

# **Revised Total Coliform Rule – Level 1 Assessment for Groundwater System with Chemical Removal Treatment Plant**

This form is intended to assist public water systems in completing the investigation required by the revised Total Coliform Rule (rTCR) [effective July 1, 2021] and may be modified to take into account conditions unique to the water system. To avoid a violation, an assessment report must be completed and returned to your local regulatory agency no later than 30 days after the coliform treatment trigger date. If responses require additional pages, please include them with your submittal.

## ADMINISTRATIVE INFORMATION

|  |  |
| --- | --- |
| **Public Water System Name:** |  |
| **Public Water System Number:** |  |
| **Public Water System Type (CWS, NTNC, TNC):** |  |
| **Date Investigation Completed:** |  |
| **Date that Triggered Level 1 Assessment** |  |
| **Month or months of Coliform Treatment Technique Trigger** |  |

## CONTACT INFORMATION

| Title | Name | Email Address | Telephone Number |
| --- | --- | --- | --- |
| Operator in Responsible Charge |  |  |  |
| Person that collected Total Coliform (TC) samples |  |  |  |
| System Owner |  |  |  |
| Certified Laboratory for Microbiological Analyses |  |  |  |

## SOURCE

| Description | Well (name) | Well (name) | Well (name) |
| --- | --- | --- | --- |
| Inspect each wellhead for physical defects and report. Include well names in cells here |  |  |  |
| Is raw water sample tap upstream from point of disinfection? |  |  |  |
| Is wellhead vent pipe screened? |  |  |  |
| Is wellhead seal watertight? |  |  |  |
| Is well head located in pit or is any piping from the wellhead submerged? |  |  |  |
| Does the ground surface slope towards well head? |  |  |  |
| Is there evidence of standing water near the wellhead? |  |  |  |
| Are there any connections to the raw water piping that could be cross-connections? (Describe all connections in comments) |  |  |  |
| Is the wellhead secured to prevent unauthorized access? |  |  |  |
| To what treatment plant (name) does this well pump? |  |  |  |
| How often do you take a raw water total coliform (TC) test? |  |  |  |
| Provide the date and result of the last TC test at this location. |  |  |  |

## GROUNDWATER TREATMENT

| Description | Plant (name) | Plant (name) | Comments |
| --- | --- | --- | --- |
| Include the groundwater treatment plant names in the columns to the right. |  |  |  |
| If you provide any chemical removal treatment in addition to disinfection, was there any equipment failure? |  |  |  |
| Have you inspected the chemical treatment units? |  |  |  |
| What is the condition of the treatment units? |  |  |  |
| Did you collect a bacteriological quality or HPC sample from the treatment plant? |  |  |  |
| Do you think the source of bacteriological contamination in the distribution system may be the chemical treatment media/vessels? |  |  |  |
| What actions have you taken or plan to take? |  |  |  |
| Any additional important information? |  |  |  |

## CHLORINATION TREATMENT

| Description | Plant (name) | Plant (name) | Comments |
| --- | --- | --- | --- |
| Include the groundwater treatment plant names in the columns to the right. Inspect each point where disinfection is added and report the following below: |  |  |  |
| Do you provide routine chlorination? |  |  |  |
| If you provide continuous chlorination treatment, was there any equipment failure? |  |  |  |
| Did this result in a loss of chlorine residual at the entry point to the distribution system? If yes, how long? |  |  |  |
| Was emergency chlorination initiated? If yes, how long? |  |  |  |
| Did the distribution system lose chlorine residual? |  |  |  |
| What was the chlorine residual in the distribution system? |  |  |  |
| Is the disinfectant feed pump feeding disinfectant? |  |  |  |
| What kind of disinfectant do you add? |  |  |  |
| What is the feed rate of disinfectant in ml/minute? |  |  |  |
| What is the concentration of the disinfectant solution being fed? (Percent, or mg/L of chlorine as HOCl) |  |  |  |
| By what method was the concentration of solution determined? (ex: measured, manufacturer’s literature) |  |  |  |
| What is the age (days) of the disinfectant solution currently being used at this treatment location? |  |  |  |
| What is the raw water flow rate at the point where disinfectant is added in gallons per minute? |  |  |  |
| What is the total chlorine residual measured immediately downstream from the point of application? |  |  |  |
| What is the free chlorine residual measured immediately downstream from the point of application? |  |  |  |

