

Acquisition of Treatment Technique And Disinfectant Residual Data

Addendum #9

(Revision 1)

to the

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

(Revision 13 – US EPA Q-TRAK Number # 20-054)

Effective

November 4, 2019





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,
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Enclosure

cc: Jose Rodriguez 6WD-DD

List of Acronyms

Acronym	Definition
CFR	Code of Federal Regulations
CCI	comprehensive compliance investigation
CA	corrective action
CE	continuing education
DLQOR	disinfectant level quarterly operating report
DWQT	Drinking Water Quality Team
E2	Electronic Environmental Reporting System
EPA	Environmental Protection Agency
QA	quality assurance
QAPP	quality assurance project plan
GUI	groundwater under the direct influence of surface water
GWMOR	Groundwater Monthly Operating Report
GW	groundwater
GWR	Groundwater Rule
HAA5	haloacetic acid group 5
LQA	laboratory quality assurance
LT2	EPA Long Term 2 Enhanced Surface Water Treatment Rule
MRDL	maximum residual disinfection levels
NAP	nitrification action plan
NTU	nephelometric turbidity units
OW	Office of Water
PDWS	Public Drinking Water Section
PTRS	Plan and Technical Review Section
PT	proficiency testing
PWS	Public Water System
PWSS	Public Water System Supervision
QA	quality assurance
QAPP	Quality Assurance Project Plan
QMP	Quality Management Plan
RAA	running annual average
RG	regulatory guidance
SDWA	Safe Drinking Water Act

Acronym	Definition
SDWIS	Safe Drinking Water Information System
SOP	standard operating procedure
SUVA	specific ultra violet absorbance
SW	surface water
SWMOR	Surface Water Monthly Operating Report
SWTP	surface water treatment plant
SWTR	Surface Water Treatment Rule
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TOC	total organic carbon
TOCMOR	Total Organic Carbon Monthly Operating Report
TOCR	Total Organic Carbon Rule
TROT	Technical Review and Oversight Team
TTHM	total trihalomethanes
WI	work instructions
WSD	Water Supply Division

Title and Approval Page – PWSSP QAPP, Addendum #9

The following individuals listed on this page and those following are signatories on this Programmatic Quality Assurance Project Plan (QAPP) Addendum because they are responsible for the direct oversight, implementation, and quality assurance of the work described in this addendum. Other individuals involved with the oversight of this project are signatories on the Programmatic QAPP of which this addendum is a part.

Gary Regner, Public Water System Supervision (PWSS) Program, Quality Assurance (QA) Manager

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

Signature:  Date: 9/13/19

Kasy Stinson, Team Leader

TCEQ/OW/WSD/PDWS/Drinking Water Quality Team (DWQT)

Signature:  Date: 9/13/19

Emma Jones, Team Leader

TCEQ/OW/WSD/PDWS/Drinking Water Technical Review Team (DWTRT)

Signature:  Date: 9/19/19

Stephanie Escobar, Team Leader

TCEQ/OW/WSD/Plan and Technical Review Section (PTRS)/Technical Review and Oversight Team (TROT)

Signature:  Date: 9/19/19

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

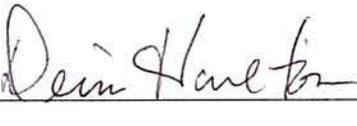
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Distribution List

The following individuals will receive a final copy of this Programmatic QAPP Addendum and its subsequent revisions. Other individuals involved with the TOP are included on the Programmatic QAPP distribution list and will receive a copy of this addendum as part of the Programmatic QAPP distribution, or if revisions are made during interim annual reviews.

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Introduction

Public water systems (PWSs) are required under the Safe Drinking Water Act (SDWA) to monitor and report treatment technique and disinfectant residual data to the TCEQ PWSS Program. These data are reported from approximately 6,000 PWSs around the State. Because the TCEQ acquires these data and uses them to make compliance and enforcement decisions, they are treated as non-measurement data under the QAPP for the TCEQ PWSS Program Relating to the SDWA (Programmatic QAPP).

All monitoring related to treatment techniques and disinfectant residuals is conducted at sites designated in each PWSs monitoring plan in accordance with 30 Texas Administrative Code (TAC) §290.121 (relating to Monitoring Plans). The requirements for analysis and reporting of treatment technique and disinfectant residual data and compliance are specified in 30 TAC §290.110 Disinfectant Residuals; 30 TAC §290.111 Surface Water Treatment; 30 TAC §290.112 Total Organic Carbon (TOC); and 30 TAC §290.116 Groundwater Corrective Actions (CA) and Treatment Techniques. The PWS reporting requirements are summarized in Exhibit 1 of this document. This exhibit summarizes each reporting requirement by TAC rule reference and its applicability. The exhibit also specifies applicable TCEQ forms and guidance, reporting frequencies, and submittal requirements, as applicable.

