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**Forest Service Manual 7400 – Public Health And Pollution Control Facilities
Chapter 7420 - Drinking Water**

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Posting Instructions: Amendments are numbered consecutively by title and calendar year. Post by document; remove the entire document and replace it with this amendment. Retain this transmittal as the first page(s) of this document. The last amendment to this title was 7400-2000-1 to FSM 7400.

Digest: Following is an explanation of the changes throughout the directive by section.

7420: Revises chapter in its entirety. Clarifies difference between regulated and unregulated distribution systems connected to municipal systems. Specific changes are as follows:

7420.1: Adds new authorities in paragraphs 6 and 7.

7420.3: Adds new policy that streamlines the Agency responsibilities for managing public water systems to make the policy no more and no less stringent than the regulating States.

7420.41: Changes caption from “Regional Foresters, Station Directors, and Northeastern Area and International Institute of Tropical Forestry Directors” to “Washington Office, Director of Engineering” and recodes existing direction to 7420.43. Adds responsibilities for the Washington Office, Director of Engineering.

7421.42: Changes caption from “Forest Supervisors and Project Leaders” to “Washington Office, Director of Recreation.” Recodes existing direction to 7420.44. Adds responsibilities for the Washington Office, Director of Recreation.

7420.43: Establishes code and caption “Regional Foresters, Station Directors, Job Corps National Director, Northeastern Area Director, and International Institute of Tropical Forestry

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Director” and recodes to this section direction previously set out in 7420.41. Revises responsibilities and adds responsibilities for the Job Corps National Director.

7420.44: Establishes code and caption “Forest Supervisors, Station Project Leaders, Job Corps Center Directors, and Area Field Representatives” and recodes to this section direction previously set out in 7420.42. Revises responsibilities and adds responsibilities for the Job Corps Center directors.

7421: Changes caption from “Drinking Water Systems” to “Forest Service-Owned Drinking Water Systems” and revises direction.

7421.11: Sets forth new direction in paragraph 3 on implementing a cross connection control and backflow prevention program and in paragraph 4 for providing security to water systems and their components.

7421.12: Changes caption from “Treatment and Disinfection” to “Treatment” and revises direction.

7421.15: Establishes code, caption “Well Head Protection/Source Water Assessment,” and sets forth new direction on source water assessments.

7421.2: Revises codes, captions, and direction throughout section on Microbiological Monitoring and follow-up actions.

7421.23: Changes caption from “Disinfectant” to “Disinfectant and Disinfection By-products” and revises direction.

7421.26: Removes code, caption, and obsolete direction on radionuclide monitoring.

7421.3: Removes caption and direction on “Documentation.” Adds caption and sets forth new direction for “Public Notification.” Recodes existing direction to section 7421.4.

7421.4: Establishes code and incorporates and revises direction on requirements of inventory documentation for drinking water systems previously contained in interim directive 7420-2004-1 and previously set out in section 7421.3.

7423: Changes caption from “Special-Use and Other Permitted Drinking Water Systems” to “Permittee-Owned and Other Authorized Drinking Water Systems.”

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7420.1 - Authority

1. Safe Drinking Water Act (SDWA) (42 U.S.C. 300f) and Amendments. This act and all applicable amendments provide for safe drinking water and direct the Environmental Protection Agency (EPA) to establish national drinking water regulations.
2. National Primary Drinking Water Regulations (NPDWR) (Title 40, Code of Federal Regulations, Part 141 (40 CFR Part 141)). These regulations established primary drinking water regulations pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Pub. L. 93-523 codified at 42 U.S.C. 300f et seq.); and related regulations applicable to public water systems.
3. National Primary Drinking Water Regulations Implementation (Title 40, Code of Federal Regulations, Part 142 (40 CFR Part 142)). These regulations set forth requirements, pursuant to sections 1413 through 1416, 1445, and 1450 of the Public Health Service Act, as amended by the Safe Drinking Water Act (42 U.S.C. 300f et seq.), for the implementation and enforcement of the national primary drinking water regulations contained in 40 CFR Part 141.
4. National Secondary Drinking Water Regulations (NSDWR) (Title 40, Code of Federal Regulations, Part 143 (40 CFR Part 143)). These regulations establish National Secondary Drinking Water Regulations pursuant to section 1412 of the Safe Drinking Water Act, as amended (42 U.S.C. 300g-1).
5. Executive Order 12088 issued October 12, 1978 (E.O. 12088) as amended by Executive Order 12580(10) (b) (EO 12580(10) (b)), Jan 23, 1987. The purpose of this order is to ensure that Federal agencies, in the design, construction, management, operation, and maintenance of Federal facilities and activities under agency control, take all necessary actions for the prevention, control, and abatement of environmental pollution, in full cooperation with State and local governments.
6. USDA Department Manual (DM) 5600-001, "Environmental Pollution Prevention, Control, and Abatement Manual." This policy establishes requirements for managing compliance with standards in the operation of drinking water systems.
7. Title 29 Code of Federal Regulations, Part 1910, Section 1910.141 (29 CFR 1910.141). Occupational Safety and Health Standards, General Environmental Controls. Section 1910.141(b)(1)(i) requires provision of potable water supply at places of employment and Section 1910.141(b)(2)(ii) requires protection of potable water supply from cross connections with non-potable water systems or systems carrying non-potable substances.

