



LEVEL 2 ASSESSMENT OVERVIEW

The Revised Total Coliform Rule (RTCR) requires all public water supply systems (PWSs) to complete a Level 2 Assessment in response to the triggers identified in 310 CMR 22.05(4)(a)2. The purpose of the Level 2 Assessment is to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. This evaluation provides a more detailed examination of the PWS than a Level 1 Assessment.

A sanitary defect is a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place. If a sanitary defect is identified during the assessment, the assessor must describe the sanitary defect, what corrective actions were completed, and a proposed timetable for corrective actions not yet completed.

Level 2 Assessments must be submitted to MassDEP within 30 days of the trigger date identified in the “General Information” section below. If upon review, MassDEP determines that the assessment is insufficient, MassDEP will send the PWS written notification. The system is required to consult with MassDEP within 14 days of receiving notification of an insufficient assessment.

This instruction document is to be used as a companion to the MassDEP Coliform Bacteria Level 2 Assessment Form (RTCR-2). It contains information necessary for completion of the form. For more instructions on performing Level 2 Assessments, assessors are strongly recommended to read the EPA *Revised Total Coliform Rule Assessments and Corrective Actions Guidance Manual* which can be found at <http://www.epa.gov/dwreginfo/revised-total-coliform-rule-assessments-and-corrective-actions>.

If the PWS has detected a fecal indicator in the source water, it may also be required to perform corrective actions and/or develop a corrective action plan under the Ground Water Rule (310 CMR 22.26). In that situation, the Level 2 Assessment Form may be used to report corrective actions taken to comply with the Ground Water Rule, and the Corrective Action Schedule portion of the form may be used to comply with both the Corrective Action Plan requirements of the Ground Water Rule and the RTCR.

WHO MAY PERFORM A LEVEL 2 ASSESSMENT

Unless the PWS is notified that MassDEP will conduct the assessment, the Level 2 Assessment must be conducted by a party approved by MassDEP. The PWS shall consult with MassDEP regarding the identification of the Lead Assessor at the time of notification that the PWS has triggered a Level 2 Assessment. MassDEP considers the following individuals qualified to serve as lead assessor: a person holding a full Drinking Water Operators license of a grade (treatment or distribution) equal to or higher than that of the PWS qualified to be the Lead Assessor, or a technical assistance provider under contract with the state. Other individuals may be approved to perform the role of Lead Assessor at the discretion of MassDEP. Refer to the document *Criteria for Approval of Individuals Allowed to Conduct RTCR Level 2 Assessments*.

GENERAL COMMENTS ON FORMAT AND COMPLETION

The Level 2 Assessment Form is a fill-in-the blank document that meets the requirements of the Level 2 Assessment Report. The form must be completed without changes. The fields in the document will expand as necessary. However, if you have an extensive explanation or need additional space, extra pages can be attached.

The form is designed so that additional pages may be completed as needed for a PWS with multiple sources or other components. When all required pages of the form are complete, the pages should be numbered consecutively for the entire document.

PAGE 1 - GENERAL INFORMATION

LEAD ASSESSOR

The Lead Assessor is the person approved by MassDEP to perform the assessment.

OTHER PARTICIPANTS IN THE ASSESSMENT

Include the names of all parties that participated in the assessment, including engineers, consultants, operators, well drillers, tank inspectors, cross-connection surveyors and testers, etc.

PERSON(S) REPRESENTING THE PWS

If the assessment is performed by a party that is not directly affiliated with the PWS, then indicate the parties that represented the PWS during the assessment. Otherwise, this item may be left blank.

LEVEL 2 TRIGGER

Indicate whether the assessment was triggered by an *E. coli* MCL violation, or by a second Level 1 Trigger in 12 months. If it was a second Level 1 trigger, include the date (month and year) of the previous Level 1 trigger (from the Level 1 Assessment Form).

LISTING OF ALL POSITIVE SAMPLES

For all total coliform positive samples, list in chronological order the sample location and date collected. For ongoing/widespread events, the list of positive samples must include at a minimum the results of the original round of sampling and the first round of repeats, even if the trigger was reached during the original round of sampling. You may be permitted to attach a bacteria analysis laboratory report in lieu of listing all total coliform positive samples. Please contact your regional office for further details and approval. Check the box for all *E. coli* positive samples.