The TCEQ PWSS Program provides numerous forms, requirement and regulatory guidance (RG) documents, and instructions online. These materials are used by the PWSs to produce work products such as monitoring plans, process control results, and disinfectant residual data. Various groups within the TCEQ also use these

instruction materials to acquire, track, review, manage and quality-assure the data, and determine compliance.

This addendum is referenced in Section B9 of the Programmatic QAPP and summarizes the objectives, management structure, analysis and reporting requirements, and records and data management practices in place to ensure the quality objectives described below are met and the data are acceptable for use in TCEQ compliance and enforcement decisions.

Quality Objectives & Criteria

The overall 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 treatment technique and disinfectant residual data and information collected and reported by the PWSs for the TCEQ 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 the PWSs and all those who consume water from the systems.

Treatment Technique and Disinfectant Residual Data Quality Objectives

The goal of all quality objectives related to treatment technique and disinfectant residual data operations undertaken by the PWSs and the TCEQ is to produce data and information of a known and verifiable quality that will meet the overall objectives of the SDWA. A combination of the following activities pursuant to state and federal rules and regulations ensure the data quality objectives are met.

- Management oversight
- Training
- Available and well-defined TCEQ guidance and PWSs forms
- A documented lab approval process pursuant to rules and regulations
- Required reporting protocols and standardized forms
- TCEQ work instructions for acquiring, managing, and accepting data, and determining compliance
- CA procedures
- Data security processes

Accuracy

Accuracy is a reflection of correctness. To be accurate, data and information must be unique to each PWS, logical, and representative of the real world. Treatment technique and disinfectant residual data must be accurate to ensure consistent justifiable and legally defensible compliance determinations.

Comparability

Comparability refers to the degree in which methods or data sets are considered to be similar under similar circumstances. Treatment technique and disinfectant residual data must be comparable to ensure consistent and fair compliance determinations.

Completeness

The completeness of the data is basically a relationship of how much of the data or information is available for use compared to the total potential data. Data must be complete and contain all the requisite information to determine compliance and avoid enforcement.

Representativeness

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

Data Integrity

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 treatment technique and disinfectant residual data 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.

Roles and Responsibilities

The data and information that are addressed in this document are collected, measured, and reported to the TCEQ by PWS owners and/or operators. Various units within the TCEQ PWSS Program issue guidance, provide training to public water systems, manage and quality-assure the data, and make compliance determinations. The roles and responsibilities of public water system and key TCEQ personnel are addressed in this section. The roles of TCEQ section managers (and above) are described in the Programmatic QAPP.

PWS Operators

PWS operators are responsible for collecting measurements and samples for treatment technique and disinfectant residual. PWS operators, owners, and or designees report data to the TCEQ. Operators, owners, and designees comply with requirements regarding training, certification, measurement and sample collection, etc. as described in this document.

Gary Regner, PWSS Program QA Manager, TCEQ/Office of Water (OW)/Water Supply Division (WSD)

Coordinates development and implementation of the QA 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.

Kasy Stinson, Team Leader, TCEQ/OW/WSD/PDWS/DWQT

Supervises DWQT personnel who perform data management, compliance determinations, and enforcement referral support for SDWA components related to PWS treatment techniques, including the Surface Water Treatment Rule (SWTR), disinfectant residual reporting, TOC reporting, and the Ground Water Rule (GWR). Supervises the management and transfer of drinking water compliance data to the Environmental Protection Agency (EPA) SDWIS.

Emma Jones, Team Leader, TCEQ/OW/WSD/PDWS/DWTRT

Supervises DWTRT personnel who support data management functions for the section and supervises the data transfer of drinking water compliance data to the EPA SDWIS.

Stephanie Escobar, Team Leader, TCEQ/OW/WSD/PTRS/TROT

Supervises TROT personnel who perform exception requests and administer the EPA Long Term 2 Enhanced Surface Water Treatment Rule (LT2) Program.

Richard Bosch, LT2 Program Coordinator, TCEQ/OW/WSD/PTRS/TROT

Provides LT2 guidance and support to PWSs to include sending LT2 sampling plan packets, review and approval of sampling plans templates for compliance with TCEQ LT2, review of monthly reports submitted by PWSs, entry of monthly report results into LT2 Access database, generation of Bin letters, and assigning Bin classifications in SDWIS.

Emily Smith, Disinfectant Level Quarterly Operating Report (DLQOR) Compliance Coordinator, TCEQ/OW/WSD/DWSS/DWQT

Provides DLQOR guidance and support to PWSs. Quality assures all DLQORs. Determines compliance including running/creating queries on the Access database, creating the violation list for management, entering violations into SDWIS, making sure the violation letters are correct, rejecting violations, returning violations to compliance, and answering PWS calls relating to violations. Maintains TCEQ work instructions for data management and compliance determinations.

