Operational Evaluation Level Report: Instructions

The purpose of the operational evaluation level (OEL) is to allow a system to take action to reduce the elevated disinfection byproduct levels in the system before a violation of the maximum contaminant level (MCL) occurs.

The OEL is calculated by using the disinfection byproduct (DBP) analytical data collected each quarter by the system for the current and previous two quarters. That value is then compared to the MCL for TTHM and HAA5. If the OEL exceeds the MCL, the system is required to conduct an investigation and write a report that's submitted to the DNR.

Listed below are the various areas in a system that could contribute to DBP formation. Each area must be evaluated and addressed in the report, unless allowance to limit the scope of the evaluation has been requested in writing by the system and approved in writing by DNR. The report must be submitted to DNR within 90 days, must be made available to the public upon request, and must be retained by the system for 10 years.

Note: The system is to complete this evaluation and report. A consultant is not needed at this time.

System Information (DNR to complete this section)

Name of PWS: _____ **PWSID: IA** _____

Date written report due to DNR (90 days): _____

Beginning period for evaluation (1st sample quarter included in the OEL): _____ **Number of sites sampled**: _____

Has an OEL been completed for this system previously (Y/N)? If so, when: _____ **Number of sites above the OEL**: _____

Steps in the Process

☐ Confirm that the samples were properly collected from the approved sampling plan locations, preserved, and analyzed. Did the lab report include any additional information about the sample results that might indicate a laboratory problem?

☐ Review the TTHM and HAA5 data from the other sites to determine if the exceedance is localized or system-wide.

☐ If the cause of the OEL exceedance is known, request approval from the DNR in writing to limit the scope of the operational evaluation report.

☐ Evaluate the system. The entire system must be evaluated unless a limited scope is approved by DNR in writing.

☐ Identify steps to reduce the TTHM and HAA5 levels in the system in the future.

☐ Prepare the report and submit it in writing to DNR by the 90-day deadline.

System Evaluation and Possible Contributing Factors

There are three major areas to review in a public water system for the OEL report. Listed on the following page are many of the factors within each area to consider when evaluating that part of the system to determine what could have contributed to the elevated disinfection byproduct levels. In general, warmer water temperature, lengthy water age, increased disinfectant levels (especially free chlorine), and increased organic carbon levels (e.g., algal blooms in surface water), can all contribute to increased disinfection byproduct levels.

You may want to circle the possible factors as you read through the following list that could have contributed to the elevated disinfection byproduct levels in your system.

Note for 100% Consecutive Systems: If your system does not add any chemical to the water purchased from another system, you do not need to consider the source or treatment factors. However, if you have knowledge of something in those two areas that could have affected your system's disinfection byproduct levels, please include that information in your report.

1. Source Water

Was there anything unusual that was noticed in the source water? If yes, explain.

Surface water systems: Heavy rain event, algal blooms, lake turnover, color change, taste & odor incident, lower river/reservoir/lake levels than normal, elevated water temperature, use of different source, etc.

Groundwater systems: Drought, taste & odor incident, color change, unusually high pumpage, elevated water temperature, use of different source, etc.

2. Treatment Process

Was there anything unusual that was noticed in the treatment process? If yes, explain.

Surface water systems: Elevated DBP precursor levels (TOC, DOC, SUVA), unusual turbidity levels (raw, IFE, or CFE), longer pre-sedimentation detention times, etc.

All systems: Elevated finished water temperature, chlorine feeds were outside normal range, change in disinfectant used, changes in treatment processes, reduced coagulant feeds, changes in process controls, changes in disinfection application points, changes in treatment chemicals, maintenance activities such as changing out filter media, changes in flow rates, any upsets in the routine treatment processes, longer detention times in the clearwell, etc.

3. Distribution System

Was there anything unusual that was noticed in the distribution system or storage reservoirs? If yes, explain.

All systems: Sudden increase in chlorine feed at booster stations, increased detention time in reservoirs, changes in disinfectants, changes in chlorine residuals, changes in customer usage particularly with the addition or loss of large customers, changes in storage management practices (elevated or ground storage), switch between free chlorine and chloramine for the burnout period, line break or main replacement in the vicinity of the sampling location, maintenance of reservoirs, flushing or valve exercising activities in the vicinity of the sampling location, lack of a flushing or valve exercising program, unusual storage drawdown or changes in water level fluctuations that could have increased water age in the storage facility or system, unusually high ambient air temperatures, changes in hydraulic flow in the system, additions to the distribution system, customer complaints related to water quality, etc.

Possible Remedies that would Reduce the Future Disinfection Byproduct Levels

For those areas or factors that could have contributed to the increased disinfection byproduct levels, what can be done to reduce the levels in the future and avoid a violation of the TTHM or HAA5 maximum contaminant level? List the possible remedies within the control of the system for the identified factors.

Example from Anytown, IA: Lengthy water age due to excessive storage capacity in the elevated tower is thought to be a factor; the remedy could be to manage the storage capacity differently (reducing the water level in the tower, installing a mixer in the tower, etc.)

Write the Report

- List the factors thought to be related to the increased disinfection byproduct levels.
- List the possible remedies to reduce those levels that could be instituted by the system. Include both short-term (*e.g.,* flushing) and long-term (*e.g.,* installing tank mixer in tower) remedies.
- See EPA's "Guidance Manual for Conducting the Operational Evaluation" for more information on specific factors and remedies at: http://www.epa.gov/ogwdw/disinfection/stage2/pdfs/draft_guide_stage2_operationalevaluation.pdf
- Submit the written report to DNR by the 90-day deadline.

Next Step

DNR will evaluate this report, however in the meantime, if there is an action that the system can take to reduce the disinfection byproducts before the next compliance sample is collected and that action does not reduce the system's disinfection protection, the system may take that action.

Examples of actions that a system could take without seeking DNR approval would be to:

- enact a flushing program to reduce water age in a low-use area, or,
- manage the storage capacity to encourage turnover and reduce water age.

Examples of actions that are not acceptable to take without first receiving DNR approval include:

- to change the type of disinfectant,
- to change the point of disinfection, or,
- to have disinfectant residuals that are below the required minimum levels.

If you have questions about what can be done without approval, please contact the DNR person listed in the cover letter.

Operational Evaluation Report

General Information

Name of PWS: _____ **PWSID: IA** _____

Person completing the report: _____ **Phone:** _____

Job Title: _____ **Cell phone:** _____

Email: _____ **Date of the report:** _____

Time period used in evaluation: _____
(This period is the first quarter sample results used in the OEL calculation through the third quarter's results, such as January 2012 through July 2012)

- List the factors thought to be related to the increased disinfection byproduct levels during this period
- List the possible remedies to reduce those levels that could be instituted by the system. Include both short-term (*e.g.,* flushing) and long-term (*e.g.,* installing tank mixer in tower) remedies.
- Include additional pages as needed

Send the completed report to DNR at the following address:

Fax: (515)725-0348
Mail: IDNR – Water Supply Engineering Section
Attn: OEL Report
502 E. 9th ST
Des Moines, IA 50319-0034

Factors and Remedies:

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