U.S. General Services Administration

GSA Order: Water Quality Management

PBS 1000.7B
PBS Office of Facilities Management
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Purpose:

This Order establishes national U.S. General Services Administration (GSA) Public Building Service (PBS) requirements for effectively managing and overseeing all building water (BW), as well as drinking water (DW) (a subset of BW) systems to help ensure the well-being of building occupants, contractors, and visitors in federally owned facilities and leased space under the jurisdiction, custody, or control of GSA, including federally owned facilities operating under a GSA delegation of authority for operations and maintenance (delegation of O&M).

Any local guidance or deviations from the policy that are less stringent must be submitted for approval, in advance, to the PBS Office of Facilities Management Director of Risk Management.

Background:

PBS is committed to providing safe and healthy spaces for building occupants, contractors and visitors in federally owned facilities and leased space under the jurisdiction, custody, or control of GSA (including federally owned facilities operating under a delegation of O&M). Public water systems (PWS), usually municipality-owned and operated, are responsible for continuously providing safe water to the public that meets the U.S. Environmental Protection Agency's (EPA) National Primary Drinking Water Regulations of the Safe Drinking Water Act. However, a PWS may be publicly or privately owned. A PWS provides water for human consumption through pipes or other constructed conveyances to at least fifteen (15) service connections or serves an average of at least twenty-five (25) people for at least sixty (60) days a year.

EPA has defined three types of PWS:

1. Community Water System (CWS): A PWS that supplies water to the same population year-round.

2. Non-Transient Non-Community Water System: A PWS that regularly supplies water to at least twenty-five (25) of the same people at least six months per year. Some examples are schools, factories, office buildings and hospitals which have their own water systems.

3. Transient Non-Community Water System: A PWS that provides water in a place such as a gas station or campground where people do not remain for long periods of time.

Private water systems, such as private water wells, serve individual households or small groups of people and are not regulated under the EPA Safe Drinking Water Act. These systems usually serve fewer people and are often found in rural or remote areas. However, in cases where a State has the primary authority to enforce regulations for PWS, the State's definition of a PWS may differ from the EPA's definition and could include certain types of private water systems. It is also important to highlight that while the EPA sets federal water standards and regulations, individual states or local authorities can also establish their own water requirements, which may be more stringent than the Federal standards. Water systems are obligated to comply with regulations at the Federal, State, and local levels.

The quality of a facility's water can be influenced by various factors, including the design and condition of the building's plumbing system, maintenance and operational practices, construction and occupant activities, and issues related to the PWS that the facility receives water from.

Facilities often have limited control over water quality issues originating from the PWS and in those situations can only implement control measures in response to notifications from the appropriate authority. The primary responsibility for maintaining and delivering safe water lies with the PWS, which manages the water source, treatment, and distribution systems. Facilities rely on the PWS to provide clean and safe water for their operations.

Once a facility receives acceptable water from the PWS, it becomes the responsibility of the facility's controlling authority (whether it is PBS, a lessor, or an agency with delegated O&M) to provide potable water at point-of-use outlets that meet EPA's National Primary Drinking Water Regulations per the U.S. Department of Labor - Occupational Safety and Health Administration Sanitation Standard (29 C.F.R. § 1910.141). The implementation of a national GSA Water Quality Management Order will help GSA ensure that this occurs in GSA controlled facilities.

Applicability:

This Order, and the companion desk guide, apply to federally owned facilities under the jurisdiction, custody, and control of the GSA, including facilities operating under a GSA delegation of authority. Limited aspects of this Order also apply to space leased by GSA and are dictated by the provisions of the lease.

Cancellation:

Drinking Water Quality Management, PBS 1000.7A (November 16, 2023).

Summary of Changes:

The policy updates requirements for water quality management in alignment with the consensus standards and guidelines referenced herein. Additionally, the policy updates roles and responsibilities to align with GSA's organizational structure.

Roles and Responsibilities:

1. PBS Office of Facilities Management Facility Risk Management Division is responsible for:

    a. Issuance of this Order and subsequent updates.

    b. Providing national guidance and training in support of this Order.

    c. Supporting Service Centers, Field Offices and individual buildings in BW program management activities.

    d. Overseeing compliance with the BW management program and this Order throughout the entire portfolio.

    e. Providing technical BW program support and training to Facility Managers, Facility Operations Teams, Project Managers, Lease Administration Managers, and any additional internal customers as needed.

    f. Reviewing BW reports and documentation for accuracy and completeness and providing recommendations to responsible offices as needed.

    g. Providing review and input on mitigation and corrective action efforts in buildings where sources of poor BW are identified.

    h. Coordinating and overseeing the conducting of Child Care Center water testing and documenting results in IRIS OSH.

2. PBS Office of Facilities Management - Facilities Operations is responsible for:

    a. Implementing, and providing national program oversight for ensuring our compliance with *ANSI/ASHRAE Standard 188, Legionellosis: Risk Management for Building Water Systems* which establishes minimum legionellosis risk management requirements for building water systems, ensuring that ASHRAE 188 plans are effectively applied, as applicable, across various federally owned facilities to maintain water safety and prevent stagnation-related issues.

b. Ensuring that GSA-controlled facilities use the U.S. Department of Health and Human Services - Centers for Disease Control and Prevention's (CDC) Water Management Program Worksheet, *Identify Buildings with Increased Legionella Risk*, to determine when the ASHRAE standard will apply.

c. Ensuring the O&M master specification incorporates the most current, applicable BW requirements.

d. Ensuring that energy efficiency and water conservation requirements in future O&M contracts do not conflict with this policy and the water safety guidance.

e. Ensuring that Delegated Agencies are complying with this Order and the accompanying desk guide.

3. PBS Office of Facilities Management Child Care Center Program is responsible for:

   a. Facilitating an understanding of State and local Child Care Center water requirements, coordinating with the PBS Office of Facilities Management Risk Management office for Child Care Center BW testing, and communicating with Child Care Center providers regarding any BW matter.

   b. Providing oversight of the Child Care Provider to ensure that it is flushing water weekly (on the first business day of each week) as required.

4. PBS Office of Engineering is responsible for ensuring that updates to the PBS Interim Core Building Standards for the Public Buildings Service incorporate the most current, applicable BW requirements.

5. PBS Office of Leasing is responsible for ensuring that updates to the standard, national lease contracting language incorporate the most current, applicable BW requirements in leases.

6. PBS Office of Program and Project Management Design and Construction and Project Delivery Divisions[1] are responsible for ensuring post-installation flushing, sanitization and BW testing are included in applicable projects, and the deliverables are received after construction and prior to use.

7. PBS Office of Facilities Management Facility Managers are responsible for:

[1] Different organizational structures may dictate which office has certain responsibilities.

a. Implementation and compliance in their building, if applicable, with *ANSI/ASHRAE Standard 188, Legionellosis: Risk Management for Building Water Systems* which establishes minimum legionellosis risk management requirements for building water systems in owned facilities to maintain water safety and prevent stagnation-related issues. Specifically ensuring that their GSA-controlled facility uses the CDC's Water Management Program Worksheet, *Identify Buildings with Increased Legionella Risk*, to help determine if and when the ASHRAE standard will apply.

b. Ensuring post-installation flushing, sanitization and BW testing are included in applicable projects, and the deliverables are received after construction and prior to use.

c. Ensuring BW incidents, complaints, and emergencies are promptly investigated and reported to the Risk Management Industrial Hygiene Program Office.

d. Documenting initial BW incidents, complaints, and emergencies submitted through the O&M Contractor and Facility Manager in the PBS National Computerized Maintenance Management System (NCMMS).

e. Communicating to affected occupants of any relevant information about DW-related incidents or emergencies per PBS 2400.1 Risk Management Notification (January 8, 2021) guidance.

f. Posting notifications at any Child Care Center related to BW testing as necessary.

g. Ensuring the completion of mitigation and corrective action efforts in buildings where sources of poor BW are identified.

h. Ensuring building systems, including backflow prevention devices, are maintained in accordance with the existing O&M specification, site-specific building operating plans, and preventive maintenance programs.

i. Ensuring any federally owned or operated water systems that may be in their building are maintained per applicable Federal, State, or local regulations.

8. PBS Office of Facilities Management Service Centers and Field Offices are responsible for providing BW oversight to all the buildings in their individual areas of responsibility for the following items:

a. Ensuring post-installation flushing, sanitization and BW testing are included in applicable projects, and the deliverables are received after construction and prior to use.

b. Ensuring BW incidents, complaints, and emergencies are promptly investigated and reported to the Risk Management Industrial Hygiene Program Office.

c. Documentation of initial BW incidents, complaints, and emergencies submitted through the O&M Contractor and Facility Manager in the PBS NCMMS.

d. Communication to affected occupants of any relevant information about BW-related incidents or emergencies per PBS 2400.1 Risk Management Notification (January 8, 2021) and internal GSA water quality notification guidance.

e. Ensuring the posting of notifications at Child Care Centers related to BW testing.

f. Ensuring the completion of mitigation and corrective action efforts in buildings where water quality issues have been identified.

g. Ensuring building systems, including backflow prevention devices, are maintained in accordance with the existing O&M specification, site-specific building operating plans, and preventive maintenance programs.

h. Ensuring any federally owned or operated water systems, under GSA's jurisdiction, custody, or control, in their areas of responsibility are maintained per applicable Federal, State, or local regulations.

9. PBS Leasing Specialists / Lease Contracting Officers / Lease Administration Managers are responsible for:

    a. Ensuring the most updated BW clauses are added for new, replacing, succeeding, and superseding leases.

    b. Collaborating with the Lessor and, if necessary, escalating any issues to ensure that the lease provisions are applied in addressing DW concerns raised by GSA or other Federal occupants in GSA-controlled leased space.

10. Delegated Agencies must comply with this Order and the accompanying desk guide.

Policy:

1. Maintaining DW. The following items must be used to proactively reduce DW problems.

    a. PWS. In federally owned and leased facilities under the jurisdiction, custody, or control of GSA (including facilities operating under a GSA delegation of authority) where the facility is also the operator of a PWS, it is the responsibility of the party or parties responsible for the water system to ensure compliance with applicable Federal, State or local DW regulations. In cases where there is no separate party responsible for the water system, the obligation falls upon the controlling authority of the facility. Depending on the facility, this would be the responsibility of PBS, a lessor, or an agency with delegated authority to operate and maintain the facility.

    b. Non-PWS water systems. In federally owned and leased facilities under the jurisdiction, custody, or control of GSA (including facilities operating under a GSA delegation of authority) where DW is sourced from non-PWS water systems such as a private DW well, it is the responsibility of the party or parties responsible for the water system to ensure compliance with applicable State or local DW requirements. In cases where there is no separate party responsible for the water system, the obligation falls upon the controlling authority of the facility. Depending on the facility, this would be the responsibility of PBS, a lessor, or an agency with delegated authority to operate and maintain the facility.

    For awareness, federally owned and leased facilities under the jurisdiction, custody, or control of GSA may own or operate CWS, Non-Transient Non-Community Water System, Transient Non-Community Water System, and private water systems in limited instances.

    In addition to meeting the State or local DW requirements, proper documentation is essential. This includes, but is not limited to: sanitary surveys, operator certification, and drilling logs. It is the responsibility of the water system provider or controlling authority to maintain these documents.

    c. Consumer Confidence Reports. The EPA requires CWS to issue a Consumer Confidence Report, also known as an annual DW quality report, publicly available or to send it to their customers. These reports provide information about the local DW quality. The water system must publish these reports each year by July 1.The O&M Contractor for all federally owned facilities under the jurisdiction, custody, and control of GSA (including facilities operating under a GSA delegation served by a CWS) must review these reports annually and, if any issues are noted, provide notification to the GSA Contracting Officer’s Representative and document the issue in NCMMS. The O&M Contractor will also ensure that

a copy of each new Consumer Confidence Report received by the provider is put in the NCMMS. GSA or the agency with delegated authority to operate and maintain the facility must provide notification of the issues noted to each affected occupant agency point of contact. PBS Industrial Hygienists must also review each Consumer Confidence Report annually for each building location they are responsible for.

d. Baseline Water Testing. In Fiscal Years 2024 and 2025, an initial baseline DW quality testing by a qualified professional was required for all active and occupied federally owned facilities and certain leases that were greater than 1,000 square feet, had DW systems, and fell under the jurisdiction, custody, and control of GSA (including those operating with delegated authority from GSA).

e. Child Care Centers.

    1. Hot and cold water point-of-use outlets with the realistic potential to be used as a drinking water source must be flushed weekly by the Child Care provider. It is recommended that this be on the morning of the first regular business day of the week. Aerators must be cleaned or replaced monthly (if damaged) by the O&M provider in owned locations, or by the Lessor in leased locations. It's important to note that if aerators are replaced with laminar flow devices, monthly aerator maintenance will no longer be necessary.

