

## Appendix 26: Operation of Federally Owned Drinking-Water Systems

### Introduction

The requirements set forth in this appendix pertain to holders of FS (FS) special-use permits that authorize the holder to operate Federally owned drinking-water systems. This includes special-use permits authorized under the Granger-Thye Act, 16 U.S.C. § 580d.

The requirements set forth below are derived, in part, from Chapter 7420 of the Forest Service Manual (FSM), which describes the FS Drinking Water Program. The objective of the program is to protect the health of the public and employees by ensuring that water provided by the FS for human consumption is safe and protected. Where this objective cannot be met, the FS policy is to make such water unavailable for human consumption. "Human consumption" includes the use of water for drinking, food preparation, dishwashing, oral hygiene, or bathing/showering.

When a permit holder operates Federally owned water systems, both the FS and the permit holder are considered suppliers of the water. Therefore, permit holders authorized to operate Federally owned water systems must operate and maintain them to meet the objective and policy of the FS Drinking Water Program. Failure to operate these systems accordingly may result in revocation of the permit.

In addition to fulfilling the requirements set forth below, permit holders operating Federally owned water systems must comply with all applicable Federal, state, interstate, and local requirements applicable to drinking-water systems, and must follow the Operation and Maintenance Plan developed in conjunction with the FS to address the specific system(s).

Nothing in this Appendix should be interpreted as diminishing any obligation imposed by Federal, state, interstate, or local authority.

### Applicable Definitions

#### Average Daily Population (ADP)

For classification purposes, the sum of the daily transient and daily resident population served or having access to the drinking water system, per month, divided by the days of the month. Where actual or sample counts are not available at recreation sites, determine ADP by multiplying Persons At One Time (PAOT) by the percentage of site use where PAOT equals four people per site.

#### Condition Survey

An on-site review performed by the FS. Condition surveys are an integral part of the sanitary surveys and supplement the last current sanitary survey.

#### Drinking-Water System

A system for providing water suitable for human consumption via service connections (including hand-pump wells).

#### Human Consumption

Use of water for drinking, food preparation, dishwashing, oral hygiene, or bathing/showering.

#### Maximum Contaminant Level (MCL)

As defined by Federal, state, or local law, but generally: The maximum permissible level of a contaminant in water that is delivered to any user of a public water system.

### Nonpublic Water System

---

A system not meeting the "public water system" definition. A nonpublic water system is subdivided into the following categories:

#### **Nonpublic, Nontransient (NPNT)**

A system serving less than 25 year-round residents or serving less than 25 of the same persons ADP more than 180 days per year (for example, some housing sites).

#### **Nonpublic, Transient (NPT)**

A system serving less than 25 individuals ADP and not meeting the requirements of NPNT water system (for example, some smaller recreation sites).

### Public Water System

---

As defined in the Safe Drinking Water Act, 42 U.S.C. § 300f et seq., as amended, and in the National Primary Drinking Water Regulations, 40 CFR Part 141, or by state or local regulation if more stringent.

### Repeat Samples

---

A set of samples taken when a routine sample or a repeat sample is total-coliform positive. Repeat samples must be collected within 24 hours of notification of a positive result.

### Routine Sample

---

A sample that is representative of the water throughout the distribution system, taken by properly trained personnel on a routine basis when the system is operational, used to determine the microbial quality of the water.

### Sanitary Survey

---

As defined by applicable Federal, state, or local regulations, but generally: An on-site review performed by the state or a qualified FS engineer of the water source, facilities, equipment, operation, and maintenance of a public water system, to evaluate the adequacy of the source, facilities, equipment, operation, and

maintenance, to ensure the distribution of safe drinking water.

### Service Connection

---

The structure by which drinking water is conveyed from the distribution system to the user. Examples of service connections include an individual building (residence, crew quarters, office, or mobile home-not including utility hose bibs stubbed from building plumbing); a building exterior drinking fountain provided for public use; an individual yard or campground hydrant; or a hand pump on a well.

### Special Sample

---

A sample collected to determine the success of corrective actions. Special samples may also be taken to determine whether seasonal systems are ready to be opened, or whether disinfection practices are sufficient following pipe or tank repair or replacement. Special samples must be marked as such when sent to the laboratory for analysis.

## Requirements for Operating Federally Owned Drinking-Water Systems

### Compliance With Applicable Standards

---

All Federally owned public water systems must comply with the requirements of the Safe Drinking Water Act, 42 U.S.C. § 300f et seq.; the National Primary Drinking Water Regulations (NPDWR), 40 CFR 141; the National Secondary Drinking Water Regulations (NSDWR), 40 CFR 143; any other applicable Federal law; and applicable state, interstate, and local requirements, in addition to the standards stated in this document.

