cause a disruption in the flow of acceptable data to TCEQ, the QA Officer notifies the TCEQ. If the laboratory produces a written investigation/correction report, copies are provided to the PDW Quality Assurance Manager. Additionally, if the TCEQ becomes aware of analytical procedure changes mandated by the EPA, the laboratories are immediately notified. Usually, the lab QA Officers have received the information directly from the EPA.

The analytical method requirements for the individual PWSS Programs, including requirements for detection and reporting limits, corrective actions in the case of analytical failure, and laboratory accreditation and/or approval requirements are described in the addendums of this QAPP as indicated below.

- Addendum 1—*Sampling, Analysis, and Reporting of Chemical Compliance Data including the Drinking Water Sampling Guide*
- Addendum 2—*Guidance for Collection, Analysis and Reporting of Lead and Copper Samples under the Lead and Copper Rule*  
Addendum 3—*Guidance for Collection, Analysis and Reporting of Water Quality Parameters under the Lead and Copper Rule*
- Addendum 4—*Guidance for Collection, Analysis and Reporting under the Revised Total Coliform Rule*
- Addendum 9—*Acquisition and Use of Treatment Technique and Disinfectant Residual Data*

## **B5 Quality Control**

Quality control (QC) practices are those technical activities routinely performed to control the effects of potential variability in sample collection, measurements, and analysis. This section references the checks that are performed for each environmental data operation of the PWSS Program to control variability. Quality control practices are performed in accordance with federal regulations related to public drinking water (40 CFR Parts 141, 142 and 143) and state rules (30 TAC §290).

The quality control activities for individual PWSS Program operations are described in the addendums of this QAPP as indicated below. The individual addendums listed below include the quality control checks, acceptance criteria, and corrective actions in the event of an excursion.

- Addendum 1—*Sampling, Analysis, and Reporting of Chemical Compliance Data including the Drinking Water Sampling Guide*
- Addendum 2—*Guidance for Collection, Sampling and Analysis of Lead and Copper Samples under the Lead and Copper Rule*
- Addendum 3—*Guidance for Collection, Analysis and Reporting of Water Quality Parameters Analysis under the Lead and Copper Rule*
- Addendum 4—*Guidance for Collection, Analysis, and Reporting under the Revised Total Coliform Rule*
- Addendum 5— *Comprehensive Compliance Investigations*
- Addendum 6—*Source Water Susceptibility Assessments*
- Addendum 7—*Review and Approval of Public Water System Engineering Plans*
- Addendum 8—*Texas Optimization Program Evaluations*
- Addendum 9—*Acquisition of Treatment Techniques and Disinfectant Residual Data*
- Addendum 10—*Special Investigation QAPP Template*

### **Sample Invalidations**

All sample/result invalidations must be approved by the PWSS Program Quality Assurance Manager (PWSS QAM), or through documented procedures approved by the PWSS QAM. All decisions to invalidate samples or results must be documented thoroughly with supporting information that corroborates the decision to invalidate. The sample/result must be properly commented in SDWIS to indicate the reason(s) for invalidation.

## **B6 Instrument/Equipment Testing, Inspection, and Maintenance**

All instruments/equipment used on behalf of the PWSS Program are inspected upon receipt and assured appropriate for use. All instruments/equipment must meet specifications listed in federal regulations related to public drinking water (40 CFR Parts 141, 142 and 143) and state rules (30 TAC §290).

This section of the QAPP references how equipment and/or systems needing periodic maintenance, testing, or inspection are performed and documented. The instrument testing, inspection, and maintenance requirements for applicable PWSS Program operations are indicated below.

- Addendum 1—*Sampling, Analysis, and Reporting of Chemical Compliance Data including the Drinking Water Sampling Guide*
- Addendum 2—*Guidance for Collection, Sampling and Analysis of Lead and Copper Samples under the Lead and Copper Rule*
- Addendum 3—*Guidance for Collection, Analysis and Reporting of Water Quality Parameters Analysis under the Lead and Copper Rule*
- Addendum 4—*Guidance for Collection, Analysis, and Reporting under the Revised Total Coliform Rule*
- Addendum 5—*Comprehensive Compliance Investigations*
- Addendum 8—*Texas Optimization Program Evaluations*
- Addendum 9—*Acquisition of Treatment Techniques and Disinfectant Residual Data*

## **B7 Instrument/Equipment Calibration and Frequency**

All instruments and devices used on behalf of the PWSS Program have a specialized procedure for calibration and a special type of standard used to verify calibration. This section of the QAPP describes/references how instruments/equipment used to generate data for the PWSS Program are calibrated and at what frequency. At a minimum, all calibration procedures will meet the requirements specified in the EPA-approved methods of analysis and are documented in a SOP. It is a general rule that the means and frequency of calibration recommended by the manufacturer of the equipment or devices and any instruction given in an analytical method is followed. Calibration records are kept by the person performing the calibration and are accessible for verification during either an audit, investigation, or other type of evaluation. The frequency of calibration for approved laboratories at public water systems must meet the requirements of 30 TAC §290.46(s).

Field equipment needing periodic calibration and/or verification include, but is not limited to, equipment for disinfectant residual analysis, thermometers, pressure measuring equipment, pH meters, and conductivity meters. Laboratory equipment needing calibration and/or verification include but are not limited to analytical balances, thermometers, spectrophotometers, ion chromatographs, gas chromatographs, etc. Calibration methods and records for all laboratory analytical equipment and reagents used to analyze drinking water compliance samples are the responsibility of the respective laboratory's QA Officer.

