

	<b>Coliform Alert Response Procedure</b>	Date:	2/14/05
Unit:	Technical Services - ks	Revised:	1/24/17 gb/bp
Purpose & Scope: How to follow up on all coliform water quality alerts in public water systems. Determining if an investigation is triggered.			
Procedure/Process:			

An alert is generated every time a sample is reported with total coliform or *E. coli* present. The alert creates a record in SDWIS and notifies personnel in the data management unit (DMCE) and regulators about the sample results by email. For every alert, DMCE personnel will review the last 12 months of sampling results reported for the water system and determine if any of the coliform investigation triggers were exceeded.

- 1) If notified by a coliform water quality alert, **call the water system** contact person and find out what happened and when.
- 2) All activities must be documented in a **contact report** referencing the alert ID and submitted by the appropriate DWS staff assigned to that water system. Boil water advisories must be immediately passed on to DWS management and PHD Communication Staff.
- 3) If this is the **first positive sample** (TC+ or EC+) they have had in the month, advise the operator to collect 3 **repeat samples** within 24 hours of notification from the lab, if possible. No corrective action should be completed prior to collecting repeats. The samples should be collected according to their coliform sampling plan. Repeat samples are to be collected at these locations, at a minimum:
  - a) One at the site of the original positive routine sample,
  - b) One within five (5) connections upstream,
  - c) One within five (5) connections downstream.

Sample can be collected at sites other than b and c above (such as a reservoir outlet) if approved by the regulating agency and incorporated into the sampling plan.

For routine EC+ samples, DMCE will send a letter to the system reminding them to collect repeats and report them within 10 days.

**Repeat results must be submitted to DWS within 10 days of the detection.**

- 4) Unless using a groundwater source with 4-log disinfection (see screenshot below) or surface water sources, a **triggered sample** must also be collected from each source used on the day of the positive sample. This applies to a system on a groundwater source with either no treatment or residual maintenance only. Remind operator to mark the sample “triggered”.

Treatment			
State ID	Facility Name	Treatment Process	Treatment Objective
WTP-A	TP FOR OLIVER SPRING	HYPOCHLORINATION, POST	DISINFECTION
WTP-A	TP FOR OLIVER SPRING	GWR 4-LOG VIRUS COMPLIANCE MON	DISINFECTION

**Consumer Confidence Reports**

- a) If a GW source was not active at the time the TC positive routine was collected, notify DMCE as to which GW source(s) were not active and when, as soon as possible (via email to: [compliance.dw@state.or.us](mailto:compliance.dw@state.or.us)).
  - b) See Combined or Representative GW Source Samples procedure if the system wants to collect source samples at limited or alternate locations.
- 5) For an initial EC+ routine sample, if all the required repeats are not reported within 10 days, DMCE will notify the Regulating Agency (county, Department of Agriculture, or Technical Staff oversight contact) that an *E. coli* MCL violation has occurred (see #8).
- 6) Assess if any of the following apply. DMCE will also assess.
- Level 1 investigation triggers:
- Having two or more total coliform-positive samples in the same month at water systems where fewer than 40 samples per month are collected; or
  - Exceeding 5.0% total coliform-positive samples for the month at water systems where 40 or more samples per month are collected; or
  - Failing to collect every required repeat sample after any single total coliform-positive sample.
- Level 2 investigation triggers:
- Exceeding the MCL for *E. coli* (either EC+ repeat following a TC+ routine, TC+ repeat following a EC+ routine, or all repeats not collected following a EC+ routine – see #8(a) for immediate boil advisory); or
  - A second Level 1 trigger within a rolling 12-month period (unless the Authority has determined a likely cause for the total coliform-positive samples that triggered the first Level 1 investigation and established that the water supplier corrected the problem).
- 7) If a Level 1 investigation is triggered:

