

ORDER

U. S. Department of Transportation
Federal Aviation Administration
SOUTHERN REGION

SO 3900.29

10/3/03

SUBJ: DRINKING WATER PROGRAM AT FAA FACILITIES

1. **PURPOSE.** This order establishes Federal Aviation Administration (FAA) Southern Region (ASO) policy pertaining to the management and control of drinking water at FAA-owned, leased, or operated facilities. It prescribes responsibilities, procedures, and criteria and provides guidance for managing the drinking water program as required by FAA policy, union agreements, and the Safe Drinking Water Act (SDWA) as prescribed in 40 CFR Part 141-149. This order also provides guidance for managing the Southern Region Airway Facilities (AF) and Air Traffic (AT) Divisions drinking water program. A list of Federal and State points of contact can be found in Appendix 1, List of Federal and State Drinking Water Regulatory Agencies.

2. **DISTRIBUTION.** This directive is distributed to the section level in regional Airway Facilities and Air Traffic Divisions, NAS Implementation Center, and to all Airway Facilities and Air Traffic field offices.

3. **BACKGROUND.** The SDWA of 1974 was established to provide safe drinking water to the public by eliminating chemical and bacterial contamination in the drinking water systems. The SDWA has been amended numerous times, the most significant being the 1986 and 1996 amendments. Through the SDWA, Congress requires the Environmental Protection Agency (EPA) to regulate contaminants that might be health risks and that might be present in public drinking water supplies. Both primary and secondary drinking water standards have been set by the EPA regulations and apply to water that has been treated by public drinking water systems. The National Primary and Secondary Drinking Water Regulations provide maximum allowable contaminants levels, health effects from ingesting contaminated water, and possible sources of contamination. The SDWA also provides for protection of underground sources of drinking water. Final regulations have been issued whereby States are to establish underground injection control (UIC) waste disposal programs to ensure that contaminants in water supplies do not exceed National Drinking Water Standards and to prevent endangerment to any underground source of drinking water. Refer to Appendix 2 to view Background Information for Water Quality Rules and Acts.

4. **DEFINITIONS.**

a. Best Available Technology - is the best technology, treatment techniques, or other means available, as determined by the EPA Administrator, after examination for efficacy under field conditions and not solely under laboratory conditions

b. Community Water System (CWS) - is a public water system (PWS) that serves at least 15 service connections used by year-round residents or that regularly serves at least 25 year-round residents.

- c. Contaminant - is any physical, chemical, biological, or radiological substance or matter in water.
- d. Drinking Water Program Coordinator - is someone appointed by the SMO Manager (usually the SECM) who is responsible for implementation of the SSC and/or facility drinking water program.
- e. Federal Agency - is a department or agency of the United States Government.
- f. Groundwater Under the Direct Influence of Surface Water - is any water beneath the surface of the ground with: (1) significant occurrence of insects or other microorganisms, algae, or large-diameter pathogens such as *Giardia lamblia*, or (2) significant and relatively rapid shifts in water characteristics, such as turbidity, temperature, conductivity, or pH, which closely correlate to climatological or surface water conditions.
- g. Maximum Contaminant Level (MCL) - is the maximum permissible level of a contaminant in water that is delivered to any user of a PWS. Water that contains contaminants at or below the MCL is associated with little or no risk to health and is considered safe to drink.
- h. Municipality - is a city, town, or other public body created by or pursuant to state law or indian tribe.
- i. Primary Drinking Water Regulations - primary standards that are legally enforceable standards that apply to public water systems (PWS). Primary standards protect drinking water quality by limiting the levels of specific contaminants that can adversely affect public health and are known or anticipated to occur in PWSs. The standards are divided into contaminant groups: inorganic chemicals, organic chemicals, radionuclides, and microorganisms.
- j. Non-Community Water System (NCWS) - is a PWS that is not classified as a CWS.
- k. Non-Potable - waters that are not approved for drinking or other household uses.
- l. Non-Transient Non-Community (NTNC) Water System - is a PWS that is not a CWS and that regularly serves at least 25 of the same persons over 6 months of the year.
- m. Person - is an individual, corporation, company, association, partnership, municipality, or state, federal, or tribal agency.
- n. Potable Water - is water that is safe for drinking and used in cooking. The potability of water is judged by its chemical and physical characteristics, and a chemical analysis is used to determine the amounts of various mineral substances present.
- o. Public Water System (PWS) - is a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- p. Sanitary Survey - is an onsite review of the water source, facilities, equipment, operation, and maintenance of a PWS for the purpose of evaluating the adequacy of such source, facilities, equipment, operation, and maintenance for producing and distributing safe drinking water.
- q. Secondary Drinking Water Standards - are set for aesthetic water qualities that do not affect human health such as turbidity and color.
- r. Small Water System - is a water system that serves 3,300 or fewer persons.

s. State - is the agency of the State or Tribal government that has jurisdiction over PWSs. During any period when a State or Tribal government does not have primary enforcement responsibility pursuant to Section 1413 of the Act, the term "State" means the Regional Administrator, U.S. EPA. Puerto Rico adheres to EPA Region 2 statutes and the U.S. Virgin Islands adheres to the Department of Planning and Natural Resources.

t. Treatment - is any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of, or amendable for storage or reduced volume.

u. Treatment Works - are any device and system for the storage, treatment, recycling, and reclamation of municipal sewage, domestic sewage, or liquid industrial wastes used to carry out Section 201 of the Clean Water Act (CWA) or any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste, including storm water runoff, or industrial water, including waste in combined storm water and sanitary sewer systems.