Donald Hunter, SWTR Compliance Officer, TCEQ/OW/WSD/DWSS/DWQT

Provides assistance to PWSs on the Surface Water Monthly Operating Report (SWMOR) form and advice related to monitoring, reporting, and treatment problems within conventional treatment facilities. Provides support to PWS using non-conventional or alternative technology treatment facilities. Performs SWTR compliance determinations for systems with treatment technique violations and migrates the violations into SDWIS.

Christina Barrera, Compliance Officer, TCEQ/OW/WSD/DWSS/DWQT

Provides advice to the regulated community on the SWMOR form, the SWTR, and the Total Organic Carbon Rule (TOCR). Enters and migrates SWTR data into SDWIS, determines compliance for systems with general monitoring and reporting violations, backs up and updates the TXSWTR database to capture new requirements, and provides advice to the regulated community on the SWMOR form, the SWTR, and also the TOCR. Acts as back-up for determining SWTR treatment technique violations. Edits and maintains the SWTR Data Migration Work Instructions.

Vacant, Compliance Officer, TCEQ/OW/WSD/DWSS/DWQT

Provides advice to the regulated community on the SWMOR form and the SWTR. Enters SWTR data into SDWIS and determines if and when SWMORs are submitted. Edits and maintains the SWMOR Internal Audit Work Instructions. Acts as back-up for determining SWTR treatment monitoring and reporting violations, provides advice to the regulated community on the SWMOR form, the SWTR, and also the TOCR.

Christina Barrera, TOC Compliance Officer and Laboratory Approval Coordinator, TCEQ/OW/WSD/DWSS/DWQT

Enters TOC data into SDWIS and quality-assures monthly data received from PWSs and SW treatment plants to determine if they are appropriate for compliance determinations. Determines quarterly compliance. Edits and maintains the DWQT-Drinking Water Lab Approval TOC Work Instruction (WI), the PDW Section Laboratory Approval WI, the PDW TOC Data Entry WI, and the PDW TOC Compliance Process WI.

Matt Court, GWR Compliance Officer/Coordinator, TCEQ/OW/WSD/DWSS/DWAT

Responsible for GWR monitoring/reporting compliance, GWR treatment technique compliance, GWR corrective action compliance, GWR-triggered source monitoring plan reviews, presentations and outreach. Oversees ground water rulemaking, customer service, management requests and other information requests.

Special Training / Certifications

All personnel involved with the organization, planning, collection, reporting, management, and assessment of treatment technique and disinfectant residual data possess adequate experience and knowledge to perform satisfactorily all technical tasks assigned. TCEQ personnel possess general experience and are trained in accordance with Section A8 of the Programmatic QAPP. Specific training and certification requirements that apply to PWS are addressed below.

PWS Operator Certification

PWS personnel who collect treatment technique and disinfectant residual data are required to be licensed by the TCEQ. In order to maintain a license for all PWS licenses or A, B, C, or D Licenses, all operators must complete the required course training, meet all required education and experience requirements, complete the TCEQ application and pay the fee, and pass the applicable exam (minimum score of 70%). The TCEQ website <<https://www.tceq.texas.gov/licensing/licenses/waterlic>> lists the minimum requirements to get a license, register for the exam, maintain the license, and renew the license.

PWS Operator Training

There are numerous conferences/training events throughout each year that provide PWS operators with applicable training. To maintain operator certification, public water system personnel must take continuing education courses as described on the website specified in the previous section. These training classes are offered by

numerous sources and include topics pertinent to treatment and disinfection such as drinking water disinfection, media filtration for drinking water, membrane unit operations, system design and flow configurations for membrane operations, terms and equations for membrane operations, etc.

PWS operators also can receive training through the Environmental Trade Fair & Conference which offers continuing education (CE) for TCEQ operators <<https://www.tceq.texas.gov/p2/events/etfc/etf.html>>. In addition, PWS operators may attend the Public Drinking Water Conference where they get technical assistance regarding the operation of PWSs, and learn about additional resources available to them, current and upcoming drinking water requirements, and new technologies <<http://www.tceq.texas.gov/drinkingwater/conference.html>>.

Laboratory/Facility Approval and Accreditation

Specific requirements regarding approval and accreditation apply to facilities used for analysis to determine compliance with the treatment technique requirements and maximum residual disinfectant levels (MRDLs). The requirements are summarized by rule as follows.

Disinfectant Residual Data

The monitoring required by 30 TAC §290.110 related to disinfectant residual data must be conducted at a facility approved by the TCEQ. This includes free chlorine, chloramine, and chlorine dioxide residuals.

Surface Water Treatment Data

The analysis of *Cryptosporidium* from raw surface water required by 30 TAC §290.111(b) must be conducted by a laboratory that is approved under the EPA Laboratory Quality Assurance Evaluation Program for Analysis of *Cryptosporidium* in Water. *E.coli* sample analysis required under this subsection must be conducted at an accredited laboratory. Turbidity samples required under this subsection must be analyzed at a laboratory approved by the TCEQ.