7420.2 - Objective

The objective of the Forest Service Drinking Water Program is to protect human health by assuring that Forest Service drinking water systems are properly operated, maintained, and monitored and deficiencies promptly corrected.

7420.3 - Policy

Where objective and standards, defined in this chapter, cannot be met, the Forest Service shall make water unavailable for human use and consumption. Forest Service water systems must be operated in compliance with the requirements of:

1. The Safe Drinking Water Act, as amended (42 U.S.C. 7401 et seq.),
2. The Primacy Agency (for example the agency designated by Federal law as having oversight responsibility) requirements, or
3. This Forest Service Manual.

Where Federal and State primacy agency requirements differ for a public water system, the more stringent requirements must apply, so long as the stricter requirements provisions are not used to justify new classes of liability and responsibility, and such requirements are applied in the same manner and to the same extent to non-federally-owned public water systems.

Forest Service-owned non-public water systems (non-public non-transient and non-public transient) must comply with the current maximum contaminant levels (MCLs) applicable to the respective public water system class identified in exhibit 01. Contaminant monitoring for non-public systems may be less frequent (FSM 7421.2) than a public water system of respective class.

7420.3 Exhibit 01

Respective Public Water System Classes for Operation of Forest Service Non-Public Water Systems

Non-Public Forest Service Class	Respective Public System Class
Non-Public Transient (NPT)	Transient Non-Community (TNC)
Non-Public Non-Transient (NPNT)	Non-Transient Non-Community (NTNC)
Other (Municipal service connection)	Not Applicable

Do not construe, either expressively or by implication, anything in this chapter as increasing or diminishing any Federal or State authorities, rights, responsibilities, privileges, or presumptions.

7420.4 - Responsibility

7420.41 - Washington Office, Director of Engineering

It is the responsibility of the Washington Office, Director of Engineering to:

1. Provide leadership and coordination of the overall drinking water program including development and maintenance of a corporate database for inventory, maintenance, and compliance monitoring.
2. Provide guidance and direction on compliance with the Safe Drinking Water Act.
3. Coordinate the preparation and submittal of compliance reports required by the U.S. Department of Agriculture.

7420.42 - Washington Office, Director of Recreation

It is the responsibility of the Washington Office, Director of Recreation to:

1. Ensure that recreation drinking water systems operated under special use permit are monitored, operated, and maintained in accordance with the requirements outlined in this chapter.
2. Notify, in writing, the Special Use Permit (SUP) administrator and the operator/concessionaire of each recreation drinking water system of the requirements set forth in this chapter. Encourage SUP administrator to develop and document a formal procedure for processing and distributing the required paperwork. Ensure SUP provides concessionaires or their contract operators copies of the contents of the official water system record.
3. Ensure that compliance reports for recreation drinking water systems operated under special use permit are submitted to the Director of Engineering.

7420.43 - Regional Foresters, Station Directors, Job Corps National Director, Northeastern Area Director, and International Institute of Tropical Forestry Director

It is the responsibility of the regional foresters, station directors, Job Corps National Director, Northeastern Area Director, and International Institute of Tropical Forestry Director to:

1. Ensure qualified personnel (FSM 7420.5) prepare engineering reports, engineering designs, and operation and maintenance manuals for drinking water systems (FSH 7409.11, ch. 10, sec. 15). Engineering designs and specifications for construction or alteration of drinking water systems must be prepared, reviewed, and approved by a technically competent, qualified engineer (FSH 7409.11, zero code, sec. 02).

2. Ensure qualified personnel review and interpret State legislative or administrative actions that affect drinking water programs in this chapter and inform appropriate personnel of any public health aspects and requirements of these actions that may affect Forest Service water systems.
3. Ensure qualified engineers review and approve project criteria and engineering reports for all drinking water systems before commencing engineering design.
4. Ensure that coordination is maintained with the State primacy agencies responsible for implementing the public water supply programs in their State.
5. Ensure that personnel involved in drinking water system design, construction, and operation and maintenance receive appropriate training and certifications.
6. Review and approve design drawings and construction specifications for new construction and major modifications of drinking water systems, and ensure coordination of State primacy agency review and approval (if required). This authority may be delegated to the forest supervisors if qualified engineers are available to perform an independent engineering review of design documents.
7. Ensure qualified engineers/inspectors perform construction inspections of drinking water system projects. Licensed engineers shall provide completion certifications, if required, to the State primacy agency.
8. Ensure Forest Service drinking water systems are operated in compliance with Federal and State primacy agency regulations and requirements of this chapter including, but not limited to, compliance monitoring, written sampling plans, sanitary surveys, and sample reports, as applicable.
9. Ensure qualified personnel implement, manage, and maintain the drinking water requirements outlined in this chapter.

