PWS Name (PWS ID xxxxxxx)
Revised Total Coliform Rule (RTCR)
Level 2 Assessment (L2A) Form

Under the Revised Total Coliform Rule (RTCR), as defined in Title 30, Texas Administrative Code (30 TAC) §290.103, a **Level 2 Assessment** (L2A) is

“… an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the public water system triggered the assessment…Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including, but not limited to, water storage); source and treatment considerations that bear on distributed water quality, where appropriate; existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing.”

A **sanitary defect** is defined as:

“a defect that could provide a pathway for entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.”

As described in the EPA’s “Revised Total Coliform Assessments and Corrective Actions Guidance Manual” (RTCR ACAGM)[[1]](#footnote-2),

“The elements of a Level 2 assessment are the same as those of a Level 1 assessment, but each element is investigated in greater detail because the incidents that trigger a Level 2 assessment are of a more critical nature and are more likely to result in direct public health impact.”

When the TCEQ determines that a PWS triggered a L2A, the PWS has 30 days to:

* Perform a L2A,
* ‘Find and fix’ any sanitary defects,
* Report to TCEQ on what they fixed, and
* Submit a schedule for corrections that could not be completed in the 30-day window.

If sanitary defects are found during the L2A, they must be described in the **Corrective Action Report and Plan** (CARP). **Best Practices** (BPs), which are recommended activities that the PWS could implement to reduce the risk of microbial contamination, should also be identified in the L2A Form and in the BP section.

The PWS must submit documentation to the TCEQ within 30 days of triggering the L2A. The documents that must be sent to TCEQ are:

* The completed L2A Form;
* Supporting documentation (see list on L2A Form) that describe an identified sanitary defect;
* A CARP [and Financial Assurance Statement (FAST) if capital improvements or other significant funding needs are identified to resolve a CARP item].
* Recommended BPs.

These documents should be sent to:

* Water Supply Division (WSD) RTCR L2A, MC-155 | TCEQ | PO Box 13087 | Austin TX 78711-3087

Additional instructions on completing the form as part of the L2A are provided in TCEQ Regulatory Guidance (RG) XXX “Performing a Revised Total Coliform Rule (RTCR) Level 2 Assessment (L2A).” *(Note: the RG is currently under development.)*

TCEQ WSD staff may be contacted for assistance during a L2A. Please call (512) 239-4691.

**Add additional pages to the form as needed to complete the L2A.**

TCEQ RTCR Level 2 Assessment Certification

|  |
| --- |
| PWS Representative and Lead Assessor |
| **PWS Representative** |
| Name: | Phone Number: |
| E-mail: |
| Title/Affiliation: | License Number (if licensed): |
| I certify under penalty of law that I have personally examined and am familiar with the information submitted and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.:Signature: Date: |
| **Lead Assessor** |
| Name: | Phone Number: |
| E-mail: |
| Title/Affiliation: | License Number (if licensed): |
| I certify that I have performed onsite inspections of each of the PWS’s sample sites, water sources, and facilities described in this assessment; I am familiar with the PWS’s operations; I am qualified to identify sanitary defects and their resolution; and I am qualified to develop corrective action plans for same. I further certify that the information herein is true and correct:Signature: Date: |

# Supporting Documentation:

The public water system shall provide copies of all of these documents to the Lead Assessor at the start of the L2A. The Lead Assessor shall submit copies of any documents that are relevant to identified defects, CARP items, and best practices to the TCEQ. The TCEQ can ask for additional documentation to complete the review of the L2A.

| Document | Attached? (or N/A) | Issues or updates in CARP or BP? |
| --- | --- | --- |
|  |
| Monitoring Plan and supporting documents including: * Coliform Sample Siting Plan (SSP)
* Distribution system map showing routine coliform sites and all disinfectant residual sample sites
* Schedules for coliform and disinfectant sample collection
 |  |  |
| Coliform sample collection protocol, also known as a Standard Operating Procedure (SOP)  |  |  |
| Daily/weekly disinfection level results disinfectant residual monitoring records for the ‘triggering month’ plus the twelve (12) previous months. |  |  |
| Dead-end main (DEM) flushing results for the ‘triggering month’ plus the twelve (12) previous months. |  |  |
| Tank inspection forms and associated maintenance reports. |  |  |
| Operating and Maintenance (O&M) manual |  |  |
| Cross Connection Control Program documentation: Customer Service Agreement and/or Plumbing Ordinance |  |  |
| ***If chloramines are used:*** |
| Nitrification Action Plan (NAP) monitoring data including monochloramine, free ammonia, nitrite, and nitrate for the ‘triggering month’ plus the twelve (12) previous months. |  |  |
| If the PWS prepares a SWMOR or GWMOR: |
| If the PWS operates a plant that treats surface water or groundwater under the direct influence of surface water, the Surface Water Monthly Operating Reports (SWMORs) or GWMORs for the ‘triggering month’ plus the twelve (12) previous months.  |  |  |
| Additional pertinent data may be needed to complete the L2A. For example: |
| Regulatory correspondence, like last Comprehensive Compliance Investigation (CCI) report, approval letters or violation letters. |  |  |
| Plans or schematics of PWS facilities |  |  |
| Purchase Water Contracts (for purchased-seller relationships) |  |  |
| Backup-data such as daily log sheets, raw turbidity data analysis, instrument calibration records, SCADA printouts, etc. |  |  |
| Photos of completed corrective actions (for example, repairs) |  |  |
| Financial, Managerial, Technical Capacity Assistance Survey |  |  |