    2. In open Child Care Centers, DW outlets must be sampled and evaluated for lead and copper by a qualified professional annually at a minimum. This testing must include all water outlets with the realistic potential to be used as DW sources, such as those used for human consumption and washing. Test results that exceed the applicable Federal, State, or local thresholds must result in response actions to reduce concentration levels to below the action level. It is essential to conduct additional water testing on failed outlets by a qualified professional to ensure the response actions were successful.

        The Risk Management program office responsible for DW will use their professional judgment to decide whether additional testing at fixtures outside of those within the Child Care Center’s demised space is necessary based on the annual test results.

    3. Any Child Care Center closed for thirty (30) consecutive calendar days or more must be sampled and evaluated for lead and copper by a qualified professional within three weeks before reopening and with sufficient time for PBS to review the results and act on any issues before operations commence at the Child Care Center. This testing must include all water sources with the realistic potential to be used as DW sources, such as those used for human

consumption and washing. Test results that exceed the applicable Federal, State, or local thresholds must result in response actions to reduce concentration levels to below the action level. It is essential to conduct additional water testing on failed outlets by a qualified professional to ensure the response actions were successful.

Additionally, all water outlets primarily designed for human consumption (such as drinking fountains, bottle fillers, and faucets in kitchenettes) must be tested by a qualified professional for the presence of *Legionella*. If systems are controlled (either well or poorly as defined by CDC guidance), no further action is required. However, if systems are uncontrolled, further response action is needed.

4. All newly installed outlets with the realistic potential to be used as a DW source must be thoroughly flushed for a minimum of 10 minutes.

    a. Use a detectable level of disinfectant residual to indicate that flushing has been successful for cold water.

    b. Use the maximum hot water temperature allowed by regulations and codes, or between 105°F (41°C) to 109°F (43°C) to indicate that flushing has been successful for hot water. For outlets with automatic mixing valves, flush until the water temperature stabilizes as the water will be premixed with cold water.

5. All newly installed water outlets with the realistic potential to be used as a DW source, such as those used for human consumption and washing, must be tested for lead, copper, and total coliform bacteria (including E. coli) by a qualified professional before use. Test results that exceed the applicable Federal, State, or local thresholds must result in response actions to reduce concentration levels to below the action level. It is essential to conduct additional water testing on failed outlets by a qualified professional to ensure the response actions were successful.

f. Water Testing After New Installations. All federally owned facilities under the jurisdiction, custody, and control of GSA (including facilities operating under a GSA delegation) must conduct post-installation water flushing, disinfection and testing in accordance with the International Plumbing Code when certain components of the water system are impacted during repair or renovation projects.

g. Hot Water Tank Storage Requirements. Hot water tanks at all federally owned facilities under the jurisdiction, custody, and control of GSA (including

facilities operating under a GSA delegation) should be maintained at 140°F at the tank and ensure hot water delivery within code compliance per ASHRAE Guideline 12. Energy efficiency and water conservation requirements in future O&M and other contracts should not conflict with this guidance.

2. Incidents, Complaints, and Emergencies. In response to incidents, complaints, and emergencies related to DW, it is the responsibility of GSA, the Delegated Agency, or the Lessor (if a provision of the lease) to promptly investigate such complaints in federally owned and leased facilities under the jurisdiction, custody, or control of GSA (including facilities operating under a GSA delegation). The investigation process must include:

   a. Efforts to identify the nature and source of the suspected DW issue, which may involve conducting confirmatory water testing by a qualified professional.

   b. If the investigation confirms the presence of a DW issue, appropriate corrective action must be initiated to address and remediate the source of the problem and notification to each affected occupant agency point of contact must occur per the requirements of PBS 2400.1 *Risk Management Notification* (January 8, 2021).

      1. Follow-up testing by a qualified professional must be conducted after implementing corrective actions to ensure the effectiveness of the measures taken.

      2. To ensure that the problem is confined to the original incident area, the PBS Industrial Hygienist responsible for DW will use their professional judgment to decide whether additional testing outside of the initial area of concern is required.

   c. In federally owned facilities under the jurisdiction, custody, and control of GSA, initial DW incidents, complaints, and emergencies reported through the GSA O&M Contractor or PBS Office of Facilities Management Facility Manager channels must be documented and maintained in NCMMS for record-keeping purposes.

3. Tenant Access. Many of the activities in this Order require access to tenant spaces. While access cannot always be guaranteed, through the use of documented notification to occupant agencies, GSA will make every effort to secure access so that water management activities can be performed.

Authority:

1. U.S. Department of Labor - Occupational Safety and Health Administration: 29 C.F.R. § 1960, 29 C.F.R. § 1910.141, & General Duty Clause (Section 5(a)(1) of the Occupational Safety and Health Act) (29 U.S.C. § 654).

2. U.S. Environmental Protection Agency (EPA): Safe Drinking Water Act (42 U.S.C.§ 300f, *et seq*.).

3. EPA: National Primary Drinking Water Regulations (40 C.F.R.§ 141) including Lead and Copper Rule (40 C.F.R. § 141 Subpart I).

4. EPA: National Primary Drinking Water Regulations Implementation (40 C.F.R. § 142).

5. EPA: Other Safe Drinking Water Act Regulations (40 C.F.R. § 143) including Use of Lead-Free Pipes, Fittings, Fixtures, Solder, and Flux for Drinking Water (40 C.F.R. § 143 Subpart B).

6. Applicable State and local Drinking Water authorities.

7. Applicable Federal, State, and local plumbing codes.

Organizations, Consensus Standards, and Guidelines Used in the Development of the Order:

1. EPA: “3Ts for Reducing Lead in Drinking Water in Schools and Child Care Facilities”.

2. U.S. Department of Health and Human Services - Centers for Disease Control and Prevention (CDC): “Toolkit for Controlling *Legionella* in Common Sources of Exposure”.

3. ASHRAE: Standard 514 Risk Management for Building Water Systems: Physical, Chemical, and Microbial Hazards.

4. ASHRAE: Standard 188 Legionellosis: Risk Management for Building Water Systems.

5. ASHRAE: Guideline 12 Managing the Risk of Legionellosis Associated with Building Water Systems.

6. American Industrial Hygiene Association: Recognition, Evaluation, and Control of Legionella in Building Water Systems 2nd Edition.

7. American Water Works Association: Responding to Water Stagnation in Buildings with Reduced or No Water Use.

PBS Desk Guide for Water Quality Management:

The PBS Desk Guide for Water Quality Management serves as a practical resource for national implementation of the PBS Water Quality Management Order. It provides additional guidance, procedures and best practices for addressing specific DW issues and managing DW programs effectively and is linked below.

Signature

/S/_____ 3/2/2026_____
Andrew Heller Date
Acting Commissioner
Public Buildings Service

Desk Guide for Water Quality Management

Companion to

GSA Order PBS 1000.7B

Public Buildings Service (PBS)

Office of Facilities Management

Facility Risk Management Division

February 2026

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Introduction

The Desk Guide for Water Quality Management serves as a practical resource for national implementation of the Water Quality Management Order. It provides additional guidance, procedures, and best practices for addressing building water (BW), as well as drinking water (DW) (a subset of BW) issues and managing BW programs effectively.

Definitions

For the purposes of this desk guide the following definitions will be applicable in implementing the Water Quality Management Order.

ANSI/ASHRAE Standard 188, *Legionellosis: Risk Management for Building Water Systems*: defines the minimum requirements for the design, construction, operation, and maintenance of, and maintenance for, water systems in human-occupied commercial, institutional, and multiunit residential buildings to prevent *Legionella* growth. It requires creating a risk management plan to control *Legionella* in systems like cooling towers and potable water.

ANSI/ASHRAE Standard 514, *Risk Management for Building Water Systems: Physical, Chemical, and Microbial Hazards*: provides minimum practices to manage overall risk from microbial, physical, and chemical hazards that are associated with both potable and non-potable water systems in buildings. Standard 514 provides a framework for the systematic development of water management programs. It is intended to be used in combination with ASHRAE Standard 188. Standard 514 mandates the use of Standard 188 for managing infection risk from *Legionella* bacteria, and Standard 514 then covers the risk from all other hazards except *Legionella*.

Building Water (BW): Water in a commercial building consisting of an entire network of systems that intake, treat, store, distribute, and utilize water for potable (drinking/sanitary) and non-potable (HVAC, fire protection, cooling) purposes. It consists of two main categories: potable water systems (safe for consumption) and recirculating systems, such as cooling towers, which manage heat transfer.

Community Water System (CWS): A Public Water System (PWS) as defined below, that supplies water to the same population year-round.

Consumer Confidence Reports (CCR): An annual water quality report required by the EPA for public water systems that provides details of the municipal supplied water source, contaminants found, potential health effects, treatment methods and system compliance. These reports are mandated by the Safe Drinking Water Act.

Disinfectant: Chemical agent or physical treatments used to kill or inactivate microorganisms.

Disinfectant Residual: The net amount of a chemical disinfectant (usually free chlorine or chloramine) remaining in treated water after initial chemical disinfection demand is satisfied. Disinfectant residual acts as a protection against microbial regrowth in distribution pipes

Disinfection Byproducts (DBPs): Harmful compounds formed when disinfectants like chlorine react with natural organic matter in water, with risks increasing after long-term exposure. Key regulated DBPs include Total Trihalomethanes (TTHMs), Haloacetic Acids (HAA5), Bromate, and Chlorite. Common sources include surface water, and exposure occurs through ingestion, skin absorption, and inhalation of steam during showering.

Distal Site: A fixture or outlet furthest from the main water source, such as a faucet, showerhead, or valve.

Drinking Water Outlets (Human Consumption): Plumbing fixtures that are primarily designed for human consumption such as kitchen and breakroom sinks, water fountains, bubblers and bottle fillers.

Human Consumption: Intended for people to safely eat, drink, or ingest.

Human Washing Outlets (Not Human Consumption): Plumbing fixtures that are primarily used to wash the body and are non-consumptive. Examples of such fixtures include showers and bathroom sinks.

Lead-Free Plumbing: Plumbing components—pipes, fittings, fixtures, solder, and flux—that contain a weighted average of no more than 0.25% lead on wetted surfaces (0.2% for solder/flux), as mandated by the U.S. Environmental Protection Agency (EPA) Safe Drinking Water Act (SDWA).

Maximum Contaminant Levels (MCLs): Legally enforceable standards set by the EPA for the highest allowable amount of a contaminant in public drinking water, balancing health risks with technological feasibility and cost. MCLs are established under the SDWA to protect public health, with levels set based on health goals but adjusted for practical treatment and detection limits, ensuring water systems provide safe water.

National Primary Drinking Water Regulations (NPDWR): Legally enforceable, health-based standards established by the EPA under the Safe Drinking Water Act to limit levels of specific contaminants in public water systems. They ensure tap water safety and protect public health by defining maximum contaminant levels (MCLs) and treatment techniques for microorganisms, chemicals, and radionuclides.

National Secondary Drinking Water Regulations (NSDWRs): Non-enforceable federal guidelines established by the EPA for contaminants which do not pose direct health risks but may cause cosmetic (skin/tooth discoloration) or aesthetic (taste, odor, color) effects in public water. While not federally enforced, they are recommended to assist water systems in managing these issues.

Non-potable Water: Water not intended for human consumption such as water for cooling towers, decorative water features, and irrigation systems.

Potable Water: Water meeting the regulatory requirements for drinking water and intended for human consumption, sanitation, culinary use, or personal hygiene.

Premise Plumbing: The internal water delivery and drainage system within a building, from the point it connects to the main city water line to all the pipes, fixtures (faucets, showers), water heaters, and drains inside. Includes both potable and non-potable water.

Premise Plumbing Point of Use or simply called "Point of Use": A device, fixture, or appliance that serves a single, specific outlet to provide immediate service and can include outlets that are both consumptive and non-consumptive.

Private Water System or Non-PWS : Water systems that are smaller and do not meet the definition of a PWS and are sometimes referred to as "a private water system" which are not subject to the same federal regulations as PWS under the SDWA.

Public Water System (PWS): Provides water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average of at least 25 people for at least 60 days a year. EPA has defined three types of PWS:

1) Community Water System (CWS): A PWS which supplies at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.
2) Non-Transient Non-Community Water System (NTNCWS): A PWS that regularly supplies water to at least 25 of the same people at least six months per year. Some examples are schools, factories, office buildings, and hospitals which have their own water systems.
3) Transient Non-Community Water System (TNCWS): A PWS that provides water for human consumption to at least 25 people per day, but not to the same individuals, for at least 60 days per year. Some examples include a gas station, rest stop, or campground where people do not remain for long periods of time.

Safe Drinking Water Act (SDWA): The primary federal law in the U.S. ensuring safe public drinking water by authorizing the EPA to set national, health-based standards for tap water quality. It protects water sources, regulates contaminants, and requires public water systems to meet safety standards.