The instrument calibration requirements for the individual PWSS Program operations are included in addendums as listed below.

- Addendum 1—*Sampling, Analysis, and Reporting of Chemical Compliance Data including the Drinking Water Sampling Guide*
- Addendum 2—*Guidance for Collection, Sampling and Analysis of Lead and Copper Samples under the Lead and Copper Rule*
- Addendum 3—*Guidance for Collection, Analysis and Reporting of Water Quality Parameters Analysis under the Lead and Copper Rule*
- Addendum 4—*Guidance for Collection, Analysis, and Reporting under the Revised Total Coliform Rule*
- Addendum 5— *Comprehensive Compliance Investigations*
- Addendum 8—*Texas Optimization Program Evaluations*
- Addendum 9—*Acquisition of Treatment Techniques and Disinfectant Residual Data*
- Addendum 10—*Special Investigation QAPP Template*

## **B8 Inspection/Acceptance of Supplies and Consumables**

This section of the Programmatic QAPP references how critical supplies and consumables related to the environmental data operations of the PWSS Program are inspected and accepted. Not all projects involve supplies or consumables considered “critical” to the project.

Supplies and consumables used in the field or by the analytical laboratories are the responsibility of the individual group supervisor, group manager, team leader or QA officer.

Information related to consumables for the individual data operations are addressed in the following addendums.

- Addendum 1—*Sampling, Analysis, and Reporting of Chemical Compliance Data including the Drinking Water Sampling Guide*
- Addendum 2—*Guidance for Collection, Sampling and Analysis of Lead and Copper Samples under the Lead and Copper Rule*
- Addendum 3—*Guidance for Collection, Analysis and Reporting of Water Quality Parameters Analysis under the Lead and Copper Rule*
- Addendum 4—*Guidance for Collection, Analysis, and Reporting under the Revised Total Coliform Rule*
- Addendum 5— *Comprehensive Compliance Investigations*
- Addendum 8—*Texas Optimization Program Evaluations*
- Addendum 10—*Special Investigation QAPP Template*

## B9 Non-Direct Measurements

The PWSS Program acquires data from a number of sources and uses them to make compliance and enforcement decisions pursuant to the SDWA. Because these data are generated and submitted by third party laboratories and PWSs, they are treated as non-measurement data under this Programmatic QAPP. These data include

- Lead and copper results to determine compliance with the LCR 30 TAC §290.117
- Water quality parameter results to determine compliance with the LCR 30 TAC §290.117
- Total Coliform and *E. coli* results to determine compliance with the RTCR 30 TAC §290.
- Treatment technique and disinfectant residual data to determine compliance with 30 TAC §290.110, §290.111, §290.112, and §290.116

The TCEQ PWSS Program provides numerous forms, RGs, and instructions online that are used to collect, analyze, and report these data. These requirements have been developed by the TCEQ PWSS Program to be consistent with federal regulations and state rules. The requirements for the collection and reporting of these data are included in the following addendums to this document.

- *Addendum 2—Guidance for Collection, Sampling and Analysis of Lead and Copper Samples under the Lead and Copper Rule*
- *Addendum 3—Guidance for Collection, Analysis and Reporting of Water Quality Parameters under the Lead and Copper Rule*
- *Addendum 4—Guidance for Collection, Analysis, and Reporting under the Revised Total Coliform Rule*
- *Addendum 9—Acquisition of Treatment Techniques and Disinfectant Residual Data*

The documents listed above summarize the data operations and objectives, identify roles and responsibilities, and describe the quality assurance requirements to ensure proper data collection and reporting occurs. The TCEQ data acceptance protocols for data collected under the LCR and the RTCRs are described in Section D2. The TCEQ data acceptance protocols for treatment technique and disinfectant residual data are described in Programmatic QAPP Addendum 9.

## **B10 Data Management**

This section of the QAPP describes/references how environmental data and information are generated, reported, migrated, and managed by the PWSS Program, including the data from non-measurement sources. The PWSS Program data management practices as well as hardware and software requirements and configurations are consistent with the SDWA as specified in federal regulations (40 CFR Parts 141, 142 and 143) and state rules (30 TAC §290). The TCEQ Information Security Program (1 TAC §202) helps ensure the confidentiality, integrity and availability of PWSS Program data and information.

Additional information regarding data management practices for specific operations are included in the addendums to this QAPP as described throughout this section.

### **PWSS Program Database of Record**

The database of record for PWS inventory data, sample results, schedules, compliance determinations, violations, and actions data is SDWIS.

The current database of record for enforcement actions undertaken by TCEQ is the CCEDS database. The ED of OCE provides data for enforcement actions related to violations of the TCEQ drinking water rules to WSD. These data are compiled with violation data, migrated into SDWIS and provided to the EPA on a quarterly basis.

### **Computer Network**

TCEQ server environment is managed by the State of Texas vendor (DCS), contracted by the Department of Information Resources. It consists of a combination of RedHat Linux 5, Novell NetWare 6.5, and Microsoft Server 2012 R2.

The minimum client configuration is based on a Dell OptiPlex 780 which is an Intel Core 2 Duo E850D machine with 2 GB of RAM and minimum 160 GB hard disk space running Windows 7 Professional, 64-bit Operating System.