# A. PWS Status

| **Question** | Yes | No | N/A? | In CARP? |
| --- | --- | --- | --- | --- |
| A 1. Enforcement status: |
| 1. Is the PWS under some other Compliance Schedule for anything related to the event that triggered the Level 2 Assessment?
 |  |  |  |  |
| 1. If so, is that action related to EC+, TC+, or sanitary defects?
 |  |  |  |  |
| 1. If so, does this Level 2 Assessment address previously cited issues?
 |  |  |  |  |
| 1. If so, is documentation attached?
 |  |  |  |  |
| A 2. RTCR Compliance status: |
| 1. Has this PWS triggered previous Level 1 or Level 2 Assessments under the RTCR?
 |  |  |  |  |
| 1. If so, are there incomplete actions identified in previous Corrective Action Report and Plans (CARPs)? If yes, attach documentation describing the incomplete CARP items.
 |  |  |  |  |

# B. Coliform monitoring and analysis

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Questions | Yes | No | N/A? | In CARP? | BP |
| B 1. Coliform sites:  |
| a. Are routine sites listed on the coliform Sample Siting Plan (SSP) representative of the entire distribution system? |  |  |  |  |  |
| b. Are repeat sites listed on the coliform SSP selected to reflect upstream/downstream water? |  |  |  |  |  |
| c. Does the system need assistance creating or modifying the coliform SSP?  |  |  |  |  |  |
| B 2. Coliform sampling: |
| a. Was sampling performed in accordance with Monitoring Plan and coliform SSP sites and schedules? |  |  |  |  |  |
| b. Is the PWS’s coliform sample schedule compliant with 30 TAC §290.109(d)? Coliform sample schedule requirements include the following:1. Is the number of samples collected monthly correct for the population served?
2. Are samples collected at the required intervals during the month?
3. Are repeat samples collected within 24 hours after notification of a positive result?
 |  |  |  |  |  |
| B 3. Coliform sample collection SOP (sampling protocol): |
| a. Does the PWS have an adequate coliform sample collection SOP? |  |  |  |  |  |
| b. Were all coliform samples collected in accordance with the SOP? |  |  |  |  |  |
| c. Does the system need assistance creating or modifying the SOP? |  |  |  |  |  |

**INSERT ADDITIONAL COPIES OF THIS PAGE FOR MULTIPLE SITES.**

### TC+/EC+ Site 1:

Document on-site assessments of **each** TC+/EC+ site and sample that occurred in the Level 2 Assessment trigger month.

|  |  |  |
| --- | --- | --- |
| **TC+/EC+ Site Name:**(if applicable) | **PWS Site ID:**  | **Address:**  |
| **Describe location type:** (active service connection hose bibb, sample station, hydrant, etc.)  |
| **Flush time:** (before collecting sample) | **Sample Line Size and Length:** |
| Site 1: First Site Assessed | Yes | No | N/A? | In CARP? | BP |
| Site 1—1. Site description: |
| a. Were potentially unsanitary conditions observed? (ex: standing sewage, refuse, animal fecal matter, nearby spray fields, septic fields, animals, etc.)? |  |  |  |  |  |
| b. Is this sample site actively used? How frequently \_\_\_\_\_\_\_\_\_\_(for example, ‘daily’ for an occupied home) |  |  |  |  |  |
| c. Is point-of-use treatment present upstream of this site? (for example, a water softener upstream of an outside tap) |  |  |  |  |  |
| d. Is this site isolated from the PWS distribution system with a backflow protection device? What type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |  |  |  |
| e. If so, has the backflow protection device been inspected after the TC+/EC+ occurred at this site? |  |  |  |  |  |
| Site 1—2. Historical bacterial indicators: |
| 1. What was the most recent date on which satisfactory coliform samples were collected at this site?

Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |  |  |  |
| 1. Were special samples taken in the surrounding area? If yes, attach results.
 |  |  |  |  |  |
| 1. If special samples were collected in the surrounding area, were the most recent results free of coliform?
 |  |  |  |  |  |
| 1. Historically, has TC+ / EC+ occurred at this site previous to the current triggering event? (including ‘Specials.’)
 |  |  |  |  |  |
| 1. Were any samples from this site rejected by the lab during the period of the triggering event? (including ‘Specials.’)
 |  |  |  |  |  |
| Site 1—3. Site disinfection residual: |
| 1. Did low residuals occur at this site during the period of the triggering event?
 |  |  |  |  |  |
| 1. If chloramines are present, were all chloramine-effectiveness and nitrification chemicals measured at this site?