Systemic: Affecting either a large portion of or the entire drinking water system as opposed to a particular part.

Water Management Plan Team: A Water Management Plan (WMP) team is a multidisciplinary group responsible for developing, implementing, and overseeing a facility's water safety program to minimize risks from hazards like *Legionella*. Composed of Building Managers, maintenance staff, and subject matter experts (SME). This team defines goals, monitors and validates water systems.

Water Management Program: The site-specific risk management plan for the minimization of *Legionella* amplification and prevention and control of legionellosis associated with building water systems. The plan is developed under the direction of a water management professional to identify the types of water systems at a specific location and to assess *Legionella* risk in the identified

systems. Recommendations for risk mitigation will be made within the plan, as well as methods for monitoring and to minimize risk to prevent *Legionella* amplification under normal and atypical operations. Assessment of building water systems using valid and reliable methods for each water system will be in the plan. The program includes documentation of plan implementation and operation.

Drinking Water (Potable Water)

Drinking Water Regulatory Guidance

The Safe Drinking Water Act, 42 U.S.C. § 300f, *et seq*., (SDWA) is a crucial federal law enacted by the EPA in 1974 to safeguard the nation's public DW supply. The SDWA establishes and enforces standards for the quality of DW provided by PWS to protect public health. It distinguishes between two types of standards: primary standards and secondary standards. National Primary Drinking Water Regulations (NPDWR) set legally enforceable Maximum Contaminant Levels (MCLs) for specific contaminants known to pose significant health risks, such as microorganisms, disinfectants, disinfection byproducts, inorganic chemicals, organic chemicals, and radionuclides. Compliance with these MCLs is mandatory for PWS. On the other hand, National Secondary Drinking Water Regulations (NSDWRs) are non-enforceable guidelines that address aesthetic properties of DW (like taste, odor, and color) which do not pose direct health risks but can affect the water's acceptability.

Below is a high-level summary of the DW regulations for each of the different types of water systems listed above:

1) PWS:
    a) A CWS is subject to more comprehensive regulations under the SDWA. Some key components include:

        i) MCLs: The EPA sets MCLs for various contaminants to establish the maximum allowable concentrations in DW. These include various microorganisms, disinfectants, disinfection byproducts, inorganic chemicals, organic chemicals, and radionuclides.
        ii) Treatment Techniques: For certain contaminants where setting an MCL is not feasible, the EPA imposes treatment techniques to reduce the levels of those substances in DW.
        iii) Monitoring and Reporting: CWS must regularly monitor and report the quality of their water to ensure compliance with the EPA's standards.

    b) A NTNCWS is subject to similar regulations as CWS, with some specific considerations for non-residential facilities.

    c) A TNCWS also adheres to the SDWA regulations, but it has monitoring and reporting requirements tailored to its transient nature.

2) Non-PWS Water Systems: Water systems that are smaller than the requirements to meet the definition of a PWS and are sometimes referred to as "private water systems" which are not subject to the same federal regulations as PWS under the SDWA. The EPA and the Centers

for Disease Control and Prevention (CDC) recommend voluntary guidelines for these non-PWS water systems to help ensure the safety of their DW. Additionally, states and local authorities may have specific regulations or requirements for these water systems. While there may not be applicable regulatory requirements for these types of water systems, PBS does have requirements for these systems as discussed below to ensure water quality.

In cases where the state has the primary authority to enforce regulations for PWS, its definition of a PWS may differ from the EPA's definition. However, it is essential to note that a state's definition must be at least as strict as the EPA's definition. For example, the state might require a smaller number of service connections to classify as a PWS, but it cannot define a PWS as anything larger than 15 service connections or an average of 25 people served by the system. Alternatively, in some states, if a system is not considered a PWS according to the EPA but provides a DW fountain or has a bathroom open to the public, it would be considered a PWS according to the state's definition. Additionally, while the EPA sets federal DW regulations, individual states or local authorities can also establish their own DW requirements which may be more stringent than the federal standards. Water systems are obligated to comply with regulations at the federal, state, and local levels.

As a final note, once a Federal facility receives acceptable water from the water system, it becomes the responsibility of the facility's controlling authority (whether it is PBS, a lessor, or an agency with delegated authority) to provide potable water at point-of-use outlets. OSHA 29 CFR 1910.141(b)(1)(i) mandates that potable water must be provided in all places of employment for various purposes, including: drinking, washing of individuals, cooking, washing of foods, cleaning cooking or eating utensils, washing food preparation or processing areas, and personal service rooms. OSHA defines potable water as water that meets the drinking standards set by the state or local authority with jurisdiction or water that complies with the quality standards prescribed by the EPA's NPDWR.

Any additions or modifications done to further treat water at a facility that is classified as a PWS or a facility on a municipal water supply must have State, local, or other regulatory approval before the water is augmented in any way. This includes chlorine injection systems, UV disinfection, systemwide filtration, etc.

The potable water system of a facility typically includes the point of entry service line(s), mechanical equipment (e.g., backflow preventers; in-line filtration including strainers; pressure/expansion tanks; water treatment devices including softeners; boilers, hot water tanks, and other in-line water heating devices; hot water recirculation pumps and balancing valves; and other specialty equipment, if applicable), primary cold and hot water pipes, and point-of-use outlets.

Drinking Water Assessments

The assessment and management of DW issues depends on the specific nature of the complaint or incident. Commonly considered parameters for DW assessments include those from the NPDWR, such as lead, copper, and total coliform bacteria (including E. coli), which can be attributed to building systems.

However, it's important to note that the selection of parameters (whether from the NPDWR or others) may vary based on the circumstances, and each DW issue requires a tailored approach. The parameters to be assessed must be determined on a case-by-case basis depending on the incident's nature.

Qualified professionals with a comprehensive understanding of the incident and the potential factors at play must be responsible for planning and conducting DW assessments. By adopting a flexible approach and considering a range of parameters, these professionals can effectively diagnose DW problems and implement appropriate corrective actions to address occupants' specific concerns. Some cases may involve evaluating all the aforementioned parameters, while others may focus on specific contaminants as needed.

Guidance for Specific Drinking Water Contaminants

Lead and Copper

Lead is now strictly prohibited for use in plumbing systems as per the updated requirements set by the EPA. On September 1, 2020, the EPA published the final rule titled "Use of Lead-Free Pipes, Fittings, Fixtures, Solder, and Flux for Drinking Water." (40 C.F.R. § 143.10-20) This regulation aligns with the Reduction of Lead in Drinking Water Act (RLDWA) (Pub. L. 111-380, Jan. 4, 2011) and the Community Fire Safety Act (Pub. L. 113-64, Dec. 20, 2013), which amended provisions of the Safe Drinking Water Act, leading to necessary changes in existing regulations. The final rule mandated that manufacturers or importers certify their products' compliance with the lead-free requirements through a consistent verification process within three years of the final rule's publication in the Federal Register. This action aimed to reduce lead exposure in DW and establish a common understanding of what constitutes "lead free" plumbing among states, manufacturers, inspectors, and consumers.

The SDWA strictly prohibits, after June of 1986, the use of any pipe, pipe or plumbing fitting or fixture, solder, or flux that contains lead in the installation or repair of (i) any public water system; or (ii) any plumbing in a residential or non-residential facility that provides water for human consumption, unless the materials are lead free. The Act also prohibits introducing lead-containing pipes, fittings, fixtures, solder, or flux into commerce, except for specific manufacturing or industrial purposes. Certain exemptions from the lead-free requirements exist under the SDWA, specifically for plumbing devices used exclusively for non-potable services. Moreover, a list of specific products, such as: toilets, bidets, urinals, fill valves, flushometer valves, fire hydrants, tub fillers, shower valves, service saddles, and water distribution main gate valves that are 2 inches in diameter or larger, are exempt from these regulations.

With regard to action levels for lead and copper exceedances, PBS will continue to adhere to the current EPA action levels for lead and copper.

Premise Plumbing Potable Water Action Levels for Response Actions	
EPA Action Level for Lead	≥ 10 ppb (0.010 mg/L)
EPA Action Level for Copper	≥ 1300 ppb (1.3 mg/L)

When lead and copper exceedances are discovered, the Building Manager should take action at the outlets specifically impacted. With input from the PBS Industrial Hygiene SME, determine if action is required at other similar fixtures, or if system-wide corrective action is required. In each instance, implement the most cost effective and least invasive corrective action(s) necessary to address the issue.

Interim Control Measures

When responding to a potential lead or copper exceedance as a result of an occupant complaint, the Building Manager should:

1. Start an investigation of complaint area
2. Remove the applicable outlet(s) from service and post "Out of Service" signage.
3. Test outlet(s) in the complaint area
4. Receive results
    a. If no exceedance, remove sign(s) and put outlet(s) back in service.
    b. If testing has resulted in an exceedance, notify affected occupants, begin appropriate corrective actions as listed below.

When responding to a lead or copper exceedance only as a result of water testing that PBS has performed, the Building Manager and PBS Industrial Hygienist should implement the following interim controls immediately:

1. Remove the applicable outlet(s) from service and post "Out of Service" signage.
2. Notify affected occupants in accordance with the PBS Risk Management Notification Policy.
3. Contact municipal water supply customer service to determine if there are any water distribution system issues ongoing, for example, construction activity within the water distribution system.
4. Involve the PBS National Industrial Hygiene Program Manager and other pertinent subject matter experts and stakeholders as necessary to discuss applicable corrective actions as listed below.

In addition to the interim control measure scenarios listed above, if it is determined that the lead or copper issue is systemic, the Building Manager should take the following actions after discussion with stakeholders (SMEs, Building Managers, PBS Management, etc.):

1. Notify the larger affected occupant population in accordance with the PBS Risk Management Notification Policy.
2. Remove the additional outlets from service and post additional signage as appropriate.
3. Consider providing alternative sources of drinking water and/or certified pitcher filters for drinking and cooking if adequate potable water is not readily available and accessible, and point-of-use filters cannot be quickly installed (GSA Non-Potable Water Event Temporary Bottled Water Policy.pdf).
4. Involve the PBS National Industrial Hygiene Program Manager and other pertinent subject matter experts and stakeholders as necessary to discuss applicable corrective actions as listed below.

Corrective Actions

In addition to completing the interim control measures as listed above, any number of the following corrective actions should be implemented by the Building Manager (in partnership with the PBS Industrial Hygienist as necessary) until the issue is resolved.

1. Implement corrective actions as described in EPA 3Ts Guidance for Reducing Lead in Drinking Water.pdf. Specifically, refer to "Module 6: Remediation and Establishing Routine Practices" beginning on page 42 which includes:
    a. Flushing impacted outlets. If multiple fixtures of the same type show elevated heavy metal concentrations and not all of the outlets were tested, flush or take additional corrective actions at all similar fixtures.
2. Resample impacted outlets. Collect "first draw" samples after an 8-hour minimum stagnation period and before the use of any drinking water outlet by the occupants but the stagnation period should be no longer than 18 hours. A second "flush" sample can be collected after a 30-second flushing of the outlet after the first draw to determine if lead is coming from the fixture itself or from interior plumbing.
3. Permanently remove any individual or single point-of-use outlets from service if resampling repeatedly indicates contaminant levels that exceed the EPA action level.
4. If the issue is system-wide, continue conversations with municipal water supply customer service. Consult with the PBS National Industrial Hygiene Program Manager and industry experts as necessary on additional corrective actions such as piping/ fixture replacement or source water corrosivity testing, the installation of point-of-use filters designed for lead/copper removal at affected locations, or in severe cases, the implementation of an ASHRAE 514 water management plan or similar.

Total Coliform and *E. coli*

Total coliforms (TC) are a group of related bacteria that are (with few exceptions) not harmful to humans. A variety of bacteria, parasites, and viruses, known as pathogens, can potentially cause health problems if ingested by humans. EPA considers total coliforms a useful indicator of other

pathogens for drinking water. Total coliforms are used to determine the adequacy of water treatment and the integrity of the distribution system.

A total coliform positivity should first be assessed from the viewpoint that the positivity is accurate, but should also consider that it may be related to improper sampling technique or sample site sanitation or contamination (e.g. sewage). Therefore, it is prudent to also analyze collected samples for E. *coli* (EC).

Specific guidance for wells or other systems that are considered PWS can be found in the EPA Revised Total Coliform Rule And Total Coliform Rule. The revised rule includes provisions for repeat samples for positive TC or EC, notifications to the State for positive results, assessments and corrective actions that may be required, and MCL violations.

With regard to action levels that PBS follows for total coliform bacteria and E. *coli*, PBS will continue to adhere to the current EPA action levels for total coliform bacteria and E. *coli*.