5. ACRONYMS.

AF	Airway Facilities Division
AL	Action Level
ANI	NAS Implementation Center
ASO	Southern Region
AT	Air Traffic Division
ATS	Air Traffic Services
CAPA	Critical Aquifer Protection Area
CFR	Code of Federal Regulation
CWA	Clean Water Act
CWS	Community Water System
DWPL	Drinking Water Priorities List
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FR	Federal Register
LCCA	Lead Contamination Control Act
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MMS	Maintenance Management System
NAS	National Airspace System
NCWS	Non-Community Water System
NPDWR	National Primary Drinking Water Regulations
NSDWR	National Secondary Drinking Water Regulations
NTNC	Non-Transient Non-Community
O&M	Operations and Maintenance
PM	Preventative Maintenance
PWS	Public Water System

SDWA	Safe Drinking Water Act
SECM	Safety and Environmental Compliance Manager
SMO	System Management Office
SSAD	Sole Source Aquifer Demonstration
SSC	System Support Center
SWTR	Surface Water Treatment Rule
TBD	To Be Determined
TDS	Total Dissolved Solids
UIC	Underground Injection Control
VOC	Volatile Organic Compounds
WHP	Wellhead Protection
WHPA	Wellhead Protection Area

6. ROLES AND RESPONSIBILITIES.

- a. The Regional Airway Facilities (AF) Division Manager (ASO-400) is responsible for:
 - (1) Ensuring implementation and compliance with the Drinking Water Program within AF and AT divisions
- b. Regional AF Division Resource Management Branch Manager (ASO-420) is responsible for:
 - (1) Implementing training programs for all regional AF employees who have responsibilities in the Drinking Water Program, including environmental compliance personnel, technicians, design engineers, and resident engineers.
 - (2) Preparing the AF Division budget necessary to comply with all Drinking Water Program Requirements with input from other AF branches.
 - (3) Ensuring adequate personnel resources are available for implementing the Drinking Water Program.
 - (4) Ensuring regional projects include adequate funding for Drinking Water Program issues, and providing funding support for the Drinking Water Program.
- c. Regional AF Division Operations Branch (ASO-470) Manager is responsible for:
 - (1) Providing overall management of the regional Drinking Water Program.
 - (2) Providing ASO-420 with information to budget for funds required for effective management and training within the Drinking Water Program.
 - (3) Coordinate with the facility to provide alternative measures for providing safe drinking water to the facility's employees.
 - (4) Considering Drinking Water Program requirements for projects managed by the branch.

(5) Coordinating with the National Airspace System (NAS) Implementation Center (ANI-300) on the development and implementation of a Drinking Water Program that considers program requirements in activities managed by ANI.

(6) Responsible for identifying resource requirements to implement the Drinking Water Program in accordance with this order, applicable laws, and regulations; also responsible for providing guidance to other divisions to ensure program requirements are met.

d. System Management Office (SMO) Managers are responsible for:

(1) Ensuring implementation and compliance with the requirements set forth in this order within its geographic SMO boundaries.

(2) Ensuring sufficient funds and resources for compliance are requested in the annual budget.

(3) Ensuring services and offices under their direction provide advice, oversight, and assistance to their field counterparts to ensure compliance with this order.

(4) Compliance training specific to this order is provided to all employees engaged in drinking water operations.

(5) Designating the Safety and Environmental Compliance Manager (SECM) as the Drinking Water Program Coordinator (DWPC) for facilities dealing with drinking water. The (SECM) will act as the designated contact for the facility/facilities and should receive appropriate training. The SECM shall work with the System Support Center (SSC) Managers by providing guidance and support to facilities within their jurisdiction.

e. The System Support Center Managers are responsible for:

(1) Facility-specific operations that involve drinking water.

(2) Ensuring that facility employees are protected from unsafe drinking water and that an adequate supply of clean water is available during a wide range of circumstances.

(3) Obtaining guidance from the SECM to ensure compliance with federal, state, and local drinking water requirements.

f. National Airspace System Implementation Center (ANI) is responsible for coordinating with ASO-470 prior to:

(1) Starting any renovation or construction projects that impact, or have the potential to impact, a facility's ability to provide safe and adequate drinking water.

(2) Installing any type of drinking water system at an AF or AT facility.

g. Regional Air Traffic Division (ASO-500) Manager will be responsible for:

(1) Ensuring adequate personnel resources are available for implementing the Drinking Water Program.

(2) Obtaining and posting results of drinking water testing as described in Section 8 (b)(1)(c)(2).

(3) Ensuring employees are informed about the status of drinking water within their facilities.

h. All FAA Personnel are responsible for notifying supervisors of potential drinking water problems, which they believe to be in noncompliance or unhealthy for human consumption.

7. PROGRAM REQUIREMENTS.

This section contains two parts: a. A list of water supply elements; and b. A list of program requirements. Each section list will be followed by a detailed description of the program elements or requirements.

a. The following are water supply elements of the Drinking Water Program:

(1) Municipally supplied water. Meeting the requirements for municipally supplied water classification.

(2) FAA supplied water. Identifying requirements for FAA supplied water.

(3) Sources of FAA supplied water. Identifying sources of FAA supplied water.

(4) FAA water treatment facilities. Discussing water treatment techniques and requirements.

(5) New facility construction and modification. Ensuring municipal water is supplied to all new construction whenever feasible.

(6) FAA childcare centers. Identify requirements for childcare facilities.

b. The following is a detailed description of the listed program elements.

(1) Municipally supplied water. The FAA will normally rely on the local municipality Public Water System (PWS) to supply water to its facilities, if a PWS is accessible to the facility. Typically, the PWS supplies potable water under pressure directly to the facility through lines and control valves. To meet the classification as municipal supplied water, the FAA facility must:

(a) Receive **ALL** of its potable water from a publicly supplied water system.

(b) Provide no extra treatment of the water (i.e., provide no treatment, including no re-chlorination or fluoridation, anywhere in the system.