(total chlorine, monochloramine, free ammonia, nitrite, nitrate) |  |  |  |  |  |
| **Site 1 Comments:** |  |

|  |
| --- |
| C. Disinfectant Residual Monitoring  |
| Questions | Yes | No | N/A? | In CARP? | BP |
| C 1. Are disinfectant residual sites and schedules in the Monitoring Plan representative of the entire system as required in 30 TAC §290.110(c)(4)? |  |  |  |  |  |
| C 2. Were all required disinfectant residual samples collected following TCEQ requirements in 30 TAC §290.110? (See RG-xxx for disinfectant residual monitoring requirements.) |  |  |  |  |  |
| C 3. Were all disinfectant residual levels greater than minimum required levels in 30 TAC §290.110? (Specifically: 0.2 mg/L free chlorine OR 0.5 mg/L total chlorine if chloramines are used.) |  |  |  |  |  |
| C 4. Disinfection sample collection SOP: |
| a. Does the PWS have an SOP for collecting and analyzing disinfectant residuals? |  |  |  |  |  |
| b. Were all samples collected and analyzed following the SOP? |  |  |  |  |  |
| c. Does the PWS need assistance creating or modifying the SOP? |  |  |  |  |  |

|  |  |
| --- | --- |
| D. Nitrification (for PWSs that have chloramines)  |  |
| If the PWS ONLY has free chlorine, check here and skip this section. 🔿 |
| Questions | Yes | No | N/A? | In CARP? | BP |
| D 1. Nitrification events: Did nitrification occur during the TC+/EC+ event, or recently?  |  |  |  |  |  |
| D 2. Nitrification Action Plan (NAP): |
| 1. Has the PWS developed an adequate NAP?
 |  |  |  |  |  |
| 1. Was the NAP followed before and during the TC+/EC+ event?
 |  |  |  |  |  |
| 1. Does the PWS need assistance creating or modifying the NAP?
 |  |  |  |  |  |
| D 3. Blending: |
| 1. Does chlorinated water blend with chloraminated water in the distribution system?
 |  |  |  |  |  |
| 1. If so, does the PWS have an approved blending exception?
 |  |  |  |  |  |

**INSERT ADDITIONAL COPIES OF THIS PAGE FOR MULTIPLE WELLS**

# E. Groundwater Sources—Wells, including GUI wells:

 If the PWS does not use any well(s), check here and skip to the next section. 🔿

Complete an assessment for each well that may influence the area where EC+ and/or TC+ was found. All wells should be assessed, including those that are inactive. GW source assessment should include wells that have been identified as groundwater under the direct influence of surface water (GUI).

Confirm accuracy of data on Texas Drinking Water Watch. Add pages as needed to document each operational well influencing the area.

### First GW Source (GW1)

Fill in the GW source information cells.

|  |  |  |
| --- | --- | --- |
| **WELL NAME:** **(What the system calls it)** | **Source ID:**  | **Location:**  |
| **Depth:**  | **Tested GPM:**  | **Rated GPM:**  | **Activity Status:** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| GW1: First well assessed | Yes | No | N/A? | In CARP? | BP |
| GW1—1. Sample tap: Is an adequate raw-water sample tap present? |  |  |  |  |  |
| GW1—2. Sample results: |
| a. Were any coliform samples collected at this well (required triggered samples, or special investigatory samples)? |  |  |  |  |  |
| b. If so, were TC+ results found at this well? |  |  |  |  |  |
| c. If so, were EC+ results found at this well? |  |  |  |  |  |
| GW1—4. Have any changes occurred at this well? (for example: operational status, water quality, or output, etc.) |  |  |  |  |  |
| GW1—5. Are there hazards that could impact the well, including outside the minimum regulatory setbacks described in 30 TAC §290.41(c)(1)? |  |  |  |  |  |
| **GW1 Comments:** (In addition to Lead Assessor’s observations, include relevant information about the GW source from the most recent CCI and other regulatory correspondence.) |

**INSERT ADDITIONAL COPIES OF THIS PAGE FOR MULTIPLE PW SOURCES.**

# F. Sources—Purchased water sources

If the PWS does not use a purchased-water source, check here and skip to the next section. 🔿

Complete an assessment for each purchased potable water source that influences the area where EC+ or TC+ was found.

Confirm accuracy of data on Texas Drinking Water Watch. Add pages as needed to document each purchased water source/entry point influencing area.

