

**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF HEALTH
OFFICE OF DRINKING WATER**

Date: December 5, 2017

To: Office of Drinking Water Staff

Through: *RA* Dwayne Roadcap, Director *Jeffrey S. Wells*

From: Jeffrey S. Wells, PE, Acting Deputy Director *JSW*

Subject: **Working Memo 917, Amendment #2**
SURVEILLANCE & REGULATIONS - Revised Total Coliform Rule
Implementation Procedures

Reference: WM 823 – SDWIS, *ODW SDWIS Manual*, and *ODW SDWIS Compliance Determination Manual*
WM 851 – Sanitary Surveys
WM 898 – *Compliance Sampling and Reporting Guidance Manual for ODW Staff*

Summary:

The primary purpose of the Revised Total Coliform Rule (RTCR) is to reduce potential pathways of microbial contamination into the waterworks distribution system and subsequently enhance public health protection. The RTCR eliminates the primary maximum contaminant level (PMCL) for total coliform and establishes the PMCL for *E. coli*. It also uses the detection of total coliform and *E. coli* to initiate a “find and fix” approach to address fecal contamination in the distribution system and requires waterworks owners to perform assessments to identify potential sanitary defects and subsequently take corrective action to fix them.

This amendment revises Working Memo 917, dated December 12, 2016.

Summary of Revisions:

- Section 3 – clarifies the criteria to qualify for dual purpose monitoring
- Section 11 – requires Field Office staff to write a memo documenting a decision that an assessment is not required or elevated

Contact Information:

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Disclaimer:

This document is provided as guidance and, as such, sets forth standard operating procedures for the Office of Drinking Water. However, it does not mandate or prohibit a particular action not otherwise required or prohibited by law. If alternative proposals are made, such proposals will be reviewed and accepted or denied based upon their technical adequacy and compliance with appropriate laws and regulations.

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ATTACHMENTS:

- A.1. Notice - Level 1 Assessment Required
- A.2. Notice - Level 2 Assessment Required
- A.3. Level 2 Assessment Transmittal Letter
- B.1. Waterworks Level 1 Assessment Form¹
- B.2. Waterworks Level 2 Assessment Form¹
- ~~C.1. Seasonal Waterworks Notification Letter – Archived~~
- C.2. Seasonal Waterworks Start-Up Procedures
- C.3. Waterworks with Seasonal Components Start-Up Procedures
- C.4. Seasonal Waterworks Start-Up Disinfection Procedures
- C.5. Seasonal Waterworks Start-Up Procedures Approval Letter
- C.6. Seasonal Waterworks Start-Up Procedures Certification Form
- C.7. Waterworks with Seasonal Components Start-Up Procedures Certification Form
- C.8. Seasonal Waterworks Start-Up Procedures Review Sheet
- ~~D.1. RTCR Tier 1 *E. coli* PMCL Informational NOV & PN – Notice of Level 2 Assessment - Archived~~
- ~~D.2. RTCR Tier 2 Coliform TT Informational NOV & PN - Archived~~
- ~~D.3. RTCR Tier 2 Seasonal TT Informational NOV & PN - Archived~~
- ~~D.4. RTCR Tier 3 Monitoring Informational NOV & PN - Archived~~
- ~~D.5. RTCR Tier 3 Reporting Informational NOV & PN - Archived~~
- ~~D.6. RTCR Tier 3 Recordkeeping Informational NOV & PN - Archived~~

¹ The Level 1 and Level 2 assessment forms will be attached to the *Waterworks Regulations* posted on Town Hall and also on ODW’s webpage: [Laws & Regulations](#).

- E.1. RTCR Tier 1 *E. coli* PMCL NOV & PN - Notice of Level 2 Assessment
- E.2. RTCR Tier 2 Coliform TT NOV & PN
- E.3. RTCR Tier 2 Seasonal TT NOV & PN
- E.4. RTCR Tier 3 Monitoring NOV & PN
- E.5. RTCR Tier 3 Reporting NOV & PN
- E.6. RTCR Tier 3 Recordkeeping NOV & PN
- E.7. RTCR Tier 3 No BSSP NOV

1. INTRODUCTION

The Revised Total Coliform Rule (RTCR) upholds the purpose of the 1989 Total Coliform Rule (TCR) to protect public health by ensuring the integrity of the waterworks distribution system and monitoring for the presence of microbial contamination. The RTCR, as with the TCR, is the only microbial drinking water regulation that applies to all waterworks. The RTCR specifies the frequency and timing of required microbial testing based on population served, waterworks type, and source water type. Additionally, the RTCR requires waterworks found to be vulnerable to microbial contamination to identify and fix problems. Many of these problems may be defined as “sanitary defects.”

The RTCR establishes a Primary Maximum Contaminant Level (PMCL) and a Maximum Contaminant Level Goal (MCLG) for *E. coli*. *E. coli* is a more specific indicator of fecal contamination and is a potentially more harmful pathogen than other bacteria typically found in the total coliform group. In addition, an important point to remember is that *E. coli* has been specified as the Ground Water Rule (GWR) fecal indicator by ODW.

2. APPLICABILITY AND COMPLIANCE DATES

The RTCR applies to all waterworks. Waterworks had to begin compliance with the federal regulation requirements of the RTCR (40 CFR Part 141, Subpart Y - Revised Total Coliform Rule) on April 1, 2016. The *Waterworks Regulations* RTCR requirements became effective November 2, 2016. The TCR was applicable through March 31, 2016, with the exception of existing, unresolved TCR requirements that transitioned over April 1, 2016, and had to be completed as specified by the TCR (e.g., repeat monitoring and completion of public notification requirements).

3. SAMPLE SITING PLANS & MICROBIAL MONITORING

All bacteriological sample siting plans (BSSPs) shall be developed and approved in accordance with guidance in the most recent version of the *Compliance Sampling and Reporting Guidance Manual* and the requirements of the *Waterworks Regulations*. The Office of Drinking Water (ODW) shall review every BSSP for adequacy during every routine sanitary survey, according to the minimum frequency of sanitary surveys required for each type of waterworks.

ODW did not adopt the reduced monitoring provisions of the federal regulations. With the exception of seasonal waterworks, routine monitoring frequency remains the same as previously required under the TCR. Waterworks will NOT be permitted to reduce their monitoring frequency to annual. The minimum frequency of total coliform monitoring is quarterly for transient non-community (TNC) waterworks operated year round serving 1,000 or fewer people, and monthly for all community, non-transient non-community (NTNC), and TNC waterworks serving more than 1,000 people. All routine monitoring for seasonal TNC waterworks is conducted on a monthly frequency.

Routine monitoring frequency is increased under the following circumstances:

- TNC waterworks on a quarterly monitoring frequency must collect a minimum of three routine samples in the month subsequent to a month having a total coliform-positive sample

(referred to as “additional routine monitoring”); include in notification where a waterworks must perform a Level 1 assessment (see Attachment A.1);

- A source declared to be surface water or ‘groundwater under the influence of surface water’ in the interim before filtration is installed; or
- As determined necessary by the Commissioner to ensure protection of public health.

A TNC waterworks using a groundwater source, on a quarterly monitoring frequency, operating year-round and serving 1,000 or fewer people, must increase monitoring frequency to monthly for at least 12 months when any of the following occurs:

- A Level 2 assessment or two Level 1 assessments in a rolling 12-month period are triggered;
- An *E. coli* PMCL is exceeded;
- A total coliform treatment technique requirement is not met;
- Non-compliance with two RTCR monitoring requirements in a rolling 12-month period; or
- Non-compliance with one RTCR monitoring requirement and one Level 1 assessment in a rolling 12-month period.

The monthly sampling begins in the month subsequent to the occurrence of one of the above events. The BSSP must be updated to reflect the increased monitoring frequency requirement. Include a notification of change to sampling frequency in the Level 2 assessment required notification letter (Attachment A.2) and, when appropriate, the Level 1 assessment required notification letter (Attachment A.1). In addition, change the TCR sample schedule in SDWIS.

A TNC waterworks operated year-round may return to routine monitoring (quarterly frequency) after 12 months of monthly monitoring and after all of the following conditions are met:

- A sanitary survey, site visit or a voluntary Level 2 assessment has been performed;
- Waterworks is free of sanitary defects;
- Waterworks has a protected water source; and
- Waterworks has a “clean compliance history”.²

Each routine total coliform-positive sample result requires the collection of three “repeat” samples no matter the waterworks type or population served. Collection of repeat samples is mandatory to complete the compliance determination for an exceedance of the *E. Coli* PMCL. Each set of repeat total coliform samples with positive results also requires the collection of three repeat samples unless a treatment technique has been triggered. The *Waterworks Regulations* require that the repeat samples be collected within 24 hours of being notified of a coliform-positive result. ODW may allow an extension of this requirement for the following situations:

- Problems with lab availability or accessibility;

² A “clean compliance history” is defined as 12 consecutive months of: no *E. coli* PMCL exceedances; continuous compliance with RTCR monitoring requirements and treatment technique requirements; and no occurrence of coliform treatment technique triggers.

- Problems with delivery service; or
- Weather or other circumstances beyond the control of the waterworks owner, which will create logistical problems in the sample collection.

Owners may select alternative repeat sample sites if those sites better characterize possible contamination routes into the distribution system. The repeat sites can be either alternative fixed locations or identified on a situational basis per a Standard Operating Procedure (SOP). The SOP must be included in the approved BSSP. Refer to the most recent version of the *Compliance Sampling and Reporting Manual* for additional information and BSSP templates.

If a single well groundwater source is used at a waterworks serving 1,000 or fewer people, a repeat sample taken at the triggered source water monitoring site may be used to satisfy the sampling requirements of both the RTCR and GWR (“dual purpose sampling”). In other words, the triggered sample is also the repeat sample. To qualify for dual purpose sampling under RTCR, the source water quality must be representative of water throughout the distribution system. The BSSP must clearly describe this situation.

4. SEASONAL WATERWORKS

Definition

The *Waterworks Regulations* define a “seasonal waterworks” as a noncommunity waterworks that is not operated as a waterworks on a year-round basis, and starts up and shuts down at the beginning and end of each operating season.

Monitoring Requirements

All seasonal waterworks will conduct bacteriological monitoring on a monthly frequency in accordance with an approved BSSP. In cases where the population may vary during the monitoring period, the number of samples must be adjusted accordingly. The number of samples to be collected is based on the population served in accordance with the *Waterworks Regulations*.

Seasonal Start-Up Provisions

All seasonal waterworks are required to establish a Start-up Procedure (Attachment C.2) approved by ODW (Attachment C.5). Guidance on disinfection procedures is provided in Attachment C.4. After completing the start-up procedure, the owner/operator must:

- Collect two bacteriological water samples, identified as “special,” a minimum of 16 hours apart, from an approved bacteriological sample site and submit the samples to Division of Consolidated Laboratory Services (DCLS) or a laboratory certified by DCLS to perform the total coliform presence/absence analysis. These samples shall not be used for routine monitoring compliance determination with the RTCR; and
- Submit a copy of the “special” bacteriological sample results along with the signed certification form (Attachment C.6) to ODW.

Only after the signed Certification Form has been submitted and the two consecutive bacteriological samples have tested total coliform absent shall the waterworks be allowed to start serving water. Use Attachment C.8. to review the startup procedures.

Waterworks with Seasonal Components

Some waterworks operate a portion of their components (areas of distribution piping, in particular) on a seasonal basis due to cyclic business conditions or lack of freeze protection safeguards. ODW is requiring any owner that seasonally operates a portion of the waterworks to establish a start-up procedure (Attachment C.3.) including special bacteriological sampling and submittal of a start-up procedures certification form (Attachment C.7.). Once ODW has identified such waterworks, the Waterworks Description Sheet shall be amended to document the waterworks operational practices.

5. SANITARY SURVEYS

Sanitary Surveys are required for all waterworks as described in WM 851. WM 851 requires review of all sampling plans, including the BSSP, during each sanitary survey evaluation in accordance with Essential Element #6 - "Monitoring and Reporting (M&R) and Data Verification". The review verifies accuracy of all monitoring requirements in the BSSP, especially site locations, frequency and number of samples collected per monitoring period for every waterworks. The Sanitary Survey template (Part I - Compliance History) includes a compliance evaluation of the RTCR requirements, including occurrence and status of Level 1 and Level 2 assessments.

6. COLIFORM TREATMENT TECHNIQUE TRIGGERS

The RTCR specifies two levels of coliform treatment technique (TT) triggers and corresponding levels of assessment (Level 1 and Level 2) in response to those triggers. The degree and depth to which a waterworks must be examined, including monitoring and operational practices, depends on the TT triggers' potential impact to public health. A Level 2 assessment requires a more in-depth and comprehensive review of the waterworks compared to a Level 1 assessment.

A waterworks has exceeded the TT trigger after any of the following trigger conditions have been reached:

Level 1 TT triggers:

1. For waterworks taking 40 or more samples (including routine and repeat samples) per month, the waterworks exceeds 5.0 % total coliform-positive samples for the month.
2. For waterworks taking fewer than 40 samples (including routine and repeat samples) per month, the waterworks has two or more total coliform-positive samples in the same monitoring period.
3. The waterworks fails to take every required repeat sample after any single routine total coliform-positive sample.

Level 2 TT triggers:

1. The waterworks incurs an *E. coli* PMCL exceedance.
2. The waterworks has a second Level 1 TT trigger within a rolling 12-month period, unless the likely cause for the total coliform-positive samples triggering the initial Level 1 TT trigger was identified during the prior assessment process, and ODW concurred that the waterworks corrected the problem during the assessment.

7. VIOLATIONS AND PUBLIC NOTIFICATION

The RTCR establishes an *E. coli* PMCL violation and additional TT, monitoring, and reporting violations. Public notification is required for each violation. Failure to collect repeat samples is not a monitoring violation. This is an important exception for staff to be aware of in lieu of all other contaminant monitoring requirements listed in the *Waterworks Regulations*.

The following table provides a listing of RTCR violations, its associated public notification Tier level, NOV/PN template reference and SDWIS Violation Type Code.

Note: The RTCR has been promulgated in the *Waterworks Regulations*. Use Attachments E.1 through E.7.

| Type of Violation | Description | Notification Required | NOV/PN Template (Attachment) | SDWIS Violation Type Code |
|---|--|-----------------------|------------------------------|---------------------------|
| <i>E. coli</i> PMCL (Boil Water Advisory Required) | <i>E. coli</i> -positive repeat sample following a total coliform-positive routine sample | Tier 1 PN | E.1 | 1A |
| | Total coliform-positive repeat sample following an <i>E. coli</i> -positive routine sample | | | 1A |
| | Failure to collect all required repeat samples following an <i>E. coli</i> -positive sample | | | 1A |
| | Failure to analyze for <i>E. coli</i> when any repeat sample tests total coliform-positive | | | 1A |
| Coliform Treatment Technique | Failure to conduct (and submit) a required assessment within 30 calendar days | Tier 2 PN | E.2 | Level 1-2A Level 2-2B |
| | Failure to complete (and report) corrective actions within 30 calendar days or in accordance with a set schedule | | | 2C |
| | Failure of seasonal waterworks owner to complete ODW-approved start-up procedure before serving water | Tier 2 PN | E.3 | 2D |
| Monitoring | Failure to take every required routine or additional routine sample in the compliance period | Tier 3 PN | E.4 | 3A 3B (add.) |
| | Failure to analyze for <i>E. coli</i> following a total coliform-positive routine sample | | | 3D |

| Type of Violation | Description | Notification Required | NOV/PN Template (Attachment) | SDWIS Violation Type Code |
|-------------------|---|-----------------------|------------------------------|---------------------------|
| Reporting | Failure to submit a completed assessment form by deadline or a monitoring report | Tier 3 PN | E.5 | 4A (form) 4B (report) |
| | Failure to submit certification of completion of start-up procedure by a seasonal waterworks owner | | | 4C |
| | Failure to notify ODW by the end of the next business day after the owner learns of an <i>E. coli</i> PMCL exceedance | | | 4E |
| | Failure to notify ODW by the end of the next business day after the owner learns of an <i>E. coli</i> -positive routine sample | | | 4D |
| | Failure to notify ODW by the end of the next business day after the owner learns of a coliform TT violation | | | 4F |
| | Failure to submit an assessment report within 30 calendar days of being notified of the assessment trigger and/or failure to notify ODW of completed corrective actions in compliance with a schedule approved by ODW | | | 4A |
| | Failure to report a monitoring violation to ODW within ten (10) calendar days after the waterworks discovers the violation | | | 4B |
| Other | Failure to have or monitor according to a BSSP | Tier 3 PN | E.7 | 5A |
| Record-keeping | Failure to maintain assessment forms and documentation of corrective actions completed or other documentation of the sanitary defects | Tier 3 PN | E.6 | 5B |

Community waterworks may report Tier 3 notices in their annual Consumer Confidence Report as described in the *Waterworks Regulations*.

Note: Failure of a waterworks with seasonal components to complete all requirements of the start-up procedure (see Section 4 of this memo) is either an ODW reliability violation (SDWIS State Violation Type Code C3, didn't complete disinfection procedure, didn't submit Seasonal

Start-Up Procedure (SSUP) Certification or an ODW monitoring violation (SDWIS State Violation Type Code C2; didn't complete disinfection sampling).

8. LEVEL 1 AND LEVEL 2 ASSESSMENTS

An assessment is an evaluation to identify the possible presence of sanitary defects (as defined in Section 9 of this memo), improper coliform monitoring practices in the distribution system, and the likely reason that triggered the assessment.

Level 1 Assessments

A Level 1 assessment must be conducted when a waterworks exceeds any of the Level 1 TT triggers described in Section 6 of this memo.

A Level 1 assessment is a self-assessment by the owner (or owner's representative) and consists of a basic examination of sample collection, sample collection sites, source water, treatment, storage, distribution system and relevant operational practices, often using existing data and information. The owner should evaluate conditions that could have caused the total coliform-positive sample. A Level 1 assessment form (Attachment B.1) must be used to meet this requirement.