Monitoring of pH, temperature, residuals of free chlorine, chloramine, chlorine dioxide, and ozone required by 30 TAC §290.111(d) must be conducted at a facility approved by the TCEQ. UV doses must be measured by a calibrated sensor approved by the TCEQ.

Monitoring of turbidity required by 30 TAC §290.111(e) must be conducted at a facility approved by the TCEQ.

TOC Data

Analytical procedures for TOC required by 30 TAC §290.112 must be conducted at a facility approved by the TCEQ.

Groundwater Corrective Actions and Treatment Technique Data

All monitoring required by 30 TAC §290.116 must be conducted at a facility approved by the TCEQ. This includes pH, temperature, and residuals of free chlorine, chloramine, chlorine dioxide, and ozone.

Processes to Approve and Accredite Laboratories

TCEQ Laboratory Approval

The DWQT is responsible for approving laboratories and facilities for the monitoring and analyses specified above and adding lab approval form information into SDWIS. Lab approval data entry is conducted upon receipt from PWSs of a Drinking Water Lab Approval Form, Commercial Laboratory Approval Form, Proficiency Testing Studies (PTs), or Laboratory Accreditation paperwork. The TCEQ Laboratory Approval Coordinator reviews, grants, and/or denies approval for commercial and PWS laboratories that wish to test samples required the sections of the TAC addressed in this Programmatic Addendum. Processes for approving laboratories are described in the TCEQ work instruction *PDWS Work Instruction Laboratory Approval* and the *DWQT-Drinking Water Lab Approval to Perform TOC Analysis Work Instruction 13-01*.

TCEQ Laboratory Accreditation

The accreditation of laboratories is the primary responsibility of the Laboratory and Quality Assurance (LQA) Section within the Monitoring Division of the Office of Compliance and Enforcement (OCE). The LQA Section is responsible for auditing and accrediting laboratories per state rule 30 TAC Chapter §25. TCEQ implements a detailed application and audit process to grant accredited status. The rules, checklists, and procedures by which the LQA Section operates the TCEQ Accreditation Program are on the TCEQ website at https://www.tceq.texas.gov/field/qa/env_lab_accreditation.html.

Certification of *Cryptosporidium* Laboratories

The EPA is responsible for certifying *Cryptosporidium* laboratories for analysis under 30 TAC §290.111. The TCEQ provides a link to the list of EPA-certified laboratories at <http://www.tceq.texas.gov/drinkingwater/trot/lt2schedule4.html>.

TCEQ Forms, Instructions, and Guidance for PWSs

TCEQ forms, instructions, and guidance are summarized for each reporting requirement in Exhibit 1 of this document. The TCEQ provides this information to the PWSs on TCEQ web pages and/or via regulatory guidance as indicated below.

Disinfectant Residual Data

The forms, instructions, and guidance used by PWSs treating surface water sources or groundwater sources that are under the direct influence of surface water are addressed in the next section on Surface Water Treatment Data. Community and non-transient, non-community PWSs that use only purchased water or groundwater regularly monitor the level of disinfectant in the distribution system and use the DLQOR form and instructions at https://www.tceq.texas.gov/publications/rg/rg-407.html/at_download/file to report this information to the TCEQ quarterly as required under 30 TAC §290.110. The TCEQ guidance document RG 407-*Disinfectant Residual Reporting for PWS* applies only to those systems that use purchased water or groundwater. It explains how to comply with the Texas requirements for monitoring, maintaining, and reporting data.

Surface Water Treatment Data

Each PWS that operates a surface water treatment plant (SWTP) to produce drinking water from surface water, or from groundwater that is under the direct influence of surface water (GUI), submits monthly data to the TCEQ. The TCEQ web page <<https://www.tceq.texas.gov/drinkingwater/swmor/swmor/swmor-forms-and-instructions>> explains how to choose the correct version of the SWMOR. This website also contains forms, instructions and the TCEQ guidance document RG-211 *Monthly Testing and Reporting at SWTPs*—all which are necessary for PWSs to comply with 30 TAC §290.111. The monitoring exception is described in the following paragraph.

Information specifically related to the LT2 source water monitoring of *Cryptosporidium*, *E.coli*, and turbidity is provided on the TCEQ website at <<http://www.tceq.texas.gov/drinkingwater/trot/lt2schedule4.html>>. This website provides information on sampling requirements, deadlines, analytical requirements, and a reporting form.

TOC Data

Community and non-transient, non-community PWSs that utilize surface water or groundwater under the direct influence of surface water (GUI) and use a series of treatment processes including coagulation, flocculation, sedimentation or clarification, and filtration are required to submit a *Total Organic Carbon Monthly Operation Report* (TOCMOR). All SWTPs that use conventional treatment comply with the TCEQ TOC requirements. A TOC guidance document (RG-379) is located at <<https://www.tceq.texas.gov/publications/rg/rg-379.html>>. This guide provides information for SWTP operators on how to comply with rules on removing total organic carbon and to lessen the concentration of disinfection by-product precursors that are available to form more harmful disinfection by-products.