### First Purchased Water Source (PW1)

Fill in the PW source information cells.

|  |  |  |
| --- | --- | --- |
| **Source Name:****(PWS Name of Seller)** | **Source ID:** | **Location of master meter:** |
| **Is water under ‘direct pressure’? y/n** | **Location of EP Sample Tap (if different than master meter):** |
| Questions | Yes | No | N/A? | In CARP? | BP |
| PW1—1. Sample tap: |
| 1. Does this source have an entry point sample tap at the master meter?
 |  |  |  |  |  |
| 1. If no, is the entry point sample site at the first customer?
 |  |  |  |  |  |
| 1. Does the entry point sample site adequately represent water quality immediately downstream of the take-point?
 |  |  |  |  |  |
| 1. Is the entry point sample site sanitary and accessible?
 |  |  |  |  |  |
| 1. Does the PWS record data on purchased water quality at the entry point? (for example, disinfectant residual, chloramine effectiveness, coliforms?)
 |  |  |  |  |  |
| PW1—2. Has this source changed operational status or exhibited any noticeable changes in water quality or output? |  |  |  |  |  |
| 1. Has the seller had any recent water quality issues or changes? (e.g. low disinfectant residuals, TC+, EC+, chloramine effectiveness issues, nitrification, interruptions in treatment, etc.)
 |  |  |  |  |  |
| **PW1 Comments:** (In addition to Lead Assessor’s observations, include relevant information about the PW source from the PWS operators, most recent CCI, and other regulatory correspondence.) |

**INSERT ADDITIONAL COPIES OF THIS PAGE FOR MULTIPLE SW INTAKES.**

# G. Sources—Surface Water Intakes:

If no surface intakes are present, check here and skip to the next section. 🔿

Complete an assessment for each surface water source that may influence the area where EC+ and/or TC+ was found.

Confirm accuracy of data on Texas Drinking Water Watch. Add pages as needed to document each operational surface water intake influencing area.

### First SW Intake (SW1)

Fill in the SW intake information cells.

|  |  |  |
| --- | --- | --- |
| **Intake name:****(What the PWS calls it)** | **Source ID:** | **Location:** |
| **Sample tap present?** | **Sample tap adequate?** (e.g., no overly long sample line?) |
| **Lab tap used?** |
| SW1-Questions regarding the first surface water intake | Yes | No | N/A? | In CARP? | BP |
| SW1—1. Sanitary condition of this intake: |
| 1. Is the surface water intake screened, routinely inspected, well maintained, and operational?
 |  |  |  |  |  |
| b. Is the intake being operated to withdraw water from different depths depending on source water quality? |  |  |  |  |  |
| SW1—2. Is the required restricted zone established and maintained around the intake?  |  |  |  |  |  |
| SW1—3. Changes: |
| a. Have any changes to water quality or quantity occurred at this intake? |  |  |  |  |  |
| b. Does review of data related to raw water quality reported on the last 12 months of SWMORs indicate unexpected changes in source water quality? |  |  |  |  |  |
| **SW1 Comments:** (In addition to Lead Assessor’s observations, include relevant information about the SW intake from the most recent CCI and other regulatory correspondence.) |

# H: Analysis, Corrosivity, and Treatment Plants

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Questions | Yes | No | N/A? | In CARP? | BP |
| H 1. Analysis  |
| 1. Are pH meters and other probes verified with each sample group?
 |  |  |  |  |  |
| 1. Are benchtops calibrated and/or verified appropriately?
 |  |  |  |  |  |
| 1. Are on-line instruments verified and calibrated according to manufacturer recommendations?
 |  |  |  |  |  |
| 1. Is calibration frequency adequate?
 |  |  |  |  |  |
| H 2. Corrosion of Materials: |
| 1. When buried pipes, valves, and appurtenances are observed, do they appear degraded by corrosion? (e.g.: pinholes, weakened metallic materials, tuberculation, etc.)
 |  |  |  |  |  |
| 1. Does the PWS need assistance evaluating the corrosivity of the water?
 |  |  |  |  |  |

**INSERT ADDITIONAL COPIES OF THIS PAGE FOR MULTIPLE GWTPs.**

## Groundwater Treatment Plants (GWTPs)

If the PWS does NOT own or operate any GWTPs, check here and skip to the next section. 🔿

Complete an assessment for treatment at each well that may influence the area where EC+ and/or TC+ was found.

Confirm accuracy of inventory data on Texas Drinking Water Watch. Add pages as needed to document well sources that could impact the area of TC+/EC+.

### GWTP1: First Groundwater Treatment Plant

Fill in the GWTP information cells.

|  |  |
| --- | --- |
| **Plant name:****(What the PWS calls it.)**  | **Address:**  |
| **Operational Status:**  |
| **Wells:** **(list all wells that pump** **water through this plant.)**  | **Treatments:** **(list)** |
| **GWTP 1. Questions** | Yes | No | N/A? | In CARP? | BP |
| GWTP1—1. Disinfection: |
| a. Is all GW chlorinated before storage, and before distribution? |  |  |  |  |  |
| b. Do bulk disinfectant chemical usage data and flow data fluctuate unexpectedly before and during the TC+/EC+ event? |  |  |  |  |  |
| c. Is disinfection equipment operable and well maintained? |  |  |  |  |  |
| d. Have disinfectant residuals leaving the GWTP been maintained at consistent levels before and during the TC+/EC+ event? |  |  |  |  |  |
| e. Have there been any interruptions in treatment? |  |  |  |  |  |
| GWTP1—2. Chloramination: If chloramination is practiced at this plant, is all required monitoring performed, including pre- and post-treatment sampling and establishing raw water ammonia levels? |  |  |  |  |  |
| **GWTP1 Comments:** (In addition to Lead Assessor’s observations, include relevant information about the GWTP from the most recent CCI and other regulatory correspondence.) |