Example conditions include treatment process interruptions (where applicable), loss of system pressure, maintenance activities, recent operational changes, etc. In addition, the owner should evaluate the method of sample collection, condition of sample sites, the distribution system, storage tanks, source water facilities, etc.

A Level 1 assessment is to be conducted or managed by a responsible party of the waterworks (e.g., a licensed operator for a community or NTNC waterworks or a manager for a TNC waterworks). The assessor must be someone familiar enough with the waterworks to be able to answer the questions in the Level 1 assessment form or gather pertinent or correct information from others who work for the waterworks. A Level 1 assessment can be performed by an individual who does not have a waterworks operator license (e.g., TNC waterworks owner or staff); however, an individual without a license may need to consult with someone who has more expertise to conduct the assessment. The owner may elect to use the services of technical assistance providers, consult with operators at other waterworks, or consult with ODW. For very small waterworks, such as those with a limited distribution system, ODW should assist the owner in completing the assessment via telephone.

ODW will send a "Level 1 Assessment Required" letter (Attachment A.1) to the owner or administrative contact as soon as ODW is aware of a Level 1 trigger condition. ODW will use all email notifications, R&R sample result information, and the features of the SDWIS Compliance Determination Module to become aware of treatment technique trigger occurrences. The assessment is to be completed and submitted to ODW within 30 days of the date of the letter notifying the owner of the assessment requirement. ODW shall review corrective actions listed by the owner for effectiveness and shall consult with the owner in the event the schedule does not indicate corrective action within 30 calendar days.

Level 2 Assessments

Level 2 assessments will be conducted by ODW field office staff, must include a site visit, and must be documented with the Level 2 assessment form (Attachment B.2).

A Level 2 assessment must be conducted when a waterworks exceeds any of the Level 2 TT triggers described in Section 6 of this memo. ODW will use all email notifications and R&R sample result information plus use of the features of the SDWIS Compliance Determination Module to become aware of treatment technique trigger occurrences.

If an *E. coli* PMCL exceedance occurs, ODW will send a “PMCL Notice of Violation and Level 2 Assessment Requirement” letter (Attachment E.1) to the owner or administrative contact. If a second Level 1 TT trigger occurs within a rolling 12-month period, ODW will send a “Level 2 Assessment Required” letter (Attachment A.2) to the owner or administrative contact.

ODW field office staff assigned to conduct the Level 2 assessments will have at least one year of experience in performing sanitary surveys of waterworks of similar size and complexity, and shall have:

- The ability to identify pathways of microbial contamination;
- An understanding of the nature of the coliform group and *E. coli*, including its sources, control and public health significance;
- A familiarity with bacteriological sampling practices;
- The ability to interpret distribution system water quality data, distribution system operational data and water source data; and
- An understanding of disinfection practices and the potential implications of changes in disinfection practices.

Level 2 assessments must be completed within 30 calendar days of the condition that triggered the assessment. In the case of an *E. coli* PMCL exceedance, which indicates an acute risk to public health, the site visit to complete the assessment shall be assigned the highest priority for completion. The owner shall be given seven (7) calendar days from the date of the letter (Attachment A.3) to return either the form with a signature acknowledging concurrence that no corrective action is required or the signed corrective action schedule. The owner should be consulted during the drafting of the corrective action schedule.

Consultation between the owner and ODW is essential during the assessment process that includes the site visit and formulation of a corrective action schedule.

9. SANITARY DEFECTS

A "sanitary defect" is a condition that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of failure or imminent failure in a barrier that is already in place. It represents a breach in the distribution system, other facilities (source, storage, etc.) or operational practices whereby the microbial contamination can enter the treated/finished water and be transported to customers, potentially resulting in adverse health effects. Therefore, sanitary defects must be identified and corrected. The following table is not an exhaustive or binding list, and ODW may determine that there may be other “unusual” circumstances which can be regarded as a “sanitary defect.” Sanitary defects may be the same as

significant deficiencies; the difference is the procedure used to identify them. Sanitary defects are identified during the Level 1 or Level 2 assessments. Significant deficiencies are identified during a sanitary survey.

| Sanitary Defect | Explanation |
|------------------------------------|---|
| Cross connection & backflow issues | <ul style="list-style-type: none"> ✓ Required cross connection control devices not in place or not operating properly ✓ Unprotected cross connection ✓ Unauthorized connections to water mains/hydrants |
| Operational issues | <ul style="list-style-type: none"> ✓ Failure to follow Standard Operating Procedures (SOPs) that protect distribution system integrity and sanitary condition ✓ Inadequate disinfection during and after pipe repair/replacement activities ✓ Failure to monitor and replace chlorine supply ✓ Improper/Inadequate chlorine residual measurements ✓ Sample collection and transportation problems ✓ Failure to follow sample siting plan ✓ Use of unapproved or untested source of water ✓ Untrained sample collector |
| Distribution system issues | <ul style="list-style-type: none"> ✓ Inadequate inspection and maintenance of distribution system ✓ Loss of distribution system integrity (e.g., main breaks) ✓ Failure to maintain adequate pressure or low pressure event ✓ Pump failure ✓ Supervisory control and data acquisition (SCADA) and control issues ✓ Improper or lack of flushing operations ✓ Improper construction of new, replaced or renovated lines or service connections |
| Storage issues | <ul style="list-style-type: none"> ✓ Overflow, vents, hatches and other penetrations not configured, screened or sealed properly ✓ Holes in tanks that could allow entry of insects or small animals ✓ Leaks in tanks that could be harboring growth ✓ Bladder pressure tanks that can become waterlogged ✓ Inadequate inspection and maintenance of storage facilities ✓ Inadequate disinfection during and after pipe repair/replacement activities |
| Source water issues | <ul style="list-style-type: none"> ✓ Cracks or holes in well seals or casings ✓ Leaking sewer lines or septic tanks ✓ Sewage overflow upstream of the source ✓ Lack of wellhead protection ✓ Unsanitary conditions at the wellhead ✓ Contamination during pump or motor repair or replacement ✓ Watertight seal at wellhead not present |
| Disinfection issues | <ul style="list-style-type: none"> ✓ Inability to maintain required residual throughout the distribution system ✓ Failure of chlorination equipment ✓ Improper settings on chemical feed ✓ Failure in redundant disinfection ✓ Loss of power |

10. CORRECTIVE ACTIONS

Corrective action is required when a waterworks has identified one or more sanitary defects. All owners are required to correct any sanitary defect identified during an assessment. A schedule of corrective action(s) is required for any sanitary defect not corrected either before the submittal of a Level 1 assessment form or completion of a Level 2 assessment site visit by ODW.

A corrective action listed in the Level 1 assessment form should be completed within 30 calendar days of submittal of the form. If not, ODW shall consult with the owner to formulate a mutually agreeable schedule to complete the correction action(s) in a timely manner. Also the Level 1 assessment form shall be resubmitted with the updated projected completion date.

The Level 2 assessment schedule of corrective actions should also aim for completion dates within 30 calendar days of mailing the schedule to the owner. Consultation between the owner and ODW shall be used to formulate a mutually agreeable schedule action completion date if the action cannot feasibly be completed within 30 calendar days.

The owner is to notify ODW, in writing, no later than seven (7) days after completion of each corrective action. "In writing" notification may be in the form of a letter, email or fax.

11. DETERMINATION OF REQUIREMENTS DUE TO MULTIPLE ASSESSMENT TRIGGERS

In general, a waterworks (or ODW) should not be penalized with requirements to perform an additional Level 1 (or a Level 2) assessment when a waterworks is in the midst of completing corrective actions per an ODW approved corrective action schedule. The RTCR requires a waterworks to continue monthly compliance monitoring during the corrective action(s) phase of the process (i.e. the elimination of a contamination pathway). The collection of compliance samples in a subsequent monitoring period during the corrective action schedule time frame will often find the waterworks suffering additional positive TC samples and coliform treatment technique triggers. Performing an additional assessment is an unnecessary waste of resources prior to fixing an identified problem. Corrective actions should also include collection of special samples to confirm a 'fix' of the identified problem. Consequently, the results of compliance monitoring performed prior to completion of a corrective action should not generate an additional assessment requirement or elevation to a Level 2 assessment until it has been determined that the corrective action has not eliminated the contamination or contamination pathway. 1. Voiding an assessment requirement is only allowed when compliance monitoring generates additional assessments in the same or subsequent monitoring period due to compliance monitoring conducted prior to the completion date of a correction action. Multiple assessments generated by 'routine' followed by 'repeat' TC positive sample results at different routine sample site locations in the same monitoring period should be evaluated for elevation to a Level 2 assessment by Field Office staff.

12. WATERWORKS REPORTING

The RTCR does not change waterworks reporting requirements for routine, repeat, triggered, and additional source water samples to ODW. Owners must report to ODW as soon as practical, but no later than 24 hours, after learning of an *E. coli*-positive sample, or after learning of the *E. coli*

PMCL exceedance. This requirement is often satisfied when ODW contacts the owner to inform them of the possible violation.

Owners must report to ODW as soon as practical, but no later than the end of the next business day, after learning of a noncompliance with a coliform treatment technique (e.g., failure to perform Level 1 or 2 assessments, or meet corrective action deadlines).

Completed Level 1 assessments must be submitted to ODW within 30 calendar days of being notified of the assessment requirement. Owners must notify ODW within seven (7) days after completion of each corrective action contained in a Level 1 assessment or the Level 2 assessment “Schedule of Correction Actions”.

Seasonal waterworks owners must submit a certification form to ODW that confirms completion of the approved start-up procedures before serving water to consumers.

13. COMPLIANCE DETERMINATIONS

ODW will evaluate compliance using SDWIS compliance determination tools. Compliance with the RTCR requirements will be completed in accordance with the deadlines for field office tasks listed in the “Mandatory SDWIS Database Activities” table in WM 823. The following items will be evaluated:

- *E. coli* PMCL exceedance;
- Routine monitoring;
- Repeat monitoring;
- Level 1 assessment trigger;
- Level 2 assessment trigger; and
- Compliance Schedule Activity.³

Field Office Data Managers may run a report documenting violations for monitoring periods from the SDWIS Compliance Determination Module at a frequency determined by the individual field office. The Division of Data Management will generate a violation list monthly for the field office staff to validate. Information for running the report may be found in the *ODW SDWIS Compliance Determination Manual*.

14. TRACKING

The following will be logged and status updated in SDWIS:

- Level 1 and Level 2 assessments as Site Visits;
- Level 1 and Level 2 assessments as Enforcement Compliance Schedules;
- Individual assessment corrective actions as “Compliance Schedule Activities” in the Enforcement Compliance Schedule; and
- Completion of seasonal start-up procedures and receipt of certification form as “Compliance Schedule Activities” in an Enforcement Compliance Schedule.

³ Level 1 and Level 2 assessment performed, forms submitted and corrective action(s) completed by due dates.

Instructions for logging and updating Enforcement Compliance Schedules may be found in the *ODW SDWIS Manual*.

Field Office staff may run queries tracking status (future or late time frames) of individual Compliance Schedule Activities in the *ODW Data Quality Self Help Database* (also referred to as *Data Quality* or *DQ Checker*).

NOTE: The current SDWIS tracking report in the Enforcement Module - Enforcement Report Submodule - Compliance Schedule Detail is NOT recommended for use by staff due to software program issues.

15. INVALIDATION OF TOTAL COLIFORM-POSITIVE RESULT

Invalidation of a total coliform-positive sample may be allowed for any of the following conditions, as stated in the *Waterworks Regulations*:

1. The laboratory establishes that improper sample analysis caused the result;
2. ODW determines that the result was due to a domestic or other non-distribution system plumbing problem; or
3. ODW has substantial grounds to believe that the result is due to circumstances or conditions NOT representative of the distribution system water quality.

The decision and rationale must be documented and the Field Office Director must approve and sign the decision in writing.

16. CONSUMER CONFIDENCE REPORTS

All community waterworks owners must provide an annual report containing data and other information on its previous calendar year of operations to each of its consumers by July 1st and certify completion by October 1st. The contents of these reports must include the following RTCR requirements:

- The total number of *E. coli*-positive samples in the table of detected contaminants;
- Health effects language for conducting a Level 1 or 2 assessment not due to an *E. coli* PMCL exceedance;
- Health effects language for conducting a Level 2 assessment due to an *E. coli* PMCL exceedance; the definition of specific assessment(s) if required;
- Specific language to describe any non-compliance when the waterworks incurs an *E. coli* PMCL exceedance;
- If *E. coli* was detected, but no *E. coli* PMCL exceedance was incurred, the owner may include a statement that explains that they are not in violation;
- Numerical accounting of Level 1 and Level 2 assessments and corrective actions completed and not completed;
- The reasons for conducting the assessment(s) and corrective action(s);
- Failure to conduct assessment(s); and
- Failure to correct all sanitary defects.

17. WATERWORKS RECORDS RETENTION

Verification that owners are maintaining adequate documentation and records will be made during routine inspections. RTCR recordkeeping requirements are to maintain any assessment form, documentation of corrective actions completed as a result of assessments, and any other documentation of the sanitary defects and corrective actions taken for five (5) years.

18. ODW RECORDS RETENTION

Records of the RTCR decisions must be made in writing and retained in the appropriate field office files for not less than five (5) years or in accordance with the VDH-ODW Records Retention and Disposition Schedule, Specific Schedule No. 601-190 described in WM 630, whichever is longer. The following information must be retained:

- Records of decisions to allow a waterworks on quarterly frequency to waive the requirement for three (3) additional routine samples the month following a total coliform-positive sample;
- Records of decisions to invalidate a total coliform-positive sample; and
- Records of completed and approved RTCR assessments, including reports from the owner that corrective action has been completed.

Records of routine, repeat or special microbiological analysis shall be logged in SDWIS.

All records of decisions, determinations, copies of correspondence with waterworks, and supporting information shall be maintained in the appropriate field office files for each waterworks.

END OF MEMO

WM 917 Attachment A.1. Notice of Level 1 Assessment Requirement

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print on VDH letterhead. Pages are 1" top, bottom, and side margins.

NOTICE of LEVEL 1 ASSESSMENT REQUIREMENT

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Waterworks Owner

Address 1

Address 2

City, State, Zip

Dear Waterworks Owner:

This notice is to advise you of requirements per 12VAC5-590-392. Coliform treatment technique triggers and assessment requirements of the *Waterworks Regulations*. The subject waterworks generated a requirement to perform a Level 1 assessment and submit a completed Level 1 assessment form to this Office. A Level 1 assessment is required whenever a waterworks has *(two or more) (greater than 5.0 percent)* total coliform positive samples during a monitoring period; or, there is a failure to collect every required repeat sample after any total coliform positive sample result.

Option for more than 1 total coliform-positive sample or >5.0% total coliform-positive samples:

Based on our records for the *(Month)(# Calendar Quarter) year* monitoring period, the subject waterworks had *(number)(%)* total coliform-positive samples. The total coliform-positive samples were collected at sample locations *physical location/address* on *dates*, respectively.

Option for failure to collect every required repeat sample:

Based on our records for the *(Month)(# Calendar Quarter) year* monitoring period, the subject waterworks failed to collect the proper number of repeat samples. The sample(s) collected from *physical location/address* on *date(s)* showed the presence of total coliform bacteria which required the collection of *number* repeat samples and *number* repeat samples were collected.

Required Actions

The following actions are required:

- Perform a Level 1 assessment using the enclosed form.
- Submit the completed Level 1 assessment form to this Office within 30 days from the date of this letter, on or before *date*.
- *[Year round TNC Waterworks where applicable]* Collect three routine samples in *(month,year)*
- *[Year round TNC Waterworks where applicable]* Initiate monthly routine bacteriological monitoring beginning *(month,year)* until further notice. (The waterworks Bacteriological Sample Siting Plan requires revision to reflect the monitoring frequency.) (Attached is a revised Bacteriological Sample Siting Plan reflecting the monitoring frequency revision. Please sign and return the Plan.)

WM 917 Attachment A.1. Notice of Level 1 Assessment Requirement

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print on VDH letterhead. Pages are 1" top, bottom, and side margins.

Subsequent to successfully completing all required activities, we will notify you when the monitoring frequency reverts back to quarterly monitoring frequency.

Additional Information

A Level 1 assessment evaluates conditions throughout the waterworks to determine possible causes for the total coliform positive sample results. Sanitary defects (conditions that could provide a pathway of entry for microbial contamination into the distribution system) identified by the assessment are to be corrected and noted in the assessment. A schedule of corrective action(s) must be included in the assessment for defects not corrected by the above submittal due date.

This Office will review the assessment for accuracy and completeness plus verify completion of any scheduled actions to correct sanitary defects. Notify this Office, in writing, within one business day upon completion of each corrective action, if a corrective action is listed in a submitted schedule.

Should you need any assistance in completing the Level 1 assessment form, please contact me at phone number.

Sincerely,

District Engineer/Assistant District Engineer/
Environmental Health Specialist
Name of field office

ABC:xyz

Enclosure(s): Level 1 assessment form

ec/enc: *(electronic copy if applicable)*

cc: Consulting engineer (if applicable)
Name, County Administrator (if applicable)
VDH, ODW-Central Office

WM 917 - Attachment A.2. Notice of Level 2 Assessment Required

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print on VDH letterhead. Pages are 1" top, bottom, and side margins.

NOTICE of LEVEL 2 ASSESSMENT REQUIREMENT

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Waterworks Owner

Address 1

Address 2

City, State, Zip

Dear Waterworks Owner:

This notice is to advise you of requirements per 12VAC5-590-392. Coliform treatment technique triggers and assessment requirements of the *Waterworks Regulations*. The subject waterworks must complete a Level 2 assessment.

Option 1 for more than 1 total coliform-positive sample or >5.0% total coliform-positive samples:

Based on our records for the (Month)(# Calendar Quarter) year monitoring period, the subject waterworks had (number or %) total coliform-positive samples. The total coliform-positive samples were collected at sample locations physical location/address on dates, respectively.