Federally owned nonpublic water systems shall conform to the standards stated in this document and to any Federal, state, interstate, and local requirements that may apply.

### Classification

---

All drinking-water systems must be classified as either public or nonpublic. Public water systems must be further classified in accordance with Federal, state, or local requirements (e.g., "community" or "noncommunity," and so on). Nonpublic water systems must be further classified as NPNT or NPT. The regulatory authorities and the FS are responsible for making the final determination of how a water system is classified.

---

#### Certified Water System Operators

All personnel operating and testing water systems must be certified as required by Federal, state, and local regulations. The permit holder must provide the name of the water system operator in writing to the FS and notify the authorized officer within 72 hours of a change in personnel.

---

#### Initial Survey

Sanitary surveys must be performed and documented for a new drinking-water supply source and system before it becomes available for public use. If deficiencies are found, the Forest Supervisor must approve a corrective action plan prepared to address the deficiencies, and the system may not be used until corrective action is completed.

#### **Subsequent Sanitary Surveys**

Sanitary surveys will be conducted on all systems in accordance with applicable state regulations, or more frequently if there are recurring deficiencies. The FS conducts regularly scheduled sanitary surveys. The permit holder, however, is responsible for coordinating with the FS to ensure that additional sanitary surveys are performed as required in the event of system violations, in accordance with the required follow-up actions set forth below

---

#### Condition Surveys

The permit holder must coordinate with the FS to ensure performance of condition surveys. Condition surveys must be performed whenever:

- Routine bacteriological analysis indicates, and a bacteriological repeat sample confirms, that coliform bacteria exist.
- A seasonal system is opened for the season.
- There is a significant event or change in conditions that may affect the supply or system (e.g., a significant earthquake).

---

#### Treatment and Disinfection

Drinking-water systems having surface water sources or groundwater sources under the direct influence of surface water must be disinfected and filtered in accordance with Federal, state, and local regulations. Direct influence of surface water for individual sources shall be determined by the state and/or qualified FS engineer. The determination is typically based on state criteria, which may include site-specific measurements of water quality and/or documentation of source construction, characteristics, and geology.

Water systems using ground water sources not under the direct influence of surface water must be disinfected if there is a history of microbiological contamination, or when a condition or sanitary survey determines that microbiological contamination could occur, or as required by other applicable law.

The permit holder is responsible for ensuring that water systems are disinfected and treated as required. The permit holder is also responsible for operating and monitoring any treatment and disinfection system installed by the FS, and for notifying the FS in the event of any treatment system malfunction.

---

#### Sampling, Monitoring, and Follow-Up Actions

As indicated above. The permit holder must institute a drinking-water monitoring program according to the NPDWR, NSDWR, and state and local regulations, to monitor the level of

primary and secondary contaminants in the water system and take appropriate follow-up actions.

The permit holder must consult with the FS to develop a written sample site plan for each water system. The site plan should be designed to ensure that the system is routinely sampled at varied representative locations and that contamination in any portion of the distribution system is eventually detected.

Testing laboratories must be EPA and/or state approved. Samples must be collected and handled in compliance with laboratory requirements. The FS authorized officer must approve of the manner in which the laboratory notifies the permit holder of violations. In some cases, the FS may require the laboratory to notify the FS of violations directly. The laboratory should be able to report results immediately if a test result is total- or fecal-coliform positive.

The FS imposes additional sampling, monitoring, and follow-up actions, set forth below.

#### **Microbiological-Contaminant Monitoring for Nonpublic Water Systems**

The permit holder must monitor nonpublic water systems for microbial contamination and take follow-up action for these systems in the same manner as is required for noncommunity public systems in Federal, state, and local regulations (except for reporting to the regulatory agency). In addition to Federal and state requirements, the permit holder must take the appropriate follow-up actions as described in Exhibit 1 of this document whenever a routine sample tests total-coliform positive.

#### *Routine Sampling for All Systems*

---

The permit holder must perform microbiological testing for total-coliform bacteria at a minimum of one routine sample per month for every full or partial calendar month of operation, for all systems. Each hand pump should be considered a separate water system.

This minimum frequency assumes that monthly tests are taken at approximately 30-day intervals. Samples should be taken early in the month, to allow sufficient follow-up time. A higher frequency of routine sampling may be required for public water systems by NPDWR and state regulation.

The permit holder shall notify and consult with the FS within 24 hours or on the next business day after notification by the laboratory of a sample that tests positive for microbiological contamination. The permit holder shall notify and consult with the FS within 48 hours of notification of a MCL violation or an acute violation.

#### *Special Samples for All Systems*

---

At least one special sample must be taken and must test total-coliform negative before that system may be opened. Special samples do not count in determining MCL violations or in meeting the monthly sampling requirements.