**INSERT ADDITIONAL COPIES OF THIS PAGE FOR MULTIPLE BDTPs.**

## Booster disinfection treatment plant(s) (BDTPs)

If the PWS does NOT own or operate any booster treatment, check here and skip this section. 🔿

Complete an assessment for each booster disinfection treatment facility that may influence the area where the TC+/EC+ event occurred. Confirm accuracy of data on Texas Drinking Water Watch.

Add pages as needed.

### BDTP1: First Booster Disinfection Treatment Plant

Fill in the BDTP information cells.

|  |  |
| --- | --- |
| **BDTP plant name:****(What the PWS calls it)**  | **Address:** |
| **Operational Status:** |
| **Treatments: (list)** |
| BDTP1 Questions: First booster plant assessed | Yes | No | N/A? | In CARP? | BP |
| BDTP1—1. Operation and maintenance: |
| 1. Is the booster plant accessible and sanitary?
 |  |  |  |  |  |
| 1. Are booster chlorination facilities adequately maintained and operated?
 |  |  |  |  |  |
| 1. Have there been any interruptions in treatment?
 |  |  |  |  |  |
| BDTP1—2. Sampling: |
| 1. Do bulk chemical usage and flow data show continuous treatment?
 |  |  |  |  |  |
| 1. Is disinfectant residual measured before disinfectant addition?How frequently \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |  |  |  |  |  |
| 1. Is disinfectant residual measured after disinfection treatment and before distribution (entry point or first customer)?
 |  |  |  |  |  |
| BDTP1—3. If chloramination is used is required monitoring done at least weekly? (total chlorine, monochloramine, and ammonia) |  |  |  |  |  |
| **BDTP1 Comments:** (In addition to Lead Assessor’s observations, include relevant information about the BDTP from the most recent CCI and other regulatory correspondence.) |

**INSERT ADDITIONAL COPIES OF THIS PAGE FOR MULTIPLE SWTPs.**

## Surface Water Treatment Plants (SWTPs)

If the PWS does NOT have a surface water treatment plant, check here and skip this section. 🔿

Complete an assessment for each surface water treatment plant (SWTP) influencing the area of concern. Confirm accuracy of data on Texas Drinking Water Watch. Add pages as needed.

### SWTP1: First SWTP assessed

Fill in the SWTP information cells.

|  |  |  |
| --- | --- | --- |
| **SWTP Name:****(What the PWS calls it.)** | **TP ID (SDWIS):** | **Operational Status:** |
| **Location:** |
| SWTP1: First SWTP assessed | Yes | No | N/A? | In CARP? | BP |
| SWTP1—1. Data reliability: |
| a. Have there been any recent interruptions in data transfer at this plant? (SCADA glitch, chart failure, human error, etc.) |  |  |  |  |  |
| b. Has a data integrity audit been performed at this plant? |  |  |  |  |  |
| SWTP1—2. Disinfection: |
| a. Do the SWTPs injection and monitoring points match the approved CT-study? |  |  |  |  |  |
| b. Has the plant achieved minimum CT requirements before and during the TC+/EC+ event? |  |  |  |  |  |
| SWTP1—3. Did this plant meet all required treatment techniques for turbidity removal for the last 12 months, including the period(s) when TC+/EC+ were detected? |  |  |  |  |  |
| SWTP1—4. Have significant changes been made to this plant (including changes to any treatment processes, not including minor dosing changes)? |  |  |  |  |  |
| SWTP1—5. Operation and maintenance: |
| a. Is preventive maintenance practiced and up-to-date? |  |  |  |  |  |
| b. Are any treatment processes currently or have any been recently out-of-service because of maintenance needs? |  |  |  |  |  |
| **SWTP1 Comments:** (In addition to Lead Assessor’s observations, include relevant information about the SWTP from the most recent CCI and other regulatory correspondence.) |