7420.44 - Forest Supervisors, Station Project Leaders, Job Corps Center Directors, and Area Field Representatives

It is the responsibility of forest supervisors, station project leaders, Job Corps Center Directors, and area field representatives to:

1. Prepare engineering reports for drinking water systems prior to design of new systems and major upgrades to existing systems. New water sources, new treatment, expansion of water system capacity or service area are examples of major upgrades.
2. Provide necessary field data for planning and design of drinking water systems.
3. Ensure qualified personnel conduct sanitary and condition surveys (sections 7421.13 and 7421.14).

4. Maintain coordination with the State primacy agency.
5. Obtain permits from the State primacy agency for construction and operation of public water systems as required.
6. Ensure qualified engineers/inspectors supervise construction of drinking water systems (section 7115) and licensed engineers provide completion certifications to the State primacy agency, if required.
7. Ensure trained personnel monitor, operate, and maintain drinking water systems in compliance with Federal and State drinking water laws and regulations. Provide certified operators, if required by the State primacy agency. Ensure compliance with the State regulations by reviewing operational reports, monitoring results, sanitary survey reports, and correspondence with the State.
8. Notify the State primacy agency of any changes in drinking water system status (for example, opening and closing dates of seasonal systems, construction or permanent closing of the system).
9. Delegate qualified personnel the responsibility for sampling, monitoring, record keeping, and reporting to the State primacy agency.
10. Designate the location of the official permanent file folder for each drinking water system. Maintain analysis results and submit reports to the State in accordance with the National Primary Drinking Water Regulations (NPDWR), National Secondary Drinking Water Regulations (NSDWR), State regulations, and section 7421.3.
11. Ensure qualified personnel prepare corrective action plans for deficiencies noted during sanitary surveys (sec. 7421.13). Review corrective action plans and ensure corrective actions are taken promptly to maintain compliance with the State primacy agency regulations.
12. Ensure that all mandatory public and regulatory agency notification requirements are followed for each drinking water system. This includes, but is not limited to, notification procedures for maximum contaminant level (MCL) exceedance, failure to sample or monitor, failure to filter, and so forth.
13. Delegate to qualified personnel the responsibility for review of design documents and operation and maintenance (O and M) plans for permittee-owned drinking water systems.
14. Ensure resources (qualified personnel and funding) are available for proper operation, maintenance, and management of drinking water systems.
15. Notify in writing, the Special Use Permit (SUP) administrator and each recreation drinking water system operator/concessionaire of the requirements set forth in this chapter. Encourage SUP administrator to develop and document a formal procedure for

processing and distributing the required paperwork. Ensure SUP provides concessionaires or their contract operators copies of the official water system record.

7420.5 - Definitions

Acute (MCL) Violation. A violation that occurs when a public water system has:

1. A fecal coliform- or E. coli-positive routine sample followed by a total coliform-positive repeat sample; or
2. Any fecal coliform- or E. coli-positive repeat sample.

Authorized Officer. Any employee of the Forest Service to who has been delegated the authority to perform the duties described in 36 CFR Part 251.

Average Daily Population (ADP). For classification and inventory 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 per 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 five people per site. At administrative sites, the number of residents shall be based on three people per residence and the actual capacity of other quarters served with drinking water.

Certified Operator. Qualified personnel certified by the State to operate public drinking water systems.

Condition Survey. An onsite survey of the water source, facilities, and equipment as defined in the operation and maintenance plan for the system. Condition surveys are an integral part of the sanitary surveys. They may be combined with the sanitary surveys or serve as a supplement and addendum to the sanitary survey. Condition surveys are also performed to collect and document current condition and maintenance tasks for a water system (FSM 7413.8, 7421.14, and FSH 7409.11, ch. 70). Condition surveys are conducted by qualified personnel.

Consecutive Water System. A water system that buys or otherwise receives some or all of their finished water from another public water system on a regular basis. Consecutive water systems are regulated as separate drinking water systems if they meet the definition of a public water system under the National Primary Drinking Water Regulations (NPDWR).

Drinking Water System. A public or a non-public water system for providing water suitable for human consumption via pipes, or constructed conveyances including hand pump systems.

Groundwater Under the Direct Influence of Surface Water (GWUDI). Any water beneath the surface of the ground with significant occurrence of organisms or significant and relatively rapid shifts in water characteristics which closely correlate to

climatologically or surface water conditions. Direct influence must be determined by the primacy agency for individual sources in accordance with criteria established by the State.

Human Consumption. Use of water for drinking, food preparation, dishwashing, oral hygiene, and bathing/showering.

Maximum Contaminant Level (MCL). The maximum amount of a contaminant allowed in water provided to any user of a public water system.

Non-Acute (MCL) Violation. A violation that occurs when:

1. Any public water system collecting fewer than 40 samples per month has greater than 1 routine/repeat sample per month which is total coliform-positive; or
2. Any public water system collecting at least 40 samples per month has greater than 5.0 percent of the routine/repeat samples in a month total coliform-positive.

Non-Public Water System. A water system which provides drinking water but does not meet the definition of a public water system as defined by the SDWA.