#### **Disinfectant-Residuals Monitoring for All Systems**

The permit holder must perform residual-disinfectant monitoring in accordance with Federal, state, and local regulations for all public systems requiring disinfection, and must monitor and take follow-up action for nonpublic systems requiring disinfection in the same manner (except for reporting to regulatory agencies).

#### **Turbidity Monitoring**

The permit holder must perform turbidity monitoring and follow-up in compliance with Federal, state, and local regulations for all public systems, and also for nonpublic systems using surface water sources or ground water sources determined to be under the direct influence of surface water, and for any systems designated by the state.

#### **Additional Monitoring of Primary and Secondary Contaminants, Regulated and Unregulated Organic and Inorganic Chemicals, and Other Contaminants**

All public water systems are required to be monitored for primary and secondary contaminants in accordance with the NPDWR, NSDWR, and applicable state and local regulations. Comply with Federal, state, and local monitoring schedules for all contaminants in public systems.

Additionally, the permit holder must perform one baseline sampling, as a minimum, for the primary and secondary contaminants shown in Exhibit 2 of this document on all nonpublic systems and public transient noncommunity systems. For new systems, conduct the sampling and analyses before opening the system. If the one-time test results exceed the MCL established for public systems, perform follow-up monitoring and take action in accordance with the regulations applicable to public water systems (except for reporting to the regulatory agency).

#### **Radioactivity**

At a minimum, perform radionuclide monitoring on public community and public nontransient, noncommunity water systems in accordance with the Federal, state, and local standards.

#### **Record Keeping**

The permit holder must establish a permanent file for each drinking-water system, including all test results and corrective actions taken. The permit holder must maintain original documents of records as required by 40 CFR 141.33 and applicable state and local regulations. The permit holder must maintain original documents of records pertaining to additional requirements imposed by the FS for public and nonpublic water systems in a comparable fashion.

The permit holder shall forward copies of microbiological-test results for Federally owned water systems to the FS by the 15th of the month following the sampling date. Copies of other required records for Federally owned systems shall be forwarded annually to the FS within 15 days of the end of the operating season for

seasonal sites, or within 15 days of the end of the calendar year for year-round operations. The holder shall surrender all records for a Federally owned system to the FS upon permit termination or revocation.

#### **Infeasibility**

Where compliance with any applicable standard is physically infeasible, such as in certain wilderness areas, cross-country trails, or roadside springs, in addition to coordinating with the FS to secure any necessary variances or exemptions to ensure compliance with the law, the holder must keep such water sources in an undeveloped condition, indicating the water source is unprotected. When providing the public with information about these water sources through trail guides, brochures, maps, etc., the permit holder must include a warning statement as to potability of undeveloped water sources. Undeveloped water sources must not be identified on such information in a way that may mislead users into believing the water is protected and safe. The permit holder must take any additional measures to protect the public as are required by Federal, state, or local law with regard to such water sources.

#### **Range and Wildlife Water Systems**

The requirements stated herein should not be applied to range or wildlife water systems if their design and construction features clearly indicate that they are not for human use. If range or wildlife water systems are an integral part of a drinking water system, however, such integral parts must meet the requirements for drinking water. The FS and/or state shall make the final determination of which water systems must be treated as water systems that supply water for human consumption.

#### **Hoses and Similar Equipment**

Hoses that convey drinking water shall have a smooth interior surface made of food-grade standard materials. The permit holder must keep pumps, hoses, fittings, valves, and similar equipment in a manner that prevents contamination, and must keep them closed or capped when not in use.



## Exhibit 1: Follow-Up Actions for Microbiological Sampling

---

### Public Systems

Whenever a routine sample result is total-coliform positive, take follow-up action as required by Federal, state, and local regulation, but at a minimum take a set of four repeat samples within 24 hours of notification by the lab. Take the samples at locations as directed by law, in accordance with the sample siting plan, and as follows:

1. One at the same tap where the contamination occurred.
2. One at a downstream tap.
3. One at an upstream tap.
4. One within five service connections of the original sample.

If a system has only one service connection (such as a hand pump), sample according to applicable law, but at a minimum collect a single 400-milliliter sample.

In addition, take follow-up action as indicated in the chart and instructions below within 24 hours, based on the results of repeat sampling.

For any routine sample that is total-coliform positive, perform a minimum of five routine samples during the next month the system is open.

### Nonpublic Systems

Whenever a routine sample result is total-coliform positive, take one repeat sample within 24 hours of notification of the result.

In addition, take follow-up action as indicated in the chart and instructions below within 24 hours, based on the results of repeat sampling.

### All Systems

Temporary closure of a water system to perform corrective action or seasonal closure does not relieve the responsibility for compliance with repeat sampling, additional routine sampling, reporting to EPA or the state, and public notification, as set forth in the Federal, state, and local regulations.