TCEQ internal network topology is Fast Ethernet, running at 1 Gbps. Our local backup system is IBM Tivoli Storage Manager writing to a tape library, while most servers at the DCS use Netbackup.

All users have Internet/Intranet connectivity.

The printers are primarily HP Laserjets ranging from the 5si series to the 9040 series. There are also leased Xerox multi-function copiers with network printing capabilities.

The Department of Information Resources (DIR) has documented procedures to be followed for demonstrating the acceptability of the hardware/software configuration required.

### **Electronic Data Reporting**

Beginning in 2015, PWSs and laboratories began submitting data electronically for the Disinfection Level Quarterly Operating Reports (DLQOR) and microbial samples using the Electronic Environmental (E2) Reporting System application. Data submitted via the E2 application use the State of Texas Electronic Environmental Reporting System (STEERS) and are compliant with the EPA Cross Media Electronic

Reporting Rule (CROMERR). In order to submit data using the E2 applications, PWSs and lab users create a STEERS account and sign a STEERS Participation Agreement (SPA). Once the SPA is validated the user is able to submit data for compliance.

## **DLQOR**

The E2 application provides the user with an online data-entry form to report the following parameters:

- Type of disinfectant (free or total chlorine or both)
- Year and quarter
- PWS activity status for each month
- Average of all disinfectant residuals for each month
- Number of residuals collected each month
- Number of readings below the minimum requirement for each month
- Number of readings with no residual for each month
- The highest and lowest readings for the quarter

After monthly data are entered the application will determine averages for the quarter. At any time, the user can validate the form. The application may display notices of validation errors and/or warnings of potential violations based on the data entered. Once the form has been validated, the user may then submit the data.

## **Microbial Monitoring**

The E2 application provides the user with the option of either entering microbial monitoring data via an online form or by uploading a comma delimited (csv) file. The online form will process one sample/result set at a time and is best used by those with a small number of samples/results to submit. The csv upload option enables the user to batch process multiple samples and results and is best used by those with a large number of samples/results to submit (usually laboratories).

The online form consists of 38 parameters, 10 of which are mandatory, and 3 of which are conditionally mandatory. The 10 mandatory parameters are listed below.

- TCEQ Lab ID
- PWS ID
- Laboratory Sample ID Number
- Sample Collection Date & Time
- Sample Type (Routine/Raw/Repeat)
- Replacement Indicator
- Chlorine Residual Type
- Chlorine Residual Value
- Analyte to be Tested
- Lab Result for Analyte

The three conditionally mandatory parameters (for replacement/repeat/triggered raw samples) are listed below.

- Original Lab Sample ID
- Original Lab ID
- Original Collected Date

## **SDWIS Data**

As stated previously, SDWIS is used by the PWSS Program for PWS inventory data, sample results, schedules, compliance determinations, violation data, and action data. Inventory data (e.g., PWS number, size, type) are primary direct deliverables of the PWSS Program. An important subset of the inventory data is information regarding the number, type, and location of chemical or microbial sampling sites. These data are referred to as site data. Violations of the primary standards and enforcement actions developed by TCEQ are also contained in the data that is migrated into SDWIS.

## **Individual Data Management Summaries**

The information below summarizes data management for each environmental data operation. Additional detail regarding data management requirements is provided in the addendums to this QAPP.

### **Chemical Compliance Data**

Sample collectors submit sample collection documentation on a PWS Water Analysis form (or electronic equivalent) with every compliance water sample collected, along with a chain of custody record for each sample shipment. Copies of the Public Water System Water Analysis form and chain of custody form are located in the *Drinking Water Sampling Guide (DWSG)*.

Each laboratory is required to notify TCEQ by fax and e-mail when there are sample results which would indicate a system is out of compliance (results exceed an associated MCL) in accordance with the EPA *Manual for the Certification of Laboratories Analyzing Drinking Water* and federal regulations. TCEQ must be notified the same day that an acute MCL is exceeded (e.g., nitrate/nitrite). Notification of non-acute MCL exceedances must be made no later than 72 hours after analysis is completed. Exceedance reports by email must be in a format that can be migrated into a database, such as an Excel spreadsheet or equivalent. A weekly summary in this format is acceptable.

Appropriate follow-up actions are taken by the DWQT as required by the applicable rule. The sampling schedule is continuously updated by DWQT staff and the sample contractor is provided with an update on a monthly basis.

Laboratories that provide data to the TCEQ for use in compliance are required to submit electronic data deliverables to the TCEQ no less often than once per week. Data format requirements are included in Appendix J of the *DWSG*.

The compliance laboratories also send analysis reports for radiochemical, organic, inorganic and disinfection byproduct samples to the TCEQ monthly. The sample analysis turnaround time for most results is typically two to three weeks, with an exception for some organic and radiochemical results. The compliance laboratories are required to send analysis reports for radiochemical, organic, inorganic (including lead & copper) and disinfection byproduct samples to the TCEQ and PWSs in PDF format on recordable media (CD). Printed copies must meet agency

standards, including coding requirements for Central Records. PDFs are sent to the TCEQ and the respective PWSs monthly after analysis is completed.

When TCEQ staff members receive the chemical compliance data, they maintain an electronic copy of the laboratory or other reports for the TCEQ Central File Room. They quality-assure and migrate the data according to the PDWS Work Instruction - *Chemical Data Migration and Quality Control*. Specific guidelines for data review are included in Section D2. Additional detail regarding data management of chemical compliance data is in Programmatic QAPP Addendum 1.