Option 2 for failure to collect every required repeat sample:

Based on our records for the (Month)(# Calendar Quarter) year monitoring period, the subject waterworks failed to collect the proper number of repeat samples. The sample(s) collected from physical location/address on date(s) showed the presence of total coliform bacteria which required the collection of number repeat samples and only number repeat samples were collected.

This situation typically requires a Level 1 assessment to be completed. However, a Level 1 assessment was required after the (Month)(# Calendar Quarter) year compliance period and (a likely cause for this event could not be found.) OR (we could not verify that the sanitary defects associated with this event were corrected.) Consequently, a Level 2 assessment must now be completed.

Required Actions

A Level 2 assessment must be completed within 30 days from the date of this letter; on or before date. Unlike a Level 1 assessment, staff from this Office will visit the subject waterworks to complete the Level 2 assessment with assistance from you and your staff. (Schedule a site visit with staff from this Office to take place within 2 weeks of the date of this letter.) OR (A site visit has been scheduled for (date).) Please ensure that necessary staff is available and all facilities are accessible.

WM 917 - Attachment A.2. Notice of Level 2 Assessment Required

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print on VDH letterhead. Pages are 1" top, bottom, and side margins.

[Year round TNC Waterworks] Initiate monthly routine bacteriological monitoring beginning (*month/year*) until further notice. (The waterworks Bacteriological Sample Siting Plan requires revision to reflect the monitoring frequency.)OR(Attached is a revised Bacteriological Sample Siting Plan reflecting the monitoring frequency revision. Please sign and return the Plan.) Upon successfully completing all required activities, we will notify you when the monitoring frequency reverts back to quarterly monitoring frequency.

Additional Information

A Level 2 assessment is an in-depth evaluation of conditions throughout the waterworks to determine possible causes for the total coliform-positive sample results. Sanitary defects (conditions that could provide a pathway of entry for microbial contamination into the distribution system) identified by the assessment are to be corrected and noted in the assessment. A schedule of corrective action(s) must be included in the assessment for defects not corrected by the above submittal due date.

Should you have any questions please contact me at *phone number*.

Sincerely,

District Engineer
Name of field office

ABC:xyz

Enclosure(s): Level 2 assessment form

ec/enc: (*electronic copy if applicable*)

cc: *Consulting engineer (if applicable)*
Name, County Administrator (if applicable)
VDH, ODW-Central Office

WM 917 Attachment A.3. Level 2 Assessment Transmittal Letter

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print on VDH letterhead. Pages are 1” top, bottom, and side margins

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Waterworks Owner
Address 1
Address 2
City, State, Zip

Dear Waterworks Owner:

The subject waterworks was required to have a Level 2 assessment completed per the Notice of Level 2 Assessment Required, dated date. Enclosed is a copy of the assessment completed by name and title of this office.

The Level 2 assessment was required (due to an exceedance of the E. coli Primary Maximum Contaminant Level (PMCL)) (because this was the second event within a rolling 12-month period requiring a Level 1 assessment). Refer to the (Notice of Level 2 Assessment Required), dated date for details regarding these events which triggered the assessment requirement.

Option when NO corrective action is needed:

REQUIRED ACTION

Review the assessment, paying particular attention to the “assessment elements” and “corrective action taken and date” summarized on page number. If you are in agreement, sign and date the assessment on page number and return the form to this Office no later than date. If you are not in agreement, contact this Office within one business day upon receipt of this letter. Failure to submit the completed Level 2 assessment may be a violation of the *Waterworks Regulations*.

Option when corrective action is needed:

REQUIRED ACTION

Review the assessment, paying particular attention to the “elements of concern” and the enclosed schedule of corrective action(s). If you are in agreement with the schedule of corrective action(s), sign, date and return the form to this Office no later than date. If you are not in agreement, contact this Office within one business day upon receipt of this letter. Failure to submit a signed Level 2 assessment form, submit a signed schedule of corrective actions or complete the corrective actions by the scheduled date may be a violation of the *Waterworks Regulations*). In addition, each corrective action that you complete must be reported to this Office within 7 days of completion.

We appreciate the assistance in completing the Level 2 assessment and look forward to your continued cooperation. If you have any questions, please contact me at phone number.

Sincerely,

WM 917 Attachment A.3. Level 2 Assessment Transmittal Letter

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print on VDH letterhead. Pages are 1" top, bottom, and side margins

District Engineer
Name of field office

Enclosure(s): Level 2 assessment
Schedule of Corrective Action

Cc: *Consulting engineer*
County Administrator (if applicable)
ODW-Central

WM 917 Attachment A.3. Level 2 Assessment Transmittal Letter

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print on VDH letterhead. Pages are 1” top, bottom, and side margins

**SCHEDULE OF CORRECTIVE ACTIONS REQUIRED
LEVEL 2 ASSESSMENT**

This Office completed a Level 2 assessment on *date*, which was required due to *(an E. coli MCL violation) or (a second Level 1 assessment generated within a rolling 12-month period)*.

INTERIM ACTION REQUIREMENTS

Based on the Level 2 assessment findings, we recommend *List interim actions such as a Boil Water Advisory, increase chlorine residual, additional sampling*

CORRECTIVE ACTION REQUIREMENTS

Based on the Level 2 assessment findings, the following items must be corrected as stated below:

| Sanitary Defect | Required Corrective Action | Completion Deadline Date |
|------------------------|-----------------------------------|---------------------------------|
| | | |
| | | |
| | | |

I agree to fully implement the above *(interim actions and)* corrective actions to rectify the elements of concern that may have led to the *(E. coli MCL violation) or (second Level 1 assessment generated within a rolling 12-month period)*. I will notify the Virginia Department of Health, Office of Drinking Water, in writing, within 7 business days upon completion of each corrective action.

Waterworks Owner (Signature)

(Date)

Virginia Department of Health
Office of Drinking Water (ODW)
Waterworks Level 1 Assessment

| | | | |
|---|---|--|--|
| Waterworks Name: | | | |
| City/County: | | | |
| Water Type: | | | |
| Community Type: | | | |
| <input type="checkbox"/> Seasonal Noncommunity | | | |
| <input type="checkbox"/> Transient Noncommunity | | | |
| Operator: | | | |
| Compliance Monitoring Period: | | | |
| <input type="checkbox"/> Coliform Present | | | |
| Routine per monitoring period | | | |
| Repeat | | | |
| Triggered source water | | | |
| Date ODW Notified Waterworks Level 1 Assessment Required: | | | |
| Assessment Due Date: | | | |
| Assessment Conducted Date: | | | |
| Reason Level 1 Assessment is required: | | | |
| <input type="checkbox"/> | Two or more coliform present samples | | |
| <input type="checkbox"/> | Failure to collect all repeat samples (subsequent to coliform present sample) | | |
| <input type="checkbox"/> | Greater than 5% of samples are coliform present | | |

Waterworks Assessment Instructions

Consider each assessment element listed in the following evaluation form to determine if the element listed may have contributed to the “present” bacteriological sample results.

A response in a highlighted box suggests the assessment element may have contributed to the “present” bacteriological sample results and is a potential Sanitary Defect. Provide an explanation of why the highlighted element could have contributed to the “present” bacteriological sample results in the column titled “Describe any element of concern.” Use the “Additional Comments” space on page 4 of the form, if needed. Provide the date and description of Corrective Actions taken in the table on page 5. Provide a list of Additional Actions Needed for uncorrected sanitary defects in the table on page 5. List each item, in any box, by the assessment element number as identified in the first column. Notify the appropriate ODW field office, in writing, no later than seven days after completion of each corrective action, if a corrective action is listed in a submitted schedule.

Notes:

1. For wholesale and consecutive waterworks:
 - a. Review records related to flows, pressures, and water quality parameters at the connection(s) with the wholesale water supplier.
 - b. Consecutive waterworks owners shall notify the wholesale water supplier whenever the consecutive system has been triggered to perform a Level 1 Assessment.
 - c. Wholesale waterworks owners shall notify consecutive waterworks owners as total coliform bacteria could have spread to the consecutive waterworks distribution system.
2. The Level 1 Assessment must be completed based on data and documentation available to the waterworks operator and maintained on file by the waterworks. The completed Level 1 Assessment must be returned to the appropriate ODW-Field Office within 30 days of being notified that the assessment was triggered.

Virginia Department of Health
Office of Drinking Water (ODW)
Waterworks Level 1 Assessment

| Waterworks Name: | | PWSID No.: | | | |
|--|---|--------------------------|--------------------------|--------------------------|---------------------------------|
| Assessment Elements | | Response | | | Describe any element of concern |
| | | Y | N | N/A | |
| 1. Sample Site | | | | | |
| 1.1 | Were all sites used listed on approved BSSP? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Description: |
| 1.2 | Are the sample tap and the surrounding area clean? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 1.3 | Describe sample tap fixtures (e.g., outdoor hose bib, indoor cold water faucet, etc?) | | | | |
| 1.4 | Is the sample tap a swivel faucet? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2. Sample Collection Protocol | | | | | |
| 2.1 | Was the sample collector properly instructed in collection procedures? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.2 | Were taps flushed adequately (approx. 5 minutes)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.3 | Were aerators removed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.4 | Were sample containers sealed/unopened/untampered prior to use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.5 | Were the sample containers/rim or cap contaminated during sampling? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.6 | Were the taps disinfected? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.7 | Were samples shipped/delivered per laboratory instruction? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3. Recent Operational Changes to the System | | | | | |
| 3.1 | New/different/emergency well used? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.2 | Changes in operation or treatment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.3 | Any possible contamination events not directly related to operations? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.4 | If seasonal system, was start-up initiated without flushing and disinfection? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.5 | Sites with low chlorine residual (<0.2 mg/L) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.6 | Did power outages occur prior to "present" bacteria results? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4. Recent Distribution System Event That Might Introduce Contaminants | | | | | |
| 4.1 | Low water pressure (<20 psi) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.2 | Cross-connection problem | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.3 | Pump station problem | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.4 | Fire hydrants/blow off used | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.5 | Line break/repair or nearby construction | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.6 | Yard hydrants near sample location | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.7 | Customer complaints about pressure, water quality prior to sampling? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

Virginia Department of Health
Office of Drinking Water (ODW)
Waterworks Level 1 Assessment

| | |
|------------------|------------|
| Waterworks Name: | PWSID No.: |
|------------------|------------|

| Assessment Elements | | Response | | | Describe any element of concern |
|---|--|--------------------------|--------------------------|-------------------------------------|---------------------------------|
| | | Y | N | N/A | |
| 5. Storage Tanks/Tank Sites | | | | | |
| 5.1 | Are lot/tank ladder secured from unauthorized access? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.2 | Are roof access hatches on atmospheric tanks locked and properly sealed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.3 | Are roof vents on atmospheric tanks properly sealed/screened? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.4 | Are structures water tight/without leak? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.5 | Any hole/damage in the tank structure that is not sleeved or protected? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.6 | Are drain and overflow line outlets screened? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.7 | Have tank(s) been serviced, repaired, or maintained recently? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.8 | Any recent unusual changes in tank water levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 6. Treatment Process Upsets Or Change Noted: | | | | | |
| 6.1 | Has there been an interruption of treatment operations? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 6.2 | Are chemical solution containers uncovered? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 6.3 | Does building housing treatment equipment reflect poor house keeping | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 6.4 | Any chlorine residual <0.2 mg/L at entry point to distribution system? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 6.5 | Any turbidity values ≥ 0.3 NTU in water entering the distribution system? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 6.6 | Did treatment fail to continuously meet 4 log inactivation of viruses requirements? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7. Water Supply Well(s) | | | | | |
| 7.1 | Is well house free of pests/vermin? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.2 | Is well cap and seal securely in place? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.3 | Is well casing vent properly screened? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.4 | Is electrical connection to pump secure and sealed? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 7.5 | If there is an air release or screened pressure relief valve, is the release feature piped to grade? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.6 | Is the wellhead free of any cross-connections? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.7 | Any hoses left connected to a hose bib w/o a vacuum breaker in well house? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

Virginia Department of Health
Office of Drinking Water (ODW)
Waterworks Level 1 Assessment

| | |
|------------------|------------|
| Waterworks Name: | PWSID No.: |
|------------------|------------|

| Assessment Elements | | Response | | | Describe any element of concern |
|--|---|--------------------------|--------------------------|--------------------------|---|
| | | Y | N | N/A | |
| 7. Water Supply Well(s) cont. | | | | <input type="checkbox"/> | |
| 7.8 | Is the well pump blow-off line air gapped w/screened discharge? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.9 | Any recent ponding or flooding around wellhead? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.10 | Is well site secure? (i.e. fenced, gate or building locked) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.11 | Was a triggered source water sample result total coliform present? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.12 | Has the well pump been replaced during the current monitoring period? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8. Source – Surface/GUDI Water Supply | | | | <input type="checkbox"/> | |
| 8.1 | Has there been an incident of raw water turbidity (≥ 100 NTU) within 14 days prior to sampling? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Typical turbidity ranges from ____ to ____. |
| 8.2 | Any sewage overflow, storm water discharge or construction excavation in the vicinity of the source within 14 days prior to sampling? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 9. Source – Spring(s) | | | | <input type="checkbox"/> | |
| 9.1 | Recent heavy rainfall, flooding event prior to sampling? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Typical turbidity ranges from ____ to ____. |
| 9.2 | Recent incident of water turbidity (≥ 100 NTU) prior to sampling? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 9.3 | Has there been any damage, change or repairs to the spring(s) infrastructure? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 9.4 | Have there been any unusual changes or incidents recently within the spring recharge area prior to the sampling event? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Additional Comments | | | | | |

Virginia Department of Health
Office of Drinking Water (ODW)
Waterworks Level 1 Assessment

| | |
|------------------|------------|
| Waterworks Name: | PWSID No.: |
|------------------|------------|

| |
|----------------|
| Summary |
|----------------|

| Assessment Elements/Sanitary Defects | Corrective Action Taken and Date |
|--------------------------------------|----------------------------------|
| | |
| | |
| | |
| | |
| | |

| | |
|--|--|
| Additional Actions Needed But Not Completed | |
|--|--|

| Action Needed | Completion Deadline: |
|---------------|----------------------|
| | |
| | |
| | |
| | |

Conclusions:

A cause for the contamination was not determined.

Assistance with assessment provided by:

Print name of person completing the form: _____

Signature: _____ Date: _____

Print name of Waterworks Representative: _____

Signature: _____ Date: _____

Virginia Department of Health
Office of Drinking Water (ODW)
Waterworks Level 1 Assessment

| | |
|------------------|------------|
| Waterworks Name: | PWSID No.: |
|------------------|------------|

| Reserved for VDH-ODW Review | | | |
|---|--------------------------|--------------------------|--|
| | Response | | |
| | Yes | No | |
| 1. Has assessment been completed? | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2. Was likely reason for TC+ occurrence found? | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3. Was assessment completed on time? | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4. Have all identified problems or sanitary defects been corrected by the waterworks? | <input type="checkbox"/> | <input type="checkbox"/> | |
| a. If 'No', has an acceptable schedule of corrective actions been provided? | <input type="checkbox"/> | <input type="checkbox"/> | |
| b. If a correction schedule is necessary, has schedule been entered into SDWIS? | <input type="checkbox"/> | <input type="checkbox"/> | |

ODW Reviewer:

(Print)

Date:

Virginia Department of Health
Office of Drinking Water
Waterworks Level 2 Assessment

| | | | | |
|---|--------------------------|---|-------------------------------|-------------------------------|
| Waterworks Name: | | PWSID No.: | | |
| Source Water Type: | | City/County: | | |
| Waterworks Type: <input type="checkbox"/> Community | | Population Served: | | |
| <input type="checkbox"/> Nontransient Noncommunity | | <input type="checkbox"/> Seasonal | | |
| <input type="checkbox"/> Transient Noncommunity | | <input type="checkbox"/> Seasonal | | |
| Operator: | | | Phone: | |
| Compliance Monitoring Period: | | | | |
| Number of Samples | Required | Collected | Total coliform present | <i>E. coli</i> present |
| Routine per monitoring period | | | | |
| Repeat | | | | |
| Triggered source water | | | | |
| Date ODW Notified Waterworks Level 2 Assessment Required: | | | | |
| Assessment Due Date: | | | | |
| Assessment Conducted Date: | | | | |
| Waterworks Personnel Consulted For Assessment: | | | | |
| 1. | | | Phone: | |
| 2. | | | Phone: | |
| ODW- FO Staff Conducting Assessment: | | | | |
| Reason Level 2 Assessment is required | | | | |
| 1. | <input type="checkbox"/> | An <i>E.coli</i> maximum contaminant level (MCL) violation | | |
| 2. | <input type="checkbox"/> | A second Level 1 Assessment required within a rolling 12-month period | | |

Waterworks Assessment Instructions

Consider each assessment element listed in the following evaluation form to determine if the element listed may have contributed to the “present” bacteriological sample results.

A response in a highlighted box suggests the assessment element may have contributed to the “present” bacteriological sample results and is a potential Sanitary Defect. Provide an explanation of why the highlighted element could have contributed to the “present” bacteriological sample results in the column titled “Describe any element of concern.” Use the “Additional Comments” space on page 8, if needed, and always refer to the assessment element number.

Also, provide the date and description of Corrective Action taken on Page 9.

Notes:

1. For wholesale and consecutive waterworks:
 - a. Review records related to flows, pressures, and water quality parameters at the connection(s) with wholesale water supplier.
 - b. Consecutive waterworks owners shall notify wholesale water supplier whenever the consecutive system has been triggered to perform a Level 2 Assessment.
 - c. Wholesale waterworks owners shall notify consecutive waterworks owners as total coliform could have spread to the consecutive waterworks distribution system.
2. The Level 2 Assessment must be completed based on a site visit plus the data and documentation available and maintained on file by the waterworks and ODW-Field Office.