1. Non-Public Non-Transient (NPNT) Water System. A non-public water 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, smaller forest service ranger stations or housing sites).
2. Non-Public Transient (NPT). A non-public water system serving less than 25 persons (ADP) and not meeting the definition of NPNT water system (for example, smaller recreation sites, seasonal guard stations or work centers with short-term, seasonal employees).

Other Water System (O). A distribution system (consisting of a water meter and distribution system) connected to a public water system (for example, connection of a Forest Service facility to a municipal water supply).

Primacy Agency. The agency that has been delegated primary responsibility by the U.S. Environmental Protection Agency for the administration and enforcement of primary drinking water regulations and related requirements that are applicable to public water systems within a State.

Public Water System. As defined under the SDWA, a public water system is a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least 15 service connections or regularly serves at least 25 individuals. Such term includes (i) any collection, treatment, storage and distribution facilities under control of the operator of such system and used primarily in connection with such system, and (ii) any collection or pretreatment storage facilities

not under such control which are used primarily in connection with such system. Public water systems are classified as one of the following:

1. Community (C). A public water system that:
 - a. Serves at least 15 service connections used by year-round residents; or
 - b. Regularly serves at least 25 year-round residents.
2. Non-Community Water System. A public water system that does not meet the definition of a community water system and can be one of the following:
 - a. Non-Transient Non-Community (NTNC). A public water system that is not a community water system and that regularly serves at least 25 of the same persons over 6 months per year.
 - b. Transient Non-Community (TNC). A public water system that is not a community water system and does not regularly serve at least 25 of the same persons over 6 months per year.

Qualified Person/Personnel. Person possessing appropriate training, experience, qualifications, and certifications/licenses to perform specific technical functions with respect to the design, construction, and operation; or monitoring and maintenance of drinking water systems.

Repeat Samples. A set of samples taken when a previous sample is positive for total coliform. Repeat samples must be collected within 24 hours of being notified of a positive result.

Resources. Includes human resources, skills, organizational structure, technology, and funding necessary to operate and maintain a drinking water system in accordance with this chapter.

Routine Sample. A sample that is representative of the water throughout the distribution system, when the system is operational, and is used to determine the microbial quality of the water.

Sanitary Survey. An onsite review of the water source, facilities, equipment, operation and maintenance, and overall management of a public drinking water system to evaluate compliance with laws and regulations (FSH 7409.11, ch. 70, sec. 7421.13). Federal regulations require that State primacy agencies conduct periodic sanitary surveys every 3 years for community water systems and every 5 years for non-community water systems.

The Forest Service may conduct its own sanitary surveys. However, these will not take the place of the State primacy agency sanitary surveys, unless the Forest Service has been authorized to act as the State's agent. Sanitary surveys conducted by the Forest Service

must be conducted by qualified personnel with training and experience in conducting sanitary surveys.

Service Connection. Piped connection for conveyance of drinking water from the distribution system to the user. Examples of service connections include an individual building (for example, residence, crew quarters, office, or mobile home), drinking fountains in campgrounds provided for public use, an individual campground hydrant, a hand pump on a well, and a building with toilet and wash basin or shower.

Special Sample. Samples collected for purposes other than routine compliance monitoring (for example, investigative samples or seasonal samples).

Total Coliform. Group of bacteria used as an indicator of the potential fecal contamination of drinking water. Although total coliforms are usually not pathogenic themselves, their presence in drinking water indicates that fecal pathogens may also be present.

7421 - Forest Service-Owned Drinking Water Systems

Classify all Forest Service-owned drinking water systems in accordance with the SDWA and the NPDWRs and the definitions in section 7420.5. Operate, monitor, and manage Forest Service owned (public and non-public) drinking water systems in accordance with policy (sec. 7420.3).

If compliance with NPDWR, NSDWR, State regulations, and this chapter is physically infeasible, such as in wilderness areas, cross-country trails, or roadside springs, water sources must be kept in an undeveloped condition indicating the water source is unprotected. When providing the public with information about water sources through trail guides, brochures, or maps, include a warning statement as to the unsafe nature of undeveloped water sources. Do not identify these water sources on maps or brochures in a way that may imply that the water is protected and safe.

Unauthorized connection to or use of Forest Service-owned drinking water systems is considered a trespass/theft. When unauthorized connections or uses are discovered, the user shall be notified of the circumstances in writing and directed to cease such activity until a special use permit is obtained, if appropriate.

Do not construct and manage piped water systems as drinking water systems if they are used exclusively for nonconsumptive purposes at administrative sites (where all water for human consumption, including water used in cooking and bathing, is hauled, boiled, or otherwise adequately treated). Consider these development types in accordance with regional direction and only in limited situations with controlled access to minimize inadvertent human consumption.

For emergency water supply procedures, see FSM 7422.