## DISINFECTION TREATMENT – ULTRAVIOLET LIGHT

| Description | Plant (name) | Plant (name) | Comments |
| --- | --- | --- | --- |
| Include the groundwater treatment plant names in the columns to the right. |  |  |  |
| Is the UV disinfectant equipment working properly? |  |  |  |
| What is the UV dosage in milli joules per square centimeter (mJ/cm2)? |  |  |  |
| By what method was the feed rate/residual concentration determined? (ex: measured, manufacturer’s literature) |  |  |  |
| What is the age of the UV lamps currently being used at this treatment location? |  |  |  |
| What is the raw water flow rate at the point where the UV is added? |  |  |  |

## DISINFECTION TREATMENT OTHER THAN UV OR CHLORINATION

| Description | Plant (name) | Plant (name) | Comments |
| --- | --- | --- | --- |
| Include the groundwater treatment plant names in the columns to the right. |  |  |  |
| Do you provide any disinfection treatment other than chlorination? If yes, What type? |  |  |  |
| Was there any equipment failure? If yes, how long? |  |  |  |
| Did this result in a loss of disinfectant residual at the entry point to distribution system? If yes, how long? |  |  |  |
| Did the distribution system lose disinfectant residual? |  |  |  |
| Include the groundwater treatment plant names in the columns to the right. |  |  |  |
| Was emergency chlorination initiated? |  |  |  |
| If yes, when? |  |  |  |

## SAMPLE SITE EVALUATION

| Description | ROUTINE TC+ OR EC+ | UPSTREAM SITE | DOWNSTREAM SITE | GROUND WATER RULE TRIGGERED SAMPLE (WELL) |
| --- | --- | --- | --- | --- |
| (Complete for all TC positive or EC positive findings and report accordingly.) *Include sample site names in the following cells and indicate if TC positive or EC positive. Attach copies of the results.* |  |  |  |  |
| What is the height (in inches) of the sample tap above grade? |  |  |  |  |
| Is the sample tap located in an exterior location or is it protected by an enclosure? |  |  |  |  |
| Is the sample tap threaded? Does it have a swing arm or an aerator (common in sinks)? |  |  |  |  |
| Is the sample tap in good condition, free of leaks around the stem or packing? |  |  |  |  |
| Can the sample tap be adjusted to the point where a good laminar flow can be achieved without excessive splash? |  |  |  |  |
| Is the sample tap and areas around the sample tap clean and dry (free of animal droppings, other contaminants, or spray irrigation systems)? |  |  |  |  |
| Is the area around the sample tap free of excessive vegetation or other impediments to sample collection? |  |  |  |  |
| Describe how the tap was treated in preparation for sample collection (ran water, swabbed with disinfectant, flamed, etc.) |  |  |  |  |
| Is this sample tap designated on the bacteriological sample siting plan (BSSP) as a routine or repeat site? |  |  |  |  |
| Were the samples delivered to the laboratory in a cooler and within the allowable holding time? |  |  |  |  |
| What were the weather conditions at the time of the positive sample (rainy, windy, sunny)? |  |  |  |  |

## STORAGE TANK(s)

| Description | Tank (tank) | Tank (name) | Tank (name) |
| --- | --- | --- | --- |
| Is each tank locked to prevent unauthorized access? |  |  |  |
| Are all vents of each tank screened and downturned to prevent dust and dirt from entering the tank? |  |  |  |
| Is the overflow on each tank screened? |  |  |  |
| Are there any unsealed openings in the tank such as access doors, water level indicators hatches, etc.? |  |  |  |
| Are there unsealed openings in the tank such as access doors, water level indicators, hatches, etc.? |  |  |  |
| Is the roof/cover of the tank sealed and free of any leaks? |  |  |  |
| Include tank names in cells to the right.  Inspect each storage tank for physical defects and report the following details below. Attach additional pages if needed. |  |  |  |
| Is the tank above ground or buried? |  |  |  |
| If buried or partially buried, are there provisions to direct surface water away from the site? |  |  |  |
| Has the interior of the tank been inspected to identify any sanitary defects, such as root intrusion? |  |  |  |
| Does the tank ‘float’ on the distribution system or are there separate inlet and outlet lines? |  |  |  |
| What is the measured (total/free; circle one) chlorine residual of the water exiting the storage tank today? |  |  |  |
| What is the volume of the storage tank in gallons? |  |  |  |
| How old is the tank? |  |  |  |
| Is the tank baffled? |  |  |  |
| Prior to the TC+ or EC+, what was the previous date items #1-7 were checked and documented? |  |  |  |