Premise Plumbing Potable Water Action Levels for Response Actions	
Total Coliforms action level	Any present
E. coli action level	Any present

GSA facilities that are served by a public water system (PWS)

When Coliform and *E.coli* issues are discovered at GSA facilities that are served by a public water system (PWS), such as a municipal supply, the Building Manager should take action at the outlets specifically impacted. With input from the PBS Industrial Hygiene SME, determine if action is required at other similar fixtures, or if system-wide corrective action is required. In each instance, implement the most cost effective and least invasive corrective action(s) necessary to address the issue

Interim Control Measures

When responding to a potential Coliform or *E.coli* exceedance as a result of an occupant complaint, the Building Manager should:

1. Start an investigation of complaint area
2. Remove the applicable outlet(s) from service and post “Out of Service” signage only.
3. Test outlet(s) in the complaint area.
4. Receive results
    a. If no exceedance, remove sign(s) and put outlet(s) back in service.
    b. If testing has resulted in an exceedance, notify affected occupants, begin appropriate corrective actions as listed below.

When responding to a Coliform or *E.coli* exceedance only as a result of water testing that PBS has performed, the Building Manager and PBS Industrial Hygienist should implement the following interim controls immediately:

1. Remove the applicable outlet(s) from service and post "Out of Service" signage.
2. Notify affected occupants in accordance with the PBS Risk Management Notification Policy.
3. Contact municipal water supply customer service to determine if there are any water distribution system issues ongoing, for example, construction activity within the water distribution system.
4. Involve the PBS National Industrial Hygiene Program Manager and other pertinent subject matter experts and stakeholders as necessary to discuss applicable corrective actions as listed below.

In addition to the interim control measure scenarios listed above, if it is determined that the Coliform or *E.coli* issue is systemic, the Building Manager should take the following actions after discussion with stakeholders (SMEs, Building Managers, PBS Management, etc.):

1. Notify the larger affected occupant population in accordance with the PBS Risk Management Notification Policy.
2. Remove additional outlets from service and post additional signage as appropriate.
3. Consider providing alternative sources of drinking water and/or certified pitcher filters for drinking and cooking if adequate potable water is not available and point-of-use filters cannot be quickly installed (GSA Non-Potable Water Event Temporary Bottled Water Policy.pdf).
4. Involve the PBS National Industrial Hygiene Program Manager and other pertinent subject matter experts and stakeholders as necessary to discuss applicable corrective actions as listed below.

Corrective Actions

In addition to completing the interim control measures as listed above, any number of the following corrective actions should be implemented by the Building Manager (in partnership with the PBS Industrial Hygienist as necessary) until the issue is resolved.

1. Remove the aerators (if present) and thoroughly clean the aerator and fixture with a disinfectant.
2. Flush outlet(s) for 5 to 6 minutes.
3. Immediately resample impacted outlet(s) following the EPA Quick Guide to Drinking Water Sample Collection and avoid touching any part of the cap or rim of the bottle.
4. Permanently remove any individual or single point-of-use outlets from service if resampling repeatedly indicates contaminant levels that exceed the EPA action level.

5. If the issue appears zonal or system-wide, continue conversations with municipal water supply customer service. Consult with the PBS National Industrial Hygiene Program Manager and industry experts as necessary on additional corrective actions such as:
    a. Expanding the re-sampling effort to determine if there is positivity at multiple distal sample points within the same zone. In this instance, the PBS National Industrial Hygiene SME should consider upstream sampling of the positive sample point and/or adjacent zones within the building water system to determine whether there is a source where coliform is entering into the system such as a cross connection, a broken line, or an issue with the system prior to the service connection for the building.
    b. Contact customer service for the water system, inform them of the results, and request that they investigate the issue concurrently if the PBS National Industrial Hygiene SME believes that coliform is entering the water system from the municipal water supply. This may involve the municipal water supply collecting samples where the water service line enters the building, evaluating the condition of the municipal water distribution system (e.g., do gate valves open, construction issues, etc.), and flushing nearby fire hydrants to introduce fresh water into the water distribution system.

GSA facilities that are operators of the water system (Private Water System or Non-Public Water System)

When Coliform and *E.coli* issues are discovered at GSA facilities that are operators of the water system, the Building Manager should take action at the outlets specifically impacted. With input from the PBS Industrial Hygiene SME, determine if action is required at other similar fixtures, or if system-wide corrective action is required. In each instance, implement the most cost effective and least invasive corrective action(s) necessary to address the issue.

In accordance with the EPA Revised Total Coliform rule, the size of the system will determine what actions are taken for Total Coliform positive results. The size of the system will also dictate the timing of the three (3) required repeat samples. Per the rule, Level 1 assessments are triggered by 2 or more Total Coliform positive routine/repeat samples in the same month and failure to take repeat samples after a single Total Coliform positive result. Level 2 assessments are triggered by E. coli positive results or having a second level 1 assessment trigger within 12 months.

The Level 1 assessments can be conducted by GSA if the water supply is GSA owned and not required to have a licensed operator. For Level 2 assessments the State regulators would be involved in the assessment or a licensed operator per the EPAs Revised Total Coliform Rule.

Specific guidance for wells or other systems that are considered PWS can be found in the EPA

Revised Total Coliform Rule And Total Coliform Rule.

Interim Control Measures

When responding to a potential Coliform or *E.coli* exceedance as a result of an occupant complaint, the Building Manager should:

1. Start an investigation of complaint area
2. Remove the applicable outlet(s) from service and post "Out of Service" signage.
3. Test outlet(s) in the complaint area
4. Receive results
    a. If no exceedance, remove sign(s) and put outlet(s) back in service.
    b. If testing has resulted in an exceedance, notify affected occupants, begin appropriate corrective actions as listed below.

When responding to a Coliform or *E.coli* exceedance only as a result of water testing that PBS has performed, the Building Manager and PBS Industrial Hygienist should implement the following interim controls immediately:

1. Remove the applicable outlet(s) from service and post "Out of Service" signage only. Notify affected occupants in accordance with the PBS Risk Management Notification Policy.
2. Involve the PBS National Industrial Hygiene Program Manager and other pertinent subject matter experts and stakeholders as necessary to discuss applicable corrective actions as listed below.

In addition to the interim control measure scenarios listed above, if it is determined that the Coliform or *E.coli* issue is systemic, the Building Manager should take the following actions after discussion with stakeholders (SMEs, Building Managers, PBS Management, etc.):

1. Notify the larger affected occupant population in accordance with the PBS Risk Management Notification Policy.
2. Remove additional outlets from service and post additional signage as appropriate.
3. Consider providing alternative sources of drinking water and/or certified pitcher filters for drinking and cooking if adequate potable water is not available and point-of-use filters cannot be quickly installed (GSA Non-Potable Water Event Temporary Bottled Water Policy.pdf).
4. Involve the PBS National Industrial Hygiene Program Manager and other pertinent subject matter experts and stakeholders as necessary to discuss applicable corrective actions as listed below.

Corrective Action

In addition to completing the interim control measures as listed above, any number of the following corrective actions should be implemented by the Building Manager (in partnership with the PBS Industrial Hygienist as necessary) until the issue is resolved. Follow specific guidance from the Revised Total Coliform Rule and any specific state requirements. Specific guidance for wells or other systems that are considered Public Water Systems can be found in the EPA Revised Total Coliform. State requirements take precedence over all items outlined in this document. The following steps are best practices if state requirements are not available:

1. Remove the aerators (if present) and thoroughly clean the aerator and fixture with a disinfectant.
2. Flush outlet(s) for 5 to 6 minutes.
3. Immediately resample impacted outlet(s) following the EPA Quick Guide to Drinking Water Sample Collection and avoid touching any part of the cap or rim of the bottle.
4. Continue to flush and resample until all federal, state, and local requirements applicable to the water system are met. In the absence of regulatory requirements, resample until results are negative for Total Coliform/E. coli.
5. Consider permanently removing any individual or single point-of-use outlets from service if resampling repeatedly indicates contaminant levels that exceed the EPA action level.
6. If the issue appears zonal or system-wide, consult with the PBS National Industrial Hygiene Program Manager and industry experts as necessary on additional corrective actions such as :

    a. Expanding the re-sampling effort to determine if there is positivity at multiple distal sample points within the same zone. In this instance, the PBS National Industrial Hygiene SME should consider upstream sampling of the positive sample point and/or adjacent zones within the building water system to determine whether there is a source where coliform is entering into the system such as a cross connection or a broken line.

Legionella

Legionella, a bacterium responsible for causing Legionnaires' disease and Pontiac fever, can pose a risk in potable water systems used for DW. However, as *Legionella* is naturally occurring, finding it in water systems, even those that are well-managed, is not unusual. Research indicates that *Legionella* is typically found in a large number of facilities world-wide. According to the Centers for Disease Control and Prevention (CDC), most healthy people exposed to *Legionella* do not get sick. As such, test results are not a direct measure of the risk of human illness, but rather serve as a performance indicator to refine and improve our water management practices.

PBS follows CDC guidelines, American Industrial Hygiene Association and current industry guidance when determining action levels for controlling Legionella in commercial buildings. As the CDC has only guidance and no regulatory standards for *Legionella*, PBS will take responsive actions when *Legionella* is discovered by any means in premise plumbing at the following levels.

Premise Plumbing Potable Water Levels for Response Actions		
Action Level	***Legionella* Growth**	**Response Action**
<1.0 CFU/mL (0.0 CFU/mL-0.9 CFU/mL) - Non-systemic	Well Controlled	Does not require response action
1.0 CFU/mL to 9.9 CFU/mL - Non-systemic	Poorly Controlled	Monitor as listed in the corrective actions below
10 CFU/mL and greater - Non-systemic	Uncontrolled	Investigate and Mitigate Risk as listed in the corrective actions below
≥ 30% Uncontrolled Distal Site Positivity of total outlets tested, with concentrations of 10 CFU/mL and above - Systemic**	Uncontrolled and Systemic	Investigate and Mitigate Risk as listed in the corrective actions below

**Premise and Point of Use ≥30% Uncontrolled Distal Site Positivity

Total percent distal site positivity is an indicative guide for possible systemic colonization of *Legionella* growth within a section of a building's premise plumbing or the whole system. If more than 30% of tested fixtures report *Legionella* at concentrations of 10 CFU/mL and above (distal site positivity >30%), the risk of legionellosis increases, particularly if the detected *Legionella* type is *L. pneumophila serogroup 1*. It is very important to note that this metric was derived 1) for use within healthcare facilities and 2) for *L. pneumophila*, and as such, this 30% threshold can be considered very conservative for government buildings. It is used here to determine whether systemic or local response controls and corrective actions should be used in particular instances. Appropriate response actions shall be determined by the PBS National Industrial Hygiene SME, or other pertinent subject matter experts (e.g., Private Water Specialists, etc.).

When legionella exceedances are discovered, the Building Manager should take action at the outlets specifically impacted. With input from the PBS Industrial Hygiene SME, determine if action is required at other similar fixtures, or if system-wide corrective action is required. In each instance, implement the most cost effective and least invasive corrective action(s) necessary to address the issue.

To determine systemic issues in point-of-use plumbing, the point-of-use distal site positivity rate should be determined counting all outlets with results that exceed 10 CFU/mL along with the following formula):

Point-of-Use Distal Site Positivity Rate Calculations
$\frac{\#\ Positive\ Point-of-Use\ Samples\ at\ concentrations\ of\ 10\ \ CFU/mL\ and\ above}{\#\ Total\ Point-of-Use\ Samples\ Taken}\ x\ 100$

Point-of-Use Premise Plumbing

When *Legionella* exceedances are discovered in point of use premise plumbing, the Building Manager should take action at the outlets specifically impacted. With input from the PBS Industrial Hygiene SME, determine if action is required at other similar fixtures, or if system-wide corrective action is required. In each instance, implement the most cost effective and least invasive corrective action(s) necessary to address the issue. Documentation must be uploaded to the National Computerized Maintenance Management System (NCMMS) for all temperature and disinfectant logging.

Interim Control Measures

When responding to a potential *Legionella* exceedance as a result of an occupant complaint, the Building Manager should:

1. Start an investigation of the complaint area.
2. Test outlet(s) in the complaint area.
3. Receive results
    a. If results are well controlled, continue normal operations.
    b. If results are poorly controlled, begin appropriate corrective actions as listed below.
    c. If results are uncontrolled, notify affected occupants, begin appropriate corrective actions as listed below.

When responding to a *Legionella* exceedance only as a result of water testing that PBS has performed, the Building Manager and PBS Industrial Hygienist should implement the following interim controls immediately:

1. If uncontrolled, notify affected occupants in accordance with the PBS Risk Management Notification Policy.
2. For impacted showers and, if applicable, outlets in the same localized area as the uncontrolled *Legionella* outlet(s) that could exhibit similar characteristics (e.g., all showers in a locker room or immediate plumbing branch where *Legionella* levels in a shower are above 10 CFU/mL) complete one of the following response actions:

    a. Install sub-micron point-of-use filters rated for the removal of Legionella (0.2 micron/ASTM F838-20/ ASSE LEC 2011-2022) as a temporary exposure risk reduction measure for high risk individuals while additional corrective action is being implemented, or
    b. Take showers out of service and post "Out of Service" signage.
3. Contact municipal water supply customer service to determine if there are any water distribution system issues ongoing, for example, construction activity within the water distribution system.
4. Involve the PBS National Industrial Hygiene Program Manager and other pertinent subject matter experts and stakeholders as necessary to discuss applicable corrective actions as listed below.