7421.1 - Protection of Water Supplies

Each administrative unit shall protect water supplies by using the following means:

1. Physical protection provided by design and construction (sec. 7421.11 and FSH 7409.11, ch. 10, ch. 20, and ch. 40); proper operation and maintenance (sec. 7413.9 and FSH 7409.11, ch. 70); implementation of a Cross Connection Control and Backflow Prevention Program; and facilities security.
2. Treatment (sec. 7421.12).
3. Sanitary Surveys (sec. 7421.13).
4. Condition surveys (sec. 7421.14, sec. 7420.5).
5. Well Head Protection/Source Water Assessment Surveys (sec. 7421.15).

7421.11 - Physical Protection

1. Design and Construction. Design and construct public water systems in accordance with Federal and State regulations and sound environmental health engineering codes and practices. For non-public systems, modify as necessary to meet unique Forest Service requirements (FSH 7409.11). Do not compromise the health and safety objective stated in FSM 7420.2 for economic reasons.
2. Operation and Maintenance. Prepare O and M plans for each Forest Service-owned drinking water system. Follow the procedures established in the O and M plans. Maintenance must ensure continued protection of the water source and water system. Make no unauthorized changes that would compromise the objectives stated in FSM 7420.2. Provide certified operators as required by the State primacy agency.
3. Cross Connection Control and Backflow Prevention. Implement a cross connection control and backflow prevention program and provide cross connection control and backflow prevention devices as required by the State primacy agency and by 29 CFR 1910.141(b)(2)(ii). Properly use and maintain these devices and incorporate annual testing into the system's cross connection control program and O and M Manual (FSH 7409.11, ch. 70).
4. Security. Provide physical security (fences, enclosures, and locks) as necessary and practicable to deter unauthorized access. If vandalism or intentional harm to the water system and its components (wells, springs, treatment systems, storage tanks, and so forth) is suspected; notify law enforcement officers immediately and consult with the regional environmental engineer for further guidance.

7421.12 - Treatment

Public water systems must provide treatment as required by the State primacy agency or EPA (if State does not have primacy).

Non-public water systems must provide treatment comparable to a public water system if there is a history of microbiological contamination. Non-public water systems with a history of microbiological contamination that do not provide treatment must be closed (see 29 CFR 1910.141(b) – (b) (2) (iii) and 29 CFR 1928.110 (c) (1) (i) – (c) (1) (iii) for potable water requirements for places of employment).

7421.13 - Sanitary Surveys

1. Initial Sanitary Surveys. Initial sanitary surveys must be conducted after the construction completion of a new drinking water system/source and before placing the system/source into operation. The purpose is to identify any system deficiency that would result in noncompliance with applicable provisions of the NPDWR, NSDWR, State regulations, and section 7421, before using the system. Initial sanitary surveys must be conducted by qualified personnel (sec. 7420.5) in accordance with established Federal and State protocols. Based on the sanitary survey report, units shall prepare a corrective action plan to correct deficiencies and submit it to the line officer for approval (sec. 7420.43). Do not open the system for use until corrective actions have been completed, or an alternative is authorized by the appropriate line officer (sec. 7420.43) and implemented. Any alternatives authorized may not result in system noncompliance with applicable provisions of the NPDWR, NSDWR, State regulations, and section 7421.

2. Periodic Sanitary Surveys. Each administrative unit shall work with their State primacy agency to ensure that SDWA mandated periodic sanitary surveys are conducted by the primary agency on Forest Service public water systems in accordance with the schedule set forth in the NPDWR. Upon receiving a sanitary survey report from the primary agency, staff shall prepare a corrective action plan to correct deficiencies and submit it to the line officer for approval (sec. 7420.43) prior to submission to the primacy agency. Corrective actions for significant deficiencies for public water systems must be completed within time frames required by the State primacy agency.

For non-public systems, the unit shall conduct periodic sanitary surveys once every 5 years. These surveys must be conducted by qualified personnel (sec. 7420.5) in accordance with Federal and State sanitary survey protocol. Upon receiving a sanitary survey report from the surveyor, staff shall prepare a corrective action plan to correct deficiencies and submit it to the line officer for approval (sec. 7420.43). Corrective actions must be taken within time frames recommended by the surveyor.

Units shall maintain records of the public water system sanitary surveys in accordance with the record keeping requirements in the NPDWR. Records of non-public water system sanitary surveys will be kept for at least 10 years (sec. 7421.3).

7421.14 - Condition Surveys

1. Condition Surveys (Operational/Other). Qualified personnel shall conduct condition surveys in accordance with FSH 7409.11, chapter 70, whenever:
 - a. A system violates the MCL standard for coliform, or
 - b. A closed seasonal system is opened for service, or
 - c. There is a significant change in conditions that may have affected the system operation and or water quality (for example, severe storm, earthquake, or flood event), or
 - d. Prior to issuance or renewal of any special use permit involving Forest Service-owned drinking water systems.
2. Condition Surveys (Maintenance). Qualified personnel shall conduct condition surveys for maintenance of Forest Service-owned drinking water systems, in accordance with FSH 7409.11, on an interval not to exceed 5 years.