The LCRA analyzes organic, minerals, metals, and disinfection byproduct compliance samples. The DSHS laboratory also analyzes organics, minerals, metals, disinfection byproduct compliance samples; and all radiochemical, free cyanide, endothall, glyphosate, diquat and PCB samples. Asbestos samples are analyzed by Crisp Analytical.

a) Nitrate and Nitrite

Nitrate and nitrite data follow the protocol described below, under Inorganic Chemicals, with one notable exception. DWQT staff members evaluate exceedance reports as soon as possible the same day to determine the need for an acute Notice of Violation and immediate public notice. This special attention is required due to the acute nature of nitrate and nitrite health effects, and the resulting EPA requirements for rapid follow-up.

Laboratory Reporting Requirements:

- The laboratories are required to fax and e-mail results of nitrate or nitrite analyses that exceed the maximum contaminant level to the nitrate program coordinator and DWQT within 24 hours of sample analysis.
- The laboratories are required to transmit electronic data deliverables to the TCEQ on a weekly or more frequent basis.
- Electronic sample result data must be reported to TCEQ no later than one week after analysis is completed.
- PDFs of sample results must be submitted to the TCEQ and each PWS on a monthly or more frequent basis. PDFs must meet agency standards, including coding requirements for the Central File Room.

b) Inorganic Chemicals (other than Nitrate and Nitrite) and Radiochemical Sample Analysis Data

SDWIS is currently used to store data for inorganic chemicals and radionuclides. TCEQ personnel use MS Access database queries to validate the data before migration into SDWIS. This validation includes verifying field lengths and data types, methods, detection/reporting limits and comparison to SDWIS tables. Compliance determinations are conducted weekly using SDWIS. When SDWIS determines a candidate violation based on sample result data, DWQT staff verifies the violations before issuing Notice of Violations. This verification includes review of sample result history and running annual average (RAA) calculations. The program also schedules follow up sampling when warranted.

Laboratory Reporting Requirements:

- The laboratories are required to fax and e-mail results of inorganic chemical analyses that exceed the maximum contaminant level to the DWQT within 72 hours after samples are analyzed.
  - The laboratories are required to transmit electronic data deliverables to the TCEQ on a weekly or more frequent basis.
  - Electronic sample result data must be reported to TCEQ no later than one week after analysis is completed.
  - PDFs of sample results must be submitted to the TCEQ and each PWS on a monthly or more frequent basis. PDFs must meet agency standards, including coding requirements for the Central File Room.
- c) Organic Chemicals and Disinfection Byproducts (Trihalomethanes and Haloacetic Acids)

Drinking Water Compliance Sampling Contract staff send copies of the PWS Water Analysis Forms (or electronic equivalent) to the DSHS or Lower Colorado River Authority (LCRA) with each collected sample.

The organic chemical compliance coordinator reviews all regulated chemical detections on a quarterly basis and modifies sample schedules when appropriate.

#### Laboratory Reporting Requirements:

- The laboratories are required to fax and e-mail results of organic chemical analyses that exceed the maximum contaminant level to the DWQT within 72 hours after samples are analyzed.
- The laboratories are required to transmit electronic data deliverables to the TCEQ on a weekly or more frequent basis.
- Electronic data deliverable must be transmitted to TCEQ no later than one week after analysis is completed.
- PDFs of sample results must be submitted to the TCEQ and each PWS on a monthly or more frequent basis. PDFs must meet agency standards, including coding requirements for the Central File Room.
- Results reports for organic and disinfection byproducts shall be organized into groups of regulated chemicals, monitored chemicals, screened chemicals, other chemicals, and tentatively identified compounds.

#### **Lead/Copper Compliance Data**

Electronic data flow brings raw analytical lead and copper data results into SDWIS from the analytical laboratory. SDWIS will automatically process lead and copper analytical result data to determine the 90th percentile. The 90th percentile analytical values are used to determine tap water monitoring under the lead and copper rule. Lead and copper tap water monitoring is the main component of the regulation.

In addition, other layers of compliance components under the LCR include systems with a population > 50,001. These systems are required to submit water quality parameters once every three years. All systems are required to submit water quality parameters every quarter if the public water system has been found to exceed the 90th percentile in either lead or copper tap water monitoring analytical

results. Water quality parameter compliance is tracked by TCEQ staff. Additional detail regarding data management of lead and copper data is included in Programmatic QAPP Addendum 2. Additional information regarding the data management of water quality parameter data is included in Programmatic QAPP Addendum 3.

#### Laboratory Reporting Requirements:

- The laboratories are required to transmit electronic data deliverables to the TCEQ on a weekly or more frequent basis.
- Electronic sample result data must be reported to TCEQ no later than one (1) week after analysis is completed. PWSs are subject to monitoring/reporting violations if data is received more than ten days after the end of the compliance period.
- PDFs of sample results must be submitted to the TCEQ and each PWS on a monthly or more frequent basis. PDFs must meet agency standards, including coding requirements for the Central File Room.

#### **Microbiological Sample Data**

Accredited laboratories report sample results as described in the Programmatic QAPP Addendum 4. Data are received and managed at the TCEQ as described in the section above on Microbial Monitoring.

Accredited laboratories throughout the state also report the results of all positive and negative bacteriological samples to the central TCEQ office in Austin. Positive reports arrive by fax (or email) and are entered into the SDWIS database by the data entry staff. Many laboratories submit results electronically. All data are maintained in SDWIS.