Groundwater Corrective Actions and Treatment Technique Data

The reporting associated with the GWR is maintained onsite by PWSs that are providing 4-log treatment in lieu of the groundwater source monitoring or are required to conduct 4-log treatment as a corrective action in response to a fecal indicator positive source sample. The TCEQ does not require PWSs to submit monthly operating reports with this information in accordance with state and federal rule.

In rare instances, PWSs that treat 4-log standards are required to collect monthly raw samples from their wells. In the event of an *E. coli*-positive raw well sample for systems treating to 4-log standards, the TCEQ requests the MOR be submitted to ensure that the system is maintaining 4-log treatment on the day that the positive sample occurred. The TCEQ provides forms, guidance and information to PWSs about the GWR on the TCEQ website at <https://www.tceq.texas.gov/drinkingwater/microbial/gwr_main.html>.

PWS Analytical and Reporting Requirements

Monitoring and analyses required by 30 TAC §290.110, 30 TAC §290.111, 30 TAC §290.112, and 30 TAC §290.116 must be conducted at TCEQ-approved, TCEQ-accredited, or EPA-certified laboratories as described in the section above under Training and Certification.

With the exception of *Cryptosporidium* and *E. Coli* analyses required by 30 TAC §290.111(b), all other analytical methods required by 30 TAC §290.110, 30 TAC §290.111, 30 TAC §290.112, and 30 TAC §290.116 must conform to 30 TAC §290.119 (relating to Analytical Procedures). The analytical methods for *Cryptosporidium* must conform to 40 Code of Federal Regulations (CFR) Part 141.704. The analytical methods for *E.coli* must conform to 40 CFR Part 136(a).

The TCEQ provides information on analysis and reporting requirements to the PWSs on TCEQ web pages and/or in guidance as indicated in the previous section. Reporting requirements are summarized below and in Exhibit 1. Monthly and quarterly reports must be submitted from the PWS to the WSD by the tenth day of the month following the end of the reporting period.

Disinfectant Residual Data

The reporting requirements for results of tests, measurements, or analyses required by 30 TAC §290.110 are as follows:

- PWSs exceeding the MRDL for chlorine dioxide must report the exceedance to the TCEQ within 24 hours of the event.
- PWSs that use surface water sources or groundwater sources under the direct influence of surface water report disinfectant level data on *the Surface Water Monthly Operating Report (Form 0102C)*, a *Surface Water Monthly Operating Report or Alternative Technologies (Form 0102D)*, or a *Surface Water Monthly Operational Report for Plants That Do Not Have a Turbidimeter on Each Filter (Form 0103)* each month.
- PWSs that use chlorine dioxide submit a *Chlorine Dioxide Monthly Operating Report (Form 0690)* each month.
- PWSs that use purchased water or groundwater sources only complete a *DLQOR (Form 20067)* each quarter.
- Community and non-transient, non-community public water systems submit the *DLQOR* each quarter.
- Transient, non-community public water systems must retain the *DLQOR* and must provide a copy if requested by the executive director.
- PWSs that use chloramines must retain their Nitrification Action Plans (NAP) and provide a copy upon request to the TCEQ.

Surface Water Treatment Data

The reporting requirements for results of tests, measurements, or analyses required by 30 TAC §290.111 are as follows:

- Raw surface water sample results required by 30 TAC §290.111(b) must be reported to the TCEQ using the TCEQ LT2 Results Submittal Form at <http://www.tceq.texas.gov/drinkingwater/trot/lt2schedule4.html>.
- PWSs that have turbidity levels exceeding 1.0 (nephelometric turbidity unit) NTU in the combined filter effluent must consult with the TCEQ within 24 hours.
- PWSs that treat SW submit a *SWMOR* each month for each plant. GW sources under the direct influence of surface water submit a *SWMOR-alt* each month for each plant.
 - PWSs that use alternative treatment technologies or have been assigned a Bin 2, Bin 3, or Bin 4 classification submit a *SWMOR-alt* (Form 00102D) for alternative technologies.
 - PWSs that continuously monitor the performance of individual filters, but are not required to submit commission Form 00102D, submit a *SWMOR* (Form 00102C).
 - PWSs that are allowed by the TCEQ to submit combined filter effluent turbidity data in lieu of individual filter effluent turbidity submit a *SWMOR for Plants That Do Not Have a Turbidimeter on Each Filter* (Form 00103) each month for each plant that treats surface water or groundwater under the direct influence of SW.
- PWSs that perform additional monitoring required by 30 TAC § 290.111(e)(4)(A)(i) or (B)(i) submit a *Filter Profile Report for Individual Filters* (Form 10276) with their *SWMOR*.
- PWSs that perform additional monitoring required by 30 TAC §290.111(e)(4)(A)(ii) or (B)(ii) submit a *Filter Assessment Report for Individual Filters* (Form 10277) with their *SWMOR*.
- PWSs that perform the additional monitoring required by 30 TAC §290.111(e)(4)(A)(iii) or (B)(iii) submit a *Comprehensive Performance Evaluation Request Form* (Form 10278) with their *SWMOR*.
- PWSs must submit any additional reports required by the TCEQ to verify the level of pathogen removal or inactivation achieved by the system's treatment plants.
- PWSs must submit their *Cryptosporidium* Bin classifications.
- PWSs must submit reports required by 30 TAC §290.111(b)(7).