TRIGGER DATE:

Important: the assessment is due to MassDEP no later than 30 days after the trigger date in the table below. The PWS is required to notify MassDEP that a Level 2 Assessment has been triggered within **5 days** of the trigger date. In the event that the trigger is an *E. coli* MCL violation, the PWS must notify MassDEP as soon as possible but no later than the end of the day when the Supplier of Water learns of an *E. coli* MCL violation. Failure to perform the assessment and submit the assessment report is a violation of the RTCR.

Determination of Trigger Date:

Level 2 Trigger Type	Trigger Date
Second Level 1 trigger in 12 months (coliform detection):	
PWS collects 40 or fewer samples per month and had a second TC+ sample in a calendar month	Date the second TC+ sample was collected
PWS collects more than 40 samples per month and more than 5% of total samples were TC+	Date the TC+ sample was collected that exceeded the 5% threshold
Second Level 1 trigger in 12 months (repeat failure):	
PWS failed to collect all required repeat samples after a TC+ sample	2 days after the date the original coliform positive sample was collected
<i>E. coli</i> MCL violation:	
An <i>E. coli</i> positive repeat sample follows an associated total coliform positive routine sample	Date the <i>E. coli</i> positive repeat sample was collected
A total coliform positive (or <i>E. coli</i> positive) repeat sample follows an <i>E. coli</i> positive routine sample	Date the total coliform (or <i>E. coli</i>) positive repeat sample was collected
PWS fails to take all required repeat samples following an <i>E. coli</i> positive sample	2 days after collection date of initial <i>E. coli</i> positive sample
PWS fails to analyze for <i>E. coli</i> when any repeat sample tests positive for total coliform	Date the total coliform positive repeat sample was collected

CHECKLIST OF COMPLETED SECTIONS

Once the assessment is completed, check off all assessment categories that have been completed. Systems without treatment, atmospheric storage tanks, or specific source types do not have to complete those categories. Note that Sections 1.0 through 4.0 and sections 12.0 and 14.0 are required for all systems.

For the positive coliform sample site category, complete one assessment page for each location. For categories such as source, atmospheric storage, and treatment plants, one assessment page is to be completed for each component that was active during the monitoring period when the samples were collected. Indicate the number of individual assessments performed for each of these categories.

INDIVIDUAL ASSESSMENT SECTIONS 1.0 – 11.0

- These sections are designed to be completed for each active component at the time that the positive samples were collected. If more than one component is present, then a separate page must be completed for each component. Complete each section individually, print, number the pages, and submit all pages together.

- In section 8.0 Source – Well, elements 8.1 – 8.4 must be answered for all active sources. For sources which have total coliform or *E. coli* positive source samples, the rest of the elements (8.5 – 8.18) must be completed.
- All other sections must be completed in their entirety for each system component. Reduction in scope is not permitted without specific prior MassDEP approval in writing.
- The assessment forms are designed with individual elements phrased as questions pertaining to each category. The majority of the questions are in a yes/no format, with one of the answers being shaded. If you select the shaded box, it is considered an issue that requires a response. Make sure you also answer any follow-up questions that may be included. For those questions that do not have a yes/no option, and answer to the question is required whether it constitutes an issue or not. Any element not reviewed requires an explanation in the issue/description box as to why a review was not conducted.
- At the end of each section is an optional section for “other comments”. Use this space to describe any issues observed that were not addressed in the specific assessment elements. This section is always optional.
- Once the assessment category has been completed, list all corrective actions performed in the box at the bottom with the date completed. For each corrective action, indicate number(s) of the corresponding Assessment Element(s) that the corrective action was intended to address.
- Be sure to include any additional supplemental information requested by MassDEP in support of the assessment (i.e., photographs, tank inspection reports, or cross-connection survey).