(c) The following requirements apply to facilities where the municipal public water supplier provides the potable water, and the FAA does not subsequently treat the water. If

a municipality supplies water, but supplemental treatment is also conducted, refer to Section 8 (b)(2)(b) for sampling and monitoring requirements.

1. Each year, the facility's AF or AT manager must obtain a copy of the current drinking water analysis from the facility's drinking water supplier.

2. The AF or AT manager will post the water test results on the employee bulletin board for 30 days and provide copies to the facility's union representatives.

3. ASO-470 will fund testing of the water if there is suspected contamination of the facility water supply and the supplying municipality cannot supply current satisfactory laboratory analysis.

(2) FAA supplied water. FAA-supplied potable water is typically used to supplement a PWS or to provide the primary source of drinking water when a public source is not available. Regulatory requirements for FAA-supplied drinking water are dictated by the population served and the duration of service. Specifically, the SDWA distinguishes between public and non-public water sources and then ground versus surface water to further define the types of requirements. A public water system (PWS) is classified as a system that has greater than 15 service connections or regularly serves an average of more than 25 individuals for at least 60 days a year. A non-public water system (non-PWS) is classified as a system that has less than 15 service connections or regularly serves an average of less than 25 individuals for a minimum of 60 days a year.

(a) The following requirements apply to facilities where potable water is supplied by the FAA and the system is classified as a non-PWS.

1. All AF or AT managers must keep a copy of the most current inventory of drinking water sources and post results on the ASO-471 website at: <http://172.23.64.41/drinking.nsf>. Additionally, every 3 years, all AF and AT managers must update on the website all sources of drinking water supplied by the FAA.

2. Copies of all permits, relevant O&M information, revisions to the permit or other related information must be kept on file.

3. It is the responsibility of the FAA facility (water supplier) to maintain the proper records.

(b) FAA Supplied non-PWS facilities must conduct routine drinking water tests as outlined in Appendix 3, Sampling Requirements for Non-PWS. The typical results and testing frequencies are guidelines based on the SDWA and are subject to change. Values outside the range might indicate a health or aesthetic problem and should be posted on the following website: <http://172.23.64.41/drinking.nsf>. Unique situations could arise that require more detailed or more frequent testing. Refer to Appendix 4, Triggers for Additional Sampling. The state or local health department should be contacted for guidance as well as ASO-471.

(c) If potable water is supplied by the FAA and the “system” is classified as a PWS the facility must contact its regulatory agency (usually the state or county health department) to determine the appropriate permitting (sampling and monitoring) requirements. Refer to Appendix 5, Regulatory Reporting Requirements, for information about regulatory reporting requirements. Additional requirements for FAA-supplied PWS are located in Appendix 6, Requirements for FAA-Supplied PWS. Appendix 7, Lead Testing Protocols, contains information regarding lead in drinking water.

(3) Sources of FAA-supplied Water. Water systems at FAA facilities will draw on ground or surface water sources for their supply of potable water. Additional water from bottled water supplies may also be required at some facilities on a permanent basis or during emergency situations. Additional details regarding the various types of water systems can be found in FAA Order 6920.2A. *Maintenance of Water and Sanitation Systems*, dated December 17, 1980. If the FAA supplies potable water to a facility and exceeds the thresholds for a PWS (a system that has at least 15 service connections or regularly serves an average of at least 25 individuals at least 60 days out of the year), the FAA facility is subject to Federal and State drinking water requirements. Local public health or environmental agencies may prescribe additional requirements for FAA facilities meeting the definition of a PWS, as well as FAA facilities supplying potable water in situations below the thresholds of a PWS.

(a) Groundwater Supply Systems. Water wells normally are used to provide potable water to facilities that have no access to PWSs. The predominant types of water wells existing at FAA facilities are driven and drilled. However, bored water wells exist at some facilities. Section 8.2 (b) contains detailed information concerning sampling and monitoring requirements.

(b) Surface Water Supply Systems. In those instances where groundwater cannot be utilized, surface water is another source of potable water for facilities. A typical surface water supply used by FAA facilities is a specially designed, runoff water collection system constructed with building-roof surfaces. The system includes roof-edge hangers, eave troughs, downspouts or ground collection and transfer troughs, filter screens, and connecting pipes. Water flows by gravity to concrete cisterns and is transferred to storage tanks by a pumping station.

1. Bottled Water. The Food and Drug Administration regulates bottled water under 21 CFR Parts 103 and 129 as a food with no identity standards. The supplier should test the bottled water. When entering into a contract to purchase bottled water, the following additional recommendations should be followed:

2. Ensure that the supplier is a member of the International Bottled Water Association.

3. Request the past 2 years test data for review.

4. Specify in the contract that the water supplier provide test data at least semi-annually.

5. Include annual disinfection of the dispensers in the contract, and follow preventative maintenance procedures as outlined in Appendix 8, Preventative Maintenance, to accomplish this task.

6. Include supplier's standard operating procedures for shipment and handling of bottled water and the recommended shelf life of the water in the contract to ensure prevention of potential bacteriological or related impairment to water quality. Follow preventative maintenance procedures as outlined in Appendix 8, Preventative Maintenance, to accomplish this task.

(c) Emergency Situations. All FAA facilities shall be prepared for various types of emergency situations. In general, the problems that can disrupt a water system operation fall into two categories.

1. Natural disasters, such as earthquakes, floods, hurricanes, tornadoes, forest fires, landslides, snow and ice storms, and failure of a water source.

2. Manmade disasters, such as vandalism, explosions, strikes, riots, terrorism, and warfare.

Additional requirements for emergency situations can be found in FAA Order 1900.1F, FAA Emergency Operations Plan (Sep 1998) and FAA Order 1920.2, Natural Disaster Control (Jun 1972).