TCEQ personnel monitor positive reports for all MCL violations and track repeat sampling compliance in accordance with the NPDWR. Data entry errors are corrected as individual files are activated and when water utility officials report errors. SDWIS limits the type of data that may be entered for certain fields to prevent data entry errors. All corrections to the database are channeled through the microbial sub-team's lead staff member.

#### **CCI and Inventory Data**

The TCEQ regional investigators complete a CCI report with every inspection of a PWS. Regional PWS Water Section Managers review all sanitary survey reports generated at their Regions. The eight EPA-required sanitary survey elements are addressed through the CCI. CCI information is stored in the CCEDS. Inventory data received through CCIs is described below.

A portion of data from CCIs is submitted to the Public Drinking Water Section on the PWS Data Sheet to capture the inventory components required by the EPA, including: sources of raw water, type of public water system, population, connections, capacity, responsible official, and responsible official's address. Inventory data are also received directly from PWSs or from the Sampling Contractor in the form of a field report. Staff of the PDWS will document the data on the Change Request Form (CRF). All inventory data related to PWSs are stored in SDWIS. Members of the WSD BSS, TROT, DWQT, and DWPT process each CCI

report or CRF for data entry and perform quality control activities. These staff members will also closely evaluate all available information for a public water system wishing to be designated as “Superior” and provide that status as appropriate.

### **Source Water Assessment Data and Information**

Programmatic QAPP Addendum 6—*Source Water Susceptibility Assessments* includes information on how related environmental data and information are generated, reported, migrated, and managed by the PWSS Program.

### **Engineering Review and Approval Data and Information**

Programmatic QAPP Addendum 7—*Review and Approval of Public Water System Engineering Plans* includes information on how related environmental data and information are generated, reported, migrated, and managed by the PWSS Program.

### **TOP Performance Evaluation Data**

Programmatic QAPP Addendum 8—*Texas Optimization Program Evaluations* includes information on how related environmental data and information are generated, reported, migrated, and managed by the PWSS Program.

### **Operational and Treatment Plant Data**

Each of the state’s PWSs that operate surface water treatment plants submit a *Surface Water Monthly Operating Report (SWMOR)* monthly to DWQT staff for each plant. The SWMOR is an Excel spreadsheet that contains numerous field restrictions, formulae, and macros designed to ensure that data meets the required quality restrictions. This report contains self-reporting data related to turbidity and microbial inactivation. A percentage of the incoming forms are reviewed for accuracy to provide quality assurance. Data are maintained in SDWIS.

### **Transfer of Data to the EPA**

The TCEQ activities associated with transferring data are summarized below.

- TCEQ WSD maintains data tools and platforms used to check and transfer data. SDWIS is the TCEQ current database of record for PWS inventory data. SDWIS is used to submit data to the EPA.
  - Develops and maintains migration software to migrate data from any other databases into SDWIS.
  - Synchronizes PWS data between SDWIS and Central Registry.
- TCEQ WSD quality-assures and transfers inventory data. SDWIS is the database of record for PWS inventory data.
  - Reviews the PWS inventory for compliance with data standards for affiliations (such as responsible officials), source names and identification numbers, entry point designation, production capacities, and treatment information for all systems. Resolves non-conformances.
  - Compiles inventory data to prepare fiscal year quarterly reports to the EPA through SDWIS for incorporation in the federal Operational Data System (ODS).

- Provides these data to the EPA within sixty days after the end of each quarter.
- TCEQ WSD performs quality checks and transfers grant-withholding data. These data include locational data for PWSs. The DWTRT performs the following functions:
  - Maintains the databases of record for locational data.
  - Reviews locational data for consistency with data standards and resolve non-conformances.
  - Compiles this locational data to prepare grant-withholding data to provide to the EPA.
- TCEQ WSD performs quality control checks and transfers data for actions created by rule coordinators in the PDWS.
  - SDWIS is currently used as the database of record for violations and actions.
  - DWTRT reviews action data for consistency with data standards and refers issues to the DWQT and DWIET for correction when necessary.
- TCEQ WSD performs quality control checks and transfers data for formal enforcement actions.
  - Receives report of formal enforcement actions from the ED.
  - Appends data to action file for delivery to SDWIS.

## **C1 Assessments and Response Actions**

This section of the QAPP provides and/or references information concerning how the TCEQ assesses PWSS Program activities and implements corrective actions to ensure that the QAPP is being implemented as approved. Assessments are conducted to determine the adequacy, compliance, readiness, effectiveness and verification of personnel, data, information, and operations. The types of assessments to be conducted, and the frequency for conducting these assessments depend on the intended use of the information.

The PWSS Program assessment activities are consistent with SDWA requirements as specified in federal rules pertaining to public drinking water (40 CFR Parts 141, 142 and 143) as well as state rules pertaining to PDW (30 TAC Chapter §290). A list and descriptions of PWSS Program assessments and corrective action procedures are provided below. Note that data assessments involve the review, verification, and validation of data which are discussed in Sections D1 and D2 later in this document.

Assessments are the responsibility of TCEQ staff, contractors, and laboratories. Operation-specific information regarding PWSS Program assessments is included in addendums to this QAPP.