Assessment Example:

4.0 Distribution System <i>If the PWS has multiple distribution systems, submit one sheet per system.</i>				
Identify Distribution System (if multiple):				
Assessment Elements For any <u>shaded box</u> checked, it should be considered an issue and a description must be included.	Issue and/or Description *If any element has not been reviewed, you must include an explanation.			
		Yes	No	Not Reviewed*
4.1 Is there evidence that the system experienced low or negative pressure in the distribution system prior to sampling? If yes, describe event and when it occurred.		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.2 Have there been any water main breaks, repairs, or additions since the last clean sampling event? If yes, when, and what was the repair or addition?		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.3 Has there been: a recent fire fighting event, sheared hydrant, construction, etc.?		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.4 Are there previously identified unprotected cross connections in the distribution system? If yes, list them and identify if any of them are high hazard?		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.5	Are there any unsanitary conditions in the pump station(s)?	NA – There are no distribution/booster pumping stations	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.6	Are fire hydrants and blow-offs maintained without leaks?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.7	Are any fire hydrant/blow offs located in an area with a high water table or in pits?		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.8	Are critical components of the distribution system secured to prevent unauthorized access (such as: pump stations, vaults)?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.9	Has there been any significant change in flow direction or demand?		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.10	When was the last flushing event? Was it unidirectional? Was the system chlorinating during flushing?	Full-system directional flushing completed in Fall 2014. Area of TC+ last flushed in September 2015. No chlorination utilized during flushing.			<input type="checkbox"/>
4.11	Is there any evidence of intentional contamination in the distribution system? <u>IMMEDIATELY Contact MA State Police and MassDEP</u>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.12	Are there pipe materials, ages, or construction issues that might contribute to TC detections?	Distribution system in the area of the TC+ is old cast-iron pipe.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.13	Are there dead ends or low-flow areas that might contribute to TC issues?	TC+ samples were found in the dead-end area of West St. where there is a history of TC+ samples.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.14	Other comments on the distribution system.				
List all distribution corrective actions taken (including date). Include assessment element number.					
4.13 – West St. area hydrants were flushed on 4/23/2016 in response to TC+ samples.					

12.0 WATER QUALITY REVIEW

Water quality data should be compiled and evaluated as part of all Level 2 Assessments. The data to be reviewed will vary for each situation, but may involve special purpose coliform samples, chlorine residuals, disinfection by-products, or HPC among others. For a detailed description of the water quality data that should be reviewed, refer to EPA *Revised Total Coliform Rule Assessments and Corrective Actions Guidance Manual, Section 4.5.2.2*.

When completing the assessment form, check off which types of water quality data were reviewed or collected as part of the assessment. Attach a summary of the data to the assessment form. Any findings that are relevant to the coliform situation should be discussed in the box at the bottom.

13.0 ADDITIONAL COMMENTS OR ISSUES IDENTIFIED

This is an optional section for other issues that may have been identified at the PWS that are not addressed in other sections of the assessment form.

14.0 SUMMARY OF INCIDENT LEADING TO/RESULTING FROM THIS LEVEL 2 TRIGGER

This section must be completed for every Level 2 Assessment. Compose a summary of the bacteriological incident that resulted in the Level 2 trigger. Include a chronological list of the sampling rounds and any intermediate corrective actions. Include the date that a clean round was finally collected (if a clean round was collected prior to submitting the assessment report).

In the event that the Level 2 assessment trigger resulted from the PWS failing to collect repeat samples after a TC+ sample or analyze for *E. coli*, include a description of the follow-up sampling and activities that were conducted after the date of the missed repeats or analysis.

Example Summary of Incident:

14.0 Summary of Incident leading to/resulting from this Level 2 trigger:	
Include the date that a clean round of samples was ultimately collected (if collected prior to assessment submittal).	4/25/2016
4/19/16 – Collected monthly round of TC samples for April. 4/20/16 – Notified by the lab that the RS002 sample (147 West St.) was TC+/EC- 4/21/16 – Collected a set of repeat samples: RS002, UR02a, DR02b, RW-01G and RW-02G 4/22/16 – Notification from the lab that two samples were positive – RS002 and UR02a 4/23/16 – Distribution system was flushed in the area of the positives. 4/25/16 – Second repeat round collected. 4/26/16 – Notification that all samples collected were clean.	

CORRECTIVE ACTION SUMMARY/CORRECTIVE ACTION SCHEDULE

This section is divided into three parts. The first part, the Corrective Action Summary, must list all corrective actions taken prior to the submission of the assessment report, with the dates the actions were completed. This list must include all corrective actions that were conducted in response to the assessment. Therefore, all items listed at the bottom of the individual assessment categories (i.e. 4.0 Distribution System, 7.0 Treatment Process, etc.) must be summarized in this table. In addition, any interim corrective actions that were required by MassDEP prior to submission of the assessment report (such as activate emergency disinfection) should also be listed.