(4) FAA water treatment facilities. Water treatment systems at FAA facilities process source water, typically from wells or surface water, for distribution in a public drinking water system. Various types of treatment devices are applied to the drinking water entering the building for the purpose of reducing contaminants in drinking water. Treatment types are based on the source of the water. The requirements for treatment are dictated by the Federal, State, or local regulations for public health reasons, but many water systems also install supplemental treatment systems as a precaution. Water treatment systems do not include treatment at the tap or water coolers for the purposes of reducing contaminants in the drinking water.

(a) Groundwater (well) treatment addresses water quality issues such as hardness, increased concentrations of certain contaminants (e.g., fluoride, iron, manganese, nitrates, sulfur, or nitrates), and/or radioactivity. Common problems with ground water include turbidity, taste and odor, and/or increased levels of chemical and biological contaminants.

(b) Surface water and all groundwater under the direct influence of surface water (see definitions in Section 5) are at high risk of contamination by bacteria and other microorganisms. Therefore, it is necessary for FAA water systems using surface or groundwater (under the direct influence of surface waters) to provide water treatment for the following reasons:

1. To ensure that the water is safe from disease-causing contaminants.

2. To make the water aesthetically acceptable for use.
3. To minimize danger to public health from harmful chemicals.

(c) Most FAA facilities will not need to treat their drinking water. If a requirement to treat a facility's drinking water is identified, coordination with the Regional Office Operations Branch, ASO-470, is required. In instances where the potential for drinking water contamination exists, treatment may be required at FAA facilities to purify the water received from a municipality or to purify FAA-supplied ground or surface water. Such instances include natural disasters, other events that would cause water systems to shut down or contaminate water sources, or when the ground or surface water source is contaminated. Standard types of treatment utilized at FAA facilities include reverse osmosis, filtration, and chlorination. Many states will require and enforce particular O&M practices on the basis of the type of treatment conducted, such as chlorinating, filtration, reverse osmosis, and softening systems. Specific PMs are discussed in Appendix 8, Preventative Maintenance, and in additional detail in the MMS database. If an FAA facility provides supplemental treatment to municipal supplied water, the following criteria apply:

(d) The sampling and monitoring requirements for FAA facilities that conduct supplemental treatment to municipal supplied water will be dictated by the permit specifications and/or by the population served. If a permit is not required for the supplemental treatment, the population served will dictate the requirements for sampling and monitoring as described in Section 8.2 (b).

(5) New facility construction and modification. Efforts shall be made to use the local municipal supplied water as the primary drinking water source for all new construction or major modifications to existing facilities. The Regional Office Operations Branch, ASO-470, shall be contacted if municipal supplied water is not available so other options can be discussed.

(6) FAA childcare centers. The Lead Contamination Control Act was passed as an amendment to the SDWA on October 31, 1988. It was designed to minimize children's exposure to lead from drinking water at schools and day care centers. This Act also required EPA to provide guidance to states and localities on testing for and remedying high levels of lead in a school's or day care's drinking water. Testing and correction are voluntary, with the exception that the law requires testing, recall, repair and/or replacement of water coolers with lead-lined storage tanks or with parts containing lead.

c. The following are requirements of the Drinking Water Program:

- (1) Permitting. Identifying requirements for drinking water treatment facilities.
- (2) Sampling and monitoring. Meeting requirements for sampling and monitoring for lead.

(3) Operations and maintenance. Providing, maintaining and ensuring proper use of equipment associated with water supply systems.

(4) Record keeping. Documenting and maintaining records for testing and operations and maintenance.

(5) Reporting. Determining reporting requirements for different types of water supply systems.

(6) Training. Training employees as provided by this standard.

d. The following is a detailed description of the Drinking Water Program requirements:

(1) Permitting. Water treatment permits will typically be required only for facilities that treat their drinking water and are classified as a public water source (see Section 8(b)(1)). If a permit is required at the facility, a copy of the permit must be sent to the Regional Office Operations Branch, ASO-470.

(2) Sampling and monitoring. All facilities in the region shall cooperate fully with inspections, monitoring, and testing conducted by the implementing agency. Reports submitted to the implementing agency shall be maintained at the pertinent AF System Support Center (SSC) Office. Sampling and monitoring requirements for facilities treating their drinking water will be dictated by the permit requirements (if one is required) and the classification of the water system, as described in Section 8 (b). See Appendix 9 for Sampling and Monitoring Protocols.

(a) Lead Testing. Every 3 years, the AF or AT manager will coordinate with the SECM to conduct lead in drinking water testing, regardless of the source of facility-supplied water. The following actions shall be taken:

1. The AF or AT manager shall conduct testing for lead in accordance with protocol in Appendix 7, Lead Testing Protocols.

2. The AF or AT manager shall post the water test results on the employee bulletin board for 30 days and provide copies to the facility's union representatives. See Appendix 7, Lead Testing Protocols, for the lead testing protocol for drinking water.

3. All AF or AT managers shall contact ASO-470 in the event the lead action level of 15 ug/L is exceeded.

(b) Operations and maintenance. The following provides a brief overview of the different types of systems and respective operations and maintenance (O&M) practices. All O&M practices should be conducted in accordance with requirements issued by a regulatory agency in a permit or the manufacturer recommendations. The most common O&M practices at FAA facilities will be linked to the water distribution system. Additional requirements will be necessary for those facilities with water treatment systems. See the Maintenance Management

System (MMS) for specific Preventative Maintenance (PM) for water treatment systems. Refer to the MMS database and Appendix 8 to confirm all PM requirements.

1. Water Storage Systems. Check operating data, level, and pressure gages, or other available information to see whether the tank is properly filled with and is holding water. Examine ladders, opening covers, gages, screens, and roof for signs of deterioration. Repair areas as needed. Clean catch basin as required or as recommended by manufacturer.