TOC Data

The reporting requirements for results of tests, measurements, or analyses required by 30 TAC §290.112 are as follows:

- PWSs treating surface water or groundwater under the direct influence of surface water must properly complete and submit surface water monthly operating reports to demonstrate compliance. See the previous section.
- PWSs that do not meet the Step 1 removal requirements must submit a Request for Alternate TOC Requirements at least 15 days before the end of the quarter.

- If a PWS meets alternative compliance criterion Number 3, the system must report the running annual average of total trihalomethane (TTHM) and haloacetic acid (HAA5) concentrations.
- If a PWS meets alternative compliance criterion Number 4, the system must report the running annual average TTHM and HAA5 concentrations and report all disinfectants used by the system during last the 12 months.
- If a PWS meets alternative compliance criterion Number 5, the system must report the average source water specific ultra violet absorbance (SUVA) for each of the preceding 12 months.
- If a PWS meets alternative compliance criterion Number 6, the system must report the average treated water SUVA for each of the preceding 12 months.
- If a PWS practices softening and meets alternative compliance criterion Number 8, the system must report the source water and treated water magnesium concentrations and the average percent removal of magnesium obtained during each of the preceding 12 months.
- If a PWS does not meet any of the alternative compliance criteria, the system must apply for the Step 2 alternative removal requirements and must submit the results of Step 2 jar testing.

Groundwater Corrective Actions and Treatment Technique Data

The reporting requirements for results of tests, measurements, or analyses required by 30 TAC §290.116 are as follows:

- A GW system required to conduct compliance monitoring for chemical disinfectants must complete a *Groundwater Monthly Operating Report (GWMOR)* (Form 20362) for GW disinfection facilities monthly. GW systems maintain the reports on site and make them available to the TCEQ upon request.
- A GW system must provide written notification to the TCEQ that it is not required to meet the raw groundwater source monitoring requirements because it provides at least 4-log treatment of viruses for a specified groundwater source and must begin compliance monitoring. The notification must include engineering, operational, and other information required by the executive director to evaluate the submission.
- A GW system is required to complete corrective action or be in agreement with the corrective action plan within 120 days and must notify the TCEQ within 30 days of completing the corrective action.
- If a GW system is subject to the triggered source monitoring requirements and does not conduct source monitoring, the system must provide written documentation that it was providing 4-log treatment of viruses for the specified groundwater source or that it met the criteria within 30 days of the positive distribution coliform sample.
- A GW system conducting compliance monitoring must notify the TCEQ any time the system fails to meet any TCEQ-specified requirements (including, but not limited to, minimum residual disinfectant concentration and alternative treatment operating criteria) if operation in accordance with the criteria or

requirements is not restored within four hours. The system must notify the TCEQ as soon as possible, but no later than the end of the next business day.

TCEQ Procedures to Acquire, Track, and Review Data and Determine Compliance

Disinfectant Residual Data

Disinfectant residual data that the PWSs provide on *DLQORs* are submitted to the TCEQ in two ways: (1) as a paper copy manually filled-in by the PWS operator and sent via mail, and (2) as electronic data submitted through Electronic Environmental (E2) Reporting System. The TCEQ Work Instruction *DWTRT, DLQOR Data Entry* describes the process for entering data from paper reports.

The TCEQ uses Work Instruction *DLQOR Monitoring and Reporting* to migrate and review data, determine compliance, and generate notices of violation in regard to monitoring and reporting violations.

Surface Water Treatment Data

The TCEQ acquires approximately 440 Surface Water Monitoring Operating Reports (SWMOR) per month. The data entry team tracks and enters the information from SWMORs into SWTR database. The data entry team audits an estimated 10% of the Reports (roughly 40) each month as described in the *SWMOR Internal Audit Work Instruction*. This work instruction document outlines the process for auditing TCEQ data entry. Hard copy reports are reviewed against the electronic data to determine quality and correctness of data entry. Once the audit is completed, data are corrected if needed, and a monthly report of data errors is submitted to the PWSS Program QA Manager.