The second part of the section is the Correction Action Schedule, which is to be filled out if the PWS has not completed all corrective actions prior to submitting the assessment report. In this section, list all planned corrective actions to address sanitary defects identified during this assessment. For each planned corrective action, a proposed completion date must be provided. This corrective action schedule will be reviewed by MassDEP to determine if the schedule is sufficient. Note that once this

schedule has been approved by MassDEP, failure to meet this schedule constitutes a Treatment Technique (TT) violation, which requires Tier 2 Public Notice (PN) per 310 CMR 22.16(3). It is important that you proceed with scheduled corrective actions as soon as possible, and not wait for MassDEP approval of your Corrective Action Schedule to take action. (Note that any modifications that require permits must still be done in accordance with the MassDEP permitting requirements).

Finally, the last part of the section contains a statement that no sanitary defects were found. If after the assessment, the lead assessor believes that no sanitary defects were present in the water system, then they may check this box. Note that if a PWS has triggered multiple assessments, MassDEP may not consider this to be a sufficient assessment result.

Example Corrective Actions Page:

Corrective Actions	
Corrective Action Summary	
List all corrective actions performed prior to submitting this assessment, including any interim corrective actions directed by MassDEP.	
Corrective Action Performed:	Date Completed:
Flushed distribution system in the West St. neighborhood.	4/23/2016
Corrective Action Schedule	
List all PLANNED corrective actions to address sanitary defects identified during this assessment with proposed completion dates. Note once this schedule has been approved by MassDEP, failure to meet this schedule constitutes a Treatment Technique violation which would require public notification.	
Planned Corrective Action:	Planned Completion Date:
Install blow-off at the end of the dead end on West St.	6/1/2016
Implement quarterly flushing program in the West St. neighborhood.	6/1/2016
Have engineer's study performed of the West St. neighborhood to evaluate potential for looping or pipe replacement to prevent TC issues.	12/31/2016
Statement of No Sanitary Defects Found	
<input type="checkbox"/> No sanitary defects were identified during the course of this assessment	

CERTIFICATION

All complete Level 2 Assessment Forms must be signed by the Lead Assessor (the MassDEP approved party identified on Page 1 of the form).

In the event that the Level 2 Assessment Form contains a Corrective Action Schedule, the owner or responsible party for the PWS must also sign the form, certifying the timelines in the schedule.

APPROVAL/DETERMINATION OF SUFFICIENCY

Once the completed Level 2 Assessment Form has been submitted to MassDEP, the assessment and corrective actions will be reviewed. If the assessment is deemed sufficient, the form will be approved and the timelines for any future corrective actions will be enforceable deadlines.

If MassDEP determines that the assessment is not sufficient, the PWS will be notified, and will be required to have a consultation with MassDEP regarding the assessment. A revised assessment must be submitted within 30 days of the date of consultation.

FOLLOW-UP ACTIONS

CORRECTIVE ACTION SCHEDULES

If you submit a Corrective Action Schedule as part of the assessment, for any corrective actions not completed at the time the Assessment Report is submitted, you must complete the corrective actions by the date specified in the approved Corrective Action Schedule. It is required that you notify MassDEP in writing when each scheduled corrective action is completed.

At any time during the corrective action phase, you may request a consultation with MassDEP to determine appropriate actions to be taken. No changes to the approved Correction Action Schedule and timeline may be made without prior approval of MassDEP.

CCR REPORTING

For any Level 1 or Level 2 assessment that is triggered for a Community system, a special statement and health effects language must be included in the CCR regarding the assessment(s). Additional language is also required for any Treatment Technique violations or *E. coli* MCL violations. Refer to The Drinking Water Regulations 310 CMR 22.16A(8)(h) for specific requirements.

EMERGENCY REPORTING REQUIREMENTS

In the event that the PWS experiences an emergency as defined in 310 CMR 22.15(9) Emergency Reporting, the PWS will be required to follow all emergency notification requirements as well as submit an *Emergency Response Report Form 1* within 30 days. Emergencies that may be identified as part of the assessment process include vandalism, *E. coli* contamination, or loss of pressure in the distribution system. Refer to *Guidelines for Public Water Systems Appendix O – Handbook for Water Supply Emergencies* found at <http://www.mass.gov/eea/agencies/massdep/water/regulations/guidelines-for-public-water-systems.html> for more information on emergency reporting requirements.