In addition to the interim control measure scenarios listed above, if it is determined that the *Legionella* issue is systemic, the Building Manager should take the following actions after discussion with stakeholders (IH SMEs, Building Managers, PBS Management, etc.):

1. Notify the larger affected occupant population in accordance with the PBS Risk Management Notification Policy.
2. Post signage as appropriate.
3. Consider providing alternative sources of drinking water and/or certified pitcher filters for drinking and cooking if adequate potable water is not readily available and point-of-use filters cannot be quickly installed.GSA Non-Potable Water Event Temporary Bottled Water Policy.pdf.
4. Involve the PBS National Industrial Hygiene Program Manager and other pertinent subject matter experts and stakeholders as necessary to discuss applicable corrective actions as listed below.

Corrective Action

If the building has an ASHRAE 188 WMP, the WMP team should review the plan and initiate response actions detailed in the plan as applicable. If no WMP is available, the Building Manager should consult with the PBS Industrial Hygienist and use the following guidance for response.

Poorly Controlled (1.0 CFU/mL to 9.9 CFU/mL) the Building Manager shall monitor the system as follows:

1. Measure disinfectant levels (and pH if necessary) to determine if adequate to control *Legionella* growth. Specific water system disinfectants (e.g., chlorine or chloramine) can be determined through the municipal water supply customer service or review of the water treatment authority CCR.
2. Measure water temperatures to determine if they are within a range that is permissive for *Legionella* growth and adjust accordingly. It is recommended that hot water delivery temperatures are set to the maximum temperature allowed by regulations and codes, or between 120°F (49°C) to 124°F (51°C).

3. Reassess maintenance, usage patterns, and flushing programs. When in the opinion of the PBS Industrial Hygienist any existing procedures need improvement, the Building Manager shall implement actions (such as periodic flushing) to improve disinfectant levels and/or alter temperatures to inhibit *Legionella* growth.

Uncontrolled (10 CFU/mL and greater) the Building Manager shall:

1. Measure disinfectant levels (and pH if necessary) to determine if adequate to control *Legionella* growth. Specific water system disinfectants (e.g., chlorine or chloramine) can be determined through the municipal water supply customer service or review of the water treatment authority CCR.
2. Measure water temperatures to determine if they are within a range that is permissive for *Legionella* growth and adjust accordingly. It is recommended that hot water delivery temperatures are set to the maximum temperature allowed by regulations and codes, or between 120°F (49°C) to 124°F (51°C).
3. Reassess maintenance, usage patterns, and flushing programs; if existing procedures need improvement or if none existed, implement actions (such as periodic flushing) to improve disinfectant levels and/or alter temperatures to inhibit *Legionella* growth.
4. Review sample collection, handling, and testing for potential errors.
5. Examine equipment to confirm that the system is in good working order and functioning as intended.
6. Review maintenance records to assess whether a recent repair or operational change could have created favorable conditions for *Legionella* to proliferate.
7. Review assumptions about operating conditions, such as physical and chemical characteristics of incoming water.
8. Assess area(s) of positivity to determine if there is something that has been previously overlooked such as a fixture in a downstream/upstream isolated location, a nearby stagnant point, or a dead leg.
9. Remove aerators (if present) and thoroughly clean or replace the aerator. Additionally, if applicable,
    a. Do the same for outlets in the same localized area as the uncontrolled Legionella outlet(s) that could exhibit similar characteristics (e.g., all breakroom sinks on a floor or the immediate plumbing branch where *Legionella* levels in a shower were above PBS thresholds).
10. Replace filters and, if applicable,
    a. Do the same for outlets in the same localized area as the uncontrolled Legionella outlet(s) that could exhibit similar characteristics (e.g., all breakroom sinks on a floor or the immediate plumbing branch where *Legionella* levels in a shower were above PBS thresholds).
11. Flush point-of-use outlets for a minimum of 10 minutes, three times a week for one week and, if applicable, outlets in the same localized area as the uncontrolled Legionella outlet(s) that could exhibit similar characteristics (e.g., all breakroom sinks on a floor or the immediate plumbing branch where *Legionella* levels in a shower were above PBS thresholds).

12. Maintain records of flushing activity in the NCMMS so that the process can be reviewed and compared to water sample data.
13. After a minimum of a week of flushing, retest outlets for culturable *Legionella* at least 48 hours, but no more than 7 days, after flushing and mitigation efforts are completed.
14. Continue flushing and retesting protocols until *Legionella* is detected <10.0 CFU/mL.
    a. If initial retesting results for *Legionella* continue to be detected ≥10.0 CFU/mL, fixtures should be cleaned and disinfected.
    b. If the next round of retesting results continue to show concentrations of *Legionella* ≥10.0 CFU/mL , the Building Manager and PBS Industrial Hygienist should seek guidance from a private industry expert regarding additional response activities.

≥30% Uncontrolled Distal Site Positivity (systemic issue) If the building has an ASHRAE 188 WMP, the WMP team should review the plan and initiate response actions as applicable. If no WMP is available, the Building Manager should consult with the PBS Industrial Hygienist and use the following guidance for response.

If ≥30% distal site positivity, additional "systemic response" activities are required as detailed below: the Building Manager shall:

1. Flush all fixtures that report Legionella at concentrations of 10 CFU/mL and above and those that have the potential to exhibit similar characteristics. For example, apply this response to the same hot water loop, an entire plumbing zone of a building, or the entire building.
2. Replace aerators for all positive outlets and those that have the potential to exhibit similar characteristics. For example, apply this response to the same hot water loop, an entire plumbing zone of a building, or the entire building.
3. Replace filters for all positive outlets and those that have the potential to exhibit similar characteristics. For example, apply this response to the same hot water loop, an entire plumbing zone of a building, or the entire building.
4. Retest outlets for culturable *Legionella* at least 48 hours but no more than 7 days after flushing and mitigation efforts are completed.
    a. Retesting efforts determine whether response activities were successful at the *Legionella* positive distal points.
5. Continue flushing protocols and retesting until *Legionella* is detected <10.0 CFU/mL.
    a. If initial retesting results for *Legionella* continue to be detected ≥10.0 CFU/mL fixtures should be cleaned and disinfected.
    b. If the next round of retesting results continue to show concentrations of *Legionella* ≥10.0 CFU/mL, seek guidance from the PBS National Industrial Hygiene Program Manager and Private Sector Industry Experts regarding additional response activities such as hyperchlorination, instituting an ASHRAE 188 plan and other actions.

Premise Plumbing Common Source/Non-Point of Use Outlets

When legionella exceedances are discovered in premise plumbing common source/non-point of use outlets, the Building Manager should take action at equipment and downstream locations as necessary. With input from the PBS Industrial Hygiene Subject Matter Expert (SME), determine if action is required at other similar fixtures, or if system-wide corrective action is required. In each instance, implement the most cost effective and least invasive corrective action(s) necessary to address the issue. Documentation must be uploaded to the NCMMS for all temperature and disinfectant logging.

Interim Control Measures

When responding to a potential *Legionella* exceedance as a result of an occupant complaint, the Building Manager should:

1. Start an investigation of complaint area
2. Test outlet(s) in the complaint area
3. Receive results
    a. If results are well controlled, continue normal operations.
    b. If results are poorly controlled, begin appropriate corrective actions as listed below.
    c. If results are uncontrolled, notify affected occupants, begin appropriate corrective actions as listed below.

When responding to a *Legionella* exceedance only as a result of water testing that PBS has performed, the Building Manager and PBS Industrial Hygienist should implement the following interim controls immediately:

1. If uncontrolled, notify affected occupants in accordance with the PBS Risk Management Notification Policy.
2. Contact municipal water supply customer service to determine if there are any water distribution system issues ongoing, for example, construction activity within the water distribution system.
3. Involve the PBS National Industrial Hygiene Program Manager and other pertinent subject matter experts and stakeholders as necessary to discuss applicable corrective actions as listed below.

In addition to the interim control measure scenarios listed above, if it is determined that the *Legionella* issue is systemic, the Building Manager should take the following actions after discussion with stakeholders (SMEs, Building Managers, PBS Management, etc.):

1. Notify the larger affected occupant population in accordance with the PBS Risk Management Notification Policy.

2. Post signage as appropriate.
3. Consider providing alternative sources of drinking water and/or certified pitcher filters for drinking and cooking if adequate potable water is not readily available and accessible and point-of-use filters cannot be quickly installed (GSA Non-Potable Water Event Temporary Bottled Water Policy.pdf).
4. Contact municipal water supply customer service to determine if there are any water distribution system issues ongoing, for example, construction activity within the water distribution system.
5. Involve the PBS National Industrial Hygiene Program Manager and other pertinent subject matter experts and stakeholders as necessary to discuss applicable corrective actions as listed below.

Corrective Action

If the building has an ASHRAE 188 WMP, the WMP team should review the plan and initiate response actions as applicable. If no WMP is available, the Building Manager should consult with the PBS Industrial Hygienist and use the following guidance for response.

Hot Water Heaters, Storage Tanks and Expansion Tanks

Poorly Controlled (1.0 CFU/mL to 9.9 CFU/mL) the Building Manager shall:

1. Ensure hot water tanks are operating as intended and circulation pumps are functioning properly.
2. Measure disinfectant levels (and pH if necessary) to determine if adequate to control *Legionella* growth. Specific water system disinfectants (e.g., chlorine or chloramine) can be determined through the municipal water supply customer service or review of the water treatment authority CCR).
3. Measure water temperatures to determine if they are within a range that is permissive for *Legionella* growth and adjust accordingly. It is recommended that hot water tanks are set at 140°F and that delivery temperatures are set to the maximum temperature allowed by regulations and codes, or between 120°F (49°C) to 124°F (51°C).

Uncontrolled (10 CFU/mL and greater) the Building Manager shall:

1. Ensure hot water tanks are operating as intended and circulation pumps are functioning properly.
2. Measure disinfectant levels (and pH if necessary) to determine if adequate to control *Legionella* growth. Specific water system disinfectants (e.g., chlorine or chloramine) can be determined through the municipal water supply customer service or review of the water treatment authority CCR.
3. Measure water temperatures to determine if they are within a range that is permissive for *Legionella* growth and adjust accordingly. It is recommended that hot water tanks are set at 140°F and that delivery temperatures are set to the maximum temperature allowed by

regulations and codes, or between 120°F (49°C) to 124°F (51°C).

4. Flush the water heater tanks at the water heater drain valve until the volume of the tank has been replaced twice and the water runs clear. The time required can be calculated as follows:
    a. Theoretical Flush time required (minutes) = Volume of tank (gallons)/Flow rate of flushing (gallons/minute) x2.
    b. Due to non-ideal flow, and inaccuracies in volume estimation and flow rate measured, flush 2 or more times the volume of the system.
5. Perform this flushing a minimum of 5 times.
6. If no valve is available for flushing the storage tank, turn the heating element off and fill the tank with building-supplied cold water. Effectiveness depends on the concentration of disinfectant residual coming into the facility.
7. Retest the hot water tank at least 48 hours but no more than 7 days after flushing and mitigation efforts were completed

Hot Water Recirculation Lines

Poorly Controlled (1.0 CFU/mL to 9.9 CFU/mL) the Building Manager shall:

1. Ensure pumps are running continuously and operating properly.
2. Measure the hot water return temperatures.It is recommended that hot water return temperatures are set to the maximum temperature allowed by regulations and codes, or between 120°F (49°C) to 124°F (51°C).

Uncontrolled (10 CFU/mL and greater) the Building Manager shall:

1. Ensure pumps are running continuously and operating properly.
2. Measure the hot water return temperatures.It is recommended that hot water return temperatures are set to the maximum temperature allowed by regulations and codes, or between 120°F (49°C) to 124°F (51°C).
3. Flush for 30 minutes a day.
4. Perform this flushing every day for a minimum of 5 days.
5. Retest the hot water recirculation at least 48 hours but no more than 7 days after response activities were completed

Incoming Service Line

Poorly Controlled (1.0 CFU/mL to 9.9 CFU/mL) the Building Manager shall:

1. Open an outlet near where the service line enters the building with the highest available flow rate, adequate drain capacity, and controllability. Flush until the water runs clear.
2. Measure and document incoming water temperature, disinfectant levels, and pH at least every other day for a week.

