

Hydrogeologist Responsibilities for Confirmed *E. Coli* & GWUDI Evaluation Procedure

	(GWUDI) and OHA Geologist Evaluation of <i>E. Coli</i> Contaminated Groundwater Source	Date:	4/5/16
Unit:	Technical services: SS	Revised:	
Purpose & Scope: This procedure provides an overview of the hydrogeologist responsibilities in terms of source evaluations, GWUDI, and the provision of documents to the regulating agency and public water system.			
Procedure/Process: Describes the chronological process for source evaluation when <i>E. coli</i> is confirmed in the groundwater source, including source evaluation, MPA tracking and subsequent communication requirements.			

1. Geologist’s initial review/response to confirmation *E. coli* alert

- A. After receiving the alert of a positive *E. coli* confirmation sample in the source; the geologist will review the source construction and aquifer properties and update the SWAP database (thereby updating the GWR/GWUDI link associated with the source on data online).
 - i. The Sensitivity Analysis for the source will be reviewed and updated as needed, or completed if none exists for the source in question.

2. Source evaluation

- A. After the site investigation has occurred and if no removable source of contamination was identified and if no pathway of contamination has been determined; an evaluation of the groundwater source shall be requested by the regulating agency.
- B. Once the groundwater source evaluation request is received, the regional hydrogeologist will verify the confirmed *E. coli* detection via data online (SDWIS).
- C. The source location will be verified using supporting documents provided with the form and other available tools.
- D. The 2-year Time-of-Travel Zone (or equivalent) will be inventoried for fecal/viral contaminant sources.
- E. Using sensitivity analysis/GWUDI criteria, the hydrogeologist will evaluate the source for potential GWUDI issues; if surface water influence is a documented concern (go directly to section 5).

3. Activities specific to wells:

- A. The well construction and local aquifer will be reviewed and evaluated.
- B. Appropriate well seal depth and construction will be evaluated with respect to OWRD and DWS standards.
- C. The aquifer materials and hydraulic nature of the aquifer will be reviewed and documented during the evaluation process.
- D. In the absence of a well log (or similar document), the construction characteristics cannot be evaluated, and so by default does not meet construction standards. In these cases, aquifer characteristics and proposed well reconstruction/replacement will be based on geologic maps, previous groundwater studies, and neighboring well logs.

- E. In some cases the regional hydrogeologist may accept or require a video-log of the well to determine the competency and depth of the well casing.
- F. If the PWS later produces the verified correct well log, the well construction characteristics may be re-evaluated.

4. Activities specific to springs:

- A. The spring construction and local aquifer will be reviewed and evaluated.
- B. Spring box construction will be evaluated based on plan review documents and the most recent water system survey.
- C. Aquifer materials, the hydraulic nature of the aquifer, and geologic factors controlling the location of the spring will be evaluated based on geologic maps, previous groundwater studies, neighboring well logs, and any other useful information contained in the water system's file.
- D. If available data is insufficient, a site visit may be necessary to adequately document spring construction and potential surface water influence.
- E. If the geologist is able to perform a site visit and construction related significant deficiencies are identified with the spring source; those will be identified in the Construction Related Significant Deficiency Correction Summary. Those significant deficiencies should be documented in the corrective action letter from the regulating agency. A copy of the corrective action letter shall be submitted to DMCE for tracking purposes. The public water system will be required to correct the identified significant deficiencies within the specified timeframe and restart assessment monitoring to ensure the contamination is no longer present.
- F. Once the review is complete, corresponding answer modules will be filled out and returned to the regulating agency.
 - i. If the source is inadequately constructed, minimum construction requirements will be provided under corrective action for continued use of source-section A. Source reconstruction summary.
 - ii. Optional reconstruction alternatives will be documented in the reconstruction recommendations section; and will state whether an alternative aquifer or construction characteristic is available that would exceed minimum requirements and be more protective of public health. Note that "Optional Reconstruction Recommendations" are not required actions, but could reduce the risk of future viral contamination if implemented.

5. Sources being considered for groundwater under the direct influence (GWUDI):

- A. Once the review is complete the hydrogeologist will fill out the form evaluating the source construction, aquifer characteristics, and criteria associated with the MPA requirement. The completed form will then be emailed to the regulating agent and the OHA tech services contact. Please note: **corrective action under the Groundwater Rule cannot be finalized until the nature of the water source is determined via the MPA.**
- B. The PWS will receive a separate letter from a DWS hydrogeologist explaining the requirements of the microscopic particulate analysis (MPA) testing for GWUDI determination. If the system will continue to serve water from the contaminated source, the required interim corrective action is 4-log disinfection or continuous boil water notice; the regulating agent shall ensure this requirement is met by the PWS.

- C. The MPA requirement and approximate dates of completion shall be listed under enforcements similar to a corrective action plan.
- i. The hydrogeologist will inform DMCE of MPA schedule changes and any extension of completion dates.
 - ii. If required, additional sampling requirements will be specified in correspondence from the hydrogeologist to the public water system.
- D. When MPA testing is complete, the hydrogeologist will inform DMCE of the completion date.
- i. If determined to be GWUDI – MPA schedule will be closed and system will start treatment installation under the new status of GU. The public water system will be notified of the scores resulting in the GU status by the geologist; the OHA tech services contact will also get copied on this letter. The OHA tech services contact will then be responsible for notifying the public water system of the 18 months to comply with the Surface Water Treatment Rule requirements.
 - ii. If determined to be groundwater; the water system will be notified regarding the MPA scores and the classification of the source as groundwater by the Hydrogeologist. The OHA tech services contact and regulating agent will be copied on the letter. The regulating agent shall then be responsible for informing the PWS of their corrective action options under the Groundwater Rule requirements previously documented on the Groundwater Source Evaluation Form. The PWS shall submit a corrective action plan to their regulating agency within 30 days of how they will complete the corrective action.