

**PUBLIC COMMENT DRAFT**

# **DRAFT** Guidance for Actions to be Taken Following Drinking Water System Depressurization



Idaho Department of Environmental Quality  
Drinking Water Program  
June 2014

DRAFT

This page intentionally left blank for double-sided printing.

# Table of Contents

Summary.....	1
Purpose and Scope.....	1
Authority.....	2
Definitions.....	2
1 Activities Following Depressurization .....	2
1.1 Unplanned or Emergency Situation Depressurization .....	2
1.1.1 Notification .....	3
1.1.2 Public Notification.....	3
1.1.3 Disinfection.....	4
1.1.4 Sampling and Analysis .....	4
1.1.5 Pressure Monitoring Study and Report.....	5
1.2 Planned Maintenance or Repair Situation Depressurization .....	5
References.....	5

This page intentionally left blank for double-sided printing.

## Summary

This document presents guidance to assist with defining actions necessary when a public water system loses pressure unexpectedly or anticipates a possible loss of pressure during maintenance or repair activities.

## Purpose and Scope

This guidance is intended to help define actions required by Idaho rules following a depressurization event. Idaho Department of Environmental Quality (DEQ) guidance does not have the force of law or regulation, nor does it replace best professional judgment; it provides a starting point and assistance in the design, construction, operation, and maintenance of system facilities.

This guidance is intended to assist public water system owners and operators with more detailed information and clarifications about required actions identified in the Idaho Rules for Public Drinking Water Systems, IDAPA 58.01.08 Section 552.01.b. This section of the rules addresses actions to be taken in response to low to no pressure events, which are defined in rule as below 20 pounds per square inch (psi).

IDAPA 58.01.08, Section 552.01.b. states the following (underline added for emphasis):

- i. Any public water system shall be capable of providing sufficient water during maximum day demand conditions, including fire flow where provided, to maintain a minimum pressure of twenty (20) psi throughout the distribution system, at ground level, as measured at the service connection or along the property line adjacent to the consumer's premises.

This section also defines actions required or recommended following depressurization:

- ii. Public Notification
  - 1) During unplanned or emergency situations, when water pressure within the system is known to have fallen below twenty (20) psi, the water supplier must notify the Department, provide public notice to the affected customers within twenty-four (24) hours, and disinfect the system. When sampling and corrective procedures have been conducted and after determination by the Department that the water is safe, the water supplier may re-notify the affected customers that the water is safe for consumption. The water supplier shall notify the affected customers if the water is not safe for consumption.
  - 2) During planned maintenance or repair situations, when water pressure within the system is expected to fall below twenty (20) psi, the water supplier must provide public notice to the affected customers prior to the planned maintenance or repair activity and shall ensure that the water is safe for consumption.
- iii. If an initial investigation by the water supplier fails to discover the causes of inadequate or excessive pressure, the Department may require the water supplier to conduct a local pressure monitoring study to diagnose and correct pressure problems. Compliance with these requirements by water systems that do not have a meter vault or other point of access at the service connection or along the property line adjacent to the consumer's premises where pressure in the distribution system can be reliably measured shall be determined by measurements within the consumer's premises, or at another representative location acceptable to the Department.

Copies of pressure monitoring study reports required under Subsection 552.01.b.iii. detailing study results and any resulting corrective actions planned or performed by the public water system shall be submitted to the Department in accordance with these rules.

This guidance does not address how to correct pressure related problems.

## 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 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.

## Definitions

The following definitions apply to this guidance:

- **Depressurization Event.** Any instance where distribution system pressure falls below 20 psi.
- **Pressure Monitoring Study.** The systematic examination of distribution system pressure at one or more monitoring locations over a defined period.
- **Pressure Monitoring Study Report.** The presentation of data from a pressure monitoring study, including description of the problem, study methods, results, conclusions, and recommendations.