7421.15 - Well Head Protection/Source Water Assessment

Each administrative unit shall work with their State primacy agency to ensure that source water assessments are conducted for each Forest Service public water system. Line officers shall ensure that facility operations do not encroach or conflict with established well head protection and/or source water protection zones. Staff shall periodically review the source water assessment report whenever there are construction activities and/or improvements planned at Forest Service facilities with on-site water sources. Minimize possible contaminating activities (PCAs) to protect drinking water sources. PCAs include past and present human-caused activities that use, transport, store, manufacture, produce, or dispose of potential contaminants such as petroleum, pesticides, and wastewaters.

7421.2 - Monitoring and Follow-up Actions

Conduct monitoring and perform follow up actions in accordance with section 7421.21 through section 7421.25. Ensure that sample analyses are conducted at a State certified laboratory. Maintain monitoring records in accordance with section 7421.3.

7421.21 - Microbiological (Coliform) Monitoring

1. Public Water System.
 - a. Routine Coliform Samples. Follow NPDWR or State primacy agency regulations for systems that are continuously operated. Prepare a sample sitting plan that addresses frequency and location.

- b. Repeat Coliform Samples. Collect samples as required by the NPDWR or State primacy agency regulations.
 - c. Special Samples. Collect samples as required by the NPDWR or State primacy agency regulations.
2. Non-Public Water System.
- a. Routine Coliform Samples. Collect samples from non-public (NPT and NPNT) water systems at a minimum frequency of one sample/calendar quarter for systems that are continuously operated. For seasonal systems, collect one sample for each month that the system operates. Prepare a sample siting plan that addresses frequency and location.
 - b. Repeat Coliform Samples. Within 24 hours of notification of a positive routine sample, collect one repeat sample for each positive routine sample.
 - c. Special Samples. Collect one special sample before opening any seasonal water system for use. Open seasonal systems for public use after the special samples show that system is free from coliform bacteria.

7421.22 - Microbiological Follow-up Actions

Follow up actions are based on type of violation.

- 1. Non-acute (MCL) Violation.
 - a. Public Water System.
 - (1) Notify the State of an MCL violation in accordance with NPDWR or State primacy agency regulations.
 - (2) Notify the public and water users in accordance with NPDWR or State primacy agency regulations.
 - (3) Notify the State primacy agency after the completion of public notice (send a copy of the public notice posted/delivered, and dates when the notice was posted and removed).
 - (4) Follow State primacy agency direction.
 - (5) If no direction is received from the State, do the following: Investigate the source of contamination by conducting a condition survey (sec. 7421.24). Take corrective action if the source of contamination is found. Take daily SPECIAL samples until two consecutive special samples are negative for coliform. If one SPECIAL sample is TC positive, issue a boil water notice. 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. Open the system only after the problem has been corrected and two consecutive daily SPECIAL samples are TC negative. Follow State primacy agency directions for follow-up.

b. Non-Public Water System.

(1) Notify the water users in accordance with Federal or State primacy agency regulations, whichever is most stringent.

(2) Investigate the source of contamination by conducting a condition survey (sec. 7421.24). Take corrective action if the source of contamination is found. Take daily SPECIAL samples until two consecutive special samples are negative for coliform. If one SPECIAL sample is TC positive, issue a boil water notice. 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. Open the system only after the problem has been corrected and two consecutive daily SPECIAL samples are TC negative.

Content of public notice for public systems may be customized to fit a non-public system. Consult the regional environmental engineer to make sure that the notice satisfies the intent and required elements of a public notice.

2. Acute (MCL) Violation.

a. Public Water System.

(1) Notify the State of an acute violation in accordance with NPDWR or State primacy agency regulations.

(2) If the system serves a recreational site, close the system. If the system serves an administrative site, issue a boil water notice or close the system.

(3) Notify the public and water users in accordance with NPDWR or State primary agency regulations.

(4) Notify the State after completion of public notice (with a copy of the public notice posted/delivered, and dates when the notice was posted and removed).

(5) Search for the source of contamination by conducting a condition survey (sec. 7421.14). Take corrective action if the problem is found. Take daily SPECIAL sample. If one SPECIAL sample is coliform positive, issue a boil water notice or close the system. 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. Open the system only after the problem has been corrected and two consecutive daily SPECIAL samples are TC negative.

b. Non-Public Water System.

- (1) If the system serves a recreational site, close the system. If the system serves an administrative site, issue a boil water notice or close the system.
- (2) Notify the water users about the violation within 24 hours and in accordance with the State primacy agency requirements and guidance.
- (3) Search for the source of contamination by conducting a condition survey (sec. 7421.14). Take corrective action if the problem is found. Take daily SPECIAL sample. If one SPECIAL sample is coliform positive, issue a boil water notice or close the system. 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. Open the system only after the problem has been corrected and two consecutive daily SPECIAL samples are negative for total coliform.

Content of public notice for non-public systems may be customized to fit a non-public system. Consult the regional environmental engineer to make sure that the notice satisfies the intent and required elements of a public notice.

7421.23 - Disinfectant and Disinfection By-Products

All public water systems that add disinfectant as part of their water treatment must be monitored in accordance with NPDWR for disinfectant residuals for systems using surface water, Groundwater Under the Direct Influence of Surface Water (GWUDI), and GW and for disinfection by-products for systems using surface water and GWUDI.