## PRESSURE TANK(s)

| Description | Tank (tank) | Tank (name) | Tank (name) |
| --- | --- | --- | --- |
| Include pressure tank names in cells to the right.  Inspect each pressure tank for physical defects and report the following details below. Attach additional pages if needed. |  |  |  |
| What is the volume of the pressure tank? |  |  |  |
| What is the age of the pressure tank? |  |  |  |
| Is the pressure tank bladder type or air compressor type? |  |  |  |
| Did the pressure tank deviate from normal operating pressure? |  |  |  |
| Is the compressor pump running more often than normal? |  |  |  |
| Is the tank bladder waterlogged? |  |  |  |
| Does the tank have damage, rust, leaks or holes? |  |  |  |
| Was there any recent work performed? |  |  |  |
| Is there an air relief vent? If so, is it on the pressure tank screened and facing downwards? |  |  |  |
| Can the inside of the pressure tank be visually inspected through an inspection port? If so, when was the last time it was inspected? |  |  |  |

## DISTRIBUTION SYSTEM

| Description | System Response |
| --- | --- |
| What is the minimum pressure you are maintaining in the distribution system? |  |
| Did pressure in the distribution system drop to less than 5 psi prior to positive bacteriological result? |  |
| Has the distribution system been worked on within the last week (taps, hydrant flushing, main breaks, mainline extensions, etc.)? If so, provide details. |  |
| Are there any signs of excavations near your distribution system not under the direct control of your maintenance staff? |  |
| Did you inspect your distribution system to check for mainline leaks? Do you or did you have a mainline leak? |  |
| If there was a mainline leak, when was it repaired? |  |
| On what date was the distribution system last flushed? |  |
| Is there a written flushing procedure you can provide for our review? |  |
| Do you have an active cross-connection control program? |  |
| What is the name & phone number of your Cross-Connection Control Program Coordinator? |  |
| Have all backflow prevention devices in the distribution system been tested annually and repaired/replaced if they did not pass and retested afterwards? |  |
| When was the last physical survey of the system done to identify cross-connections? |  |

## BOOSTER STATIONS

| Description | System Response |
| --- | --- |
| Do you have a booster pump? How many? |  |
| Do you have a standby booster pump if the main pump fails? |  |
| Prior to bacteriological quality problems, did your booster pump fail? |  |
| Do you notice standing water, leakage at the booster station? |  |

## GENERAL OPERATIONS

| Description | System Response |
| --- | --- |
| Has the sampler(s) who collected the samples received training on proper sampling techniques? If so, please indicate date of last training. |  |
| Does the water system have a written sampling procedure and was it followed? |  |
| Were there any power outages that affected water system facilities during the 30 days prior to the TC or EC positive findings? |  |
| Were there any main breaks, water outages or low pressure reported in the service area from which TC or EC positive samples were collected? |  |
| Does the system have backup power or elevated storage? |  |
| During or soon after bacteriological quality problems, did you receive any complaints of any customers’ illness suspected of being waterborne? How many? |  |
| What were the symptoms of illness if you received complaints about customers being sick? |  |

## SUMMARY

Based on the results of your assessment and any other available information, what deficiencies do you believe to have caused the positive total coliform samples within your distribution system?

| Deficiency | Deficiency Descriptions |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

## CORRECTIVE ACTIONS

What actions have you taken to correct the above mentioned deficiencies? If additional time is needed to correct a deficiency, indicate the date that it will be corrected.

| Deficiency | Corrective action | Date Completed |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**CERTIFICATION**

I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

| Name & Signature | Title | Date |
| --- | --- | --- |
|  |  |  |

## ADDITIONAL INFORMATION

Upon review of the Level 1 Assessment Form, the local regulatory agency may require submittal of the following additional information:

* Sketch of system showing all sources, all treatment and chlorination locations, storage tanks, microbiological sampling sites, copies of bacteriological sampling results, and general layout of the distribution system including the location of all hazardous connections such as the wastewater treatment facility.
* A set of photographs of the source, pressure tanks, and storage tanks in the system may be submitted if they would show that the contamination is directly related and changes have been made since the last inspection by the local regulatory agency.
* Name, certification level and certificate number of the Operator in Responsible Charge.
* Copy of the last cross connection survey performed that identifies the location of all unprotected cross connections.