## 1 Activities Following Depressurization

Depressurization events are important because of the increased potential for intrusion of contaminants into the distribution system. The intent of the rules in IDAPA 58.01.08 Section 552.01.b is to ensure that water system customers are aware of these situations through public notification and to ensure public water system owners and operators take adequate measures to ensure the water is safe and reliable for its customers.

The rules define two situations for depressurization requirements:

- Unplanned or emergency situations, and
- Planned maintenance or repair situations

The actions required for each of these situations are described in the following sections.

### 1.1 Unplanned or Emergency Situation Depressurization

Unplanned depressurization events include water main breaks, power or pump failures, or other unplanned situations. In the event of unplanned or emergency depressurization, IDAPA 58.01.08 requires the system owner or operator take the following actions:

1. Notify DEQ.
2. Provide public notice to the affected customers within 24 hours.
3. Disinfect the system
4. Collect and analyze samples.

5. If the cause of depressurization cannot be determined, a pressure monitoring study may be required. Guidance regarding implementing these requirements is set forth below.

#### 1.1.1 Notification

Although the rules require notifying DEQ of each depressurization event, there is no time requirement associated with this requirement. DEQ recommends notifying your drinking water representative at the DEQ regional office or the local public health department office as soon as possible:

- Boise Region (208) 373-0550, toll-free: (888) 800-3480
  - Central District Health (208) 375-5211
  - Southwest District Health (208) 455-5300
- Coeur d'Alene Region (208) 769-1422, toll-free: (877) 370-0017
  - Panhandle health District (208) 415-5100
- Idaho Falls Region (208) 528-2650, toll-free: (800) 232-4635
  - Eastern Idaho Public Health District (208) 522-0310
- Lewiston Region (208) 799-4370, toll-free: (877) 541-3304
  - North Central Health District (208) 799-3100
- Pocatello Region (208) 236-6160, toll-free: (888) 655-6160
  - Southeastern Idaho Public Health (208) 233-9080
- Twin Falls Region (208) 736-2190, toll-free (800) 270-1663
  - South Central Public Health (208) 734-5900

Once notified, DEQ or public health district staff can provide technical assistance to minimize risk to the public served by the system. Public health district staff can coordinate technical assistance or other responses with DEQ or vice versa.

Depending upon the severity of the event, the system may also choose to do the following:

- Contact the Idaho State EMS Communications Center ([StateComm](#)):
  - StateComm operates 24 hours a day, 7 days a week, 365 days a year, providing emergency dispatch and communications for Emergency Medical Services (EMS), Idaho Transportation Department, hazardous material incidents, public health emergencies, AMBER Alerts, and many other situations.
  - StateComm can be reached at **1-800-632-8000** or **1-208-846-7610**.
- Contact IDWARN, a network of utilities helping utilities, to address mutual aid during emergencies. For additional information about IDWARN, visit <http://www.idwarn.org/> or contact Don.Lee@deq.idaho.gov.

#### 1.1.2 Public Notification

The rules require notifying all persons served by the system within 24 hours of depressurization but do not specify the information that must be conveyed by such notification. Please work directly with drinking water staff in your DEQ regional office or your local public health district office to address your specific situation.

DEQ or the public health district will typically require a system owner or operator to issue a boil advisory following a depressurization event. Boiling water for one (1) minute is sufficient to inactivate biological contamination (EPA, 2013). A “Boil Water Advisory Due to Loss of Pressure” template is available online at [www.deq.idaho.gov/pws-switchboard](http://www.deq.idaho.gov/pws-switchboard) under Public Notification Templates.

There are circumstances where a boil advisory would not be issued and an alternative water supply should be obtained. For example, boiling will not eliminate any inorganic chemical contaminants such as nitrate or lead, will concentrate these contaminants, and will aerosolize volatile chemical contaminants. Under these circumstances, DEQ or the public health district will require the system owner or operator to advise the public to use an alternative water supply, such as bottled water, for drinking and cooking.

Public water system owners or operators may want to consider providing advance general notification to customers *before* depressurization occurs, such as information on how customers can protect themselves in the event unplanned or emergency depressurization occurs. This advance notification can be included periodically with the water bill, system newsletter, or on the system’s Internet site. System users who have been educated on what to do before an event are more likely to respond as needed to protect their health when depressurization occurs.