2. Disinfection of Wells. Wells must be disinfected when initially installed and after repairs have been made to wells and well pumps. Follow instructions in FAA Order 6920.2A Paragraph 162 (Maintenance of Water and Sanitation Systems).

(c) Record keeping. All FAA facilities are required to keep certain documentation on file at the facility. A well-kept set of records is useful in monitoring the changes in source water quality, ensuring the continuing adequacy of a treatment system, and applying for waivers and compliance. The record keeping requirements will be dictated by FAA, union, and regulatory requirements. Appendix 10, Regulatory Record Keeping Requirements, summarizes the general records retention requirements identified in the federal SDWA regulations codified in 40 CFR Part 141. All AF or AT managers must keep copies of their annual water test results and the lead testing results on file for 5 years, unless otherwise specified in Appendix 10, Regulatory Record Keeping Requirements. The records should include:

Date, location, and time the sample was collected

Name of the person collecting the sample

Type of sample (routine, confirmatory, or special)

Date of analysis

Laboratory name and identification number

Name(s) of laboratory analyst(s)

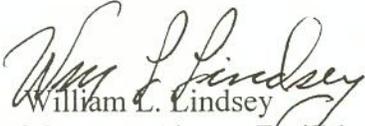
Analytical methodology

Laboratory sample results

(d) Reporting. Reporting requirements will include all FAA, union, and regulatory requirements. The source of drinking water will also dictate the level of reporting for each facility. It is the responsibility of the AF and AT managers to determine and comply with the specific reporting requirements for their facilities. All FAA requirements are contained in Appendix 5, Regulatory Reporting Requirements.

(e) Training. Training at FAA facilities will typically not be necessary to fulfill the requirements outlined in this order. Any required training will be limited to those personnel who

must conduct sampling of the drinking water or fulfill specific requirements outlined in a permit or operations and maintenance plan. Appendices 7, Lead Testing Protocols and Appendix 9, Sampling and Monitoring Protocols, provide detailed sampling procedures and operations and maintenance information. Facility managers shall ensure that all employees conducting drinking water testing receive copies of these procedures and become familiar with the procedures. All questions on training requirements shall be directed to the Regional Office Operations Branch, ASO-470.


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APPENDIX 1. LIST OF FEDERAL AND STATE REGULATORY AGENCIES

Agency	Internet Address	Mailing Address
EPA Headquarters	http://www.epa.gov/OGWDW/	401 M Street SW, Washington, DC 20460 800-426-4791
EPA Region 4	http://www.epa.gov/region4/waterpgs/wtr.html	345 Courtland Street NE, Atlanta, GA 30365 404-347-2913
EPA Region 2	http://www.epa.gov/region02/water.html	<i>Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee</i> 26 Federal Plaza, New York, NY 10278 212-264-1800
Alabama	http://www.adem.state.al.us/h2owebpge.html	<i>New Jersey, New York, Puerto Rico, Virgin Islands</i> Water Supply Branch, Department of Environment Management, 1751 Congressional W.L. Dickinson Drive, Montgomery, AL 36130 205-271-7773
Florida	http://www.dep.state.fl.us/water/wf/dw/default.htm	Drinking Water Section, Department of Environmental Regulation, Twin Towers Office Building, 2600 Blair Stone Road, Tallahassee, FL 32399-2400 904-487-1762
Georgia	http://www.Georgianet.org/dir/environ/	Drinking Water Program, Georgia Environmental Protection Division, Floyd Towers East, Room 1066, 205 Butler Street SE, Atlanta, GA 30334 404-656-5660
Kentucky	http://water.nr.state.kv.us/dw/	Drinking Water Branch, Division of Water, Department of Environmental Protection, 18 Reilly Road, Frankfort Office Park, Frankfort, Kentucky, 40601 502-564-3410 Ext. 543
Mississippi	http://www.msdh.state.ms.us/watersupply/index.htm	Mississippi State Department of Health, Public Water Supply Program, P.O.Box 1700, Jackson, MS 39215-1700 Phone: 601-576-7518; Fax: 601-576-7822
North Carolina	http://www.deh.enr.state.nc.us/pws/index.htm	Public Water Supply Section, Division of Environmental Health, Department of Environment, Health and Natural Resources, P.O. Box 27687, Raleigh, NC 27611-7687 919-733-2321
Puerto Rico	http://www.epa.gov/region02/cepd/compuum.htm#ICA	EPA Region 2, Caribbean Environmental Protection Division, Centro Europa Building, Suite 417, 1492 Ponce de Leon Avenue, San Juan, Puerto Rico 00907-4127 Phone: 787-729-6951; Fax: 787-729-7747
South Carolina	http://www.state.sc.us/dhece/egc/water/html/dwater.html	Bureau of Drinking Water Protect, Department of Health and Environmental Control, 2600 Bull Street, Columbia, SC 29201 803-734-5310

Agency	Internet Address	Mailing Address
Tennessee	http://www.state.tn.us/environment/dws/index.html	Division of Water Supply, Tennessee Department of Health and Environment, 150 Ninth Avenue, North Terra Building, 2 nd Floor, Nashville, TN 37247-3411 615-741-6636
Virgin Islands	http://www.gov.vi/	Planning and Natural Resources, Government of Virgin Islands, Nifky Center, Suite 231, St. Thomas, Virgin Islands, 00802 809-774-3320

APPENDIX 2. BACKGROUND INFORMATION FOR WATER QUALITY RULES AND ACTS

Water Quality Standards

Compliance with the SDWA water quality standards are reflected in the National Primary Drinking Water Regulations (NPDWR) and the National Secondary Drinking Water Regulations (NSDWR), if enforced by the State. Appendix 4 lists the addresses and web links of agencies having responsibility for public water supply overview in each state.