Uncontrolled (10 CFU/mL and greater) the Building Manager shall:

1. Open an outlet near where the service line enters the building with the highest available flow rate, adequate drain capacity, and controllability. Flush until the water runs clear.
2. Measure and document incoming water temperature, disinfectant levels, and pH at least every other day for a week.
3. Contact customer service for the municipal water supply, provide exceedance information and request support in abatement.
4. Re-test the incoming water for culturable *Legionella* after 1 month.

Guidance for Proactively Maintaining DW

Water Systems

PWS Systems

Ownership of a water system has no bearing on whether it is a PWS. As mentioned above, a PWS is defined by the number of people served and the number of connections. The controlling authority for federally owned and leased facilities under the jurisdiction, custody, or control of the U.S. General Services Administration (GSA) (including facilities operating under a GSA delegation of authority) is responsible for ensuring compliance with applicable federal, state, and local DW regulations for the water systems they own or operate. Depending on the facility, this would be the responsibility of PBS, a lessor, or an agency with delegated authority to operate and maintain the facility. For systems that do not meet any of the definitions by EPA or the State of a PWS, GSA would perform the required sampling necessary to ensure water is safe for consumption by building occupants.

PWSs are regulated by federal, state, or local regulations as discussed above. These facilities are subject to a variety of requirements including but not limited to: system operator certification, routine testing, system preventative maintenance, recordkeeping, and periodic inspections by the authority having jurisdiction often called sanitary surveys. Check with the applicable authority to determine what is required for the specific system. Typical records to be maintained can include:

1) DW well construction logs and permits.
2) DW system operator training and certification records.
3) DW system permit and plans.
4) Sampling plan and results.

5) Preventive maintenance records.
6) System upkeep and repair records.
7) Records of required notifications, such as testing results, boil orders, and other required notices.
8) Copies of inspections and sanitary survey reports by the authority having jurisdiction, notices of violation, corrective action orders, etc.

Non-PWS Systems

Smaller water systems that do not meet the definition of a PWS are often not fully regulated by federal, state, or local DW regulations. However, those private DW wells are generally still required to meet specific well construction requirements and be installed by a certified or licensed DW well driller. If applicable, the well logs from these wells must be passed along to the state or local DW authority to be included in their well water databases. In the absence of federal, state, or local regulations, GSA requires the following sampling to be conducted to help ensure the water is potable for federally-owned facilities under the jurisdiction, custody, and control of the GSA:

1) Initial Testing: After the installation of the well system, the owner or operator of the system must ensure compliance with state and local testing requirements for new well installation. Additionally, the need for addressing other germs or harmful chemicals will depend on the well's location on the property, the state the property resides in, and whether it is located in an urban or rural area. To determine if any specific contaminants are a concern in each state, consult with the local health or environmental department or the EPA.
2) Routine Testing:
    a) Weekly: Disinfectant and disinfectant byproduct, if applicable.
    b) Monthly: Total coliform bacteria [including Escherichia coli (E. coli)]; one raw water sample from the wellhead and one water sample from the distribution system, rotated each month.
    c) Annually: Nitrates, total dissolved solids, and pH.
3) Routine Visual Inspections: Annual visual inspection of well cap to ensure it has a sanitary seal and not compromised, walkthrough of the system to check for leaks, any areas that are compromised, etc.

Additional testing may be required if:

1) There are known problems with well water in the area.
2) There are past problems near the well (i.e., flooding, land disturbances, or nearby waste disposal sites).
3) If the water source has potential for contamination, such as a river or groundwater with known contamination.
4) Replacement or repair of any part of the well system.
5) There is a change in water quality (i.e., taste, color, or odor).
6) When initial testing shows exceedances of water quality parameters.

Data management must be consistent with the state or local DW requirements. For systems that are not regulated by the state or locality, documentation must be uploaded to NCMMS for federally-owned facilities under the jurisdiction, custody, and control of the GSA.

If the testing results confirm the presence of a DW issue: The Building Manager should..

1) Notify the National Industrial Hygiene Program Office.
2) If applicable, notify affected occupants of DW concerns that could impact their health per PBS 2400.1 Risk Management Notification.
3) Initiate appropriate corrective action to address and respond to the source of the problem.

Consumer Confidence Reports (CCR)

CCR are an essential requirement mandated by the EPA that necessitates the annual dissemination of information regarding the quality and safety of DW supplied to building occupants. These reports play a crucial role in keeping consumers informed about the quality of their DW and ensuring transparency in water management practices. By providing comprehensive details on the sources of DW, any detected contaminants, and the measures taken to ensure water safety, CCRs empower individuals to make informed decisions about their water consumption. Furthermore, the reports highlight compliance with regulatory standards and outline any necessary actions taken to address water quality issues. By receiving CCRs annually, building occupants can gain confidence in their water supply, fostering trust and promoting a healthy and safe environment for all.

CCRs are published on an annual basis, usually by July 1st. Notifications regarding these releases are generally sent to the individual listed on the water bill or published on the Water System's website. An easy way to locate these is by conducting an internet search for "*City, State* Water Quality Reports CCR", which often yields precisely the information you need. CCRs must be reviewed annually by the building operations and maintenance (O&M) contractor and the responsible PBS National Industrial Hygiene Subject Matter Expert (SME). If any issues are noted, notification is to be provided to the COR and the Building Manager by the O&M Contractor who then documents the issue in the PBS NCMMS, so that it can be addressed and notification can be provided to affected occupants if necessary. In delegated locations, GSA or the delegated agency must provide notification to each affected occupant agency point of contact if necessary. EPA has additional information available on CCR.

Baseline Water Testing FY24-FY25

It is of significant importance that all active and occupied federally owned facilities under the jurisdiction, custody, and control of the GSA with drinking water systems that are over 1,000 SF (which also encompass facilities operating under a GSA delegation of authority) adhere to stringent drinking water testing requirements. Baseline DW quality testing was required in FY24 and FY25. Specifically, at least 10% of cold water outlets primarily designed for human consumption, such as drinking fountains, bottle fillers, and kitchenette faucets, were tested for lead, copper, and total coliform bacteria (including E. coli). At a minimum, 5 outlets were sampled. Test results that exceeded the applicable federal, state, or local contaminant thresholds resulted in response actions to reduce concentration levels.

Additionally, there was a need to sample a representative number of hot and cold water outlets for the presence of *Legionella*. *Legionella* sampling locations should encompass all of the following where applicable:

1) Incoming Municipal Water - 1 sample per service line.
2) Storage Tank(s) - 1 sample per tank.

3) Expansion tank(s) - 1 sample per tank.
4) Hot water circulation circuit(s) - 1 sample per plumbing riser.
5) Building common and private tenant showers - at least 1 sample for every 3 fixtures.
6) If applicable, all point-of-use outlets that were primarily designed for human consumption in a Child Care Center for both hot (where applicable) and cold water.
7) If applicable, all point-of-use outlets that were primarily designed for human consumption or treatment of patients in a Health Unit for both hot (where applicable) and cold water.
8) 10% of all of the remaining point-of-use outlets primarily designed for human consumption, such as drinking fountains, bottle fillers, and kitchenettes focusing on distal locations for both hot (where applicable) and cold water. In smaller facilities, this must include at least five outlets.

The following outlets were not sampled as part of the baseline drinking water testing unless necessary as part of a specific request or need, investigation, remediation or other extraordinary circumstance(s):

- Janitor sinks
- Slop sinks
- Bathroom sinks (except in child care locations)
- Tenant-owned equipment such as eye wash stations, emergency showers, coffee makers, ice makers and refrigerator water, portable humidifiers, large bottle water coolers or filtered water appliances
- Outdoor spigots not used in water play in child care centers.

When the Baseline Water Sampling process is completed, and GSA is satisfied with the testing results and remedial actions, this effort will conclude. The National Industrial Hygiene Program Office will use their professional judgment to decide on a case by case basis whether additional testing is necessary based on the initial baseline test results, and other factors that may be present from time to time.

Water Testing After New Installation

Assessment of new point-of-use water outlets used for human consumption or washing purposes is a crucial step that helps ensure safe operations when certain components of the water system are impacted during repair or renovation projects. This involves an evaluation process to verify that these systems comply with regulatory standards after installation. By conducting this testing, any potential issues or deficiencies can be identified and addressed early on, reducing the risk of costly repairs, inefficiencies, or water quality problems in the future. It is required in these scenarios:

1) All newly installed outlets used for human consumption or washing purposes (such as kitchenette sinks, showers and bathroom sinks) must be thoroughly flushed for a minimum of 10 minutes.

    a) Use a detectable level of disinfectant residual to indicate that flushing has been successful for cold water.

b) Use the maximum hot water temperature allowed by regulations and codes (except for in CCC) , or between 120°F (49°C) to 124°F (51°C) to indicate that flushing has been successful for hot water. For outlets with automatic mixing valves, flush until the water temperature stabilizes as the water will be premixed with cold water.

2) When replacing building service lines and primary pipes (e.g., riser and headers), comply with International Plumbing Code sections 602.3.4 and 610.1.

3) When a water system plans to partially replace a lead service line that provides DW to a facility, it's crucial to be aware of the following steps and considerations that the water system is required to follow in accordance with the EPA's Lead and Copper Rule (40 CFR Part 141 Subpart I):

   a) Notification and Awareness: Expect to receive a notification from the water system outlining the impending pipe replacement. This notification will explain that temporary increases in lead levels within DW might occur during the replacement process. It will also provide information about the health effects of lead exposure and suggest actions you can take to minimize risk.

   b) Flushing Procedures: Before the service line is reinstated, the water system will share instructions on proper flushing. This is important to maintain water quality and safety.

   c) Provision of Filters and Devices: Anticipate receiving pitcher filters or point-of-use devices certified to reduce lead content. The water system will typically provide these devices along with six months worth of replacement cartridges and clear usage instructions.

   d) Follow-Up Tap Sampling: The water system must offer to collect a follow-up tap sample three to six months after the partial replacement of a lead service line.

   Federally owned facilities under the jurisdiction, custody, and control of the GSA (including facilities operating under a GSA delegation) are required to adhere to the instructions provided by the water system and take advantage of the offered testing when presented.

Water Testing After Extended Closures

Buildings that are closed or otherwise sparsely occupied for extended periods of time can develop a number of DW quality issues including rust, biofilms, microbial growth and leaching of metals. To avoid these contaminants as buildings reopen or reoccupy, the following actions must occur:

1) Any active and occupied federally owned or leased facility under the jurisdiction, custody, and control of the GSA with a drinking water system that is over 1,000 SF (which also encompass facilities operating under a GSA delegation of authority) that is closed for 30 consecutive calendar days or more must be flushed two to three weeks before reopening and with sufficient time for PBS to review the results and act on any issues before occupancy. A unidirectional flush of the system must be done ensuring impacted equipment

and downstream locations are included. This process should commence from the incoming service line, then proceed through the primary pipes outward through both the hot and cold water systems, and finally extend to the distal outlets and special use devices to remove stagnant water and biofilms. For hot water, flush the system while maintaining the elevated temperature to ensure that hot water at the required temperature circulates through all parts of the system. Once started, the flushing process should be done continuously to ensure thorough disinfection. Each hot and cold (if separate) distal outlet should be flushed for a minimum of 2 minutes.

2) Once the building has been flushed, water testing shall be performed for lead, copper and total coliform (E.coli) by a qualified professional, again approximately two to three weeks before reopening and with sufficient time for PBS to review the results and act on any issues before occupancy.
    a) This testing must include 10% of all water sources with the realistic potential to be used as DW sources, such as those used for human consumption. Test results that exceed the applicable federal, state, or local thresholds must result in response actions (such as flushing and retesting) to reduce concentration levels.
3) Additionally, 10% of all water outlets primarily designed for human consumption (e.g., drinking fountains, bottle fillers, and faucets in kitchenettes) and showers must be tested for *Legionella*. If systems are maintained in a manner as defined by CDC guidance, no further action is required. However, if systems are noted to be uncontrolled, further response action (such as flushing and retesting) is needed.
4) In federally owned locations, it is understood that this testing will be performed at the government's expense. In facilities operating under a GSA delegation of authority, this testing will be performed at the expense of the delegated agency. In leased locations, it is expected that this testing will be performed at the expense of the lessor, and that the lessor will provide the PBS Lease Administration Manager (LAM) with a copy of the clean lab report in advance of re-occupancy.

Child Care Centers (CCC)

Ensuring high-quality DW in CCC is of the utmost importance. Young children are particularly vulnerable to the harmful effects of heavy metals as their developing bodies and brains are more susceptible to their toxic effects. Lead and copper can leach into DW from plumbing systems, posing health risks when consumed. Regular maintenance and water testing help to prevent elevated levels of these contaminants and allow prompt action to be taken to help ensure the safety of the children.

GSA has crafted its guidance for CCCs based on the core principles from the EPA's 3Ts (Training, Testing, and Taking Action) document.