# I. Distribution facilities, construction, and repair

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Questions | Yes | No | N/A? | In CARP? | BP |
| I 1. Distribution design: These questions are regarding the engineered plan to keep sewage and drinking water pipes apart. |
| a. Does the PWS know and document the physical location of distribution and sewage collection facilities? (for example, with plans, maps, schematics, etc.)  |  |  |  |  |  |
| b. Can this assessment substantiate that the sewage collection system and drinking water distribution system are installed in accordance with the standards of 30 TAC §217 and §290?  |  |  |  |  |  |
| c. Does the PWS maintain documentation of distribution condition and update that information when discrepancies are noted? (for example, observed pipe materials, valve locations and status, degradation of pipes due to corrosion, etc.) |  |  |  |  |  |
| I 2. Distribution construction and repair:These questions ask about whether distribution system facilities are constructed to protect against contamination, whether or not plans are available. |
| a. Is there an ordinance or other plan to ensure new construction is designed to ultimately connect the dead ends to provide circulation? |  |  |  |  |  |
| b. Does the PWS follow AWWA and TCEQ sanitary precautions and disinfection standards after construction and repair?  |  |  |  |  |  |
| 1. Does the PWS have a construction and repair SOP?
 |  |  |  |  |  |
| c. Are any fire hydrants/blow offs located in high water table area where they could be impacted by flood waters? |  |  |  |  |  |
| d. Are pipes and appurtenances properly stored off the ground and or under cover prior to use? |  |  |  |  |  |
| e. Are areas isolated from other portions of the system during repair or construction? |  |  |  |  |  |
| I 3. Distribution operation: Are distribution facilities operated to protect against contamination? |
| a. Are all valves, pumps, meters, etc. maintained and operational? |  |  |  |  |  |
| b. Is there a valve maintenance program? |  |  |  |  |  |
| c. Does the PWS routinely evaluate the extent of water loss in order to determine whether leaks are present, and if so, implement procedures to address excess leakage which may allow intrusion of soil pathogens into distribution pipes? |  |  |  |  |  |
| d. Is the PWS able to measure distribution system pressure? |  |  |  |  |  |
| 1. Do distribution pressures meet TCEQ requirements to protect against pathogen intrusion?
 |  |  |  |  |  |
| e. Does the PWS take precautions against water hammer (for example, by training operators and others to operate hydrant valves slowly)? |  |  |  |  |  |

# J. Distribution events and flushing

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Pressure and usage events | Yes | No | N/A? | In CARP? | BP |
| J 1. Did unusual demand occur recently or during TC+/EC+ event? (For example, firefighting or main break) |  |  |  |  |  |
| J 2. Low pressure events (recent or during TC+/EC+ event): |
| a. Did the pressure drop below 35 psi anywhere? |  |  |  |  |  |
| b. If so, did the pressure drop below 20 psi anywhere? |  |  |  |  |  |
| c. If so, did any water outage occur? |  |  |  |  |  |
| J 3. **If** a low-pressure event(s) occurred: |
| 1. Was any corrective action taken in response (for example, disinfection according to AWWA standards)?
 |  |  |  |  |  |
| 1. Were special precautions taken in accordance with the Special Precautions Flowchart [30 TAC §290.47(e)]?
 |  |  |  |  |  |
| Flushing | Yes | No | N/A | In CARP? | BP |
| J 4. Flushing program planning: |
| 1. Does the PWS have an accurate, up-to-date list and map of all dead-end mains?
 |  |  |  |  |  |
| 1. Does the PWS have a procedure for identifying areas that need more flushing?
 |  |  |  |  |  |
| 1. Does the PWS know the location of hydraulic dead-ends and include those in flushing programs?
 |  |  |  |  |  |
| J 5. Flushing implementation: |
| 1. Does the PWS flush every dead-end main (DEM) monthly?
 |  |  |  |  |  |
| 1. Are hydraulic dead-ends also flushed periodically?
 |  |  |  |  |  |
| 1. Did any flushing occur immediately before or during the TC+/EC+ event?
 |  |  |  |  |  |
| J 6. Flushing documentation: |  |
| a. Is the amount of water flushed recorded accurately? |  |  |  |  |  |
| b. Is disinfectant residual measured and recorded before and after flushing? |  |  |  |  |  |
| c. Is the quality of water flushed documented?(for example, “clear,” “heavy sediment,” “red”) |  |  |  |  |  |
| J 7. Changes: |  |
| 1. Have water quality complaints caused more flushing recently?
 |  |  |  |  |  |
| 1. Do recent flushing results indicate more sediment than normal?
 |  |  |  |  |  |
| 1. Do recent flushing results indicate low disinfectant residuals?
 |  |  |  |  |  |

**INSERT ADDITIONAL COPIES OF THIS PAGE FOR MULTIPLE PRESSURE TANKS.**

# K. Tanks

## Pressure tanks:

If PWS does not own or operate any pressure tanks, skip this section. 🔿

Add pages as needed for multiple pressure tanks that could impact the area where microbial contamination was detected. Complete an assessment for each pressure tank that may influence the area where EC+ and/or TC+ was found.

### First pressure tank details (PT1):

Fill in the pressure tank information cells.

|  |  |  |
| --- | --- | --- |
| **Pressure tank name:**(What the system calls it)  | **Tank ID:**  | **Location:**  |
| **Describe tank:** (e.g., HD) | **Volume:**  | **Activity status:**  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| PT1: First pressure tank assessed | Yes | No | N/A? | In CARP? |
| PT1—1. Maintenance: |
| a. Does this pressure tank appear clean, well maintained, and free of corrosion or deterioration?  |  |  |  |  |
| b. Are compressors properly installed, maintained, and operational? |  |  |  |  |
| c. Are air filters properly installed and maintained?(if oil-less unit is present, check ‘N/A’) |  |  |  |  |
| d. Are related appurtenances (pumps, piping, etc.) operational and maintained in a watertight condition? |  |  |  |  |
| PT1—2. Inspections: |
| 1. Is exterior of this tank inspected annually?
 |  |  |  |  |
| 1. Is interior of this tank inspected every five years?
 |  |  |  |  |
| 1. Is a tank-inspection report available for this tank?
 |  |  |  |  |
| 1. Have any issues found in inspections been fixed?