Virginia Department of Health
Office of Drinking Water
Waterworks Level 2 Assessment

| | |
|------------------|------------|
| Waterworks Name: | PWSID No.: |
|------------------|------------|

| Assessment Elements | | Response | | | Describe any element of concern |
|--------------------------------------|---|-------------------------------------|-------------------------------------|--------------------------|---------------------------------|
| | | Y | N | N/A | |
| 1. Sample Site | | | | | |
| 1.1 | Were all sites used listed on approved BSSP? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Description: |
| 1.2 | If the sample site is listed on the approved BSSP, does it remain an appropriate sample site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.3 | Are the sample tap and the surrounding area clean? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.4 | Describe sample tap fixture (e.g., outdoor hose bib, indoor cold water faucet, etc.) | | | | |
| 1.5 | Is the sample tap fixture a swivel faucet? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 1.6 | Is the sample tap location used regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.7 | Any plumbing breaks or changes in vicinity of sample site or premise plumbing? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 1.8 | Are there any identified cross connections after the service connection or in premise plumbing? Describe if present. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 1.9 | Were all of the backflow prevention devices at the sample location operational and maintained? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.10 | Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing: immediately prior to sample? If yes, when? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 1.11 | Are there any treatment devices after the service connection or in the premises of the sample site? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2. Sample Collection Protocol | | | | | |
| 2.1 | Was the sample collector properly instructed in collection procedures? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.2 | Were taps flushed adequately (approx. 5 minutes)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.3 | Were aerators removed? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.4 | Were sample containers sealed/unopened prior to use? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.5 | Were the sample containers/rim or cap contaminated during sampling? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.6 | Were the taps disinfected? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.7 | Were samples delivered per laboratory instructions? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

Virginia Department of Health
Office of Drinking Water
Waterworks Level 2 Assessment

| | |
|------------------|------------|
| Waterworks Name: | PWSID No.: |
|------------------|------------|

| Assessment Elements | | Response | | | Describe any element of concern |
|--|--|--------------------------|--------------------------|--------------------------|---------------------------------|
| | | Y | N | N/A | |
| 3. Events That May Have Caused a System Upset Prior to Collection of TC Samples | | | | | |
| 3.1 | Have there been any operation and maintenance activities that could have introduced total coliforms / <i>E.coli</i> ? | | | | |
| | a. Well # | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | b. Well Lot | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | c. Reservoir | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | d. Stream/River Intake | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | e. Treatment Plant / System | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | f. Distribution piping network | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | g. Pump Station | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | h. Storage tanks (atmospheric or pressure) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.2 | Has there been a fire fighting event, flushing operation, sheared hydrant, etc.? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.3 | Has there been any vandalism and/or unauthorized access to facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | a. Well # | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | b. Well Lot | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | c. Reservoir | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | d. Stream/River Intake | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | e. Treatment Plant / System | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | f. Distribution piping network | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | g. Pump Station | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | h. Storage Tanks (atmospheric or pressure) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.4 | Are there any visible indicators of unsanitary conditions? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.5 | Have there been any TC+ samples that were not compliance samples, including well or raw water samples? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.6 | Have there been any low or inadequate disinfectant residual readings at the entry point or in the distribution system? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.7 | Are there sites where it is historically difficult to maintain a residual without flushing? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.8 | Have any other measured water quality parameters been out of normal ranges? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.9 | Have there been any TC+ or E. coli results in the distribution system (esp. in the last 12 months)? Where? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.10 | Did the water system receive any chlorine monitoring violations in the past 12 months? If yes, when? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.11 | Have there been any reports of community illness suspected of being waterborne? (ODW/LHD) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

Virginia Department of Health
Office of Drinking Water
Waterworks Level 2 Assessment

| | |
|------------------|------------|
| Waterworks Name: | PWSID No.: |
|------------------|------------|

| Assessment Elements | | Response | | | Describe any Element of Concern |
|--|---|--------------------------|--------------------------|--------------------------|---------------------------------|
| | | Y | N | N/A | |
| 4. Recent Operational Changes To The System | | | | | |
| 4.1 | Have any new approved, previously inactive or unapproved well sources been placed into service recently? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.2 | Have any emergency or contingent/reserve well sources been placed into service recently? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.3 | Is there evidence of any potential contamination from main breaks, low pressure, high turbidity, loss of disinfection, or other similar event? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.4 | If seasonal, were there any problems during the most recent start-up procedure? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5. Distribution System | | | | | |
| 5.1 | System pressure: Is there evidence that the system experienced low or negative pressure prior to sampling? If yes, describe event and when it occurred. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.2 | Have there been any water main breaks or utility line construction in the vicinity of the sample site? If yes, when? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.3 | Pump stations | | | | |
| | a. Have there been any mechanical, electrical, or operational problems? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | b. Are pump(s) currently operable? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.4 | Pump maintenance service or repair in the last six (6) months? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.5 | Air valves upstream of the sample tap connection: | | | | |
| | a. Is the air valve vault subject to flooding? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | b. Does the vent terminate below grade? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.6 | Have any fire hydrants in the vicinity of the sample tap connection been used recently? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.7 | Have any blow-offs in the vicinity of the sample tap been used recently? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.8 | Unauthorized access or use of the distribution system suspected or reported? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.9 | Backflow Prevention Devices | | | | |
| | a. Are any backflow devices in service in the distribution system near tap? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | b. Are required inspections and certifications current? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | c. Is the certification or serviceability of any backflow prevention device suspect? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.10 | Was there any scheduled flushing of the distribution system? If yes, when? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.11 | Is there any evidence of intentional contamination in the distribution system? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.12 | Has there been a large variation in chlorine residual values in the system? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

Virginia Department of Health
Office of Drinking Water
Waterworks Level 2 Assessment

| | |
|------------------|------------|
| Waterworks Name: | PWSID No.: |
|------------------|------------|

| Assessment Elements | | Response | | | Describe any Element of Concern |
|---|---|--------------------------|--------------------------|--------------------------|---------------------------------|
| | | Y | N | N/A | |
| 5. Distribution System (contd.) | | | | | |
| 5.13 | Have any unusual circumstances/incidents involving the water distribution system been observed or reported? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.14 | Authorized/unauthorized water haul trucks filled at any fire hydrant? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.15 | Yard hydrants near sample location? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.16 | Have there been any customer complaints about pressure and/or water quality prior to sampling? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 6. Treatment Process | | | | <input type="checkbox"/> | |
| 6.1 | Have there been any interruptions in treatment processes from power outages or other causes? If yes, provide details for which part, when and for how long? | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 6.2 | Is treatment equipment operational and maintained? | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 6.3 | Has there been any new equipment installation or repair of treatment equipment recently? | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 6.4 | Has useful life of filter media/cartridges expired? | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 6.5 | Have there been any recent changes in the treatment process (e.g., addition of a process, change in chemical or dosage)? If yes, provide details for the change and when it occurred? | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 6.6 | Was the free chlorine residual measured immediately downstream from the point of application adequate for chlorine contact time? | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 6.7 | Has the desired free chlorine residual goal and range been consistently achieved? | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 6.8 | Did a review of the filter turbidity profiles reveal any anomalies? | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 6.9 | Were there any failures in meeting the required chlorine contact time? | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 6.10 | Was any process flow loading rate above the rated capacity? | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 6.11 | Was there anything unusual about the settled water turbidity? | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 6.12 | Other observations on the treatment system? | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 7. Water Storage Tanks - Atmospheric | | | | <input type="checkbox"/> | |
| 7.1 | Are the vents properly protected and screened? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.2 | Are the storage facilities and sites secured to prevent unauthorized access? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.3 | Are the roof access hatches properly designed as shoebox lids, properly gasketed, sealed and locked against unauthorized access? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

Virginia Department of Health
Office of Drinking Water
Waterworks Level 2 Assessment

| | |
|------------------|------------|
| Waterworks Name: | PWSID No.: |
|------------------|------------|

| Assessment Elements | | Response | | | Describe any Element of Concern |
|--|---|--------------------------|--------------------------|--------------------------|---------------------------------|
| | | Y | N | N/A | |
| 7. Water Storage Tanks – Atmospheric (contd.) | | | | <input type="checkbox"/> | |
| 7.4 | Does the tank have a screened drain line, separate from the overflow line, discharging to the atmosphere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.5 | Is the tank overflow outlet screened? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.6 | Does the tank overflow line terminate above ground surface (air-gap) with a downward discharge screened end? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.7 | Are there any unsealed openings in the storage facility, such as access doors, vents or joints, target float wire penetrations; cathodic protection/ ice free electrode holder penetrations in the tank roof or wall; have any leaks been observed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.8 | Was any physical deterioration of the tank appurtenances (ladders, communications equipment, etc.) observed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.9 | Could the physical condition of the tank be a possible source of contamination? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.10 | Does the tank “float” on the distribution system? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.11 | Are there separate inlet/outlet lines into the tank? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.12 | Does the tank have an altitude valve assembly, air release assembly or other device associated with the tank inlet/outlet or fill/release line? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8. Water Storage – Hydropneumatic/Bladder Storage Tanks | | | | <input type="checkbox"/> | |
| 8.1 | Are the pressure storage tanks maintaining an appropriate minimum pressure? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8.2 | Has proper O&M been performed per appropriate schedule? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8.3 | Any recent tank maintenance (i.e. interior inspection; painting/coating)? If yes, when? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8.4 | Is the measured free chlorine residual in the water exiting the storage tank detectable? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8.5 | Is there any evidence of intentional contamination to the pressure storage tank? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8.6 | Are there any other observations of the water storage facilities worthy of note? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 9. Water Supply Well(s) | | | | <input type="checkbox"/> | |
| 9.1 | Is well house free of pests/vermin? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 9.2 | Is exposed well casing free of rust/pitting or damage? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 9.3 | Is well casing floor penetration sealed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

Virginia Department of Health
Office of Drinking Water
Waterworks Level 2 Assessment

| | |
|------------------|------------|
| Waterworks Name: | PWSID No.: |
|------------------|------------|

| Assessment Elements | | Response | | | Describe any Element of Concern |
|---|---|---|-------------------------------------|-------------------------------------|---------------------------------|
| | | Y | N | N/A | |
| 9. Water Supply Well(s) (contd.) | | | | | |
| 9.4 | Wellhead with Sanitary Seal | | | | |
| | a. | Is the sanitary seal intact and tightened down? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | b. | Is the seal properly vented and screened? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | c. | Are all other penetrations through the seal protected? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9.5 | Wellhead with Caps (pitless adapter installations) | | | | |
| | a. | Is the cap a PAS-97 watertight cap? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | b. | Is the watertight cap and gasket properly installed and evenly tightened? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | c. | Is the vent screen intact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | d. | If the cap has been modified for any purpose, is the cap properly sealed and is any vent securely installed and screened? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9.6 | Is the well casing cover fitted to permit measurement of depth to water level? | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | If yes, is the installation satisfactory? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9.7 | Does the well blowoff terminate with approved air gap and screened end? | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9.8 | Are there any unprotected cross connections at the wellhead? | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9.9 | Does the well casing extend 12-in. above grade? | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9.10 | Is there evidence of standing water near the wellhead? | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | a. | In the wellhead enclosure? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | b. | Around the concrete pad? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9.11 | Does the Well have a suitable 6 ft. x 6 ft. concrete pad in good condition? | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9.12 | Is the wellhead secured in a locked enclosure? | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9.13 | Have there been any sewer spills or other contamination activities in or around wellhead (within 50 ft.)? | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| Assessment Elements | Response | Describe any Element of Concern |
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Virginia Department of Health
Office of Drinking Water
Waterworks Level 2 Assessment

| | |
|------------------|------------|
| Waterworks Name: | PWSID No.: |
|------------------|------------|

| | | Y | N | N/A | |
|---|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 9. Water Supply Well(s) (contd.) | | | | | |
| 9.14 | Are there any aspects of well or wellhead construction whether compliant or non-compliant with the VA. <i>Waterworks Regulations</i> , that might affect bacteriological | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 10. Source – Surface Water Supply (Lake/Reservoir) | | | | | <input type="checkbox"/> |
| 10.1 | Have there been any sewer overflows, chemical spills or other disturbances into the source? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 10.2 | Have there been any algal blooms? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 10.3 | Has water turnover occurred? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 10.4 | Has there been heavy rainfall, flooding, or rapid snowmelt in the past 60 days that have resulted in raw water turbidities exceeding 100 NTU? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 10.5 | Any other surface water comments relevant to bacteriological quality? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 11. Source – Spring(s) | | | | | <input type="checkbox"/> |
| 11.1 | Recent heavy rainfall, flooding event within 7 days prior to sampling? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 11.2 | Recent incident of raw water turbidity (≥100 NTU) within 14 days prior to sampling? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 11.3 | Has there been any damage, change or repairs to the spring(s) infrastructure? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 11.4 | Has there been any damage, change or repairs to the treatment processes used at the spring(s)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 11.5 | Have there been any unusual changes or incidents within the spring drainage area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 12. Environmental Events | | | | | |
| 12.1 | Have there been changes in the availability of water supply, such as a significant drop in water table, ground well levels in the wells, reservoir capacity, etc.? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 12.2 | Have there been any extremes in heat or cold? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Additional Comments | | | | | |
| | | | | | |

Virginia Department of Health
Office of Drinking Water
Waterworks Level 2 Assessment

| | |
|------------------|------------|
| Waterworks Name: | PWSID No.: |
|------------------|------------|

| Summary | |
|--------------------------------------|----------------------------------|
| Assessment Elements/Sanitary Defects | Corrective Action Taken and Date |
| | |
| | |
| | |
| | |

Conclusions:

- Attach additional sheets as necessary
- A cause for the contamination was not found.

Assistance with assessment provided by:

| | | Yes | No | Comments |
|----|--|--------------------------|--------------------------|----------|
| 1. | Was likely reason for TC+ occurrence or <i>E.coli</i> violation found? | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2. | Have all identified problems or sanitary defects been corrected by waterworks? | <input type="checkbox"/> | <input type="checkbox"/> | |
| a. | If 'No', has an approved schedule to complete remaining corrections been developed and accepted by the waterworks? <u>See attachment</u> | <input type="checkbox"/> | <input type="checkbox"/> | |
| b. | If a correction schedule is necessary, has schedule been entered into SDWIS? | <input type="checkbox"/> | <input type="checkbox"/> | |

Print name of ODW staff completing the form: _____

Signature: _____ Date: _____

Print name of Waterworks representative: _____

Signature: _____ Date: _____

Name of Reviewer (Print) _____ Date: _____

Comments:

Start-Up Procedure for Seasonal Waterworks

Name of Waterworks: _____

PWSID No.: _____

Purpose: All seasonal waterworks are required to establish a start-up procedure approved by the Virginia Department of Health, Office of Drinking Water (ODW). A seasonal waterworks is a noncommunity waterworks that is not operated on a year-round basis and starts up and shuts down at the beginning and end of each operating season. Shutting down the waterworks may allow opportunities for bacteriological contamination to enter or spread throughout the distribution system upon re-opening.

Waterworks Details:

- Anticipated start-up date: _____
- Anticipated shut-down date: _____
- Does the waterworks routinely provide chlorination treatment? Yes No
- Conditions at shut down:
 - Will the waterworks remain pressurized (at least 20 psi)? Yes No
 - Will the waterworks be fully drained? Yes No
 - Will the well(s) continue to be used in the off season? Yes No

Provide details on conditions at shut down and off-season activity: _____

Procedure: The following steps in the start-up procedure are mandatory before serving water. The waterworks will be inspected, maintained and repaired as needed, disinfected (where applicable), and sampled for bacteriological water quality prior to opening day. Start-up procedures shall begin well in advance of the anticipated first day of public use to ensure enough time is available to repeat disinfection and sampling procedures, if necessary. (The appropriate ODW field office may be contacted to arrange a site visit to provide technical assistance with the start-up procedures.)

1. At least _____ weeks prior to opening and throughout the start-up procedure, an inspection will be performed of the waterworks. Identified sanitary defects/deficiencies will be corrected as well as any other issues that may affect start-up of the closed section.
 - a. **Source** (i.e., wellhead, spring box, or other structure):
 - 1) The surrounding area will be checked for any potential contamination sources such as fuel storage, chemicals, pesticides, paints, surface water ponding, animal feces and any other materials that could contaminate the area.
 - 2) The well cap/spring box/cover, etc., will be checked to verify it is secured, electrical conduits are protected and sealed, vent screens are intact, and any other signs of damage will be noted and repaired.
 - b. **Well/Pump House:** The structure will be checked for leaking pipes, operational lighting and heating, exposed wires in all electrical conduits, operational sump pumps and booster pumps, signs of flooding or pests/vermin intrusion, vent screens, security measures, and removal of all hazardous or unsanitary materials, etc.

WM 917 Attachment C.2. Seasonal Waterworks Start-Up Procedures

- c. **Treatment Facilities:** Inspections will be conducted of all chemical feed pumps, fittings, tubing, injection points, solution crocks, test kits and that all chemicals and necessary reagents are current (shelf life not expired).
- d. **Storage Facilities:** Inspections of tank(s) will be conducted for physical damage, pitting or other corrosion, and overall integrity (no cracks or openings). In addition, any defects/deficiencies will be corrected at each type of tank for the following:
 - 1) **Atmospheric tanks:** the vent/overflow/drain screens, water level controls, water tight hatches, locked hatches, sediment build-up, etc.
 - 2) **Hydropneumatic/bladder tanks:** operability of pressure gauges and control switches, correct air/water ratio (tanks are not waterlogged), etc.
- e. **Distribution system:** Valves, blow-offs, and hydrants will be exercised and an inspection will be conducted for leaks upon filling/flushing the distribution piping. The Cross Connection Control Program will be complied with by ensuring that all devices are installed and tested as required.

2. Flushing will be conducted as follows:

- a. The well will be flushed to waste using the well blow-off or a comparable tap until all water runs clear.
- b. Storage facilities will be completely drained and flushed to waste to remove stagnant water and sediment.