It is the responsibility of the CCC provider to perform regular weekly flushing of cold and hot water outlets to help ensure DW quality. By running water through the plumbing system on a consistent basis, stagnant water and potential contaminants (including heavy metals and bacteria) are flushed out. Flushing prevents the buildup of sediment, rust, and biofilms, reducing the risk of microbial growth and maintaining optimal water flow. It is particularly effective in reducing lead concentrations by removing water in contact with old pipes or fixtures. Flushing is required in all active, open and occupied CCCs as follows. This includes CCCs in owned, leased and delegated facilities:

1) All hot and cold water outlets primarily used for human consumption in the CCC must be flushed weekly. It is recommended that this take place on the morning of the first regular business day of the week. Furthermore, the aerators must be cleaned or replaced monthly if damaged.

    a) An effective way to remove the need for monthly aerator maintenance is to replace aerators with laminar flow devices.

Regular water testing helps identify elevated levels of heavy metals and bacteria, enabling prompt action. By testing for potential sources of lead and copper (such as old pipes or fixtures) or bacteria resulting from water stagnation, corrective actions can be taken to help ensure that CCCs provide a clean and healthy environment for young children to learn and grow. Testing for lead, copper, and *Legionella* is required in these scenarios:

1) DW outlets in open CCCs must be sampled and evaluated for lead and copper by a contracted qualified professional annually at a minimum. This testing must include all water sources with the realistic potential to be used as DW sources, such as those used for human consumption and washing. Test results that exceed the applicable federal, state, or local thresholds must result in response actions to reduce concentration levels.

    The National Industrial Hygiene Program Office will use their professional judgment to decide whether additional testing outside of the CCC is necessary based on the annual test results.

    GSA has developed a CCC DW SOP Rev 2/2026 to guide the annual testing events in CCCs. This SOP includes a comprehensive CCC DW SOW Rev 2/2026) for the annual testing. Additionally, it outlines the necessary planning, execution, and response actions that must be undertaken. The SOP helps ensure that a structured approach is followed to maintain consistency and effectiveness throughout the testing process.

2) Any CCC closed for 30 consecutive calendar days or more must be sampled and evaluated for lead and copper by a qualified professional approximately two to three weeks before reopening and with sufficient time for PBS to review the results and act on any issues before opening day. This testing must include all water sources with the realistic potential to be used as DW sources, such as those used for human consumption and washing. Test results that exceed the applicable federal, state, or local thresholds must result in response actions to reduce concentration levels.

    Additionally, all water outlets primarily designed for human consumption (e.g., drinking fountains, bottle fillers, and faucets in kitchenettes) must also be tested for *Legionella*. If systems are maintained in a manner as defined by CDC guidance, no further action is required. However, if systems are noted to be uncontrolled, further response action is needed.

Finally, water testing after new installations in CCCs is required. This process helps to ensure that the water systems in CCCs are designed, installed, and operated correctly, meeting the required water quality and safety standards. It is required in these scenarios:

1) All newly installed water outlets with the realistic potential to be used as a DW source must be thoroughly flushed for a minimum of 10 minutes.

    a) Use a detectable level of disinfectant residual to indicate that flushing has been successful for cold water.

    b) Use the maximum hot water temperature allowed by regulations and codes, or between 105°F (41°C) to 109°F (43°C) to indicate that flushing has been successful for hot water. For outlets with automatic mixing valves, flush until the water temperature stabilizes as the water will be premixed with cold water.

2) All newly installed water outlets with the realistic potential to be used as DW sources (such as those used for human consumption and washing) must be tested for lead, copper, and total coliform bacteria (including E. coli) by a qualified contracted professional prior to use. Test results that exceed the applicable federal, state, or local thresholds, must result in response actions to reduce concentration levels.

As an additional note, please be aware that state or local regulations may impose more stringent requirements in CCCs than those mandated by the GSA. In such instances, you must adhere to the most stringent requirements.

The EPA 3Ts document offers comprehensive guidance on response actions that can be implemented in response to levels of metal above federal, state, or local thresholds. After addressing the issues, it is essential to conduct additional water testing on failed outlets by a qualified professional to ensure the response actions were successful.

Non-Potable Water

REGULATORY GUIDANCE

While explicit regulatory guidance for cooling towers, evaporative condensers. and non-potable water features is often governed by state and local authorities, General Services Administration (GSA) guidelines reference industry standards for managing risk in water systems, which includes non-potable systems like cooling towers. For example, ANSI/ASHRAE Standard 188 defines the minimum requirements for managing the risk of *Legionella* growth in building water systems, including cooling towers, and mandates the creation of a risk management plan. Furthermore, the ANSI/ASHRAE Standard 514 provides a framework for managing overall risk from microbial, physical, and chemical hazards in both potable and non-potable water systems and is intended to be used in combination with Standard 188.

Regulatory guidance for cooling towers, evaporative coolers, and non-potable water features focuses on mitigating *Legionella* risk through regular inspection, maintenance, and water quality testing. Key requirements include periodic maintenance checks, water treatment to prevent corrosion and bacterial growth, water sampling for bacterial analysis, air emission controls for

chemical contaminants, and, in some cases, adhering to ANSI/ASHRAE Standards 188 and 514 for risk management.

Individual states or local authorities may have established their own requirements for non-potable water features which may be more stringent than the federal guidelines. Water systems are obligated to comply with regulations at the federal, state, and local levels.

WATER FEATURES

Cooling Towers and Evaporative Condensers

In most facilities, cooling towers are treated by third-party chemical water treatment contractors and chemical supply companies. It is recommended that both the Operations and Maintenance contractor, treatment provider and cooling tower manufacturer be consulted when performing remediation on cooling towers. Detailed information on remediating cooling towers can be found in the CTI Guideline 159 (2021), ASHRAE Guideline 12-2023, and AIHA Recognition, Evaluation,and Control of *Legionella* in Building Water Systems.

Please note all these resources are paid resources that cannot be shared with external vendors.

GSA follows CDC guidelines and current industry guidance when determining action levels for controlling *Legionella* in cooling towers and evaporative condensers. GSA will take responsive actions when *Legionella* growth is either poorly controlled or uncontrolled as described further below.

Cooling Towers and Evaporative Condensers Levels for Response Actions		
Action Level	***Legionella* Growth**	**Response Action**
Detectable to 9 CFU/mL	Well Controlled	Does not require response action
10 to 99 CFU/mL	Poorly Controlled	Monitor and adjust as listed in the corrective actions below
≥ 100 CFU/mL	Uncontrolled	Investigate and Mitigate Risk as listed in the corrective actions below

When *Legionella* exceedances are discovered in cooling towers and evaporative condensers, the Building Manager should take action on all impacted equipment. In each instance, implement the most cost effective and least invasive interim controls and corrective action(s) necessary until the issue is resolved.

Interim Control Measures

When responding to a potential *Legionella* exceedance, the Building Manager should:

1. Involve PBS Industrial Hygiene SME or other pertinent subject matter experts (e.g., Operations and Maintenance contractor, Equipment Specialists, treatment provider and cooling tower manufacturer, etc.) to discuss applicable response actions.
2. Notify affected occupants in accordance with PBS's Risk Management Notification Policy.

Corrective Action

Follow regulatory guidance from any applicable specific state requirements. Applicable state regulatory requirements take precedence over all items outlined in this document.

In addition to completing the interim control measures as listed above, if the building has an ASHRAE 188 WMP, ASHRAE 514 WMP, or an equipment specific WMP, the WMP team should review the plan and initiate response actions as applicable. If no WMP is available, the Building Manager should consult with the PBS Industrial Hygienist and use the following guidance and initiate any number of the corrective actions listed below until the issue is resolved.

Poorly Controlled (10 to 99 CFU/mL) the Building Manager, O&M Contractor & Water Treatment Contractor shall ensure that:

1. If concentrations are > 10 CFU/mL, review operations and biocide program. Consider more frequent cleanings or changes to biocide control strategy to reduce *Legionella* levels.

Uncontrolled (≥100 CFU/mL and greater) the Building Manager, O&M Contractor & Water Treatment Contractor shall ensure that:

1. If concentrations are ≥ 100 CFU/mL, adjust biocide program or perform online disinfection. Perform a visual inspection to evaluate the need to perform a cooling tower cleaning and further disinfection. Consider more frequent cleanings or changes to biocide control strategy to reduce *Legionella* levels.
2. If concentrations are > 1000 CFU/mL, perform emergency disinfection within 24 hours and follow up with a shutdown and cleaning of the cooling tower within 2 days. Perform a visual inspection to evaluate the need to perform a cooling tower cleaning and further disinfection. Evaluate the need for more frequent cleanings or changes to biocide control strategy to reduce *Legionella* levels.
3. 3–7 days after treatment, re-test the cooling tower for culturable *Legionella* levels.
4. Re-treat and test until *Legionella* concentration levels are below 10 CFU/mL.

5. Perform online disinfection or emergency disinfection per recommendations described in CTI Guideline 159 (2021).
6. If online disinfection is considered ineffective by the PBS Industrial Hygiene SME or someone they deem as a Competent Professional, shut down and clean the cooling tower within 7 days regardless of the concentration.
7. Review physical cleaning, biocide, corrosion, and scale control programs to determine if they should be enhanced moving forward.
8. Consider modification of the existing WMP or implementing an ASHRAE 188 Water Management Program for the non-potable water system.

Humidifiers, & Misters, and Decorative Fountains

These types of equipment are generally much easier to remediate because these systems can usually be taken offline and treated without the same degree of restrictions that are necessary for potable water systems. Specific guidance for procedures to remediate can be adopted from ASHRAE Guideline 12-2023, CDC Guidance, Controlling *Legionella* in Decorative Fountains, AIHA Recognition, Evaluation, and Control of *Legionella* in Building Water Systems.

Please note the ASHRAE and AIHA resources are paid resources that cannot be shared with external vendors.

GSA follows CDC guidelines, American Industrial Hygiene Association and current industry guidance when determining action levels for controlling Legionella in humidifiers, misters, and decorative fountains. GSA will take responsive actions when *Legionella* growth is uncontrolled as described further below.

Humidifiers, Misters, and Decorative Fountains Levels for Response Actions		
Action Level	***Legionella* Growth**	**Response Action**
<1.0 CFU/mL (0.0 CFU/mL-0.9 CFU/mL) - Non-systemic	Well Controlled	Does not require response action
1.0 CFU/mL to 9.9 CFU/mL - Non-systemic	Poorly Controlled	Monitor as listed in the corrective actions below
10 CFU/mL and greater - Non-systemic	Uncontrolled	Investigate and Mitigate Risk as listed in the corrective actions below

When *Legionella* exceedances are discovered in humidifiers, misters, and decorative fountains, the Building Manager should take action on all impacted equipment. If not all equipment is being tested, determine with input from the PBSIndustrial Hygienist SME if similar tasks are required for untested equipment.

Interim Control Measures

1. Involve PBS Industrial Hygiene SME or other pertinent subject matter experts (e.g., Operations and Maintenance contractor, Equipment Specialists, treatment provider and cooling tower manufacturer, etc.) to discuss applicable response actions.
2. Notify affected occupants in accordance with PBS's Risk Management Notification Policy.

Corrective Action

Follow regulatory guidance from any specific applicable state requirements. Applicable state regulatory requirements take precedence over all items outlined in this document.

In addition to completing the interim control measures as listed above, If the building has an ASHRAE 188 WMP, ASHRAE 514 WMP, or an equipment specific WMP, the WMP team should review the plan and initiate response actions as applicable. If no WMP is available, the Building Manager should consult with the PBS Industrial Hygienist and use any number of the following guidance for response until the issue is resolved.

Poorly Controlled (1.0 CFU/mL to 9.9 CFU/mL) the Building Manager, O&M Contractor & Water Treatment Contractor shall ensure that:

1. If concentrations are poorly controlled, review operations and biocide program. Consider more frequent cleanings or changes to biocide control strategy to reduce *Legionella* levels.

Uncontrolled (≥100 CFU/mL and greater) the Building Manager, O&M Contractor & Water Treatment Contractor shall ensure that:

1. Take equipment offline, if appropriate.
2. Measure disinfectant levels, where appropriate, to determine if adequate to control *Legionella* growth; increase to effective control levels, if necessary.
3. Measure temperature, where appropriate, to determine if it is within a range that is permissive for *Legionella* growth and adjust accordingly.
4. Inspect system components for accumulated sediment, debris, scale, and biofilm.
5. Ensure maintenance and operation procedures are appropriate and are being followed.
6. Conduct remedial cleaning and/or disinfection protocols.
7. Reestablish normal biocide and pH levels.
8. Collect a retest sample. (Wait at least 48 hours, and no more than 7 days, after treatment to retest.)
9. Remediation and retesting must continue until you have test results below 10 CFU/mL.
10. Wait until post-treatment sample results are reported and reviewed by the PBS Industrial Hygienist before returning the system to operation.