### **TCEQ Performance Appraisals**

TCEQ Management assesses all employees annually as part of its formal Performance Management System (PMS) (TCEQ OPP 10.02). The performance appraisal part of the assessment includes an assessment of the employee competency to perform technical tasks which helps to ensure the generation of valid environmental data.

### **Project Oversight**

Project oversight involves initiating, planning, executing, managing, and closing the work of an activity or task to achieve specific goals and meet specific success criteria. Project, grant, and contract management staff measure work activities against specifications in grants and work plans on a monthly, quarterly, and/or annual basis. Environmental work activities of the TCEQ are reported to division, office, and executive management on a monthly basis.

### **Peer Review and Staff Coordination**

All PWSS Program mail-outs, document forms, reports, and individual letters are reviewed prior to issuance. Individual letters are subject to peer review within each respective team. Mail-outs and mass-produced forms are subject to cross-team peer review.

Meetings are held to discuss compliance issues, upcoming project events such as mass mail-outs, notice of violation letters, sample bottle shipments, and training events. Section members handle non-conforming conditions as they arise by consulting with team leaders and the section manager if necessary. Each problem or discrepancy is handled on an individual basis and is resolved as quickly as possible within the team.

## **Audits**

### **Sample Collection Audits**

The TCEQ contract manager for the Drinking Water Compliance Sampling Contract (DWCS) or PWSS Program Quality Assurance Manager conducts regular audits of all phases of the chemical compliance sample collection process. Every month the TCEQ contract manager reviews the sample collection records, comparing weekly or monthly totals for accuracy, and assuring that all submitted data are complete and accurate. Sample collection and rejection statistics are analyzed monthly or quarterly, and a review of the Drinking Water Sampling Contractor (DWSC) performance is conducted quarterly or annually.

The TCEQ contract manager for the DWCS also monitors all samples rejected by the laboratory and checks to make sure the number of rejected samples matches that of the DWSC monthly report. Differences are reconciled with the contractor or laboratory. Rejected samples are rescheduled by the contractor for recollection when appropriate.

The TCEQ contract manager for the DWCS or PWSS Program Quality Assurance Manager also conducts field audits with sample collectors to confirm that the collectors are following all requirements. Problems are recorded and reconciled with the DWSC. Retraining is conducted as needed. The contract manager investigates public water system concerns with specific samples or the sampling process to ensure that established SOPs and quality controls are followed by contract samplers. Problems are reconciled with the contractor.

The sample collectors are audited on a rotating basis. All samplers are audited at least once every two years. The results of these performance audits are reviewed by TCEQ management, approved, and then shared with the Contractor. The DWSC is required to reply in writing detailing changes made to correct any noted non-conformances (if applicable). These audit process are documented in the DWQT SOPs.

The Contractor's QA Manager audits all samplers at least once each year to ensure compliance with established SOPs as described in the Programmatic QAPP—Addendum 1. The process includes reviewing sample reports from each collector, comparing them to associated field notes, and verifying that they are correctly completed. Field audits are also conducted to ensure adherence to established drinking water sample collection procedures as documented in the *DWSG*. The audit reports for each sampler are submitted to the TCEQ with the monthly invoice, and are reviewed by the contract manager for the TCEQ DWCS.

### **Laboratory Accreditation Audits**

The TCEQ LQAS audits laboratories in accordance with NELAP requirements as described in Section A8. The LQAS maintains a list of accredited laboratories and their fields of accreditation. A list of accredited laboratories is maintained on the TCEQ website:

<[http://www.tceq.texas.gov/assets/public/compliance/compliance\\_support/qa/txnelap\\_lab\\_list.pdf](http://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf)>.

## **Financial and Grant Requirement Audits**

TCEQ grant managers and fiscal auditors conduct audits to determine that contractual obligations and grant conditions are met.

## **Data Verification Audits**

TCEQ conducts quarterly Federal Reporting of SDWIS compliance data to EPA. EPA reviews the reported data for accuracy and issues error reports to TCEQ for correction. Data corrections are made by TCEQ as required.

At a minimum of once every three to five years, EPA Region 6 performs a Data Verification audit. The results of the audit are reviewed with TCEQ management, solutions to issues are discussed, and these solutions are implemented by TCEQ staff. The PDWS Section Manager ensures that solutions are implemented by TCEQ staff.

## **Corrective Actions**

In accordance with the TCEQ QMP, any person involved with work described in this QAPP is responsible for reporting deviations from required or standard protocols specified in this document and/or referenced documents.

Most deviations are corrected by project staff using established procedures through some combination of the following: repair or replacement of faulty equipment; re-analysis of samples and standards; revising reports; re-sampling; or contacting the PWSS Program QA Manager for advice. These deviations are documented at the point of origin (e.g. field reports, lab bench sheets, etc.) and maintained with the applicable project records. Corrective action (CA) procedures/response actions are documented in SOPs that include documentation of problems, solutions, and follow-up. CAs will be appropriate in degree to the magnitude and risk of the deviation.

Unique problems that cannot be corrected by established procedures will require CAs to be defined and documented in a CA report within 14 days when the need arises. The preparation of CA reports is assigned to appropriate personnel by managers. Managers are responsible for assuring that CA reports are prepared and implemented appropriately. CA reports must include the following:

- Description of the problem - how it was identified, the date identified and by whom
- Root cause
- Description of the consequences
- CA taken
- Actions implemented to prevent recurrence
- Individuals involved
- Who prepared the report
- Signatures and dates that includes a manager(s)

The PWSS Program QA Manager receives and reviews each CA report to determine if actions taken to resolve the deviation are acceptable. If CAs taken by a laboratory are unacceptable to the TCEQ, the TCEQ may withhold samples from the laboratory and/or not use the applicable data until such time that an acceptable CA is achieved.