3. Check which section applies – A, B or C:

A. The waterworks will remain pressurized (further disinfection is not required); therefore, the following actions will be taken:

- a. Flushing of the distribution system by opening up the taps/hydrants closest to the source first and working outward to the end of the distribution system.
- b. Once all the water runs clear, the taps/hydrants will be closed in the same order as opened (starting with those closest to the source).
- c. If chlorine is used to treat the water, the chlorinator will be operated simultaneously while flushing the distribution system, using caution to prevent any chlorinated water from discharging into any surface water (creeks, streams, lakes, etc.). The chlorinated water will be discharged to vegetated areas. Taps/hydrants will be closed upon obtaining a normal chlorine residual (approximately __ ppm). A field test kit will be used to ensure that the proper level is maintained.

Note: Chlorine solutions are hazardous. Follow safety precautions: use personal protection equipment such as gloves and goggles to avoid contact with skin and eyes.

B. The waterworks is fully/partially drained; therefore the facilities will be disinfected using the method checked, and steps “a” through “d” listed below shall be completed. Water treatment devices will be bypassed to prevent damage by the chlorine. (**Note:** Chlorine is not used to treat the water supply.)

Adding approximately _____ (ounces)(cups) of _____ % (sodium hypochlorite) (calcium hypochlorite) chlorine to the well(s).

Adding approximately ____ (ounces)(cups) of _____ % (sodium hypochlorite) (calcium hypochlorite) chlorine to the atmospheric storage tank(s).

- a. Taps will be opened to get the chlorinated water into the pipes by opening the ones closest to the source first and working outward to the end of the distribution system. Upon detecting the chlorine smell, all taps will be closed in the same order as opened (starting with those closest to the source).
- b. The chlorinated water will be left in the distribution system for a minimum of 24 hours.
 - a. After 24 hours, the distribution system will be flushed to remove the chlorinated water.
 - b. Chlorinated water will be neutralized with a suitable chemical (such as sulfur dioxide, sodium bisulfite, sodium sulfite, or sodium thiosulfate) prior to discharge to any surface water (i.e.,

WM 917 Attachment C.2. Seasonal Waterworks Start-Up Procedures

creek, stream, river, lake, etc.) OR the local sewer department will be contacted and their procedures followed for disposing of any chlorinated water into the sanitary sewer OR the chlorinated water will be discharged to vegetated areas.

Note: Chlorine solutions are hazardous. Follow safety precautions: use personal protection equipment such as gloves and goggles to avoid contact with skin and eyes.

- C. The waterworks is fully/partially drained and will be disinfected by operating the chlorinator at a dose of 25 ppm. Water treatment devices will be bypassed to prevent damage by the chlorine. The following steps will be completed:
- a. Taps will be opened to get the chlorinated water into the pipes by opening the ones closest to the source first and working outward to the end of the distribution system. Upon detecting the chlorine smell, all taps will be closed in the same order as opened (starting with those closest to the source).
 - b. The chlorinated water will be left in the distribution system for a minimum of 24 hours.
 - c. After 24 hours, the distribution system will be flushed to remove the highly chlorinated water. The water will run until the level of chlorine has reduced to the normal operating level (approximately ___ ppm). A field test kit will be used to ensure that the proper level is maintained.
 - d. Chlorinated water will be neutralized with a suitable chemical (such as sulfur dioxide, sodium bisulfite, sodium sulfite, or sodium thiosulfate) prior to discharge to any surface water (i.e., creek, stream, river, lake, etc.) OR the local sewer department will be contacted and their procedures followed for disposing of any chlorinated water into the sanitary sewer OR the chlorinated water will be discharged to vegetated areas.

Note: Chlorine solutions are hazardous. Follow safety precautions: use personal protection equipment such as gloves and goggles to avoid contact with skin and eyes.

4. After the disinfection/flushing procedure is completed:
 - a. Two bacteriological water samples will be collected, a minimum of 16 hours apart, from an approved bacteriological sample site and submitted to a laboratory certified to perform the presence/absence analysis.
 - b. The samples will be marked "special" on the lab form and will not be used for compliance purposes.
 - c. If either sample result is total coliform present, the procedures listed in item Nos. 2, 3 and 4 will be repeated until two total coliform absent results are obtained.
 - d. Water will not be provided to the public until two consecutive bacteriological samples (collected 16 hours apart) have tested total coliform absent and the start-up certification form has been submitted.
5. A copy of the two "special" bacteriological sample analysis results and the certification form stating completion of the above start-up procedures will be submitted to the _____ Field Office.

Owner/Representative Name: _____

Title: _____

Signature: _____

Date: _____

Start-Up Procedure for Waterworks with Seasonal Components

Name of Waterworks: _____

PWSID No.: _____

Purpose: Year-round waterworks that shut down some of their components during the operating year shall establish a Start-up Procedure for that section of the waterworks. The Start-up Procedure must be approved by the Virginia Department of Health, Office of Drinking Water (ODW). Shutting down part of the waterworks may allow opportunities for bacteriological contamination to enter or spread throughout the distribution system upon re-opening the closed section.

Details of Partial Waterworks Closure:

- Anticipated start-up date: _____
- Anticipated shut-down date: _____
- Does the waterworks routinely provide chlorination treatment? Yes No
- Conditions at shut down:
 - Will the closed section remain pressurized (at least 20 psi)? Yes No
 - Will the closed section be fully drained? Yes No
 - Will all well(s) continue to be used? Yes No
 - Will all storage facilities remain in use? Yes No

Provide details on conditions at shut down and off season activity: _____

Procedure: The following steps in the start-up procedure are mandatory before serving water. The closed section of the waterworks will be inspected, maintained and repaired as needed, disinfected (where applicable), and sampled for bacteriological water quality before opening day. Start-up procedures will begin well in advance of the anticipated first day of public use, to ensure enough time is available to repeat disinfection and sampling procedures, if necessary. (The appropriate ODW field office may be contacted to arrange a site visit to provide technical assistance with the start-up procedures.)

1. At least _____ weeks prior to opening and throughout the start-up procedure, an inspection will be performed of all waterworks components that have not been in operation year-round. Identified sanitary defects/deficiencies will be corrected as well as any other issues that may affect start-up of the closed section.
 - a. **Source** (i.e., wellhead, spring box, or other structure):
 - 1) The surrounding area will be checked for any potential contamination sources such as fuel storage, chemicals, pesticides, paints, surface water ponding, animal feces and any other materials that could contaminate the area.
 - 2) The well cap/spring box/cover, etc., will be checked to verify it is secured, electrical conduits are protected and sealed, vent screens are intact, and any other signs of damage will be noted and repaired.
 - b. **Well/Pump House:** The structure will be checked for leaking pipes, operational lighting and heating, exposed wires in all electrical conduits, operational sump pumps and booster pumps, signs

WM 917 Attachment C.3. Waterworks with Seasonal Components Start-Up Procedures

of flooding or pests/vermin intrusion, vent screens, security measures, and removal of all hazardous or unsanitary materials, etc.

- c. **Treatment Facilities:** Inspections will be conducted of all chemical feed pumps, fittings, tubing, injection points, solution crocks, test kits and that all chemicals and necessary reagents are current (shelf life not expired).
 - d. **Storage Facilities:** Inspections of tank(s) will be conducted for physical damage, pitting or other corrosion, and overall integrity (no cracks or openings). In addition, any defects/deficiencies will be corrected at each type of tank for the following:
 - 1) **Atmospheric tanks:** the vent/overflow/drain screens, water level controls, water tight hatches, locked hatches, sediment build-up, etc.
 - 2) **Hydropneumatic/bladder tanks:** operability of pressure gauges and control switches, correct air/water ratio (tanks are not waterlogged), etc.
 - e. **Distribution system:** Valves, blow-offs, and hydrants will be exercised and an inspection will be conducted for leaks upon filling/flushing the distribution piping. The Cross Connection Control Program will be complied with by ensuring that all devices are installed and tested as required.
2. If the source and/or storage facilities have not been in use, flushing will be conducted as follows:
- a. The well will be flushed to waste using the well blow-off or a comparable tap until all water runs clear.
 - b. Storage facilities will be completely drained and flushed to waste to remove stagnant water and sediment.

3. Check which section applies – A, B or C:

- A. The waterworks closed section will remain pressurized (further disinfection is not required); therefore, the following actions will be taken:
- a. Flushing of the distribution system by opening up the taps/hydrants closest to the source first and working outward to the end of the distribution system.
 - b. Once all the water runs clear, the taps/hydrants will be closed in the same order as opened (starting with those closest to the source).
 - c. If chlorine is used to treat the water, the chlorinator will be operated simultaneously while flushing the distribution system using caution to not allow any chlorinated water to discharge into any surface water (creeks, streams, lakes, etc.). The chlorinated water will be discharged to vegetated areas. Taps/hydrants will be closed upon obtaining a normal chlorine residual (approximately _____ ppm). A field test kit will be used to ensure that the proper level is maintained.

Note: Chlorine solutions are hazardous. Follow safety precautions: use personal protection equipment such as gloves and goggles to avoid contact with skin and eyes.

- B. The waterworks closed section is fully/partially drained; therefore, the seasonal components will be disinfected using the method checked and steps “a” through “c” listed below shall be completed. Water treatment devices will be bypassed to prevent damage by the chlorine. (**Note:** Chlorine is not used to treat the water supply.)
- Adding approximately _____ (ounces)(cups) of _____% (sodium hypochlorite)(calcium hypochlorite) chlorine to the well(s).
- Adding approximately ____ (ounces)(cups) of _____% (sodium hypochlorite) (calcium hypochlorite) chlorine to our atmospheric storage tank(s).
- a. Taps will be opened to get the chlorinated water into the pipes by opening the ones closest to the source first and working outward to the end of the distribution system. Upon detecting the chlorine smell, all taps will be closed in the same order as opened (starting with those closest to the source).
 - b. The chlorinated water will be left in the distribution system for a minimum of 24 hours.
 - c. After 24 hours, the distribution system will be flushed to remove the chlorinated water.

WM 917 Attachment C.3. Waterworks with Seasonal Components Start-Up Procedures

- d. Chlorinated water will be neutralized with a suitable chemical (such as sulfur dioxide, sodium bisulfite, sodium sulfite, or sodium thiosulfate) prior to discharge to any surface water (i.e., creek, stream, river, lake, etc.) OR the local sewer department will be contacted and procedures followed before disposing of any chlorinated water into the sanitary sewer OR the chlorinated water will be discharged to vegetated areas.

Note: Chlorine solutions are hazardous. Follow safety precautions: use personal protection equipment such as gloves and goggles to avoid contact with skin and eyes.

C. The waterworks closed section is fully/partially drained and will be disinfected by operating the chlorinator at a dose of 25 ppm. Water treatment devices will be bypassed to prevent damage by the chlorine. The following steps will be completed:

- a. Taps will be opened to get the chlorinated water into the pipes by opening the ones closest to the source first and working outward to the end of the distribution system. Upon detecting the chlorine smell, all taps will be closed in the same order as opened (starting with those closest to the source).
- b. The chlorinated water will be left in the distribution system for a minimum of 24 hours.
- c. After 24 hours, the distribution system will be flushed to remove the highly chlorinated water. Chlorinated water will not be allowed to enter a surface water source (i.e., creek, stream, river, lake, etc.). The water will run until the level of chlorine has reduced to the normal operating level (approximately ___ ppm). A field test kit will be used to ensure that the proper level is maintained.
- d. Chlorinated water will be neutralized with a suitable chemical (such as sulfur dioxide, sodium bisulfite, sodium sulfite, or sodium thiosulfate) prior to discharge to any surface water (i.e., creek, stream, river, lake, etc.) OR The local sewer department will be contacted and procedures followed before disposing of any chlorinated water into the sanitary sewer OR the chlorinated water will be discharged to vegetated areas.

Note: Chlorine solutions are hazardous. Follow safety precautions: use personal protection equipment such as gloves and goggles to avoid contact with skin and eyes.

- 4. After the disinfection/flushing procedure is completed:
 - a. Two bacteriological water samples will be collected, a minimum of 16 hours apart, from an approved bacteriological sample site and submitted to a laboratory certified to perform the presence/absence analysis.
 - b. The samples will be marked "special" on the lab form and will not be used for compliance purposes.
 - c. If either sample result is total coliform present, the procedures listed in item Nos. 2, 3 and 4 will be repeated until two total coliform absent results are obtained.
 - d. Water will not be provided to the public until two consecutive bacteriological samples (collected 16 hours apart) have tested total coliform absent and the start-up certification form has been submitted.
- 5. A copy of the two "special" bacteriological sample analysis results and the certification form stating completion of the above start-up procedures will be submitted to the _____ Field Office.

Owner/Representative Name: _____

Title: _____

Signature: _____

Date: _____

Seasonal Start-Up: Disinfection Procedures

- Waterworks does not have an atmospheric storage tank. We will disinfect using Method 1.
- Waterworks has an atmospheric storage tank. We will disinfect using Method 2.

Note: Concentrated chlorine solutions are hazardous. Follow safety precautions: use personal protection equipment such as gloves and goggles to avoid contact with skin and eyes.

Disinfection Method 1: Well pump will be used to provide chlorinated water to disinfect the waterworks.

- Step 1.** Flush the well to waste until all water runs clear using the well’s blow-off or comparable tap. Drain and flush all storage tank(s) to waste to remove stagnant water and sediment.
- Step 2.** Refer to the Well Completion Report for your well or use the Waterworks Description Sheet (WDS) prepared by Virginia Department of Health, Office of Drinking Water (ODW). If the well depth is unknown, call your ODW Field Office for guidance.

Determine the well depth, static water level and the diameter of the well casing and note it below.

Well depth:_____ **Static water level:**_____ **Well casing diameter:**_____

Using Table 1, calculate the amount of water in the well (see example below).

| Table 1: Calculating Well Volume | |
|----------------------------------|--------------------------|
| Well Casing Diameter | Volume of Water Per Foot |
| 4 inches | 0.7 gallons |
| 6 inches | 1.5 gallons |
| 8 inches | 2.6 gallons |

Example – By looking at your Well Completion Report or WDS, you know that the depth of the well is 550 feet, the static water level is 36 feet and the casing diameter is 6-inch. To determine total depth of water in the well, subtract the static water level from the depth of the well. 550 feet – 36 feet = 514 feet (depth of water in the well). Multiply this depth by the factor in table 1 to determine the gallons of water in the well. 514 feet x 1.5 gallons (6-inch diameter casing) = 771 gallons of water in the well.

- Step 3.** Use Table 2 to determine the chlorine dose needed to achieve 25 ppm of chlorine residual using the volume of water in the well as calculated in step 2 above. Round up the number of gallons determined in Step 2.
- Step 4.** Dilute liquid chlorine bleach (sodium hypochlorite) with enough water to fill a clean 5 gallon bucket. Calcium hypochlorite will be added dry.
- If the well has a pitless adapter and well cap (figure 1), remove bolts and cap. Pour chlorine solution into the well or if using calcium hypochlorite granules, add directly to the well. Pour several buckets of fresh water into the well to rinse the concentrated chlorine solution off of the wiring and sides of the casing. This will help prevent possible damage or corrosion of components. Ensure that the rubber gasket is in place, replace cap and tighten the bolts evenly.

CAUTION: Be careful when pouring chlorine solution to avoid dousing electrical connections/wire nuts! Pull connectors up out of the casing if possible prior to pouring in chlorine solution.



Figure 1 – Pitless Adapter

- If the well has a sanitary seal split well cap (non-pitless cap) (figure 2), remove the vent pipe and use a funnel to pour the chlorine solution or calcium hypochlorite granules into the well. Pour several buckets of fresh water into the well to rinse the concentrated chlorine solution off of the wiring and sides of the casing. This will help prevent possible damage or corrosion of components. Replace the vent pipe, ensuring that the screen is securely in place.

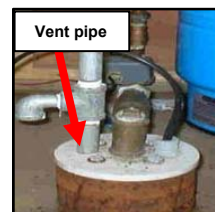


Figure 2 - Split Well Cap

CAUTION: Do not loosen the bolts of the split well cap or the pump/drop pipe may release into the well.

Step 5. Follow the approved Start-up Procedures to complete the disinfection process. Until the chlorine is flushed out, bypass any water treatment devices, such as water softeners.

Disinfection Method 2: Chlorine will be added to the atmospheric storage tank to disinfect the waterworks.

Step 1. Flush the well to waste until all water runs clear using the well's blow-off or comparable tap. Drain and flush all storage tank(s) to waste to remove stagnant water and sediment.

Step 2. Based on the atmospheric tank volume, determine how much chlorine to add to the tank by referring to Table 2.

Step 3. Dilute liquid chlorine bleach (sodium hypochlorite) with enough water to fill a clean 5 gallon bucket. Add chlorine solution to the empty tank(s) and fill tank(s) with water until full. If using calcium hypochlorite granules, add directly to the tank.

Step 4. Follow the approved Start-up Procedures to complete the disinfection process. Until the chlorine is flushed out, bypass all water treatment devices, such as water softeners, that are downstream from the tank to prevent damage by the chlorine.

| Table 2: Chlorine dose of 25 ppm with a disinfection time of 24 hours | | | | |
|--|--|--|--|---|
| Volume of Water (gallons) | Sodium Hypochlorite Dose of 25 ppm (5.25% strength) | Sodium Hypochlorite Dose of 25 ppm (8.25% strength) | Sodium Hypochlorite Dose of 25 ppm (12.5% Strength) | Calcium Hypochlorite Granule Dose of 25 ppm (65% Strength) |
| 200 | 1 ½ cups (12 oz) | 1 cup (8 oz) | ¾ cup (6 oz) | ⅛ cup |
| 300 | 2 ¼ cups (18 oz) | 1 ⅓ cups (11 oz) | 1 cup (8 oz) | ¼ cup |
| 500 | 3 ½ cups (28 oz) | 2 ¼ cups (18 oz) | 1 ½ cups (12 oz) | ⅓ cup |
| 750 | 5 ⅓ cups (43 oz) | 3 ½ cups (28 oz) | 2 ⅓ cups (19 oz) | ½ cup |
| 1,500 | 10 ¾ cups (86 oz) | 6 ¾ cups (54 oz) | 4 ⅔ cups (37 oz) | 1 cup |
| 2,500 | 1 ¼ gallons | ¾ gallon | ½ gallon | 1 ½ cups |

NOTE: If not using National Sanitation Foundation (NSF) certified sodium hypochlorite, use regular household bleach that has been recently purchased and is free of additives and scents.