All non-public water systems that require disinfection as a result of the presence of microbiological contamination must be monitored in accordance with NPDWR when the system is in operation for disinfectant residuals for systems using surface water, GWUDI, and GW and disinfection by-products for systems using surface water and GWUDI. Report measurements to qualified engineer.

7421.24 - Turbidity

Perform turbidity monitoring in compliance with NPDWR and State regulations for all public systems and non-public systems using surface water sources or groundwater sources determined to be under the direct influence of surface water, or systems designated by the State. Non-public systems must monitor the same way as public water systems unless alternative monitoring is approved by the regional engineer on a case-by-case basis.

Failure to maintain the required turbidity levels as required on public systems is a treatment violation that requires public notification.

For public water systems, report turbidity measurements to the State primacy agency. For non-public systems report turbidity measurements to qualified engineer.

7421.25 - Primary Contaminants, Secondary Contaminants, Regulated and Unregulated Organic and Inorganic Chemicals, and Other Contaminants

The monitoring frequency must be based on type of source, system classification, vulnerability to specific contaminant, documented monitoring waivers, and State primacy agency regulations. (See FSH 7409.11 for additional guidance).

1. Public Water System (All types and sources). Conduct initial and routine monitoring of all applicable contaminants as required by the NPDWR, NSDWR, or State primacy agency regulations.
2. Non-Public Water System (All types and sources).
 - a. Monitor agency non-public water systems in the same manner and frequency as the respective public water system class (see sec. 7420.3). Regions may waive monitoring of certain synthetic organic contaminants (SOCs), volatile organic contaminants (VOCs) and inorganic contaminants using State primacy agency criteria for organic and inorganic contaminant monitoring waivers as guidance.
 - b. Collect samples for all primary and secondary contaminants from new sources to establish baseline water quality. Ensure that existing NPNT systems have baseline samples for primary contaminants currently regulated for NTNC systems. Ensure that existing NPT systems have baseline samples for primary contaminants currently regulated for TNC systems.
 - c. After the baseline water quality of non-public systems using groundwater has been established, the regions may require follow-up monitoring when contamination is suspected or when new contaminants are added in the NPDWR.

7421.3 - Public Notification

Notification must be performed in accordance with the requirements of NPDWR and State primacy agency regulations for public and non-public systems.

7421.4 - Documentation

1. Computer-based Inventory. Establish and maintain a computer-based Drinking Water System inventory for Forest Service-owned drinking water systems, including physical data, monitoring data, and maintenance work items. Inventory, monitoring, and maintenance data must be kept up to date in INFRA on I-Web.
2. Official Water System File. Establish a separate, bound, official file (water system folder) for each Forest Service-owned drinking water system. Line officers, in consultation with the State primacy agency, shall designate the location (organizational unit) where each official water system file will be maintained. Regions shall verify existence and accuracy of the official records during monitoring trips, environmental

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compliance audits, and management reviews, as required by FSM 1400. Line officers are required to make the official files available to the State primacy agencies upon request.

The official water system file must contain the following documents:

- a. Records of bacteriological analyses and chemical analyses,
- b. Records of action taken by the system to correct violations of primary drinking water regulations,
- c. Copies of any written reports, summaries, or communications relating to sanitary surveys of the system,
- d. Records concerning a variance or exemption granted to the system, and
- e. Copies of public notices issued pursuant to Subpart Q of 40 CFR 141 (Public Notification of Drinking Water Violations) and certifications made to the primacy agency pursuant to 40 CFR 141 (Reporting and Record keeping).

Additional record keeping is required if the water system is subject to regulation under the Public Notification Rule, Consumer Confidence Rule, Lead and Copper Rule, Stage 1 and 2 Disinfectants and Disinfection By-products Rules, Long Term 1 and 2 Enhanced Surface Water Treatment Rules, and the Filter Backwash Recycling Rule.

State primacy agencies may have additional requirements for record keeping. Units shall comply with the State primacy agency record keeping requirements for public water systems.

3. Records Retention. Refer to 40 CFR 141.33, 141.91, 141.155, and State primacy agency regulations for record retention and disposal periods. Exhibit 01 serves as a general guideline for minimum record retention period based on Federal requirements, but it is not all-inclusive and does not address every State primacy agency's requirements:
4. Regional Office Records. Each regional office shall maintain the following records on Agency water systems in their region:
 - a. Inventory Reports and Contacts. Current inventory report of all drinking water systems in the region. Up-to-date list of contacts and phone numbers of persons responsible for management of water systems on each forest, grassland, and management area in the region.
 - b. Correspondence. Copies of regional correspondence with State primacy agencies, EPA regional office/Headquarters and the forests regarding specific issues, or actions.
 - c. Compliance. Copies of EPA inspections, compliance and enforcement actions (acted on by the regional office), copy of reports/findings from external audits and regional audits, reviews, and monitoring trips.

