

# **Guidance to Determine Continual Operational Problems Necessitating Submittal of an Operation and Maintenance Manual**



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Drinking Water Program  
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## Summary

This document provides guidance to define those continual operational problems that may require a public water system (PWS) to submit an operation and maintenance (O&M) manual for Idaho Department of Environmental Quality (DEQ) review. It provides examples of the types of operational problems that may generate a request for O&M manual submission.

## Purpose and Scope

This guidance document is intended to provide information related to what DEQ considers continual operational problems that may require a PWS to submit an O&M manual. The requirement to submit an O&M manual is governed by existing provisions in the Idaho Rules for Public Drinking Water Systems. This guidance document does not substitute for those provisions. The recommendations in this guidance are not binding; DEQ and PWS may consider other approaches consistent with the Idaho Rules for Public Drinking Water Systems. Decisions regarding when to require an O&M manual will be made on a case-by-case basis, taking into consideration the appropriateness of applying the recommendation of this guidance document to the particular circumstances presented. This document does not replace best professional judgment. It provides a starting point and assistance in the making a determination regarding when an O&M manual must be submitted.

This guidance focuses on defining those operational problems whose continual occurrence may cause DEQ to request submittal of an O&M manual in accordance with the Idaho Rules for Public Water Systems (IDAPA 58.01.08.501.12). Not every situation that would cause DEQ to require an O&M manual is covered in this guidance, and DEQ staff will provide technical assistance and use best judgment in determining the need for a PWS to update or submit an O&M manual given the specific circumstances.

The requirement to submit an O&M manual is intended to promote effective operations of a PWS and should not be required where an O&M manual would not be beneficial to the specific issues or violations that need to be addressed.

The most common issues that may require an O&M manual submission include, but are not limited to, the following:

- Continual or repeated PWS sample maximum contaminant level or action level exceedances
- Continual or repeated PWS operator failures to perform the regulatory compliance actions
- Frequent customer complaints
- Operator turnover resulting in non-compliance

Please note that O&M manuals do require review and approval of DEQ (IDAPA 58.01.08.501).

## Authority

The Idaho Legislature has given the Idaho Board of Environmental Quality the authority to promulgate rules governing quality and safety of drinking water, pursuant to Title 37, Chapter 21 and Title 39, Chapter 1, Idaho Code. DEQ promulgated IDAPA 58.01.08, "Idaho Rules for Public Drinking Water Systems," for the purpose of controlling and regulating the design, construction, operation, maintenance, and quality control of public drinking water systems, to provide a degree of assurance that such systems

are protected from contamination and maintained free from contaminants that may injure the health of the consumer.

Section 501.12 of these rules requires the following:

A new or updated operation and maintenance manual that addresses all water system facilities shall be submitted to the Department for review and approval prior to start-up of the new or materially modified public water system unless the same system components are already covered in an existing operation and maintenance manual. For existing systems with continual operational problems as determined by the Department [*underline added*], the Department may require that an operation and maintenance manual be submitted to the Department for review and approval. The operator shall ensure that the system is operated in accordance with the approved operation and maintenance manual.

## Definitions

The following definitions apply to this guidance:

- **Continual.** Of regular or frequent recurrence (Dictionary.com, 2013).
- **Operation and Maintenance (O&M) Manual.** An operation and maintenance manual typically covers three main subjects: a water system specific operations plan (see below); maintenance information and checklists; and manufacturer's product information (including trouble shooting information, a parts list and parts order form, special tools, spare parts list, etc.). An operation and maintenance manual may cover every aspect of the water system or any part of the water system, including but not limited to the following: treatment, pump stations, storage reservoirs, distribution system, pressure reducing valve stations, etc. (IDAPA 58.01.08. 003.90).
- **Operations Plan.** The operations plan is part of an operation and maintenance manual. Depending on which facilities of the water system are being addressed, the operations plan may cover many types of information, including but not limited to the following: daily, weekly, monthly, and yearly operating instructions; information specific to a particular type of treatment; location of valves and other key distribution system features; pertinent telephone and address contact information, including the responsible charge water system operator and water system owner; operator safety procedures; alarm system; emergency procedures; trouble-shooting advice; water quality testing; depressurization events; customer service; and response to customer complaints (IDAPA 58.01.08.003.91).
- **Responsible Charge Operator License Requirement.** An operator of a public drinking water system, designated by the system owner, who holds a valid license at a class equal to or greater than the drinking water system classification, who is in responsible charge of the public drinking water system (IDAPA.58.01.08.003.119).

## Continual Operational Problems

Although this document is not all encompassing, and DEQ staff may need to make determinations of continual operational problems not listed, the issues described below are likely to result in a determination to require an O&M manual or update an existing O&M manual.