WM 917 Attachment C.5. Seasonal Waterworks Start-Up Procedures Approval Letter
INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print on VDH letterhead. Pages are 1" top, bottom, and side margins.

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Waterworks Owner
Address 1
Address 2
City, State, Zip

Dear Waterworks Owner:

The Start-up Procedure dated date for the subject waterworks (seasonal waterworks)(waterworks with seasonal components) has been reviewed by this Office. This letter is to advise that the Start-up Procedure satisfies the requirements of the Waterworks Regulations (Regulations), and is approved. A copy of the approved Start-up Procedure document is enclosed.

Please note the Regulations require, as a (seasonal waterworks)(waterworks with seasonal components), that you must complete this approved procedure prior to the start of every operating season, and submit a written certification form to this Office. Start-up sampling is mandatory and samples must be collected prior to the start of every operating season. Two "special" bacteriological samples must be taken from the distribution system at a minimum of 16 hours apart, using an approved site from your currently approved bacteriological sample siting plan. The results of these samples must be absent for total coliforms.

You will need to make appropriate arrangements with your laboratory to procure these sample kits. Use the correct forms and labels (sent with the sampling kits) for these samples. Notify this Office immediately if there are any errors on these forms so that the appropriate corrections can be made.

Finally, allow sufficient time for completing the Start-up Procedure, including receiving sample results, prior to serving water to the public. We recommend sample collection and analyses at least 2 weeks prior to the first day of service.

If we may be of any assistance to you in implementing this Start-up Procedure, please contact me at phone number.

Sincerely,

Field Office Director
Name of field office

WM 917 Attachment C.5. Seasonal Waterworks Start-Up Procedures Approval Letter
INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print on VDH letterhead. Pages are 1" top, bottom, and side margins.

ABC:xyz

Enclosure: Approved Start-up Procedure

ec/enc: *(electronic copy if applicable)*

cc: *Consulting engineer (if applicable)*
Name, County Administrator *(if applicable)*
VDH, ODW-Central Office

CERTIFICATION FORM

Seasonal Waterworks Start-Up Procedure Completed

Name of Waterworks: _____

PWSID No.: _____

Anticipated Date of Opening: _____

During the closed season, this waterworks was:

- Partially/fully drained
 - Fully pressurized (at least 20 psi)
-

To help reduce the risk of bacteriological contamination in the water being served to the public at this waterworks, the following start-up procedures were completed.

- Inspected the waterworks for sanitary defects
 - Repaired all noted sanitary defects
 - N/A – no defects noted
 - Cleaned/flushed all storage facilities
 - Flushed all pipes until the water ran clear
 - Disinfected the waterworks
 - N/A – disinfection not required per approved Start-up Procedure
 - Placed treatment facilities into service
 - N/A – no treatment facilities
 - Collected two bacteriological samples a minimum of 16 hours apart for presence/absence analysis
 - Submitted bacteriological results to the Office of Drinking Water
-

I hereby certify that each start-up procedure indicated above was completed before water was served to the public in accordance with the approved "Start-up Procedure" document for this waterworks.

Signature _____ Date: _____

Print Name: _____

Job Title: _____

Phone: _____

Submit this form to: VDH - Office of Drinking Water
Name Field Office, Address

CERTIFICATION FORM

Waterworks with Seasonal Components Start-Up Procedure Completed

Name of Waterworks: _____

PWSID No.: _____

Anticipated Date of Opening (partial system closure): _____

During the time frame in which we shut down some of our waterworks components, the section was:

- Partially/fully drained
 - Fully pressurized (at least 20 psi)
-

To help reduce the risk of bacteriological contamination in the water being served to the public at this waterworks, the following start-up procedures were completed.

- Inspected shut down components for sanitary defects
 - Repaired all noted sanitary defects
 - N/A – no defects noted
 - Cleaned/flushed all storage facilities
 - Flushed all pipes until the water ran clear
 - Disinfected the waterworks
 - N/A – disinfection not required per approved Start-up Procedure
 - Placed treatment facilities into service
 - N/A – no treatment facilities
 - Collected two bacteriological samples a minimum of 16 hours apart for presence/absence analysis
 - Submitted bacteriological results to the Office of Drinking Water
-

I hereby certify that each start-up procedure indicated above was completed before water was served to the public in accordance with the approved "Start-up Procedure" document for this waterworks.

Signature _____ Date: _____

Print Name: _____

Job Title: _____

Phone: _____

Submit this form to: VDH - Office of Drinking Water
Name Field Office, Address

REVIEW SHEET FOR SEASONAL START-UP PROCEDURES

| | | | |
|---|-------------|-------|----------|
| Subject: _____ Water: _____ Prepared By: _____ Date Submitted: _____ Reviewed By: _____ | Review Time | | |
| | Date | Hours | Initials |
| | | | |
| | | | |
| | | | |
| | | | |

- | | | | | |
|----|---|-----|----|-----|
| 1. | Is an ODW standard Start-Up Procedure form used? | Yes | No | |
| | Are all portions of the form completed? | Yes | No | N/A |
| | Comments: | | | |
| | Acceptable? | Yes | No | |
| 2. | Has an exemption been requested? | Yes | No | |
| | Does Distribution System remain pressurized year round? | Yes | No | N/A |
| | Does Waterworks have atmospheric storage? | Yes | No | N/A |
| | Recommend granting exemption? | Yes | No | N/A |
| 3. | Does the procedure include the following? | | | |
| | Inspection of the waterworks | Yes | No | N/A |
| | Maintenance or repair of deficient items | Yes | No | N/A |
| | Flushing of storage and distribution systems | Yes | No | N/A |
| | Disinfection of storage and distribution systems | Yes | No | N/A |
| | Special bacteriological sampling | Yes | No | N/A |
| | Comments: | | | |
| | Acceptable? | Yes | No | N/A |
| 4. | Comments: | | | |

**WM917-Attachment E.1. RTCR Tier 1 E. Coli PMCL NOV & PN & Level 2 Assessment
Required**

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1” top, bottom, and side margins

**NOTICE OF VIOLATION
and
NOTICE OF LEVEL 2 ASSESSMENT REQUIREMENT**

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Waterworks Owner

Address 1

Address 2

City, State, Zip

Re: Exceeding the Primary Maximum Contaminant Level for *E. coli* Bacteria, and Requirement of Level 2 Assessment

Dear Waterworks Owner:

This Notice is to advise that the subject waterworks appears to be in violation of 12VAC5-590-380 of the Virginia *Waterworks Regulations* (“*Regulations*”) for exceeding the Primary Maximum Contaminant Level (PMCL) for *E. coli* bacteria during the monitoring period - month or calendar quarter, and year.

Choose one or more paragraphs as appropriate from below:

According to our records, a routine bacteriological sample collected from the distribution system on date was *E. coli*-positive. Number (spell out) of the three repeat samples collected on date were total coliform-positive.

According to our records, a routine bacteriological sample collected from the distribution system on date was total coliform-positive. Number (spell out) of the three repeat samples collected on date were *E. coli*-positive.

In addition, our records do not indicate receipt of the analyses for all of the required repeat samples following an *E. coli*-positive routine sample collected on date.

According to our records, an *E. coli* analysis was not performed on the repeat sample collected on date which tested total coliform-positive.

WM917-Attachment E.1. RTCR Tier 1 E. Coli PMCL NOV & PN & Level 2 Assessment

Required

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins

This is a serious health concern. The presence of *E. coli* bacteria in drinking water is serious because these bacteria are usually associated with sewage or animal wastes (fecal contamination) and indicate that the water may be contaminated with organisms that can cause disease. *E. coli* bacteria in drinking water are generally a result of contaminated source water, inadequate water treatment, (*and/or*) contaminated distribution piping.

Consequently, a coliform treatment technique has been triggered due to an *E. coli* bacteria PMCL exceedance. You are hereby notified that a Level 2 assessment must be completed in accordance with 12VAC5-590-392 of the *Regulations*. A Level 2 assessment will be conducted by staff from this Office. You were contacted on *date*, and a site visit to conduct the assessment is scheduled for *date*.

Required Actions

Consultation: The *Regulations* require waterworks owners to initiate consultation with this Office within 24 hours of learning of an *E. coli* bacteria PMCL violation. According to our records, the consultation took place at *time* on *date*. At that time, *name of staff* described public notification requirements and (*faxed/emailed*) you a copy of this letter and a draft Notice to Consumers ("Notice").

Public Notice: This is a Tier 1 situation. 12VAC 5-590-540 of the *Regulations* requires you to notify consumers within 24 hours of learning whenever the PMCL for *E. coli* bacteria is exceeded. The public notice must be handled as follows:

- You must distribute the Notice no later than *time* on *date*. (*Note to ODW staff: This date and time must be 24 hours from the time the waterworks became aware of the exceedance. It will usually be 24 hours from the consultation date and time.*)
- The Notice must be distributed in a manner to reach all persons served by hand delivering the notice to each connection, posting at conspicuous locations throughout the area served by the waterworks, and/or appropriate broadcast media such as television, radio, social media, or website.
- Additional public notification may be required depending on the outcome of the Level 2 assessment findings.

Draft Notice: Attached is a draft Notice for you to distribute as directed above. You may use this Notice as is, or modify it to better meet your situation, as long as the information is accurate and it contains all of the required elements and mandated language. If you decide to change the Notice, we suggest that you contact this Office to verify that your proposed changes meet the requirements of the *Regulations*

Public Notice Confirmation: Within ten days of completing public notification, but no later than *date*, you must provide this Office with a copy of the Notice that you distributed, along with a signed certification that the distribution was completed in the required time and manner.

WM917-Attachment E.1. RTCR Tier 1 E. Coli PMCL NOV & PN & Level 2 Assessment
Required

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins

Failure to distribute the Notice and submit a signed certification form to this Office may be a violation of the *Regulations*. A certification form is enclosed for your use.

*[Year round TNC Waterworks]***Monitoring Changes:** Initiate monthly routine bacteriological monitoring beginning (*month/year*) until further notice. (The waterworks Bacteriological Sample Siting Plan requires revision to reflect the monitoring frequency.) **OR** (Attached is a revised Bacteriological Sample Siting Plan reflecting the monitoring frequency revision. Please sign and return the Plan.) Upon successfully completing all required activities, we will notify you when the monitoring frequency reverts back to quarterly monitoring frequency.

Additional Actions: (*Note or list any needed follow-up actions*)

If applicable, include paragraph below:

12VAC5-590-370.A.11. of the *Regulations* requires owners who collect routine samples on a quarterly frequency to collect three additional routine samples during the next month following one or more total coliform-positive samples in accordance with your approved Bacteriological Sample Siting Plan.

Level 2 Assessment - Additional Information

A Level 2 assessment is an in-depth evaluation of conditions throughout the waterworks to determine possible causes for the presence of *E. coli* bacteria. Sanitary defects, which are conditions that could provide a pathway of entry for microbial contamination into the distribution system, identified by the assessment are to be noted and corrected. A schedule of corrective action(s) must be included in the assessment for defects not corrected by the assessment due date.

As a reminder, staff from this Office will meet with *note the name of the approved waterworks representative with whom staff will be meeting on date* to conduct the Level 2 assessment.

If you have any questions regarding this matter, please contact me at *phone number*.

Sincerely,

District Engineer
Name of Field Office

ABC:xyz

Enclosure(s): *list*

ec/enc: (*electronic copy, if applicable*)

**WM917-Attachment E.1. RTCR Tier 1 E. Coli PMCL NOV & PN & Level 2 Assessment
Required**

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins

cc: Name of Consulting Engineer (if applicable)
Name, (Health Director/Environmental Health Manager), Name of LHD
Robert A.K. Payne, JD, Director of Legal Affairs, VDH, ODW-Central Office

**NOTICE TO CONSUMERS
of the Name WATERWORKS**

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

State Health Officials have advised us of a failure to meet the Primary Maximum Contaminant Level (PMCL) for *Escherichia coli* (*E. coli*) in accordance with the Virginia *Waterworks Regulations*. Water served to our customers during monitoring period - month or calendar quarter, and year did not comply with the PMCL because *E. coli* was detected in (a sample/samples) collected from our distribution system on date (and in follow-up samples on date).

E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We violated the standard for *E. coli*, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct a detailed assessment to identify problems and to correct any problems that are found.

General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline at 1 (800) 426-4791.

State Health Officials feel there is a need for concern about the safety of your water. Therefore, until further notice:

DO NOT DRINK TAP WATER WITHOUT BOILING IT FIRST

Bring all tap water to a rolling boil, let it boil for one minute, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking, beverage and food preparation, brushing teeth, and making ice. Boiling kills bacteria and other disease-causing microorganisms in the water. Boiling is the preferred method to assure that the tap water is safe to drink. Water does not need to be boiled for washing clothes, bathing, washing dishes, or other uses where water is not ingested. However, care should be taken not to allow children or infants to drink bath water or allow it to get into their mouths.

If you cannot boil your tap water:

- An alternative method of purification for residents that do not have gas or electricity available is to use liquid household bleach to disinfect water. The bleach product should

WM917-Attachment E.1. RTCR Tier 1 E. Coli PMCL NOV & PN & Level 2 Assessment
Required

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins

be recently purchased, free of additives and scents, and should contain a hypochlorite solution of at least 5.25%. Public health officials recommend adding eight (8) drops of bleach (about ¼ teaspoon) to each gallon of water. The water should be stirred and allowed to stand for at least 30 minutes before use.

- Water purification tablets may also be used by following the manufacturer's instructions.
- Potable water is available at the following locations: (*List locations where water is available and any special instructions*)

CONSUMING WATER FROM WATER SOURCES OF UNTESTED AND UNKNOWN QUALITY MAY POSE A THREAT TO YOUR HEALTH.

State Health Officials will be conducting an assessment of our waterworks to determine the possible cause for the detection of *E. coli* in our distribution system. We will be following up with all corrective actions noted in their assessment. You will be notified of future developments.

We anticipate resolving the problem within the next *provide time frame*.

For more information, please contact: *name of owner/operator* at *contact address* or *contact phone*

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

**WM917-Attachment E.1. RTCR Tier 1 E. Coli PMCL NOV & PN & Level 2 Assessment
Required**

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1” top, bottom, and side margins

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

VIOLATION: *E. Coli* PMCL – date

PUBLIC NOTIFICATION CERTIFICATION REPORT FORM

By direct (hand) delivery on _____ (*date*) at _____ a.m./p.m.

Posted on _____ (*date*) at _____ a.m./p.m.

at the following locations _____

Provided to the following broadcast media (*list: television/radio/website/social media*) on

_____ (*date*) at _____ a.m./p.m.

_____ (*date*) at _____ a.m./p.m.

_____ (*date*) at _____ a.m./p.m.

Other approved method _____ (*method and date*)

New billing customers will be notified of any ongoing violation for which notice has previously been issued.

I hereby certify that the attached public notice was distributed as indicated above and that the notice meets all content requirements.

(Signature)

RETURN TO: Name Field Office, Office of Drinking Water
Address

WM917-Attachment E.2. RTCR Tier 2 Coliform TT NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1” top, bottom, and side margins

NOTICE OF VIOLATION

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Waterworks Owner
Address 1
Address 2
City, State, Zip

Re: Coliform Treatment Technique Violation

Dear Waterworks Owner:

This Notice is to advise that the subject waterworks appears to be in violation of 12VAC5-590-392 of the Virginia *Waterworks Regulations* (“*Regulations*”).

Choose the appropriate paragraph from below:

According to our records, the Level 1 assessment required to be conducted and submitted to this Office by date has not been received. This assessment was required due to (more than one total coliform-positive sample) (due to greater than 5% of collected samples were total coliform-positive samples) during the monitoring period-month or calendar quarter, and year.

According to our records, a Level 2 assessment with a schedule of corrective actions was required to be signed and returned to this Office by date per our letter to you dated date. The signed Level 2 assessment with the schedule of corrective actions has not been received. This assessment was required (due to the E. coli Primary Maximum Contaminant Level exceedance during the monitoring period (specify dates)) (due to a second Level 1 assessment being required during a 12-month rolling period).

According to our records, the sanitary defect(s) as identified in the (Level 1 or Level 2) assessment (was/were) not corrected (within 30 days of the Notice of (Level 1 or Level 2) Assessment Requirement issued to you dated (date)) (by the completion date(s) in accordance with the approved schedule of corrective actions signed by you on (date)). (Staff to specify uncorrected sanitary defects and missed completion dates if multiple defects were required to be corrected, and not all were corrected.)