(If yes, is maintenance documentation available?) |  |  |  |  |
| 1. Are any issues found in inspections uncorrected? *[If yes, submit inspection report that describes issue(s).]*
 |  |  |  |  |
| PT1—3. Pressure management: |
| 1. Is pressure measurement instrumentation present on this tank?
 |  |  |  |  |
| 1. Is pressure gauge in good repair and working properly?
 |  |  |  |  |
| 1. Is the pressure tank maintaining an appropriate minimum pressure?
 |  |  |  |  |
| **PT1 Comments:** (In addition to Lead Assessor’s observations, include relevant information about the PT from the most recent CCI and other regulatory correspondence.) |

**INSERT ADDITIONAL COPIES OF THIS PAGE FOR MULTIPLE STORAGE TANKS.**

## Storage tanks:

If PWS does not own or operate any storage tanks, skip this entire section. 🔿

Complete an assessment for each storage tank that may influence the area where EC+ and/or TC+ was found.

Add pages as needed for multiple storage tanks.

### First storage tank (ST1):

Fill in the storage tank information cells.

|  |  |  |
| --- | --- | --- |
| **Storage tank name:**(What the system calls it)  | **Tank ID:**  | **Location:**  |
| **Describe tank:** (for example, GST, EST) | **Volume:**  | **Activity status:**  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ST1: First storage tank assessed**  | Yes | No | N/A? | In CARP? | BP |
| ST1—1. Does this tank contribute to excessive water age in the system? |  |  |  |  |  |
| ST1—2. Inlet and outlet:  |
| a. Does this tank "float" on the distribution system or are there separate inlet and outlet lines? Describe:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |  |  |  |
| b. Are the inlet and outlet designed and oriented in a way to prevent short circuiting and stratification?  |  |  |  |  |  |
| ST1—3. Does this tank appear clean, well maintained, and free of corrosion or deterioration?  |  |  |  |  |  |
| ST1—4. Are the overflow, vents, and any other gaps properly screened? |  |  |  |  |  |
| ST1—5. Is the roof properly covered, with a locked hatch?  |  |  |  |  |  |
| ST1—6. Are there any openings vulnerable to contamination on this tank, including overflows, vents, and drains? |  |  |  |  |  |
| ST1—7. Are the tank and associated appurtenances (valves, pipes, fittings, etc.) operational and maintained in a watertight condition? |  |  |  |  |  |
| ST1—8. Inspections: |
| 1. Has this storage tank been inspected in the last year?
 |  |  |  |  |  |
| 1. Is there accumulated sediment in the tank?
 |  |  |  |  |  |
| 1. Have all issues found during inspections been fixed? *[If no, attach inspection reports that describe the issue(s)]*
 |  |  |  |  |  |
| ST1—9. Water quality:  |
| a. Is the disinfectant residual measured inside or exiting the tank? |  |  |  |  |  |
| b. If so, is disinfectant residual adequate?  |  |  |  |  |  |
| **ST1 Comments:** (In addition to Lead Assessor’s observations, include relevant information about the storage tank from the most recent CCI and other regulatory correspondence.) |  |

# L. Cross-Connection Control

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Yes | No | N/A? | In CARP? | BP |
| L 1. Did a cross-connection, backflow, or backsiphonage event occur that could have impacted the TC+/EC+ event? (If so, describe the reason in the CARP. For example, failure or absence of a backflow prevention assembly caused the event)  |  |  |  |  |  |
| L 2. Should a Customer Service Inspection be performed at specific TC+/EC+ sites? (If yes, describe in CARP. If completed, attach report.) |  |  |  |  |  |
| L 3. Specific hazards [290.47(f)]: |
| a. Are private wells present without backflow protection? |  |  |  |  |  |
| b. Are irrigation systems identified as hazards?  |  |  |  |  |  |
| c. Are water trucks allowed to fill up without cross-connection control? |  |  |  |  |  |
| L 4. Cross-Connection Control Program (CCCP) |
| 1. Community—Does the PWS implement an adequate CCCP?
 |  |  |  |  |  |
| 1. Non-community—Does the entity implement an adequate internal CCCP?
 |  |  |  |  |  |
| L 5. Authority |
|  a. Has the PWS adopted an adequate plumbing ordinance, regulations, or service agreement in accordance with 30 TAC §290.46(i)? (If not, describe in CARP)? |  |  |  |  |  |
|  b. Does the PWS actively implement that authority in accordance with 30 TAC §290.46(i)? (If not, describe in CARP)  |  |  |  |  |  |
| L 6. Customer Service Inspections |
| a. Does the PWS ensure that Customer Service Inspections are performed at all new service connections, existing service connections where the PWS has reason to believe that cross-connections or other potential contamination hazards exist (for example, when TC+/EC+ are present?  |  |  |  |  |  |
| b. If so, does the PWS employ a licensed Customer Service Inspector (CSI) or otherwise ensure that personnel performing Customer Service Inspections are adequately credentialed according to the TCEQ regulations?  |  |  |  |  |  |
| c. Are CSI reports retained permanently (best practice) or for a minimum of ten (10) years? |  |  |  |  |  |
| L 7. Does the PWS ensure that backflow prevention (BFP) assemblies are maintained and tested in accordance with the TCEQ rules? |  |  |  |  |  |