Whenever a laboratory is required to issue a CA report, they are required to submit a copy to TCEQ in both printed and electronic form. All corrected data and reports must be clearly marked to identify them as “corrected or amended” and should include the reason for the correction. Electronic data must be clearly identified as corrected in order to avoid duplicated data in the database of record.

The PWSS Program QA Manager determines whether a deviation is significant as defined by the following:

- It jeopardizes the integrity of results or conclusions
- It results in non-conformance with state or federal regulations
- It was associated with the intentional misrepresentation of data or information

CA reports documenting significant deviations must be forwarded by the PWSSP QAM to the TCEQ QA Manager, affected Division Directors, and the WSD Grant Manager within 30 days. The PWSS Program QA Manager tracks and monitors the results of significant CAs to ensure effectiveness.

### **Authorization to Stop Work**

TCEQ management will authorize work stoppage if conditions are identified that indicate compliance is in jeopardy or if primacy requirements are not being met. The PWSS Program QA Manager, TCEQ QA Manager, or Grant Manager may also request a work stoppage.

## **C2 Reports to Management**

This section documents how PWSS Program management and the EPA are kept informed of project oversight and assessment activities and findings. Reporting is specified in federal regulations related to PDW (40 CFR) and state rules (30 TAC §290).

### **Reports to TCEQ Management**

Team Leaders of all environmental data operations report the status of projects to their Section Managers who report to the affected Division Director. Public water system matrix-managed staff members located in regional field offices also report to their appropriate PDWS team leaders in Austin.

The Regional Investigators report to their individual Water Section Managers concerning all CCIIs, all complaints, and any other drinking water issues encountered in their duty assignments. The Water Section Managers report to the individual Regional Directors who report to the Area Directors.

Reports of significant deviations are reported to affected Division Directors and the TCEQ QA Manager as described in Section C1.

### **Reports to the EPA**

The TCEQ reports general compliance of the PWSS Program to EPA R6 annually. The report is part of the Performance Partnership Grant (PPG) requirements. EPA identifies any problems and recommends solutions. The PWSS Program PPG Grant Manager ensures that TCEQ implements those solutions.

The TCEQ is responsible for delivering data to the EPA in accordance with quality and timeliness requirements specified in 40 CFR Part 142.15 primacy reporting requirements.

Delivery of data for federal reporting purposes is managed through a joint effort by teams within the WSD. Data from various sources are gathered and manipulated to provide the final report in a format acceptable by the federal SDWIS. Data deliverables include quarterly inventory data, grant-withholding, and compliance action data. Detailed EPA requirements for data delivery are contained in Implementation Guidance associated with individual rules and in guidance related to the SDWIS data platform.

Program staff gathers data from sources described below. Action data refer to formal enforcement actions (Notices of Enforcement, Agreed Orders, and Compliance Agreements) or informal enforcement actions (Notices of Violation), as well as technical assistance site visits and reminder letters. Some of these data are generated by the WSD, and some are generated by the Enforcement Division (ED). Action data for violations of a chemical or microbial treatment technique, maximum contaminant levels, monitoring, reporting, or notification are determined by PDWS rule coordination staff, and maintained in databases of record (SDWIS). Action data for formal enforcement actions are generated by the ED, and reported to the WSD quarterly.

TCEQ submits PWSS Program data to EPA through the SDWIS quarterly. An initial data submittal is delivered six weeks after the close of each quarter. EPA generates

error reports based on the initial data submittal and returns this to the TCEQ Public Drinking Water Section. TCEQ then corrects all identified errors and resubmits the corrected data. The report is part of the Performance Partnership Grant requirements. EPA identifies any problems and recommends solutions. Grant Managers ensure that TCEQ implements those solutions.

The PDWS also prepares an Annual Compliance Report for the EPA. In addition, the PWSS Program QA Manager prepares annual updates for the TCEQ QMP, the Annual QA Report to EPA, and this QAPP. The PDWS Manager takes responsibility for the accuracy of each team database and any reporting performed by each team.

## **D1 Data Review, Validation, and Verification**

The purpose of this section is to define the PWSS Program review requirements that are used to accept, reject or qualify data and information in an objective and consistent manner to determine if the data or product obtained conforms to the Program objectives. For projects that use non-measurement data, these elements focus on evaluating how data values from these acquired data sets will be used to determine their acceptability.

Data Review involves both verification and validation as defined below.

### Verification:

Evaluating the completeness, correctness, and conformance/compliance of a specific data set against method, procedural, or contractual requirements.

### Validation:

A sample and analyte-specific process that extends the evaluation of data beyond method, procedural, or contractual compliance (i.e., data verification) to determine the quality of a specific data set.

The implementation of verification and validation activities provide a way to decide the degree to which each data or information item has met its quality specifications as described in this document and applicable addendums. Verification and validation of data and information generated for the PWSS Program are a shared responsibility of the sampling contractor, the laboratories, PWSs, TCEQ staff, and the EPA. The methods and criteria for verifying and validating data for the PWSS Program are discussed/referenced in Section D2.

## **D2 Verification and Validation Methods**

This section describes/references the PWSS Program criteria and procedures for verifying and validating data, information, and other work products as well as how any issues are conveyed to the TCEQ.