WM917-Attachment E.2. RTCR Tier 2 Coliform TT NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins

Required Actions

Public Notice: This is a Tier 2 situation. 12VAC5-590-540 of the *Regulations* requires you to notify consumers that the required action(s) stated above (*was/were*) not conducted. The public notice must be handled as follows:

Choose the appropriate option from below:

(Community waterworks PN requirements option)

- You must distribute a Notice to Consumers ("Notice") no later than *date*.
- The Notice must be mailed or directly delivered to each customer receiving a bill, and to other service connections served by your waterworks.
- If your waterworks serves consumers who do not pay water bills, or who do not have service connection addresses (apartment dwellers, university students, or nursing home patients, for example), you must also use other delivery methods to provide the Notice to these consumers as well. Examples of other methods include (but are not limited to) publication in local newspapers, delivery of multiple copies to apartment buildings, or posting the notice in public places served by your waterworks.
- Until the violation is resolved, you must give a copy of the Notice to all new billing units or new customers, before or at the time service begins. *(This bullet may be deleted if the violation has already been resolved.)*
- You must repeat distribution of the Notice each calendar quarter for as long as the violation persists. *(This bullet may be deleted if the violation has already been resolved.)*

(Non-community waterworks PN requirements option)

- You must provide a Notice to Consumers ("Notice") no later than *date*.
- The Notice must be posted in conspicuous locations throughout the area served by your waterworks, or mailed or directly delivered to the persons served by your waterworks.
- If your waterworks serves consumers who would not be reached by your posted, mailed, or hand-delivered Notice, you must also use other distribution methods to provide the Notice to these consumers as well. Such persons may include those who may not see the posted Notice because it is not in a location they routinely pass. Examples of other methods include, but are not limited to, publication of the Notice through a company newsletter, or by E-mail to staff or students.
- The Notice must be posted for a minimum of seven days even if the violation has been resolved, and it must remain in place as long as the violation persists.
- You must repeat distribution of the Notice each calendar quarter for as long as the violation persists. *(This bullet may be deleted if the violation has already been resolved.)*

Draft Notice: Attached is a draft Notice for you to distribute as directed above. You may use this Notice as is, or modify it to better meet your situation, as long as the information is accurate and the Notice contains all of the required elements and mandated language. If you decide to change the Notice, we suggest that you contact this Office to verify that your proposed changes meet the requirements of the *Regulations*.

WM917-Attachment E.2. RTCR Tier 2 Coliform TT NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins

Public Notice Confirmation: Within ten days of completing public notification, but no later than *date*, you must provide this Office with a copy of the Notice that you distributed, along with a signed certification that the distribution was completed in the required time and manner. Failure to distribute the Notice and submit a signed certification form to this Office may be a violation of the *Regulations*. A certification form is enclosed for your use.

[*Year round TNC Waterworks*]**Monitoring Changes:** Initiate monthly routine bacteriological monitoring until further notice. (The waterworks Bacteriological Sample Siting Plan requires revision to reflect the monitoring frequency.) **OR** (Attached is a revised Bacteriological Sample Siting Plan reflecting the monitoring frequency revision. Please sign and return the Plan.) Subsequent to successfully completing all required activities, we will notify you when the monitoring frequency reverts back to quarterly monitoring frequency.

Follow-up Actions: (*List actions necessary to bring the waterworks back into compliance with the Virginia Waterworks Regulations*)

If you have any questions regarding this matter, please contact me at *phone number*.

Sincerely,

District Engineer
Name of Field Office

ABC:xyz

Enclosure(s): *list*

ec/enc: (*electronic copy, if applicable*)

cc: *Name of Consulting Engineer (if applicable)*
Name, (Health Director/Environmental Health Manager), Name of LHD
Robert A.K. Payne, JD, Director of Legal Affairs, VDH, ODW-Central Office

WM917-Attachment E.2. RTCR Tier 2 Coliform TT NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins

NOTICE TO CONSUMERS of the Name WATERWORKS

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

State Health Officials have advised us of a failure to meet the Coliform Treatment Technique in accordance with the Virginia *Waterworks Regulations*. We failed to *(conduct the required assessment of our waterworks by (date)) (submit a signed schedule of corrective actions upon the finding of a sanitary defect) (correct all identified sanitary defects that were found during the assessment that (we conducted) (the Virginia Department of Health conducted))*.

Choose the appropriate paragraph from below:

Level 1 assessment not performed:

An assessment was required as a result of *(more than one sample) (greater than 5% of samples collected)* indicating the presence of total coliform bacteria during *monitoring period-month or calendar quarter, and year*.

Level 2 assessment signed schedule of corrective actions not returned to ODW:

An assessment and a schedule of corrective actions to fix sanitary defect(s) were required to be signed and returned to the Virginia Department of Health by *date*. A sanitary defect is a defect that may provide a pathway for contamination to enter the waterworks. The assessment was required *(due to the E. coli Primary Maximum Contaminant Level exceedance during monitoring period-month or calendar quarter, and year.) (due to a second Level 1 assessment being required during a 12- month rolling period.)*

Sanitary Defect not corrected:

(Sanitary defects that we identified in the assessment were not corrected by the timeframe specified by the Virginia Department of Health.) (Sanitary defects identified by the Virginia Department of Health assessment were not corrected by the deadlines specified in the schedule of corrective actions.) A sanitary defect is a defect that may provide a pathway for contamination to enter the waterworks.

Although this situation does not require that you take immediate action, as our customers, you have a right to know what happened, what you should do, and what we did to correct the situation.

Choose the appropriate option from below:

(Where Level 1 triggers were tripped, including a 2nd Level 1 assessment in a rolling 12-month period)

You do not need to boil your water or take other corrective actions. However, if you have specific health concerns, consult your doctor.

Coliforms are bacteria that are naturally present in the environment and are used as an indicator

WM917-Attachment E.2. RTCR Tier 2 Coliform TT NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins

that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and to correct any problems that are found.

People with severely compromised immune systems, infants, and some elderly may be at increased risk. These people should seek advice about drinking water from their health care providers. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline at 1 (800) 426-4791.

(Where Level 2 triggers were tripped, including E. coli PMCL)

DO NOT DRINK TAP WATER WITHOUT BOILING IT FIRST

State Health Officials believe there is a need for concern about the safety of your water. Please refer to the Boil Water Advisory delivered to you on date.

E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We violated the standard for *E. coli*, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct a detailed assessment to identify problems and to correct any problems that are found.

These people should seek advice about drinking water from their health care providers. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline at 1 (800) 426-4791.

What is being done?

(Describe the actions that the waterworks is taking to address the Coliform Treatment Technique requirements.)

We anticipate resolving the problem within the next provide time frame.

For more information, please contact: name of owner/operator at contact address or contact phone

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

WM917-Attachment E.2. RTCR Tier 2 Coliform TT NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

VIOLATION: Coliform Treatment Technique – date

PUBLIC NOTIFICATION CERTIFICATION REPORT FORM
(For Community Waterworks)

By mail delivery on _____ *(date)*

By direct (hand) delivery on _____ *(date)*

Alternate delivery method(s) for consumers who do not pay bills or have a service connection:

1. Posted on _____ *(date)*

At the following locations: _____

2. Published in the _____ *(newspaper)*

on _____ *(date)*

Other approved method _____ *(Method and date)*

New billing customers will be notified of any ongoing violation for which notice has previously been issued.

I hereby certify that the attached public notice was distributed as indicated above and that the notice meets all content requirements.

(Signature)

RETURN TO: Name Field Office, Office of Drinking Water
Address

WM917-Attachment E.2. RTCR Tier 2 Coliform TT NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

VIOLATION: Coliform Treatment Technique – date

PUBLIC NOTIFICATION CERTIFICATION REPORT FORM
(For Non-community Waterworks)

Posted on _____ *(date)*

At the following locations: _____

By direct (hand) delivery on _____ *(date)*

By mail delivery on _____ *(date)*

Other approved method _____ *(Method and date)*

I hereby certify that the attached public notice was distributed as indicated above and that the notice meets all content requirements.

(Signature)

RETURN TO: Name Field Office, Office of Drinking Water
Address

WM917-Attachment E.3. RTCR Tier 2 Seasonal TT NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1” top, bottom, and side margins.

NOTICE OF VIOLATION

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Waterworks Owner

Address 1

Address 2

City, State, Zip

Re: Coliform Treatment Technique Violation

Dear Waterworks Owner:

This Notice is to advise that you appear to be in violation of 12VAC5-590-370 of the Virginia *Waterworks Regulations* (“*Regulations*”).

According to our records, your waterworks is a seasonal waterworks and the approved seasonal start-up procedures were not completed prior to serving water to the public for the year operating season. A seasonal start-up procedure certification form (has not been submitted to this Office.) (received on (date) does not indicate that all required procedures were completed. Specifically, (list the missing actions).).

Required Actions

Public Notice: This is a Tier 2 situation. 12VAC5-590-540 of the *Regulations* requires you to notify consumers that the required action(s) stated above (was/were) not conducted. The public notice must be handled as follows:

- You must provide a Notice to Consumers (“Notice”) no later than date.
- The Notice must be posted in conspicuous locations throughout the area served by your waterworks, or mailed or directly delivered to the persons served by your waterworks.
- If your waterworks serves consumers who would not be reached by your posted, mailed, or hand-delivered Notice, you must also use other distribution methods to provide the Notice to these consumers as well. Such persons may include those who may not see the posted Notice because it is not in a location they routinely pass. Examples of other methods include, but are not limited to, publication of the Notice through a company newsletter, or by E-mail to staff or students.
- Notices must be posted for a minimum of seven (7) days even if the violation has been resolved, and must remain in place as long as the violation persists.
- You must repeat distribution of the Notice each calendar quarter for as long as the violation

WM917-Attachment E.3. RTCR Tier 2 Seasonal TT NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

persists. (*This bullet may be deleted if the violation has already been resolved.*)

Draft Notice: Attached is a draft Notice for you to distribute as directed above. You may use this Notice as is, or modify it to better meet your situation, as long as the information is accurate and the Notice contains all of the required elements and mandated language. If you decide to change the Notice, we suggest that you contact this Office to verify that your proposed changes meet the requirements of the *Regulations*.

Public Notice Confirmation: Within ten (10) days of completing public notification, but no later than *date*, you must provide this Office with a copy of the Notice that you distributed, along with signed certification that the distribution was completed in the required time and manner. Failure to distribute the Notice and submit a signed certification form to this Office may be a violation of the *Regulations*. A certification form is enclosed for your use.

Follow-up Actions: (*List actions necessary to bring the waterworks back into compliance with the Regulations*)

If you have any questions regarding this matter, please contact me at *phone number*.

Sincerely,

District Engineer
Name of Field Office

ABC:xyz

Enclosure(s): *list*

ec/enc: (*electronic copy, if applicable*)

cc: *Name of Consulting Engineer (if applicable)*
Name, (Health Director/Environmental Health Manager), Name of LHD
Robert A.K. Payne, JD, Director of Legal Affairs, VDH, ODW-Central Office

WM917-Attachment E.3. RTCR Tier 2 Seasonal TT NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

**NOTICE TO CONSUMERS
of the Name WATERWORKS**

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

The waterworks we operate is classified as a seasonal waterworks, meaning that our waterworks does not operate year round, and is required to perform opening season start-up procedures prior to serving water to the public. These procedures include inspection of waterworks components, pipe flushing, (*disinfection*) and water analysis for bacteriological quality.

We failed to follow our State-approved start-up procedures prior to serving water (*including a failure to analyze water samples for total coliform bacteria in accordance with the Virginia Waterworks Regulations.*) Even though this was not an emergency, as our customers, you have a right to know what happened and what we did to correct (*this/these*) situation(s).

(Include the following language when the violation includes the failure to monitor for total coliforms prior to serving water; note regular monitoring in this case is referring to the annual disinfection verification samples.)

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. Prior to serving water to the public in *year*, we did not complete all monitoring or testing for total coliform bacteria, and therefore, cannot be sure of the quality of your drinking water during that time.

Choose the appropriate option from below:

State Health Officials believe there is little need for concern about the safety of your water because (*we have now collected samples verifying the safety of the water*) (*List other reason(s).*)

State Health Officials believe there is a need for concern because *describe reason(s).*

We are (*describe actions*) to alleviate this concern.

There is nothing you need to do at this time.

We will carefully follow the State-approved start-up procedures for our waterworks in the future. For more information, please contact: *name of owner/operator* at *contact address* or *contact phone*.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

WM917-Attachment E.3. RTCR Tier 2 Seasonal TT NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

VIOLATION: Seasonal Start-up Procedure failure - date

PUBLIC NOTIFICATION CERTIFICATION REPORT FORM

By direct (hand) delivery on _____ Posted on _____
(date) (date)

at the following locations _____

Other approved method _____
(Method and date)

I hereby certify that the attached public notice was distributed as indicated above and that the notice meets all content requirements.

(Signature)

RETURN TO: Name Field Office, Office of Drinking Water
Address

NOTICE OF VIOLATION

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Waterworks Owner

Address 1

Address 2

City, State, Zip

Re: (Select the appropriate violation title(s) & paragraph(s) below)

Failure to Monitor for Coliform Bacteria

Failure to Analyze for *E. coli* Following a Total Coliform-Positive Routine Sample

Failure to Monitor for Disinfectant Residual

Dear Waterworks Owner:

This notice is to advise that you appear to be in violation of 12VAC5-590-370 of the Virginia *Waterworks Regulations* ("Regulations").

Choose the appropriate paragraph(s) from below:

According to our records, the required routine water sample(s) for bacteriological examination (was/were) not collected and analyzed during monitoring period-month or calendar quarter, and year. Number (spell out) (routine/additional routine) samples (was/were) required and number (spell out) (was/were) analyzed.

According to our records, the (routine/additional routine) sample(s) collected on date (was/were) total coliform-positive and (was/were) not analyzed for *E. coli* bacteria.

The (routine/additional routine) sample collected on date was not acceptable for analysis due to its rejection by the laboratory.

In addition, according to our records, the required residual disinfectant level, as specified in 12VAC5-590-370 of the *Regulations*, was not measured. The residual disinfectant level must be measured in the distribution system at the same point and at the same time as the required water sample for bacteriological examination.

Required Actions

Public Notice: This is a Tier 3 situation. 12VAC5-590-540 of the *Regulations* requires you to notify consumers that the required monitoring was not conducted. The public notice must be handled as follows:

WM917-Attachment E.4. RTCR Tier 3 Monitoring NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

Choose the appropriate option from below:

(Community waterworks PN requirements option)

- You must distribute a Notice to Consumers (“Notice”) no later than *date*.
- The Notice must be mailed or directly delivered to each customer receiving a bill, and to other service connections served by your waterworks.
- If your waterworks serves consumers who do not pay water bills, or who do not have service connection addresses (apartment dwellers, university students, or nursing home patients, for example) you must also use other delivery methods to provide the Notice to these consumers as well. Examples of other methods include, but are not limited to, publication in local newspapers, delivery of multiple copies to apartment buildings, or posting the Notice in public places served by the waterworks.
- You may choose to include the Notice as an enclosure with or as an integral part of your Consumer Confidence Report (CCR) for *year*. To do so, the combined CCR and public notice must be distributed to consumers by the *date* AND you must take steps to ensure that the CCR and public notice reach all persons served by the waterworks. This requirement is more stringent than the “good faith effort” requirements for distributing the CCR alone.
- Until the violation is resolved, you must give a copy of the Notice to all new billing units or new customers, before or at the time service begins. (*This bullet may be deleted if the violation has already been resolved.*)
- You must repeat distribution of the Notice annually for as long as the violation persists. (*This bullet may be deleted if the violation has already been resolved.*)

(Non-community waterworks PN requirements option)

- You must provide a Notice to Consumers (“Notice”) no later than *date*.
- The Notice must be posted in conspicuous locations throughout the area served by your waterworks, or mailed or directly delivered to the persons served by your waterworks.
- If your waterworks serves consumers who would not be reached by your posted, mailed, or hand-delivered Notice, you must also use other distribution methods to provide the Notice to these consumers as well. Such persons may include those who may not see the posted Notice because it is not in a location they routinely pass. Examples of other methods include, but are not limited to, publication of a Notice through a company newsletter, or by E-mail to staff or students.
- The Notice must be posted for a minimum of seven (7) days even if the violation has been resolved, and must remain in place as long as the violation persists.
- You must repeat distribution of the Notice annually for as long as the violation persists. (*This bullet may be deleted if the violation has already been resolved.*)

Draft Notice: Attached is a draft Notice for you to distribute as directed above. You may use this Notice as is, or modify it to better meet your situation, as long as the information is accurate and the Notice contains all of the required elements and mandated language. If you decide to change the Notice, we suggest that you contact this Office to verify that your proposed changes meet the requirements of the *Regulations*.

Public Notice Confirmation: Within ten (10) days of completing public notification, but no later than *date*, you must provide this Office with a copy of the Notice that you distributed, along

WM917-Attachment E.4. RTCR Tier 3 Monitoring NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

with a signed certification that the distribution was completed in the required time and manner. Failure to distribute the Notice and submit a signed certification form to this Office may be a violation of the *Regulations*. A certification form is enclosed for your use.

Follow-up Actions: (List actions necessary to bring the waterworks back into compliance with the Regulations)

If you have any questions regarding this matter, please contact me at phone number.

Sincerely,

District Engineer
Name of Field Office

ABC:xyz

Enclosure(s): list

ec/enc: (electronic copy, if applicable)

cc: Name of Consulting Engineer (if applicable)
Name, (Health Director/Environmental Health Manager), Name of LHD
Robert A.K. Payne, JD, Director of Legal Affairs, VDH, ODW-Central Office

**NOTICE TO CONSUMERS
of the Name WATERWORKS**

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

State Health Officials have advised us of a failure to perform required monitoring in accordance with the Virginia *Waterworks Regulations*.

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the *monitoring period-month or calendar quarter, and year*, we (*did not monitor for coliform bacteria*) (*did not complete all monitoring for coliform bacteria*) (*and chlorine residual concentrations*) (*did not analyze all total coliform-positive samples for E. coli*). Therefore, we cannot be sure of the quality of our drinking water during that time.

Choose the appropriate paragraph(s) from below:

Number (spell out) sample(s) (*was/were*) required for analysis and *number (spell out)* (*was/were*) analyzed.

A sample was collected on *date*; however, it was rejected by the laboratory as not acceptable for analysis.

A sample collected on *date* indicated the presence of coliform bacteria. Whenever coliform bacteria are detected in a sample, follow-up testing is conducted to determine if other bacteria of greater concern, such as *E. coli*, are present. However, the water sample was not analyzed for *E. coli* bacteria as required by the Virginia *Waterworks Regulations*.