At sites with water-carried sewage systems, if follow-up action is to close the system, the toilet supply may be left open if all points of drinking, including sinks and showers, can be isolated and shut off. Otherwise, shut off the entire system.

In the case of a waterborne-disease outbreak at a Federally owned water system, close the system, contact the FS and the state for special provisions for public notification and monitoring, and take whatever additional measures the law requires.

*Table O-1  
Follow-Up Actions for Microbiological Sampling*

<b>Routine Sample</b>	<b>Repeat Sample</b>	<b>MCL Violation</b>	<b>Acute Violation</b>	<b>Follow-up Action</b>
TC-	None	No	No	None. Quality satisfactory.
TC+ FC-/EC	TC-	No	No	Public systems must have five routine samples taken, the next month the system is open.
TC+ FC-/EC	TC+ FC-/EC	Yes	No	See Action 1 (text below).
TC+ FC-/EC	TC+ FC-/EC	Yes	Yes	See Action 2.
TC+ FC+/EC	TC-	No	No	Public systems must have five routine samples taken, the next month the system is open.
TC+ FC+/EC	TC+ FC-/EC	Yes	Yes	See Action 2.
TC+ FC+/EC	TC+ FC+/EC	Yes	Yes	See Action 2.
Confluent Growth	See Action 3	No	No	See Action 3.

TC = Total Coliform EC = E. Coli FC = Fecal Coliform - = Negative Test Results + = Positive test results

**Action 1: MCL Violation**

All Systems

Search for the source of the contamination by having a condition survey done. Take corrective action when the source of contamination is found. Take daily special samples until two consecutive special samples are TC negative. If three samples are TC positive, close the system. Open the system only after the problem has been corrected and two consecutive daily special samples are TC negative.

Notify users according to appropriate state or NPDWR notification procedures, including posting, hand delivery, or media (newspaper,

radio, or television), depending on the classification of the system and corresponding state direction. For nonpublic systems where state or EPA regulations have not established public-notification procedures, notify users as soon as possible, *but always within 14 days*, by posting signs at the facility, visitor information site, etc. For systems serving residential populations, notify by letter, in addition to posting signs.

Public Systems

Notify, consult, and coordinate with the state within the time period required by law, after notification of the positive result. Take five routine samples the next month the system is open.

## Action 2: Acute Violation

follow-up actions as required by law and as outlined above.

### All Systems

---

Close the water system. At sites with water-carried sewage systems, the toilet supply may be left open if all points of drinking, including showers and sinks, can be isolated and shut off. Otherwise, shut off the entire system.

Search for the source of contamination by having a condition survey done. Take corrective action when the source is found. Open the system only after the problem has been corrected and two consecutive daily special samples are TC negative.

Notify users according to appropriate state or NPDWR notification procedures, including posting, hand delivery, or media (newspaper, radio or television), depending on the classification of the system and corresponding state direction. For nonpublic systems where state or EPA regulations have not established public-notification procedures, notify users as soon as possible, *but always within 72 hours*, by posting signs at the facility, visitor information site, etc. For systems serving residential populations, notify by letter, in addition to posting signs.

### Public Systems

---

Notify, consult, and coordinate with the state within the time period required by law, after notification of the positive result. Take five routine samples, the next month the system is open.

## Action 3: Confluent Growth

Take another routine sample at the same location, within 24 hours of being notified of the result. If the second sample has confluent growth, search for the cause and correct it. Continue sampling until a valid sample is obtained. If the valid sample is TC positive, take

*Table O-2  
Primary and Secondary  
Contaminants*

<b>Primary Contaminant</b>	<b>Secondary Contaminant</b>
Arsenic	Aluminum
Barium	Chloride
Cadmium	Color
Chromium	Copper
Fluoride	Foaming Agents
Lead	Iron
Mercury	Manganese
Nitrate	Odor
Nitrite	pH
Selenium	Silver
Sodium	Sulfate
	Total Dissolved Solids
	Zinc

Whenever the maximum contaminant is exceeded, analyze a repeat sample for

confirmation of the test results. Judge the acceptability of the water quality using the MCLs established in the NPDWR and NSDWR. These MCLs shall apply to both public and nonpublic systems.

For both public and nonpublic systems serving residential populations, correct any deficiency in water quality that would result in noncompliance with Federal, state, and local regulations for public water systems. Report any system with a contaminant in excess of established MCLs to the FS for review on a case-by-case basis.

For public systems, send sampling results to the state and follow the applicable public-notification requirements if there is an MCL violation. For nonpublic water systems, follow the public-notification requirements applicable to public noncommunity systems, if contaminants exceed the MCL levels.