Once the data from the SWMORs are entered, tracked and reviewed, they are migrated from the SWTR database into the SDWIS. Data are migrated into SDWIS weekly as referenced from the *PDW Section, DWQT Work Instruction (WI), SWTR Data Migration*.

The TCEQ LT2 Program uses the *TCEQ LT2 Laboratory Report Review Checklist* to verify the validity of submitted laboratory reports from PWSs. This includes verification of standard items such as laboratory approval, use of approved test methods, data review, addressing errors in reports, and communication with PWSs.

TOC Data

The TOC Monitoring Operating Reports are entered and tracked in Access, the J:Drive, SDWIS, and Texas Drinking Water Watch by the TOC Compliance Coordinator. The Compliance Coordinator uses the work instruction *TOC Data Entry* to enter data from the reports into a Microsoft Access database. The Compliance Coordinator uses the work instruction *TOC Compliance Process* to determine the monthly TOC compliance status for applicable PWSs. Microsoft Access is used in conjunction with SDWIS to determine TOC compliance. Access is used to calculate the running annual averages (RAA). Access is also used to migrate samples, compliance results and treatment technique violations for RAAs (below 1.00) into

SDWIS. SDWIS stores all compliance data and generates monitoring and reporting violations.

Groundwater Corrective Actions and Treatment Technique Data

As described above in the TCEQ Forms, Instructions and Guidance Section, the TCEQ does not require PWSs to submit *GWMORs* associated with the GWR in accordance with state and federal rule.

Records Maintenance

PWSs are responsible for maintaining records related to this addendum according to 40 CFR Part 141.33. The CFR specifies where records must be maintained and for how long. Compliance with records maintenance is reviewed by the TCEQ during comprehensive compliance investigations as described in Addendum 5 to this QAPP.

The TCEQ maintains records related to this addendum according to the WSD Quarterly Retention Record Keeping requirements maintained by the Drinking Water Inventory and Protection Team.

Corrective Actions

In accordance with the *TCEQ Quality Management Plan (QMP)*, any person involved with work described in this Programmatic QAPP Addendum 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 defined in SOPs that include documentation of problems, solutions, and follow-up. These deviations are documented at the point of origin and maintained with the applicable project records.

Unique problems that cannot be corrected by established procedures will require CA to be defined and documented in a CA report when the need arises. Upon detection of a unique deviation, staff are responsible for notifying supervisory staff in writing. Managers (or designees) are responsible for assuring that CA reports are prepared within 14 days and forwarded to the PWSS Program QA Manager. Managers (or designees) are also responsible for assuring that CAs are selected and implemented that will most likely eliminate the problem and prevent recurrence. Managers (or designees) are also responsible for assuring that CA reports are prepared, reported, implemented, and tracked appropriately.

CA reports must include the following:

- Problem description-how it was identified, the date identified and by who
- Root cause
- Description of the consequences
- Corrective action taken
- Actions implemented to prevent recurrence
- Individuals involved
- Who prepared the report

- Signatures and dates that includes a manager

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

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

CA reports documenting significant deviations must be forwarded to the PWSS Program federal Grant Manager, the TCEQ QA Manager, and affected Division Directors within 30 days. The PWSS Program QA Manager tracks and monitors the results of significant corrective actions to ensure effectiveness. Appropriate staff may be designated to implement and track corrective actions that are not deemed significant.

Authorization to Stop Work

TCEQ management, including the PWSS Program QA Manager, the TCEQ QA Manager, and the federal grant manager will authorize work stoppage if conditions are identified that indicate compliance is in jeopardy or if primacy requirements are not being met.

Exhibit 1: PWS Treatment Technique & Disinfectant Residual Reporting Requirements