If applicable, include paragraph below:

State Health Officials believe that there is little need for concern about the safety of your water because past records show that our waterworks has had no documented problems with bacteriological contamination; however, routine sampling and examination are required to determine the quality of water delivered to our customers.

There is nothing you need to do at this time. This situation has been resolved.

Choose the appropriate sentence from below:

We have since been collecting and having analyzed the required number of bacteriological (*and chlorine concentration*) samples.

We have advised our laboratory that all future total coliform-positive samples must be analyzed for *E. coli*.

For more information, please contact: *name of owner/operator* at *contact address* or *contact phone*

WM917-Attachment E.4. RTCR Tier 3 Monitoring NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

WM917-Attachment E.4. RTCR Tier 3 Monitoring NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

VIOLATION: Monitoring – date

PUBLIC NOTIFICATION CERTIFICATION REPORT FORM
(For Community Waterworks)

By mail delivery on _____ *(date)*

By direct (hand) delivery on _____ *(date)*

Alternate delivery method(s) for consumers who do not pay bills or have a service connection:

1. Posted on _____ *(date)*

At the following locations: _____

2. Published in the _____ *(newspaper)*

On _____ *(date)*

Other approved method _____ *(Method and date)*

New billing customers will be notified of any ongoing violation for which notice has previously been issued.

I hereby certify that the attached public notice was distributed as indicated above and that the notice meets all content requirements.

(Signature)

RETURN TO: Name Field Office, Office of Drinking Water
Address

WM917-Attachment E.4. RTCR Tier 3 Monitoring NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

VIOLATION: Monitoring – date

PUBLIC NOTIFICATION CERTIFICATION REPORT FORM
(For Non-community Waterworks)

Posted on _____ *(date)*

At the following locations: _____

By direct (hand) delivery on _____ *(date)*

By mail delivery on _____ *(date)*

Other approved method _____ *(Method and date)*

I hereby certify that the attached public notice was distributed as indicated above and that the notice meets all content requirements.

(Signature)

RETURN TO: Name Field Office, Office of Drinking Water
Address

WM917-Attachment E.5. RTCR Tier 3 Reporting NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

NOTICE OF VIOLATION

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Waterworks Owner

Address 1

Address 2

City, State, Zip

Re: (Select the appropriate violation title & paragraph below; do not use numbers)

1. Failure to Submit Monitoring Report or Completed Assessment Form
2. Failure to Report an *E. coli*-positive Sample Result
3. Failure to Submit Certification of Completion of Start-up Procedure
4. Failure to Report an *E. coli* PMCL Exceedance
5. Failure to Report an *E.coli*-Positive Routine Sample Result
6. Failure to Report a Coliform Treatment Technique Violation
7. Failure to Submit Assessment Report on Corrective Actions within 30 Calendar Days
8. Failure to Report a Monitoring Violation

Dear Waterworks Owner:

This Notice is to advise that the subject waterworks appears to be in violation of the reporting requirements in 12VAC5-590-530 of the Virginia *Waterworks Regulations* ("Regulations").

Choose the appropriate paragraph from below; do not use numbers:

1. According to our records, you failed to submit a monitoring report or a completed assessment form to this Office by the required due date of date.
2. According to our records, you failed to notify this Office by the end of the next business day when the waterworks learned of an *E. coli*-positive sample result.
3. According to our records, the certification of completion for the seasonal start-up procedure was not submitted to this Office on date.
4. According to our records, you failed to notify this Office by the end of the next business day when the waterworks learned of an *E. coli* PMCL exceedance.
5. According to our records, you failed to notify this Office by the end of the next business day when the waterworks learned of an *E. coli*-positive routine sample result.
6. According to our records, you failed to notify this Office by the end of the next business day when the waterworks learned of a coliform treatment technique violation.

WM917-Attachment E.5. RTCR Tier 3 Reporting NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

7. According to our records, you failed to submit an assessment report within 30 calendar days of being notified of the assessment trigger and/or to notify this Office of completed corrective actions in compliance with a schedule approved by ODW.
8. According to our records, you failed to report a monitoring violation to this Office within ten days after the waterworks discovered the violation.

Required Actions

Public Notice: This is a Tier 3 situation. 12VAC5-590-540 of the *Regulations* requires you to notify consumers that the required reporting was not conducted. The public notice must be handled as follows:

Choose the appropriate option from below:

(Community waterworks PN requirements option)

- You must distribute a Notice to Consumers (“Notice”) no later than *date*.
- The Notice must be mailed or directly delivered to each customer receiving a bill, and to other service connections served by your waterworks.
- If your waterworks serves consumers who do not pay water bills, or who do not have service connection addresses (apartment dwellers, university students, or nursing home patients, for example) you must also use other delivery methods to provide the Notice to these consumers as well. Examples of other methods include, but are not limited to, publication in local newspapers, delivery of multiple copies to apartment buildings, or posting the notice in public places served by the waterworks.
- You may choose to include the Notice as an enclosure with or as an integral part of your Consumer Confidence Report (CCR) for *year*. To do so, the combined CCR and public notice must be distributed to consumers by the *date* AND you must take steps to ensure that the CCR and public notice reach all persons served by the waterworks. This requirement is more stringent than the “good faith effort” requirements for distributing the CCR alone.
- Until the violation is resolved, you must give a copy of the Notice to all new billing units or new customers, before or at the time service begins. (*This bullet may be deleted if the violation has already been resolved.*)
- You must repeat distribution of the Notice annually for as long as the violation persists. (*This bullet may be deleted if the violation has already been resolved.*)

(Non-community waterworks PN requirements option)

- You must provide a Notice to Consumers (“Notice”) no later than *date*.
- The Notice must be posted in conspicuous locations throughout the area served by your waterworks, or mailed or directly delivered to the persons served by your waterworks.
- If your waterworks serves consumers who would not be reached by your posted, mailed, or hand-delivered notice, you must also use other distribution methods to provide the Notice to these consumers as well. Such persons may include those who may not see the posted Notice because it is not in a location they routinely pass. Examples of other methods include, but are not limited to, publication of the Notice through a company newsletter, or by E-mail to staff or students.

WM917-Attachment E.5. RTCR Tier 3 Reporting NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

- The Notice must be posted for a minimum of seven days even if the violation has been resolved, and must remain in place as long as the violation persists.
- You must repeat distribution of the Notice annually for as long as the violation persists. (*This bullet may be deleted if the violation has already been resolved.*)

Draft Notice: Attached is a draft Notice for you to distribute as directed above. You may use this Notice as is, or modify it to better meet your situation, as long as the information is accurate and the Notice contains all of the required elements and mandated language. If you decide to change the Notice, we suggest that you contact this Office to verify that your proposed changes meet the requirements of the *Regulations*.

Public Notice Confirmation: Within ten days of completing public notification, but no later than *date*, you must provide this Office with a copy of the Notice you distributed, along with a signed certification that the distribution was completed in the required time and manner. Failure to distribute public notice and submit a signed certification form to this Office may be a violation of the *Regulations*. A certification form is enclosed for your use.

Follow-up Actions: (*List actions necessary to bring the waterworks back into compliance with the Regulations*)

If you have any questions regarding this matter, please contact me at *phone number*.

Sincerely,

District Engineer
Name of Field Office

ABC:xyz

Enclosure(s): *list*

ec/enc: (*electronic copy, if applicable*)

cc: *Name of Consulting Engineer (if applicable)*
Name, (Health Director/Environmental Health Manager), Name of LHD
Robert A.K. Payne, JD, Director of Legal Affairs, VDH, ODW-Central Office

WM917-Attachment E.5. RTCR Tier 3 Reporting NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

**NOTICE TO CONSUMERS
of the Name of WATERWORKS**

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

State Health Officials have advised us of a failure to perform required reporting to the Virginia Department of Health in accordance with the Virginia *Waterworks Regulations*.

Choose the appropriate paragraph from below:

(Total coliform bacteria analytical results for the month or quarter monitoring period) (A completed Level 1 assessment form) (was/were) not submitted to the Virginia Department of Health by the required deadline of date.)

A certification of completion of the seasonal start-up procedure was not submitted to the Virginia Department of Health prior to serving water to the public on date. This procedure is required because our waterworks does not operate year round and measures must be taken to verify the safety of water prior to serving our customers.

The Virginia Department of Health was not notified of *(an E. coli-positive routine sample) (an E. coli PMCL exceedance) (a Coliform Treatment Technique Violation) (a monitoring violation) (completed corrective actions to address sanitary defect(s) per a Virginia Department of Health approved schedule)* within the time frame specified in the Virginia *Waterworks Regulations*.

There is nothing you need to do at this time.

We are immediately attempting to prevent further violations by ensuring that all required reporting is performed appropriately in accordance with the Virginia *Waterworks Regulations*. Future violations will be reported as required by these regulations in order to increase consumers' awareness of conditions that exist in their waterworks.

(Add additional information as needed)

For more information, please contact: name of owner/operator at contact address or contact phone

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

WM917-Attachment E.5. RTCR Tier 3 Reporting NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

VIOLATION: Reporting – date

PUBLIC NOTIFICATION CERTIFICATION REPORT FORM
(For Community Waterworks)

By mail delivery on _____ *(date)*

By direct (hand) delivery on _____ *(date)*

Alternate delivery method(s) for consumers who do not pay bills or have a service connection:

1. Posted on _____ *(date)*

At the following locations: _____

2. Published in the _____ *(date)*

on _____ *(date)*

Other approved method _____ *(Method and date)*

New billing customers will be notified of any ongoing violation for which notice has previously been issued.

I hereby certify that the attached public notice was distributed as indicated above and that the notice meets all content requirements.

(Signature)

RETURN TO: Name Field Office, Office of Drinking Water
Address

WM917-Attachment E.5. RTCR Tier 3 Reporting NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

VIOLATION: Reporting – date

PUBLIC NOTIFICATION CERTIFICATION REPORT FORM
(For Non-community Waterworks)

Posted on _____ *(date)*

At the following locations: _____

By direct (hand) delivery on _____ *(date)*

By mail delivery on _____ *(date)*

Other approved method _____ *(Method and date)*

I hereby certify that the attached public notice was distributed as indicated above and that the notice meets all content requirements.

(Signature)

RETURN TO: Name Field Office, Office of Drinking Water
Address

WM917-Attachment E.6. RTCR Tier 3 Recordkeeping NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

NOTICE OF VIOLATION

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Waterworks Owner

Address 1

Address 2

City, State, Zip

Re: Failure to Maintain Required Documentation

Dear Waterworks Owner:

This Notice is to advise that you appear to be in violation of 12VAC5-590-550 of the Virginia *Waterworks Regulations* ("Regulations") for failure to maintain records of (assessment forms) (completed corrective actions addressing sanitary defects) (sanitary defect documentation). The records were not available for review upon our request on date. The following records were missing: (Specify the records that are missing)

Required Actions

Public Notice: This is a Tier 3 situation. 12VAC5-590-540 of the *Regulations* require you to notify consumers that the required recordkeeping was not conducted. The public notice must be handled as follows:

Choose the appropriate option from below:

(Community waterworks PN requirements option)

- You must distribute a Notice to Consumers ("Notice") no later than date.
- The Notice must be mailed or directly delivered to each customer receiving a bill, and to other service connections served by your waterworks.
- If your waterworks serves consumers who do not pay water bills, or who do not have service connection addresses (apartment dwellers, university students, or nursing home patients, for example) you must also use other delivery methods to provide the Notice to these consumers as well. Examples of other methods include, but are not limited to, publication in local newspapers, delivery of multiple copies to apartment buildings, or posting the Notice in public places served by the waterworks.
- You may choose to include the Notice to Consumers as an enclosure with or as an integral part of your Consumer Confidence Report (CCR) for year. To do so, the combined CCR and public notice must be distributed to consumers by the date AND you must take steps to ensure that the CCR and public notice reach all persons served by the waterworks. This requirement is more stringent than the "good faith effort" requirements for distributing the CCR alone.

WM917-Attachment E.6. RTCR Tier 3 Recordkeeping NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

- Until the violation is resolved, you must give a copy of the Notice to all new billing units or new customers, before or at the time service begins. (*This bullet may be deleted if the violation has already been resolved.*)
- You must repeat distribution of the Notice annually for as long as the violation persists. (*This bullet may be deleted if the violation has already been resolved.*)

(Non-community waterworks PN requirements option)

- You must provide a Notice to Consumers ("Notice") no later than *date*.
- The Notice must be posted in conspicuous locations throughout the area served by your waterworks, or mailed or directly delivered to the persons served by your waterworks.
- If your waterworks serves consumers who would not be reached by your posted, mailed, or hand-delivered Notice, you must also use other distribution methods to provide the Notice to these consumers as well. Such persons may include those who may not see the posted Notice because it is not in a location they routinely pass. Examples of other methods include (but are not limited to) publication of the Notice through a company newsletter, or by E-mail to staff or students.
- The Notice must be posted for a minimum of seven (7) days even if the violation has been resolved, and must remain in place as long as the violation persists.
- You must repeat distribution of the Notice annually for as long as the violation persists. (*This bullet may be deleted if the violation has already been resolved.*)

Draft Notice: Attached is a draft Notice for you to distribute as directed above. You may use this Notice as is, or modify it to better meet your situation, as long as the information is accurate and the Notice contains all of the required elements and mandated language. If you decide to change the Notice, we suggest that you contact this Office to verify that your proposed changes meet the requirements of the *Regulations*.

Public Notice Confirmation: Within ten (10) days of completing public notification, but no later than *date*, you must provide this Office with a copy of the Notice you distributed, along with a signed certification that the distribution was completed in the required time and manner. Failure to distribute public notice and submit a signed certification form to this Office may be a violation of the *Regulations*. A certification form is enclosed for your use.

Follow-up Actions: (*List actions necessary to bring the waterworks back into compliance with the Regulations*)

If you have any questions regarding this matter, please contact me at *phone number*.

Sincerely,

District Engineer
Name of Field Office

ABC:xyz

Enclosure(s): *list*
ec/enc: (*electronic copy, if applicable*)

WM917-Attachment E.6. RTCR Tier 3 Recordkeeping NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

cc: *Name of Consulting Engineer (if applicable)*

Name, (Health Director/Environmental Health Manager), Name of LHD

Robert A.K. Payne, JD, Director of Legal Affairs, VDH, ODW-Central Office

WM917-Attachment E.6. RTCR Tier 3 Recordkeeping NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

**NOTICE TO CONSUMERS
of the Name of WATERWORKS**

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

State Health Officials have advised us of a failure to meet recordkeeping requirements in accordance with the Commonwealth of Virginia *Waterworks Regulations*.

We are required to maintain records of all (*assessment forms*) (*completed corrective actions*) (*sanitary defect documentation*). The following records were missing: (*Staff to specify the records that are missing*)

There is nothing you need to do at this time.

We are immediately attempting to prevent further violations by ensuring that all records are maintained and retained in accordance with the Virginia *Waterworks Regulations*. Future violations will be reported as required by these regulations in order to increase consumers' awareness of conditions that exist in their waterworks.

(*Add additional information as needed*)

For more information, please contact: name of owner/operator at contact address or contact phone

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

WM917-Attachment E.6. RTCR Tier 3 Recordkeeping NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

VIOLATION: Recordkeeping – *date*

PUBLIC NOTIFICATION CERTIFICATION REPORT FORM
(For Community Waterworks)

By mail delivery on _____ *(date)*

By direct (hand) delivery on _____ *(date)*

Alternate delivery method(s) for consumers who do not pay bills or have a service connection:

1. Posted on _____ *(date)*

At the following locations: _____

2. Published in the _____ *(date)*

on _____ *(date)*

Other approved method _____ *(Method and date)*

New billing customers will be notified of any ongoing violation for which notice has previously been issued.

I hereby certify that the attached public notice was distributed as indicated above and that the notice meets all content requirements.

(Signature)

RETURN TO: *Name* Field Office, Office of Drinking Water
Address

WM917-Attachment E.6. RTCR Tier 3 Recordkeeping NOV & PN

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

VIOLATION: Recordkeeping – date

PUBLIC NOTIFICATION CERTIFICATION REPORT FORM
(For Non-community Waterworks)

Posted on _____ *(date)*

At the following locations: _____

By direct (hand) delivery on _____ *(date)*

By mail delivery on _____ *(date)*

Other approved method _____ *(Method and date)*

I hereby certify that the attached public notice was distributed as indicated above and that the notice meets all content requirements.

(Signature)

RETURN TO: Name Field Office, Office of Drinking Water
Address

WM917-Attachment E.7. RTCR Tier 3 No BSSP NOV

INSTRUCTIONS: Complete / select items shown with *italics*, and convert to regular font. Print 1st page on VDH letterhead. Pages are 1" top, bottom, and side margins.

NOTICE OF ALLEGED VIOLATION

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Waterworks Owner
Address 1
Address 2
City, State, Zip

Re: Requirement to Have a Written Bacteriological Sample Siting Plan

Dear Waterworks Owner:

This Notice is to advise you that the subject waterworks does not appear to satisfy the requirement in 12VAC5-590-370.A.1 of the Virginia *Waterworks Regulations* ("*Regulations*") to have a written bacteriological sample siting plan (BSSP) approved by the Commissioner for collecting total coliform samples.

Requested Actions

The field office name Field Office does not have a BSSP for monitoring bacteriological water quality in the distribution system of the Waterworks Name. Pursuant to the *Regulations*, the field office name Field Office requests that you submit a BSSP to this Office within fourteen (14) days for review and approval action. A BSSP template for your waterworks is enclosed with this Notice.

If you have any questions regarding this matter, please contact me at phone number.

Sincerely,

District Engineer
Name of Field Office

ABC:xyz

Enclosure: BSSP template
ec/enc: (electronic copy, if applicable)

cc: Name, (Health Director/Environmental Health Manager), Name of LHD
Robert A.K. Payne, JD, Director of Legal Affairs, VDH, ODW-Central Office