Implementation and Primacy

Through a program of “primacy,” each state, or other designated agent, must adopt its own set of drinking water standards that are at least as stringent as the Federal standards. The EPA provides guidance, technical assistance, and some financing to the state agencies.

Lead and Copper Rule—40 CFR 141, Subpart I and Lead Contamination Control Act

The Lead and Copper Rule applies to Community Water Systems (CWS) and Non-Transient Non-Community (NTNC) water systems. The NTNC classification applies to those facilities that supply potable water to FAA personnel, exceed the thresholds for a PWS, and regularly serve an average of at least 25 individuals at least 6 months out of the year.

The majority of lead and copper concentrations in water received by consumers is a result of leaching of the metals from water service lines and internal plumbing materials, and installed devices (water coolers, ice makers), rather than contamination of source water. As a result, the rule regulates the levels of lead and copper found at the consumer’s water tap. The rule requires regulated PWSs to monitor tap water lead and copper levels (from sink taps, not drinking fountains), from a representative portion of the distribution system.

Lead Contamination Control Act

Lead can pose a significant risk to human health if too much of it enters the body. Most health risks are associated with blood lead levels above 10 µg/dL, but some health effects have been seen at lower blood lead levels. The EPA estimates that drinking water can make up to 20 percent of a person’s exposure to lead, and thus included drinking water in its programs and regulations to decrease the occurrence of lead in the environment.

The Lead Contamination Control Act (LCCA) was passed as an amendment to the SDWA on October 31, 1988. It was designed to minimize children’s exposure to lead from drinking water at schools and day care centers. One of the major provisions of the LCCA required the EPA to produce a list of drinking water coolers that are not lead-free. This list was published in the Federal Register (FR) on April 10, 1989 (54 FR 14320) and updated on January 18, 1990 (55 FR 1772).

Surface Water Treatment Rule

The Surface Water Treatment Rule (SWTR) seeks to prevent waterborne diseases that are present at varying concentrations in most surface waters. Surface water is particularly susceptible to microbial contamination from sewage treatment plant discharges and runoff from storm water and snowmelt.

The SWTR is a set of treatment technique requirements that apply to all water systems using surface water and those using ground water that is under the influence of surface water. The rule requires that these systems properly filter the water, unless they can meet certain strict criteria. The rule also requires that these systems disinfect the water.

More information can be obtained at the following website:
www.epa.gov/safewater/source/therule.html#Surface

APPENDIX 3. SAMPLING REQUIREMENTS FOR NON-PWS

PARAMETER	FREQUENCY	AFFECTS
Coliform Bacteria: (Total coliforms including fecal coliforms and <u>Eschericia coli</u> , [E.coli])	Annually	H
Total Dissolved Solids	Annually	A
Turbidity	Annually	H
PH	Annually	+
Arsenic	Once every 3 years	H
Barium	Once every 3 years	H
Cadmium	Once every 3 years	H
Chloride	Once every 3 years	A
Fluoride	Once every 3 years	H
Iron	Once every 3 years	A
Manganese	Once every 3 years	A
Organic Mercury	Once every 3 years	H
Nitrates (as N)	Once every 3 years	H
Selenium	Once every 3 years	H
Silver	Once every 3 years	A
Sulfates	Once every 3 years	H/A/++
Hardness	Once every 3 years	A
Corrosion Index**	Once every 3 years	**

PARAMETER	FREQUENCY	AFFECTS
Lead	Once every 3 years	H
Volatile Organic Contaminants: Chloroform, Bromodichloromethane, Chlorodibromomethane, Bromoform, Dibromomethane, m-Dichlorobenzene, 1,1-Dichloropropene, 1,1-Dichloroethane, 1,1,2,2-Tetrachloroethane, 1,3-Dichloropropene, Chloromethane, Bromomethane, 1,2,3-Trichloropropene, 1,1,1,2-Tetrachloroethane, Chloroethane, 2,2-Dichloropropene, o-Chlorotoluene, p-Chlorotoluene, Bromobenzene, 1,3-Dichloropropene, 1,2,4-Trimethylbenzene, 1,2,3-Trichlorobenzene, n-Propylbenzene, n-Butylbenzene, Naphthalene, Hexachlorobutadiene, 1,3,5-Trimethylbenzene, p-Isopropyltoluene, Isopropylbenzene, Tert-butylbenzene, Sec-butylbenzene, Fluorotrichloromethane, Dichlorodifluoromethane, Bromochloromethane	Once every 3 years	H
Pesticides: Endrin, Lindane, Methoxychlor, and Toxaphene	Once every 3 years	H
Chlorinated Herbicides: 2,4 D, 2,4,5-TP (Silvex)	Once every 3 years	H
Radionuclides: radium-226, radium-228, gross alpha particle activity (including radium-226 but excluding radon and uranium), and beta particle and photon radioactivity.	Once every 3 years	H

H – Health A – Aesthetics

† - pH affects the corrosivity of water and the disinfection process.

†† - High concentrations could have laxative effects on non-acclimated personnel.

****** - Corrosion index is calculated using values of water temperature, pH, total dissolved solids, alkalinity and calcium hardness.

Contact your local regulatory authorities to determine if analytical test results are within current acceptable ranges for the contaminants listed in this table.