The primary goal of verification is to document that applicable methods, procedures, and contractual requirements were met for each environmental data operation of the PWSS Program. In general, verification checks to see if the activities matched QAPP requirements, if SOPs were followed, and project-specific DQOs were met to include exceptions and missing information.

Data validation extends the process of verification to determine whether the data sets meet the requirements of the project-specific intended use as described in the QAPP; that is, if the data results are of the right type, quality, and quantity to support their intended use. Data validation also attempts to give reasons for sampling and analysis anomalies, and the effect that these anomalies have on the overall value of the data or operation. The application of data qualifiers and/or rejection codes is also part of validation.

Verification and validation methods are specific to each environmental data operation of the PWSS program as summarized below by operation.

### **Compliance Data and Information**

Field and laboratory data and information (e.g., sample analysis forms) are verified and validated by the sample collectors and the laboratories prior to TCEQ reporting. The verification and validation methods, including those for rejected and invalidated samples and the use of data qualifiers and rejection codes are included in Addendums 1,2,3, and 4.

Upon receipt, TCEQ staff review data according to SOPs listed in Section A9 or in the addendum. TCEQ PWSS Program personnel perform QA/QC by reviewing completeness and correctness of data reported by samplers and laboratories as well as compliance data submitted directly by the public water systems.

The laboratories submit electronic and hard copy data to the TCEQ in packets. Each packet is subjected to quality assessment procedures which include, but are not limited to, review of data table record totals; accuracy of records for parameters reported; and completeness of data fields, records, and tables.

TCEQ personnel use MS Access database queries to validate the sample/result data before migration into SDWIS. All of the following parameters are verified:

- Valid PWS IDs
- Valid Facility IDs
- Valid Sample Points
- Valid Sample Collector Names
- Valid Rejection Codes
- Valid TCEQ ID numbers
- Valid pH measurements
- Valid Detection Limits

- Valid Analyte Codes
- Valid Analytical Methods
- Valid Analyte/Method Pairs
- Valid Concentration and Detection Level Units
- Check for Duplicate Records
- Check for Significant Digits

In addition, SDWIS Lab-To-State and XML Sampling software both perform various QC measures on sample/result data. Samples or results that are identified as incorrect during any of these three stages (MS Access QC, Lab-To-State and XML Sampling) are verified and corrected before data is migrated into SDWIS for use in compliance.

For additional quality assurance, DWQT staff or designee will check at least five (5) percent of printed reports against the electronic data received from the labs. Any errors that are identified will be reported to the originating laboratory for correction. The percentage of reports verified for accuracy is subject to increase if a pattern of errors is identified.

When unacceptable data are observed, TCEQ staff members coordinate with the labs to have corrected data resubmitted. Data are deemed unacceptable if they do not meet laboratory QC requirements, sample collection requirements, field format requirements, if any field is invalid, if any required field is left blank, or if any record duplicates a previously submitted data record. Data submitted directly by water systems via monthly or quarterly operating reports are also checked for completeness and accuracy. If required reports are missing data or contain erroneous data, the water system can be issued monitoring/reporting violations.

The TCEQ conducts quarterly federal reporting of SDWIS compliance data to EPA. EPA also reviews the reported data for accuracy and issues error reports to TCEQ for correction. Data corrections are made by TCEQ as required.

## **E2 Microbial Data Validation**

The E2 application validation rules for microbial sample/result data are based off the SDWIS/XMLSampling application. These validation rules can be found in the SDWIS/XMLSampling documentation.

## **CCI Data and Results**

All TCEQ activities to verify and validate CCI data and results are included in Addendum 5—*Comprehensive Compliance Investigations*.

## **Source Water Data and Reports**

All TCEQ activities to verify and validate source water data and reports are included in Addendum 6—*Source Water Susceptibility Assessments*.

## **Engineering Plan Reviews/Approvals**

All TCEQ activities to verify and validate engineering plan reviews and approvals are included in Addendum 7—*Review and Approval of Public Water System Engineering Plans*.

### **TOP Evaluation Results**

All TCEQ activities to verify and validate TOP evaluation results are included in Addendum 8—*Texas Optimization Program Evaluations*.

### **Treatment Technique and Disinfectant Residual Data**

All TCEQ activities to verify and validate TOP evaluation results are included in Addendum 9—*Acquisition and Use of Treatment Technique and Disinfectant Residual Data*.

### **Special Investigations**

All TCEQ activities to verify and validate special studies and investigations are included in Addendum 10—*Special Investigation QAPP Template*.

### **D3 Reconciliation with User Requirements**

The data and information collected, managed, and reported under this QAPP conform to the SDWA, 40 CFR §141-143, and 30 TAC §290. These statutes and requirements define the user requirements. Conformance to this QAPP helps ensure that the users (i.e., PWSs, consumers, the TCEQ, and the EPA) can use the data and information as generated and have confidence in the results. Unacceptable data and information not meeting quality objectives and criteria related to accuracy, representativeness, comparability, completeness, data integrity, and compliance will not be used, or if used, the problems with the data will be clearly defined, flagged appropriately, and its use clearly delimited and justified. Any actions taken to correct deviations in sampling, sample handling, analysis, reporting, etc. are documented as indicated in C2. Only data and information that have been validated and/or qualified as necessary is entered into SDWIS for compliance determinations and EPA reporting.