Reactively Responding to Incidents, Complaints, and Emergencies

While proactive measures significantly reduce the likelihood of DW incidents, prompt response to unforeseen situations is crucial to help ensure safe and healthy DW. There are two primary sources of these events: issues with the water supplied to the building by the provider and issues with the building's plumbing.

Facilities have limited control over water quality issues originating from the PWS and can only implement control measures based on notifications from the proper authority. The primary responsibility for maintaining and delivering safe water lies with the PWS, who manages the water source, treatment, and distribution systems. Facilities rely on the PWS to provide clean and safe water for their operations.

When issues like contamination, non-facility construction-related problems, or boil water orders occur, facilities must rely on the expertise and actions of the PWS and the responsible authority for water quality management. Facilities receive notifications or advisories from these entities, informing them of the specific issue and necessary precautions.

Facilities and Building Managers respond by implementing control measures based on provided information and instructions, which may involve adjusting operational processes, using alternative water sources, or implementing additional water control measures to help ensure compliance with required standards.

Once the facility receives acceptable water from the PWS (the water is good to the building shell), the responsibility for providing potable water at point-of-use water outlets falls on the facility's controlling authority, whether it is GSA, a lessor, or an agency with delegated authority. Water quality issues related to a facility's plumbing system can stem from factors such as: corrosion in old pipes, leaks or breaks allowing contaminants to enter, backflow causing the reversal of water flow and introduction of non-potable substances, biofilm formation on internal pipe surfaces, and inadequate maintenance leading to sediment buildup or microbial growth. In the event of incidents, complaints, or emergencies related to DW, it is important for GSA, the Delegated Agency, or the Lessor to promptly investigate and address the matter. The investigation process typically includes the following steps:

1) Identify the nature and source of the suspected DW issue, which may involve conducting confirmatory tests or measurements to assess initial DW parameters.
2) If the investigation confirms the presence of a DW issue:

    a) The Building Manager shall notify affected occupants per PBS 2400.1 Risk Management Notification and GSA internal water quality notification guidance, of DW concerns that could impact their health.

    b) The Building Manager, in partnership with the appropriate PBS Industrial Hygienist, shall Initiate appropriate corrective action to address and respond to the source of the problem.

c) Follow-up testing must be conducted after implementing corrective actions to ensure the effectiveness of the measures taken before the system can be restored to normal operation.

d) To help ensure that the problem is confined to the original incident area, the National Industrial Hygiene Program Office will use their professional judgment to decide whether additional testing outside of the initial area of concern is required.

3) Document and maintain records of initial DW incidents, complaints, and emergencies reported through the GSA O&M Contractor or PBS Building Manager in federally owned facilities under the jurisdiction, custody, and control of the GSA. Depending on how the issue was discovered, the PBS Building Manager or O&M contractor would create a work order in NCMMS and any follow up work orders as needed for record keeping purposes.

The following outlets should not be sampled as part of drinking water testing unless necessary as part of a specific request or need, investigation, remediation or other extraordinary circumstance(s):

- Janitor sinks
- Slop sinks
- Bathroom sinks (except in child care locations)
- Tenant-owned equipment such as eye wash stations, emergency showers, coffee makers, ice makers and refrigerator water, portable humidifiers, large bottle water coolers or filtered water appliances
- Outdoor spigots not used in water play in child care centers.

Other Items to Consider

Steps for Suspected Outbreaks Legionnaires Disease and Pontiac Fever

Legionnaires' disease and Pontiac fever outbreaks occur when two or more people are exposed to *Legionella* bacteria in the same place and get sick at about the same time.

Outbreaks are commonly associated with buildings or structures that have complex water systems, like hotels and resorts, long-term care facilities, hospitals, and cruise ships. The most likely sources of infection include water used for showering, hot tubs, decorative fountains, and cooling towers (structures that contain water and a fan as part of centralized air cooling systems for a building or industrial processes).

Initial steps for responding to a suspected outbreak: The Building Manager shall:

1. Consult with the PBS National Industrial Hygiene SME.

2. Work with the state or local health department and coordinate additional tenant notifications.
3. Consider the installation of sub-micron point-of-use filters rated for the removal of *Legionella* (0.2 micron/ASTM F838-20) while additional corrective action is being implemented.
    a. This may involve the replacement of certain fixtures to accommodate the filter.
4. Provide alternative sources of water for drinking and washing if adequate potable is not readily available and readily accessible. Toilets and urinals may remain in service.
5. Facilitate an environmental assessment from a qualified professional to evaluate possible environmental exposures
    a. Consider reviewing source assessment guidance in AIHA Recognition, Evaluation, and Control of *Legionella* in Building Water Systems
    b. Consider recommending the implementation of water restrictions or point-of-use filters in the area of the suspected outbreak as a temporary exposure risk reduction measure.
6. Facilitate environmental sampling, as indicated by the environmental assessment
7. Make recommendations for remediation of possible environmental source(s), if indicated.
8. Implement an ASHRAE 188, *Legionellosis: Risk Management for Building Water Systems* water management program governing all building water distribution systems, equipment, and features will be necessary

Water Management Plans

If baseline testing, routine testing, or building conditions indicate an ongoing risk for uncontrolled Legionella bacteria, primary drinking water contaminants, and other waterborne pathogens in building water systems, a water management program may be necessary. The water management program will be detailed via a WMP that should be prepared by a qualified contracted professional (this may be the O&M Contractor if qualified). All contractors involved in the development of a WMP must possess the ASSE 12080 *Legionella* Water Safety and Management Specialist Certification or its equivalent. Any equipment or water feature specific plan, or building wide water management program that will be implemented must first be approved by a PBS Industrial Hygienist prior to implementation. The plan and associated testing and flushing tasks should be implemented by the O&M Contractor and managed using NCMMS for quality control/quality assurance purposes.

The building's Building Manager and a PBS Industrial Hygienist will work together in partnership to make this determination and they will present their decision to the National Industrial Hygiene Program Manager (or higher) for approval to proceed.

Legionella

Federally owned facilities (including delegated facilities) that meet various conditions related to building height, population, special water features etc., shall implement additional legionellosis risk management strategies to maintain water safety and prevent stagnation-related issues. These locations will implement water management plans specific to the equipment or water feature that they contain, and in some instances, a building-wide ASHRAE 188, *Legionellosis: Risk Management for Building Water Systems* water management program governing all building water distribution systems, equipment, and features will be necessary.

An equipment-specific water management plan for *Legionella* control is required when one or more of the following are present:

- One or more cooling towers
- One or more decorative fountains
- One or more centrally installed misters, atomizers, air washers or humidifiers (not personal or transient/relocatable humidifiers)

The CDC's Water Management Program Worksheet -(*Identify Buildings with Increased* Legionella *Risk)*, should be used by Building Managers, Industrial Hygienists and O&M Contractors to help determine when the additional ASHRAE standard will apply. A building-wide ASHRAE 188 WMP is required for *Legionella* control when one or more of the following conditions are present:

- A centralized hot water system across multiple (two or more) housing units
- The building has more than 10 stories (including basement levels) such as dormitory-style housing at Land Port of Entry building locations.

Additionally, an ASHRAE 188 WMP may be required for *Legionella* control when, in the opinion of the responsible Industrial Hygienist, one or more of the following conditions exist:

- Water Testing Exceedance: Point-of-use premise plumbing water testing (baseline or subsequent) involving multiple samples from different areas of the building shows that more than 30% of those samples are positive for *Legionella* (especially L. pneumophila serogroup 1).
- Systemic Water Challenges: The building has a history of water issues involving opportunistic pathogens or is facing ongoing challenges in maintaining consistent chlorine levels, hot water temperatures, or overall water quality.

All Other Contaminants

A building-wide ASHRAE 514 WMP may be required when, in the opinion of the responsible Industrial Hygienist, the building has a history of ongoing water issues involving opportunistic pathogens, primary drinking water contaminants, or is facing challenges in overall water quality.

The ASHRAE 514 WMPs must align with applicable guidelines and implement tailored strategies, advanced monitoring techniques, and preventive measures to mitigate risks and optimize water management practices.

Utilizing Cold Water for Cooking and Drinking

The EPA suggests employing cold water exclusively for cooking and drinking. This recommendation is based on the following specific factors:

1) Contaminant Dissolution: Cold water is less conducive to the rapid dissolution of contaminants, (including metals) in comparison to hot water. By using cold water, the likelihood of expediting the release of such substances from plumbing systems is reduced, which can help maintain water quality.
2) Preservation of Disinfectant Residual: Hot water tends to have less available disinfectant residual in the water supply. This residual, along with the hot water temperature, are vital for managing and ensuring the safety of water against biological hazards. Opting for cold water helps retain the effectiveness of this disinfection process.

If hot water is required for cooking or drinking, it is recommended to follow a two-step procedure. Begin by drawing water from the cold tap (known for its lower risk of contamination) and subsequently heat it to your preferred temperature. Alternatively, use a point-of-use appliance, such as a coffee or tea maker. This approach allows occupants to enjoy the advantages of hot water without compromising water safety.

Sampling Methodology & Protocols When Performing Water Testing

Sampling methodology and protocols for assessing DW must adhere to applicable regulations, standards, and guidelines. Key considerations include:

1) Regulatory Compliance: Follow regulations and guidelines set by governmental agencies or industry bodies.

2) Standardized Guidelines: Refer to established guidelines from organizations like the EPA, CDC, ASHRAE, American Society for Testing Materials (ASTM), and the American Industrial Hygiene Association (AIHA).

3) Equipment Selection: Choose appropriate sampling equipment. Note that sample bottles are often provided by the laboratory.

4) Sample Collection Locations: Choose representative locations based on the specific characteristics of the incident, complaint, or emergency, and consider the type of occupancy.

5) Sample Handling: Follow all federal, state, local, and laboratory procedural requirements for sample preservation, storage, and hold times.

6) Chain of Custody: Establish a documented chain of custody to maintain sample integrity.

7) Laboratory Analysis: Send samples to accredited laboratories following recognized methods and quality control procedures.

8) Data Interpretation: Interpret results in accordance with applicable regulations and reference values.

By following these protocols, GSA can help ensure accurate and reliable DW assessments to make informed decisions.

Data Applicability

It is important for the National Industrial Hygiene Program Office or the qualified professional conducting sampling to understand how and when these requirements must be applied to characterize DW conditions taking into account the following considerations:

1) Regulatory Compliance: Ensure that the sampling data aligns with the relevant federal, state, and local regulations and standards for DW quality.

2) Comparative Analysis: Use the sampling data to compare against established guidelines, such as those from the EPA, CDC, AIHA, or ASHRAE, to assess the water's safety and quality.

3) Trend Analysis: If possible, monitor and track the sampling data over time to identify any trends or changes in water quality, which may indicate potential issues or improvements.

4) Source Identification: Use the sampling data to identify potential sources of contamination or problems in the potable water system.

5) Decision Making: Make informed decisions regarding the implementation of corrective actions or potential water treatment strategies based on the sampling data and its analysis.

Associated Costs

The responsibility for investigating and resolving building DW conditions such as those mentioned above typically falls on GSA, the Delegated Agency, or the Lessor, as they are responsible for basic building operations. However, if the adverse DW condition is caused by factors beyond the control of the GSA, the Delegated Agency, or the Lessor, then the party responsible for the condition may be liable for the associated expenses.

Similarly, if an occupant agency or other entity adamantly requests a specific DW test or investigation for a parameter that is highly unlikely to be present in the given situation, the occupant agency will be responsible for bearing the associated costs to perform that test or investigation via reimbursable work authorization (RWA). Where this is an issue, a Policy & Services Director level supervisor or above will determine responsibility.

Helpful Resources

1) EPA: “3Ts for Reducing Lead in Drinking Water in Schools and Child Care Facilities”
2) U.S. Centers for Disease Control and Prevention (CDC): “Toolkit for Controlling Legionella in Common Sources of Exposure”
3) ASHRAE: Standard 514 Risk Management for Building Water Systems: Physical, Chemical, and Microbial Hazards (accessible to GSA employees only and upon request)
4) ASHRAE: Standard 188 Legionellosis: Risk Management for Building Water Systems (accessible to GSA employees only and upon request)
5) ASHRAE: Guideline 12 Managing the Risk of Legionellosis Associated with Building Water Systems (accessible to GSA employees only and upon request)
6) American Industrial Hygiene Association (AIHA): Recognition, Evaluation, and Control of Legionella in Building Water Systems 2nd Edition (accessible to GSA employees only and upon request)
7) American Water Works Association (AWWA): Responding to Water Stagnation in Buildings with Reduced or No Water Use
8) International Association of Plumbing & Mechanical Officials (IAPMO): Tips and Recommendations for the Safe and Efficient Flushing of Plumbing Systems in Buildings