# M. Security, emergency response

|  |
| --- |
|  If a security breach occurred, describe it in the Corrective Action Report and Plan. |
| Questions | Yes | No | N/A? | In CARP? |
| M 1. Did an interruption to source availability, treatment, or electrical power impact the PWS? (If so, describe in CARP) |  |  |  |  |
| M 2. Does the PWS ensure the security of the distribution system, for example visiting all distribution system facilities on a regular basis, keeping gates locked on pump stations, etc.? |  |  |  |  |
| M 3. Did a security breach impact the PWS? (for example, vandalism or intentional contamination) (If so, describe in CARP) |  |  |  |  |
| M 4. Did an emergency impact the PWS? (for example, weather, sanitary sewer overflow, waterborne disease outbreak, or drought)? (If so, describe in CARP) |  |  |  |  |
| M 5. Is the PWS adequately prepared for any emergencies that could cause or potentially cause pathogen contamination? (If not, describe in CARP) |  |  |  |  |

# N. Sanitary defects

Consider all of the conditions observed during the process of completing the Level 2 Assessment. If any sanitary defects were found, they must be described in the Corrective Action Report and Plan (CARP).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Questions | Yes | No | N/A? | In CARP? |
| N 1. Were any sanitary defects identified?Any condition that could potentially have caused pathogen intrusion —or that ***is indicative of a failure or imminent failure of an existing barrier***—is defined as a sanitary defect. |  |  |  |  |
| N 2. Did any sanitary defect that you found cause the TC+/EC+ event, or could it have?The sanitary defect directly responsible for triggering the assessment may or may not have been found. |  |  |  |  |
| N 3. Did the PWS fix any sanitary defect(s)?If a sanitary defect was found, it may already have been fixed partially or completely. |  |  |  |  |
| N 4. Are there identified defects which have not been addressed yet?If a sanitary defect was found, and has not been fixed yet, there must be a plan for fixing it. |  |  |  |  |

**INSERT ADDITIONAL COPIES OF THIS PAGE FOR MULTIPLE CARP ITEMS.**

# O. Corrective Action Report and Plan

Describe all identified sanitary defects (defined as potential pathways for pathogen contamination) in the Corrective Action Report and Plan (CARP) whether or not they were specifically related to the TC+/EC+ event that triggered this L2A.

Refer to the TCEQ (RG) XXX “Performing a Revised Total Coliform Rule (RTCR) Level 2 Assessment (L2A)” for guidance on completing the CARP. *(Note: RG under development)*

One CARP Item table is provided. Add additional tables as needed to describe all CARP items. Use only one table for each item.

CARP Item \_\_

|  |
| --- |
| L2A Form Question Number(s):  |
| Issue area-of-impact:  |
| Issue description:  |
| Completed Corrective Action(s):  |
| Planned Corrective Action: |
| Projected Completion Date for Planned Actions: |
| (For TCEQ Use Only) CARP Item \_\_\_ Approval |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_TCEQ WSD Representative Date | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_TCEQ OCE Representative Date |

**INSERT ADDITIONAL COPIES OF THIS PAGE FOR MULTIPLE BEST PRACTICE ITEMS.**

# P. Best Practices

Describe all industry best practices (BPs) that are recommended for implementation by the PWS.

Refer to the TCEQ (RG) XXX “Performing a Revised Total Coliform Rule (RTCR) Level 2 Assessment (L2A)” for guidance on recommending best practices. *(Note: RG under development)*

Two Best Practice Item tables are provided. Add additional tables as needed to describe all best practice items. Use only one table for each item.

BP Item \_\_

|  |
| --- |
| L2A Form Question Number(s):  |
| Issue area-of-impact:  |
| Issue description:  |
| Recommended Action:  |

BP Item \_\_

|  |
| --- |
| L2A Form Question Number(s):  |
| Issue area-of-impact:  |
| Issue description:  |
| Recommended Action:  |

1. “Revised Total Coliform Rule Assessments and Corrective Actions Guidance Manual” -Interim Final, EPA 815-R-14-006, September 2014, p. 4-1. [↑](#footnote-ref-2)