## Continual or Repeated Contaminant Exceedances

All PWS sample maximum contaminant level (MCL) exceedances are a cause for concern, but continual or repeated exceedances could indicate operational issues. If the drinking water source and facility causes have been ruled out, a review of operational activities is suggested:

- **Total Coliform Rule (TCR) Exceedances.** TCR exceedances are the most frequent problem encountered by PWS operators in Idaho. To avoid such exceedances, it is vital that the Operations Plan include procedures to routinely check pathways that might allow Total Coliform (TC) to enter the system, such as the following (EPA, 2007; EPA 2010):
  - Finished water storage facilities
  - Cross connections and backflow prevention devices
  - Intrusions and main breaks
  - Distribution system related issues (i.e. retention times, flushing)
  - Treatment deficiencies
  - Hydraulic conditions, such as flow changes or pressure issues
- **MCL Exceedances Despite Treatment.** Continual or repeated sample MCL exceedances (of arsenic and nitrate, for example) for PWSs with treatment in place could indicate operational issues. Treatment systems need to be operated properly to ensure adequate contaminant removal; continual or repeated sample exceedances indicate a need to review operational procedures relative to the treatment system (IDAPA 58.01.08.050).
- **Lead and Copper Rule (LCR) Action Level Exceedances.** If a PWS experiences continual or repeated PWS sample lead or copper action level exceedances with corrosion control equipment installed, a review of operations may be necessary. DEQ staff will work with the public water system operators in implementing corrosion control studies and other requirements of the lead and copper rule (IDAPA 58.01.08. 350).
- **Disinfection Byproduct Exceedances.** For PWSs that disinfect, continual or repeated sample exceedances of the MCL for total trihalomethanes (TTHM) and haloacetic acids (HAA5) could indicate an operational issue in addressing the requirements of the Stage 2 Disinfectants and Disinfection By-Products Rule (IDAPA 58.01.08.322).
- **Turbidity Exceedances.** High turbidity in finished water for systems that are required to provide filtration is associated with higher levels of pathogens and could indicate a problem with filtration effectiveness (EPA, 2013). Surface water treatment plants, in particular, need proper operation and maintenance to meet requirements of the full suite of surface water treatment rules (IDAPA 58.01.08.300.02).

## Continual or Repeated Regulatory Compliance Issues

Continual or repeated issues with regulatory compliance actions required of a PWS may signal a need to review operating procedures and submit or revise an O&M manual:

- **Disinfection Contact Time (CT) Failures.** Continual or repeated failures to provide sufficient disinfection contact time could signal an issue with operating procedures (IDAPA 58.01.08.300.04).
- **Monitoring and Reporting Failures.** Continual or repeated failures to comply with monitoring, reporting, public notification, and recordkeeping requirements indicate a need to review operational procedures. The O&M manual should contain an operations plan that details daily, weekly, monthly, and yearly requirements for monitoring, reporting, public notification, and recordkeeping, along with

blank forms or form templates that facilitate collection of required data and the creation of reports, notifications, and other required records. Monitoring schedules are available on DEQ's Public Water System Switchboard: <http://www.deq.idaho.gov/water-quality/drinking-water/pws-switchboard.aspx>.

- **Failures to Address Significant Deficiencies.** Continual or repeated failure to take corrective action to address significant deficiencies indicates a potential operational problem (IDAPA 58.01.08. 302 and 303).

## **Frequent Customer Complaints**

Public water systems with frequent customer complaints may have operational issues that need to be addressed. For example, frequent low pressure occurrences could signal an operational issue that can be addressed by ensuring proper documentation of pressure relief stations, controls at pump stations, interconnections between zones, and other pressure related appurtenances and facilities.

## **Responsible Charge Operator Turnover**

Frequent Responsible Charge Operator turnover for systems that require a licensed operator can result in poor system management and non-compliance that can be addressed by a well-written O&M manual that provides the information necessary for an operator to run the system safely and effectively.

## **Useful Links**

- **Public Water System Switchboard.** The Public Water System Switchboard is a one-stop location for public water system reference information. The webpage contains links to rules and guidance, tools and data, forms and information, system classification information, operator licensing information, and training materials.

[www.deq.idaho.gov/pws-switchboard](http://www.deq.idaho.gov/pws-switchboard)

- **Department of Environmental Quality.** This link will take you to the Department of Environmental Quality's homepage. To sign up to receive e-mails for news and other notifications, select the link to "News & Public Comments & Events" and then find the "Subscribe to this page" link.

[www.deq.idaho.gov](http://www.deq.idaho.gov)

- **Environmental Protection Agency.** Federal drinking water rule and other relevant information can be found on the Environmental Protection Agency's webpage.

[www.epa.gov/drink](http://www.epa.gov/drink)

## References

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EPA (U.S. Environmental Protection Agency). 2013. Drinking Water Contaminants. Accessed 7/11/2013 at <http://water.epa.gov/drink/contaminants/index.cfm#Primary>.

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IDAPA 58.01.08. 2013. Idaho Rules for Public Drinking Water Systems. Accessed 6/17/2013 at <http://adminrules.idaho.gov/rules/current/58/0108.pdf>.