APPENDIX 4. TRIGGERS FOR ADDITIONAL SAMPLING

CONDITIONS	PARAMETERS TO TEST
Recurrent gastrointestinal illness	Coliform Bacteria
Facility plumbing contains lead	pH, Lead, Copper
Scaly residues, soaps do not lather/produce suds	Hardness
Radon in indoor air or region is radon-rich	Radon
Discolored water	Manganese (black), Iron (orange)
Stained plumbing fixtures or foundry	Iron, Copper, Manganese
Objectionable taste or smell	Hydrogen Sulfide, Metals
Water appears cloudy, frothy	Color, Detergents
Corrosion of pipes	Corrosion Index, pH, Lead, Copper
Rapid wear of water treatment equipment	pH, Corrosion Index
Nearby areas of intensive agriculture	Nitrate, Pesticides, Coliform Bacteria
Coal or other mining operations nearby	Metals, pH, Corrosion Index

CONDITIONS	PARAMETERS TO TEST
Gas drilling operation nearby	Chloride, Sodium, Barium, Strontium
Odor of gasoline or fuel oil, nearby gas station or fuel storage tanks	Volatile Organic Compounds (VOCs)
Dump, junkyard, landfill, factory, or dry-cleaning operation nearby	VOCs, Total Dissolved Solids (TDS), Sulfate, Chloride, Metals
Salty taste; seawater, or a heavily salted road nearby	Chloride, TDS, Sodium

APPENDIX 5. REGULATORY REPORTING REQUIREMENTS FOR WATER SUPPLIERS

Action	Requirements
Sample Results	Test results for all samplings typically must be sent to the regulatory agency within the first 10 days of the month following the month in which the results were received.
MCL Violation	Any time sample results indicate that there has been a violation of an MCL, the water supplier must notify the regulatory agency. The regulatory agencies typically require notification within 48 hours.
Failure to Monitor	Any time a water supplier fails to collect a sample as required, the regulatory agency typically requires notification within 48 hours. An invalid sample result is considered a failure to monitor.
Public Notification	Copies of notices issued by the water supplier must be sent to the regulatory agency within 10 days of the notification.

APPENDIX 6. REQUIREMENTS FOR FAA SUPPLIED PWS

Before contacting the regulatory agency, gather the following information:

- The number of people served by the system (facility)
- The source(s) of the water: surface water or groundwater
- Where appropriate, details of treatment provided and types and quantities of chemicals added to the water.

The regulatory agency will typically issue a permit that will instruct the water system operator (FAA facility) to collect samples from the water, take the samples to a certified laboratory, and send the results to the regulatory agency for analysis. Some states will perform the actual sampling for systems in their state. The type of analysis performed, the sampling frequency, and the location of the sampling point will vary from system to system, for each contaminant group, and for individual contaminants within a group.

The requirements also depend on whether the system uses groundwater (typically wells) or surface water (cisterns). Also, detecting the contaminant above a certain level may trigger increased monitoring requirements even when the MCL is not exceeded.

In addition, the monitoring requirements also depend on the size of the system. The term "size" refers to the number of people served, rather than the production capacity of the water treatment facility. Populations served on FAA facilities are typically low, but if the population served is unclear, the state should be contacted to determine the applicable monitoring requirements and effective dates of standards. Permits will dictate sampling requirements.

Also, every 3 years, all AF and AT managers must post all sources of drinking water supplied by the FAA on the ASO-471 Drinking Water webpage at:
<http://172.23.64.41.drinking.nsf>.

APPENDIX 7. LEAD TESTING PROTOCOL

Lead Testing Protocol for Drinking Water

The following procedures shall be used for screening of drinking water fountains and faucets for possible lead contamination. The following testing shall be conducted in each FAA facility to determine whether there is lead contamination of the water in the facility. A survey for lead is necessary at each facility at least every three years or as determined by current bargaining unit agreements. The following two types of samples will be collected.

- a. **First Draw Samples:** A first draw sample shall be obtained from all drinking water sources (e.g., fountains, break room/kitchen sinks) and 20 percent of all other interior non-drinking sources (e.g., bathroom faucets). Ensure that the tested water fixtures are not used for at least 6 hours before the test. **Do not use a shutoff valve to shut the water off at the fixture because it is possible to release some quantities of solder and metal deposits in the valve.** It is permissible to use tape to make the fixture inoperable for the required 6 hours. The water to be tested must not have been stagnant for greater than 28 hours before the test. At least 1 liter of cold water shall be collected from each fountain and faucet for each test. The test protocol is described in more detail in **40 CFR 141.86.b2.**
- b. **Representative Samples:** A second sample shall be obtained on the same day from 10 percent of the water fixtures where a first draw sample was taken. The water sample shall be collected after the **water has run for 2 to 3 minutes.** The representative samples are used to indicate the concentration that a person would receive if he or she used the fixture during the day (i.e., as opposed to the first draw sample, which typically represents the worst case.)

Take another first draw sample for any samples over the Action Level (AL) of 15 ppb for drinking water sources. An AL is different from a maximum contaminant level (MCL)—an MCL is a legal limit on a contaminant, whereas an AL is a trigger for additional prevention or removal steps. For lead, the MCL and the AL are the same. Compliance with the AL is determined by measuring the concentration of lead in a number of samples collected at the consumer's tap. The lead AL is exceeded if the concentration of lead in more than 10 percent of tap water samples is greater than 15 ppb.

Additional Monitoring Requirements

Remediation/Repair of Fixtures: If the results of the second test are above the AL, a determination shall be made to verify that the lead contamination is not present in the supplied water. If it is established that lead is in the supplied water, the water supplier should be contacted to help in the determination of the lead contamination and remediation of the elevated level, which might require the installation of filters on the incoming water. If it is determined that the contamination is caused by a fixture, then remediation of the fixture shall be initiated

(i.e., replace faucet or valve, remove lead solder in water cooler tank with non-lead solder, or replace water cooler).

Posting and Disabling of Fixtures: All drinking water sources that exceed **15 ppb** shall be posted as not usable. Bottled water shall be provided if there are not enough alternative water sources. If a second test confirms that lead in the water source exceeds 15 ppb, the fixture should be turned off until it is repaired and subsequent testing indicates that it is below the Action Level (AL) of 15 ppb.

If a fixture is replaced or modified to reduce lead contamination, additional samples shall be taken during two consecutive 6-month monitoring periods to verify that the contamination is less than or equal to the AL of 15 ppb.

