**REVISED TOTAL COLIFORM RULE (RTCR) – LEVEL 1 ASSESSMENT**

**Groundwater System with Chemical Removal Treatment Plant**

This form is intended to assist public water systems in completing the investigation required by the federal revised Total Coliform Rule (rTCR) [effective April 1, 2016] 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 trigger date.**

## ADMINISTRATIVE INFORMATION

|  |  |
| --- | --- |
| **Public Water System Name:** | **[insert Water System Name]** |
| **Public Water System Number:** | **[insert Water System Number]** |
| **Public Water System Type (CWS, NTNC, TNC):** | **[insert Water System Classification]** |
| **Date Investigation Completed:** | **[insert Date of Investigation]** |
| **Months of Coliform Treatment Technique Trigger:** | **[insert Months of Violation]** |

## CONTACT INFORMATION

| Title | Name | Email Address | Telephone Number |
| --- | --- | --- | --- |
| Operator in Responsible Charge | **[insert Operator Name]** | **[insert operator’s email address]** | **[insert operator’s phone number]** |
| Person that collected TC samples | **[insert collector’s name]** | **[insert collector’s email address]** | **[insert collector’s phone number]** |
| System Owner | **[insert owner’s name]** | **[insert owner’s email address]** | **[insert owner’s telephone number]** |
| Certified Laboratory for Microbiological Analyses | **[insert name of laboratory]** | **[insert email address of laboratory contact]** | **[insert laboratory’s telephone number]** |

## INVESTIGATION DETAILS

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

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

| Chlorination Treatment | 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: | **[Insert treatment plant name]** | **[Insert treatment plant name]** | **[Insert comments]** |
| Do you provide routine chlorination? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| If you provide continuous chlorination treatment, was there any equipment failure? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| Did this result in a loss of chlorine residual at the entry point to the distribution system? If yes, how long? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| Was emergency chlorination initiated? If yes, how long? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| Did the distribution system lose chlorine residual? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| What was the chlorine residual in the distribution system? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| Is the disinfectant feed pump feeding disinfectant? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| What kind of disinfectant do you add? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| What is the feed rate of disinfectant in ml/minute? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| What is the concentration of the disinfectant solution being fed? (percent, or mg/L of chlorine as HOCl) | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| By what method was the concentration of solution determined? (ex: measured, manufacturer’s literature) | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| What is the age (days) of the disinfectant solution currently being used at this treatment location? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| What is the raw water flow rate at the point where disinfectant is added in gallons per minute? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| What is the total chlorine residual measured immediately downstream from the point of application? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| What is the free chlorine residual measured immediately downstream from the point of application? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert 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: | **[Insert treatment plant name]** | **[Insert treatment plant name]** | **[Insert comments]** |
| What is the contact time in minutes from the point of disinfectant application to the first customer? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments** |

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

| Disinfection Treatment Other Than UV or Chlorination | Plant (Name) | Plant (Name) | Comments |
| --- | --- | --- | --- |
| Include the groundwater treatment plant names in the columns to the right. | **[Insert treatment plant name]** | **[Insert treatment plant name]** | **[Insert comments]** |
| Do you provide any disinfection treatment other than chlorination? If yes, What type? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| Was there any equipment failure? If yes, how long? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| Did this result in a loss of disinfectant residual at the entry point to distribution system? If yes, how long? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| Did the distribution system lose disinfectant residual? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| Include the groundwater treatment plant names in the columns to the right. | **[Insert treatment plant name]** | **[Insert treatment plant name]** | **[Insert comments]** |
| Was emergency chlorination initiated? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |
| If yes, when? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert comments]** |

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

| Pressure Tanks | Tank (Name) | Tank (Name) | 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. | **[Insert tank name]** | **[Insert tank name]** | **[Insert tank name]** | **[Insert tank name]** |
| What is the volume of the pressure tank? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| What is the age of the pressure tank? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Is the pressure tank bladder type or air compressor type? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Did the pressure tank deviate from normal operating pressure? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Is the compressor pump running more often than normal? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Is the tank bladder waterlogged? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Does the tank have damage, rust, leaks or holes? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Was there any recent work performed? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Is there an air relief vent? If so, is it on the pressure tank screened and facing downwards? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Can the inside of the pressure tank be visually inspected thru an inspection port? If so, when was the last time it was inspected? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |

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

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

| Sample Site Evaluation | Routine Site | Upstream Site | Downstream Site | 4th Repeat Site |
| --- | --- | --- | --- | --- |
| Complete for all TC/ E. coli (EC) positive findings. Include sample site name in cells to the right and indicate if TC or EC positive. Provide details of the evaluation by responding the questions below. Attach additional pages for comments if needed. | **[Insert Routine Site Name]** | **[Insert Upstream Site Name]** | **[Insert Downstream Site Name]** | **[Insert fourth repeat Site Name]** |
| What is the height (in inches) of the sample tap above grade? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Is the sample tap located in an exterior location or is it protected by an enclosure? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Is the sample tap threaded? Does it have a swing arm or an aerator (common in sinks)? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Is the sample tap in good condition, free of leaks around the stem or packing? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Can the sample tap be adjusted to the point where a good laminar flow can be achieved without excessive splash? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Is the sample tap and areas around the sample tap clean and dry (free of animal droppings, other contaminants or spray irrigation systems)? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Is the area around the sample tap free of excessive vegetation or other impediments to sample collection? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Describe how the tap was treated in preparation for sample collection (ran water, swabbed with disinfectant, flamed, etc.). | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Is this sample tap designated on the bacteriological sample siting plan (BSSP) as a routine or repeat site? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| Were the samples delivered to the laboratory in a cooler and within the allowable holding time? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |
| What were the weather conditions at the time of the positive sample (rainy, windy, sunny, etc.)? | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** | **[Insert answer to question]** |

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

## 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 sample(s) within your distribution system? (DO NOT LEAVE BLANK)

| Deficiency Number | Deficiency Description |
| --- | --- |
| 1. | **[Insert description of deficiency]** |
| 2. | **[Insert description of deficiency]** |
| 3. | **[Insert description of deficiency]** |
| 4. | **[Insert description of deficiency]** |
| 5. | **[Insert description of deficiency]** |

## 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. (DO NOT LEAVE BLANK)

| Deficiency Number | Corrective Action | Completion / Proposed Date |
| --- | --- | --- |
| 1. | **[Insert description of corrective action taken]** | **[Insert date of completion or proposed date of completion]** |
| 2. | **[Insert description of corrective action taken]** | **[Insert date of completion or proposed date of completion]** |
| 3. | **[Insert description of corrective action taken]** | **[Insert date of completion or proposed date of completion]** |
| 4. | **[Insert description of corrective action taken]** | **[Insert date of completion or proposed date of completion]** |
| 5. | **[Insert description of corrective action taken]** | **[Insert date of completion or proposed date of completion]** |

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

NAME:**[Insert name of water system representative who has completed this assessment]**

TITLE**:[Insert title of water system representative]**

DATE: **[Insert date of completion of this assessment]**

SIGNATURE:**[Insert Signature of water system representative who has completed this assessment]**

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

* Sketch/drawing of system showing all sources, all treatment and chlorination locations, storage tanks, microbiological sampling sites and general layout of the distribution system including the location of all hazardous connections such as the wastewater treatment facility.
* 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.