- a) A letter and form are automatically generated and sent to the water system contact person.
  - b) The Regulating Agency should contact the system operator, discuss if anything unusual is happening, and review investigation procedures. The coliform investigation must be conducted at the water system site by water system personnel.
  - c) See Coliform Investigation Procedure
- 8) If a Level 2 investigation is triggered:
- a) If triggered by an *E. coli* MCL, a **boil water advisory** and public notice using mandatory language is required within 24 hours, delivered in a manner approved by the Regulating Agency. This is an MCL (10 point) violation.
  - b) A Level 2 investigation must be scheduled as soon as possible and conducted by the Regulating Agency on-site within 30 days.
  - c) If there is a time lag to when the Investigation can be scheduled, suggest that the operator conduct their own Level 1 investigation. If defects are found and corrected, and coliform is absent, the Regulating Agency could evaluate whether to lift the boil advisory prior to conducting the Level 2 investigation.
  - d) See Coliform Investigation procedure.
- 9) If a **non-community water system** is only required to sample quarterly and they get any positive coliform sample, they need to collect 3 routine samples the following month.
- 10) If a **non-community water system** is only required to sample quarterly and a Level 2 investigation is triggered, or two Level 1 investigations in a 12-month period, the system **must begin sampling monthly**. They can return to quarterly sampling only if they meet the requirements of OAR 0036(6)(b)(D).
- 11) If a system has had 3 or more coliform investigations triggered within a rolling 12-month period, or 4 or more coliform investigations triggered within a rolling 2-year period, then the system must install chlorination for **residual maintenance** within 6 months, or on a schedule agreed upon by the Regulating Agency. Note: coliform investigations triggered by failure to collect repeats do not count in this determination.
- 12) **Triggered or Assessment Sample Results** (GW Systems).
- a) If a GW source sample is *E. coli* positive, the system must take 5 additional confirmation source samples from the positive source within 24 hours. If any one of these 5 confirmation samples is *E. coli* positive, the GW system will

be required to issue a Tier I boil water advisory unless it can achieve disinfection equivalent to 4-log inactivation of viruses (a CT of 6). See Source EC+ and Corrective Action procedure. A letter will be automatically generated and sent to the water system outlining next steps.

- b) If all five confirmation source samples are not received within 10 days of the initial coliform positive, a one-point violation will be issued for the failure to collect and report all five confirmation source samples.
  - c) If some but not all samples were received, DMCE will review with the Reg Agency to decide if the follow up letter should be sent out. The Reg Agency will decide whether the water system must issue a Boil Water advisory to all customers immediately. Factors that should be considered are:
    - i. How many of the confirmation source samples were received.
    - ii. Any distribution sample results and chlorine residual levels at the time of the *E. coli* positive sample. Also consider location in the system of any distribution results.
    - iii. Extent of disinfection (CT to first user).
    - iv. The susceptibility of the groundwater source, based on source construction and sensitivity of the aquifer.
  - d) If a GW source sample is total coliform positive only (*E. coli* absent), no immediate action is required. Future total coliform positive GW source samples will be tracked, and if there is a pattern or series, additional measures may be required, such as increasing the frequency of source assessment monitoring from annual to monthly if the system is applying a disinfectant.
- 13) If there is only one total coliform or *E. coli* result in the distribution system and all repeats are negative, but the triggered source sample is EC+, a boil water advisory should be considered (not an explicit requirement in the rules). Consider water quality history, extent of disinfection, and general condition of the water system. Decisions to issue a boil water notice must be made in coordination with a DWS manager or lead worker.
- 14) If the water system operator notifies the State DWS regarding a partner system with a positive sample, refer them to the appropriate agency contact, or route the initial contact report to the Regulating Agency. Please see the Phone Duty Acute Alert Procedure in the Program-wide procedures directory outlining the DWS Phone Duty responsibilities for *E. coli* positive samples.
- 15) In order to lift a boil water advisory, all defects found must be corrected, and samples must show an absence of coliform bacteria. Consider the system size and circumstances when evaluating an adequate number of samples to collect.

- a) Do not take follow up samples at a groundwater source until the chlorine level has returned to zero, or at least five days after the source was disinfected and flushed.
- b) Do not take follow up samples from the storage and/or the distribution system until the tank or distribution volume has been flushed, and the chlorine residual level is back to zero (if the system does not chlorinate) or back to the normal operating level (for a system that practices continuous chlorination).
- c) If samples are collected from a site on their coliform sampling plan, advise the PWS to label the samples "routine." If the operator is not sure of the integrity of the sample site location, they can be marked "special" if more appropriate sample site cannot be found. These are not repeat samples because they are collected after corrective measures.