APPENDIX 8. PREVENTATIVE MAINTENANCE

MAINTENANCE ACTIVITY	FREQUENCY
Water Distribution System	
Water Quality Test	
Test quality of purchased or facility self-produced potable water, including lead, if not performed by other authorities.	Every Three Years
Test the quality each time repairs are made or water supply is exposed to adverse factors.	As Needed
Water Supply	
Cisterns: Check hangers, eave troughs, and downspouts for loose, broken, or damaged parts. Repair as necessary	Annually
Water Well Vents: Check for clogging. Clean or replace vents as needed	Annually
Well and Spring Structures: Check that well is properly sealed from surface water and check vicinity of sources for contamination. Protect water as needed	Annually
Bottled Water: Check expiration dates, store in a clean location, and ensure hands are clean when changing water containers. Disinfect the opening of water dispensers (write this into the contract with the supplier)	As needed
Water Storage / Coolers	
<p>Water storage and holding tank:</p> <ul style="list-style-type: none"> -Check tank water level -Check pressure gages -Inspect tank structural condition. Check for leaks, deterioration, loose metal bands, and rusted areas. Repair, paint, or replace parts as needed -Check structural condition of ladders and walkways. Repair or replace parts as needed -Check screen and overflow opening. Repair and clean obstruction as needed -Check steel tank cathodic protection -Check tank for cleanliness -Check catch basin to ensure that it is clean and free of debris -Check enclosing walls and cover for structural failure or deterioration. Repair or replace parts as required 	Annually
Submersible and Non-submersible Wells, Pumps, and Motors	

Appendix 8

MAINTENANCE ACTIVITY	FREQUENCY
–Check pump controls –Check submersible and line pump performance with pump in well. Repair or replace parts if indicated –Check sanitary well seal for water-tightness. Repair seal as required –Test Operate pump. Inspect pump and control system. Repair as required (i) Check motor controls (ii) Check air volume control (iii) Check low water cutoff for deep well pumps (iv) Check pump seals and packing (v) Check pump motor (vi) Check pump drives for wear and alignment (vii) Check pump impeller	Annually
Check for scum and sludge accumulation. Empty and clean tank when deposit exceeds indicated level	Annually
Check sludge in grease trap, where provided. Empty and clean trap as needed	Annually
Using facility as-built drawings, check leaching field, distribution box, seepage pit areas for indications of damage or possible obstructions. Repair or report conditions to proper authority	Annually
Check roof drains, gutters, downspouts, and catch basins for obstructions. Unclog or clean areas as needed	Annually
Check gutters and downspout attachment. Repair or secure parts as needed	Annually
Check operation of sump pump. Lubricate and service pump if needed	Semi-annually
Verify that sufficient air volume is inside pressure tank, hydropneumatic water tanks	Semi-annually
Drinking Water Coolers: Verify that water cooler operates properly and perform the following tests: –Check condenser air passages for obstruction. Clean passages as needed –Check that water temperature is normal –Check drain for obstruction. Clean drain as needed –Check fan motor and blades. Lubricate motor and clean fan blades as needed	Annually
Check to make sure that positive pressure is maintained in all portions of the distribution system	Annually
Check to make sure that water mains have been effectively flushed	Annually
Water Treatment Systems	
Check cartridge water filters and replace element as required	Semi-annually
Check water supply softening system and controls and quality of water if necessary. Replenish the salt storage tank as needed for automatic water softeners	Semi-annually
Check all water system treatment components. Repair or replace as needed	Annually
Check reverse osmosis systems; follow equipment manufacturer instructions and operating manual procedures. Check the ultraviolet lamp for proper operation and replace as necessary	Annually
Test disinfectant residual throughout the entire distribution system. Daily measurement of residuals in distributed water are key to proper adjustment to disinfectant (typically chlorine) dosages	Install automatic/electronic monitor
Check water supply chlorinating system and controls. Check quality of water if system has malfunctioned	Semi-annually

APPENDIX 9. SAMPLING AND MONITORING PROTOCOLS

This information pertains to FAA facilities that are required to conduct sampling testing. Most facilities will not be required to conduct supplemental testing or will use a certified laboratory to fulfill all sampling requirements. Regardless, it is recommended that all facilities contact a local certified laboratory to ask for a copy of sampling procedures and instruction before sampling and testing. The local regulatory agency (see Appendix 4) should be able to provide a list of local labs that are certified to run the tests.

Several key items must be understood before any sampling is conducted. These items are discussed below. Once these items are understood, the actual process is not difficult.

Type of container: Some samples must be collected in glass containers, others must be collected in plastic. Your lab will inform you of the correct container to use for the respective samples. Most labs will provide you with properly prepared containers.

Volume of water required: The amount of water that must be collected is dictated by each type of analysis. The volume can range from 100ml for a coliform sample to 1 liter for some radiochemical samples.

Preservation: Some samples must be kept cold at all times, whereas other samples can remain at room temperature. Yet other samples must be acidified. The lab should provide this information.

Filling requirements: For some samples, such as Volatile Organic Compounds (VOC), the actual container must be filled to the top, with no air space.

Hold times: This is the maximum allowable time between sample collection and analysis. Each type of analysis will have a specified hold time. The lab should provide this information. These times can range from 1 day for coliform to up to 1 year for other types of analyses. Sample results will be invalid if the hold time has been exceeded.

APPENDIX 10. REGULATORY RECORD KEEPING REQUIREMENTS

Requirement	Time Frame
Bacteriological results	5 years
Chemical results	12 years
Actions taken to correct violations	3 years
Sanitary Survey reports	10 years
Lead monitoring results	12 years
Variance or exemption records	5 years

This table represents the established time requirements for Public Water Systems. It is recommended that the FAA retain records for the same amount duration.