### **1.1.3 Disinfection**

Following an unplanned or emergency situation in which system pressure has fallen below 20 psi, the rules require disinfection of the distribution system and total coliform sampling to verify the absence of coliform bacteria. The goal of disinfection following depressurization is to remove contamination from the system, a goal that can be achieved by the following:

- Disinfecting and flushing, using a disinfectant (typically chlorine bleach) that is certified by NSF or by a comparable certifying organization. Work with DEQ or public health district staff to determine an appropriate residual level for distribution disinfection.
- The rules require disinfection following depressurization events although DEQ may approve flushing in lieu of disinfection. Flushing may be an effective means of mechanically removing contaminants following depressurization. Unidirectional flushing, in which valves and hydrants are selectively opened to ensure flow in only one direction, should be used as much as practical to ensure all contamination has been removed from the system. Unidirectional flushing provides higher flow and better scouring to remove debris and contaminants.

### **1.1.4 Sampling and Analysis**

Following an unplanned or emergency situation in which system pressure has fallen below 20 psi, the rules require total coliform sampling and analysis to verify the absence of coliform bacteria. These actions should include the following:

- Sampling for total coliform bacteria is required, with the samples taken after the system has been flushed and disinfected, and the disinfectant residuals have returned to their normal operating level. The sampling conducted following a depressurization event is not part of the drinking water system’s routine bacteriological sampling for compliance purposes. Samples are marked as special or construction and are not used to determine compliance with the total coliform rule. If sample analysis confirms the continued presence of contaminants, additional flushing and disinfection is required in affected system components. DEQ or the public health district will typically allow a system owner to lift a boil advisory following two days of total coliform absent sample results.
- If the system is vulnerable to other contaminants, samples for these should be collected as well.

DEQ or the health district will need the following information to determine that the water is safe:

- Disinfectant residuals prior to sampling.

- Sampling results, after flushing, at each total coliform bacteria sampling site. Include disinfectant residual level for each total coliform sample.
- Other pertinent data as may be necessary to confirm water safety.

### **1.1.5 Pressure Monitoring Study and Report**

If the cause of depressurization remains unknown following the initial investigation after the event, DEQ may require a pressure monitoring study to help diagnose and correct pressure problems. If the system does not have calibrated pressure measurement and recording equipment, DEQ may be able to provide such equipment on loan; contact your DEQ regional office for additional information.

The results of the study must be presented in a report to DEQ, but it may be beneficial for the system to first provide the information to DEQ. If engineering changes to the system are required to resolve the problem, DEQ staff can identify the documents that are required by the rules.

The contents of the pressure monitoring study report should include at least the following:

- A description of the problem the study investigated.
- A description of the methods used to study the problem.
- The results of the study—the data obtained.
- Conclusions drawn from the results. In particular, the study should state whether the system meets and will continue to meet required minimum pressure.
- Recommendations for corrective actions needed to achieve adequate pressure, if applicable.

## **1.2 Planned Maintenance or Repair Situation Depressurization**

When depressurization is expected due to planned maintenance or repairs, the system must provide public notice to the affected customers beforehand in accordance with IDAPA 58.01.08 Section 552.01.b.ii(2). DEQ recommends including at least the following in this public notice:

- Details about work to be done, including the dates and the expected duration of the work.
- Information on how users can protect themselves if depressurization occurs.
- Contact information for water system staff who can answer questions, along with contact information for the DEQ regional office or local public health district.

Following depressurization, the system must take such actions as necessary to ensure that the water is safe for consumption. DEQ recommends taking those actions described in sections 1.1.3 and 1.1.4 of this guidance.

## **References**

EPA [US Environmental Protection Agency]. 2013. Emergency Disinfection of Drinking Water. Accessed 9/25/2013 at <http://water.epa.gov/drink/emerp/emerprep/emergencydisinfection.cfm>.

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>.