Reporting Requirement	Applicability	30 TAC Reporting Reference	TCEQ Form	TCEQ Guidance and/or Instructions	Reporting Frequency
Chlorine dioxide MRDL exceedances	PWSs that use chlorine dioxide	§290.110(e)(1)	Chlorine dioxide Monthly Operating Report Form 00690	https://www.tceq.texas.gov/assets/public/permitting/watersupply/pdw/CLO2_Instructions_Form00690.pdf	Within 24 hrs of the event
Surface water monthly operating report	PWS that use SW or GW under the influence of SW Water	§290.110(e)(2)	SWMOR for Form 00102-C, SWMOR2 for Form 00103 (for 2 filter plant) and SWMOR_Alt for Form 0102D	https://www.tceq.texas.gov/drinkingwater/swmor/swmor/swmor-forms-and-instructions	Monthly
Chlorine dioxide operating report	PWSs that use chlorine dioxide	§290.110(e)(3)	Chlorine Dioxide Monthly Operating Reports - 0690	https://www.tceq.texas.gov/assets/public/permitting/watersupply/pdw/CLO2_Instructions_Form00690.pdf	Monthly
Disinfection level quarterly operating report	PWSs that use purchased or GW sources only	§290.110(e)(4)	DLQOR Form 20067	http://www.tceq.state.tx.us/assets/public/permitting/watersupply/pdw/dlqor/dlqorform_032911.pdf	Quarterly
Nitrification Action Plan	PWSs that use chloramines	§290.110(e)(5)	NAP guidance template	https://www.tceq.texas.gov/drinkingwater/disinfection/nitrification.html	As Needed
Laboratory results for <i>Cryptosporidium</i> , <i>E.Coli</i> , and turbidity required under the LT2 Rule.	PWS that use SW or GW under the influence of SW Water	§290.111(b)	NA	NA	10 days of their receipt by the PWS and no later than 10 days after the end of the first month following the month that the sample was collected.
Turbidity levels exceeding 1 NTU in the combined filter effluent	PWS that use SW or GW under the influence of SW	§290.111(h)(1)	Monthly Testing and Reporting at SW Treatment Plants guidance	https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg211/rg-211-chapter8.pdf	24 Hours
Individual and combined Filter Performance	PWS that continuously monitor filter performance	§290.111(h)(2)(A)(B)(C)	SWMOR Form 0102D SWMOR Form 0102C SWMOR Form 0103	https://www.tceq.texas.gov/drinkingwater/swmor/swmor/index_guidance.html	Monthly
Individual and combined filter performance	PWS that continuously monitor filter performance	§290.111(h)(3)	SWMOR Form 10276	https://www.tceq.texas.gov/drinkingwater/swmor/swmor/fpr	As Needed
Filter assessment report	PWSs that must complete the additional monitoring required by subsection (e)(4)(A)(ii) or (B)(ii)	§290.111(h)(4)	Filter Assessment Report for Individual Filters Form 10277	https://www.tceq.texas.gov/drinkingwater/swmor/swmor/fpr	As Needed
Request for a comprehensive performance evaluation	PWSs that must complete the additional monitoring required by subsection (e)(4)(A)(iii) or (B)(iii)	§290.111(h)(5)	Comprehensive Evaluation Request Form - 10278	https://www.tceq.texas.gov/drinkingwater/swmor/swmor/cpe_folder/cpe_example.html/view	As Needed

Reporting Requirement	Applicability	30 TAC Reporting Reference	TCEQ Form	TCEQ Guidance and/or Instructions	Reporting Frequency
Pathogen removal or inactivation	PWSs must submit additional reports required by the TCEQ to verify the level of pathogen removal or inactivation achieved by the system's treatment plants.	§290.111(h)(6)	Meeting Treatment Technique Requirements for Cryptosporidium, Giardia and Viruses.	https://www.tceq.texas.gov/assets/public/permitting/watersupply/pdw/S G-TROT-Meeting_Minimum_Treatment_Reqs.pdf	As Needed
Membrane test	PWS SW or GW under the influence of SW that use membranes	§290.111(h)(7)	Membrane Monthly Operating Report Form- 20356	https://www.tceq.texas.gov/drinkingwater/swmor/swmor/swmor-forms-and-instructions	Monthly
UV disinfectant	PWSs that use UV disinfection to meet the minimum treatment technique requirements for SW or GW under the influence of SW.	§290.111(h)(8)	UV Monthly Operating Report 20357	https://www.tceq.texas.gov/drinkingwater/swmor/swmor/swmor-forms-and-instructions	Monthly
TOC	PWS that use SW or GW under the influence of SW	§290.112(e)(2)	MOR for TOC Form 0879	https://www.tceq.texas.gov/publications/rg/rg-379.html/at_download/file	Monthly
GW disinfectant levels	PWSs that use GW that are required to conduct compliance monitoring for chemical disinfectants facilities	§290.116(d)(1)	GW Treatment Monthly Operating Form - 20362	https://www.tceq.texas.gov/assets/public/.../GW DR_4_log_MSR_MOR_v5.xls	NA
TCEQ notification that is required to meet the raw GW source monitoring because the PWS provides at least 4-log treatment of viruses	PWSs that use GW	§290.116(d)(2)	NA	https://www.tceq.texas.gov/drinkingwater/microbial/gwr_main.html	As Needed
GW requiring CA	PWSs that use GW	§290.116(d)(3)	NA	https://www.tceq.texas.gov/drinkingwater/microbial/gwr_main.html	Within 30 days of completing the corrective action
Written documentation that it was providing 4-log treatment of viruses	PWSs that use GW subject to the triggered source monitoring requirements of §290.109(c)(4)(A) and do not conduct source monitoring	§290.116(d)(4)	NA	https://www.tceq.texas.gov/drinkingwater/microbial/gwr_main.html	Within 30 days of the positive distribution coliform sample
Concentration time	PWSs that use GW	§290.116(d)(5)	GW CT Study Template, 4-Log GW Monthly operating reports	https://www.tceq.texas.gov/drinkingwater/microbial/gwr_main.html	Within 4 hours