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d. Monitoring. Annual monitoring summary by forest extracted from the INFRA water sampling inventory on I-Web.

7421.4 Exhibit 01

Minimum Retention Times for Water System Records

Record	Minimum Years Kept
Bacteriological Analyses	5 years
Chemical Analyses (Organic and Inorganic)	10 years
Variance or Exemption	5 years after expiration date
Sanitary Survey Reports and Correspondence	10 years
Corrective Action to NPDWR Violation	3 years
Public Notices and Certifications to Primacy Agency	3 years
Lead and Copper Analyses	12 years
Filter Backwash Recycling	Indefinitely

7422 - Hauled Drinking Water (Permanent Systems and Emergency Use)

Hauled, or otherwise provided, drinking water may be used for permanent water systems in remote areas or in emergency situations. Permanent Forest Service water systems, which receive their drinking water from a hauled water source/supplier and which store potable water for long-term water supply, must be classified and monitored as public or non-public water systems in accordance with the SDWA and the NPDWRs and the definitions in FSM 7420.5. Hauled drinking water also may be used for temporary situations with regional engineer approval. Regional engineer approval for hauled drinking water during fire incidents is not required if potable water is procured via the Virtual Incident Procurement System. The drinking water supplied must meet State and local regulations as well as the following:

1. Water Sources. Obtain hauled water for human consumption from a permitted drinking water source that complies with Federal and State public water system standards.
2. Chlorine Residual. A free chlorine residual of 0.2 parts per million (ppm) to 1.0 ppm must be maintained at all times on hauled drinking water.
3. Private Water Haulers/Suppliers. Ensure that all water haulers/suppliers:
 - a. Have the appropriate and current State permits and licensing.
 - b. Meet State requirements for hauling drinking water.
 - c. Have chlorine residual test kits available at all times.
 - d. Test for free chlorine residual levels:
 - (1) When loading drinking water for transport;
 - (2) After adding any disinfectant;
 - (3) When unloading; and
 - (4) Every 24 hours the water is in use.
 - e. Maintain records showing source, dates, and times of loading, unloading, chlorine residual test results, microbiological testing, and other operational items as deemed necessary.
4. Water Hauling Equipment. Ensure that all water hauling containers and equipment are:
 - a. In compliance with Federal and applicable State regulations for water contact equipment and that they are used exclusively for drinking water or food-grade related

products. Do not use containers which have been previously used for toxic substances;

- b. Clearly and conspicuously labeled "For Drinking Water Use Only,"
 - c. Disinfected before being put into service after a period of 72 hours or more of non-use. Staff shall contact the appropriate regulatory agency for requirements associated with the discharge of chlorinated water. Household chlorine bleach (containing 5 percent chlorine) or other disinfection methods approved by qualified personnel must be used for disinfection.
 - d. Made of non-toxic, non-corrodible materials or coated with non-toxic, ANSI/NSF standard 60/61 approved coatings. Surfaces that come in contact with water must be smooth, without pits, dents, or crimps that may hold contaminating matter;
 - e. Enclosed except for a screened or filtered air vent;
 - f. Equipped with a drain that provides complete tank drainage; and
 - g. Equipped with a filler/inspection port at the top of the tank with a lockable watertight cover.
5. Hoses and Similar Equipment. Hoses must have a smooth interior surface made of food-grade standard materials. Keep pumps, hoses, fittings, valves, and similar equipment clean and disinfected. Operate and handle such equipment in a manner which prevents contamination, and keep it capped or closed when not in use.

Ensure that hoses, connections, and appropriate appurtenances have cross connection controls such as backflow prevention devices.

6. Microbiological Testing for Hauled Water Systems. Perform microbiological testing for total coliform at the following times:

- a. The first load of water hauled after disinfection of water hauling equipment;
- b. Once per partial or full month that water is being hauled;
- c. Whenever microbiological testing is requested by primacy agency.

7423 - Permittee-Owned and Other Authorized Drinking Water Systems

Title 40, Code of Federal Regulations, Parts 141 and 143, and State primacy agency regulations apply to public water systems operated on National Forest System lands under permit (sec. 7420.1). Permit holders are responsible for achieving compliance with these regulations relating to public water systems. This includes developing, operating, and maintaining the system, and collecting drinking water samples as required. Permit holders are also responsible for taking appropriate actions to correct any deficiencies causing unsatisfactory test results and

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are required to maintain a file of test results and corrective actions taken. See FSH 2709.11, chapter 50, Clause B-38 for specific directions.

Federal funds cannot be used to improve or construct water systems to provide service to private parties. The Forest Service has no authority to bill permit holders or others for water service from a Forest Service-owned system outside of the Granger-Thye permit.

When the permit is authorized under the Granger-Thye Act, where the Federal Government acting through the Forest Service owns all or part of the drinking water system, the Forest Service shall be listed as the water supplier with the State primacy agency and shall ensure that the permittee maintains all required records on site and sends a copy to the Forest Service.

To check for permittee compliance with required Federal and State regulations, authorized officers shall perform administrative monitoring and investigations (FSM 2716) in consultation with qualified personnel.