



Office of Audits
Office of Inspector General
U.S. General Services Administration

Alert Memorandum: PBS Did Not Test Water Prior to Reopening GSA Child Care Centers Closed During the COVID-19 Pandemic

Memorandum Number A201018-8
September 6, 2022



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TO: NINA M. ALBERT
COMMISSIONER
PUBLIC BUILDINGS SERVICE (P)

FROM: R. NICHOLAS GOCO *R. Nicholas Goco*
ASSISTANT INSPECTOR GENERAL FOR AUDITING (JA)

SUBJECT: Alert Memorandum: PBS Did Not Test Water Prior to Reopening GSA Child
Care Centers Closed During the COVID-19 Pandemic
Memorandum Number A201018-8

The purpose of this alert memorandum is to notify you of an issue that warrants your immediate attention. During the survey phase of our *Audit of GSA's Response to the Coronavirus Disease 2019 (COVID-19): Assessment of Water Quality in GSA-Controlled Facilities*, we learned that the Public Buildings Service (PBS) did not effectively test for water contamination prior to reopening GSA child care centers that were closed during the pandemic. Due to extended periods of limited or no occupancy, water in these facilities may have become stagnant, which presents a risk for elevated levels of hazardous contaminants like lead and copper metals and *Legionella* bacteria. Without proper testing, PBS cannot ensure that children or staff at the child care centers have access to safe drinking water.

Background

GSA's child care center program provides space in GSA facilities across the nation for 92 independently operated child care centers. Prior to COVID-19, these centers provided daily care for more than 7,000 children. In response to the COVID-19 pandemic, GSA temporarily closed 84 of these centers. Since that time, 74 of the 84 child care centers in GSA facilities that closed during the pandemic have reopened.

Risks to Water Safety Arising from Prolonged Facility Closures

Prolonged closures of facilities, like the closures of GSA child care centers, can increase risks to water safety. Centers for Disease Control and Prevention (CDC) guidance states that "a temporary shutdown or reduced operation of a building (for example, a school or a childcare

facility) and reductions in normal water use can create hazards for returning occupants.”¹ Accordingly, the CDC guidance states that plumbing systems should be checked for these hazards “before reopening after a prolonged period of building inactivity.”

One of the principal hazards arising from prolonged closures is water stagnation in a facility’s plumbing system due to decreased water use. Stagnant water increases the risk of corrosion in the plumbing systems, which can trigger the release of lead and copper into the facility’s drinking water.² It can also increase the risk of growth and spread of *Legionella* bacteria. These risks are described below:

- **Lead** – According to the Environmental Protection Agency (EPA), lead can affect almost every organ and system in the human body. Children are especially susceptible to the effects of lead because their bodies are still developing. The EPA notes that even low levels of lead in children can cause behavioral and learning problems, reduced intelligence and hyperactivity, impaired growth, hearing loss, and anemia.³ The EPA has established a lead action level of 15 parts per billion (ppb) to measure the effectiveness of corrosion control treatment in water systems. However, both the EPA and the CDC agree that there is no known safe level of lead in a child’s blood. Because lead has no taste or smell, the EPA stresses the need for regular testing of drinking water to identify lead contamination.
- **Copper** – Although an essential nutrient in very small amounts, excess copper can be dangerous, especially in children. Copper exposure can cause vomiting, nausea, abdominal pain, and diarrhea. Long term exposure to copper can lead to severe illnesses, such as kidney and liver damage. The EPA has established an action level for copper of 1300 ppb. Regular testing is critical to ensure that the amount of copper present in drinking water does not exceed the EPA action level.
- **Legionella** – *Legionella* bacteria is the primary cause of Legionnaires’ disease, a potentially fatal illness involving pneumonia. Legionnaires’ disease is the leading cause of reportable waterborne disease outbreaks in the United States, affecting between 52,000 and 70,000 people each year and often requiring hospitalization. People can get Legionnaires’ disease if they breathe in water droplets containing *Legionella* bacteria or if contaminated water enters the lungs while drinking. Though cases of Legionnaires’ disease are generally mild in children, people 50 years or older, current or former smokers, and people with chronic disease or weakened immune systems are at

¹ Centers for Disease Control and Prevention, *Reopening Buildings After Prolonged Shutdown or Reduced Operation*, July 22, 2021.

² Corrosion is a chemical reaction that dissolves or wears away metal from pipes and fixtures.

³ Anemia is a condition that occurs when the body produces a lower-than-normal amount of healthy red blood cells. It can cause fatigue, shortness of breath, dizziness, headaches, or an irregular heartbeat.

increased risk for Legionnaires' disease. According to the CDC, there is no safe level of *Legionella* bacteria in drinking water.

Water Testing Requirements for GSA Child Care Centers

Water testing requirements for GSA child care centers fall under GSA Order PBS 1000.7, *PBS Drinking Water Quality Management*, issued September 13, 2016. This order establishes PBS's requirements for management and oversight of drinking water systems. It requires proactive testing for both lead and copper in GSA child care centers every 3 years, at a minimum. The order further requires remediation efforts if test results exceed the EPA's action levels of 15 ppb for lead or 1300 ppb for copper. GSA Order PBS 1000.7 does not require testing for *Legionella* bacteria.

Finding

PBS Did Not Effectively Test for Water Contamination Prior to Reopening GSA Child Care Centers

Prior to reopening, PBS did not effectively test water in GSA child care centers that were closed during the COVID-19 pandemic. PBS did not conduct water testing before reopening almost all of the child care centers closed during the COVID-19 pandemic. While PBS has since tested the water in certain child care centers, this testing was not comprehensive. As a result, PBS does not have assurance that children and staff at the child care centers have access to safe drinking water.

PBS did not conduct water testing before reopening almost all of the GSA child care centers.

PBS did not conduct water testing before reopening 71 of the 74 child care centers (96 percent), including in child care centers that previously reported elevated levels of contaminants.

For example, in April 2019, PBS tested the water in the child care center at the U.S. Custom House in Chicago, Illinois. The test found elevated levels of both lead and copper in some fixtures. For one kitchen faucet, lead levels were more than twice the EPA action level of 15 ppb. To address this, PBS stated that it flushed the faucet and subsequently confirmed that the lead level had improved. This child care center was closed in March 2020 due to the COVID-19 pandemic. Notwithstanding the previous findings of elevated levels of lead and copper, PBS reopened the child care center in June 2020 without conducting water tests.

Since reopening, PBS has tested water in 38 of the 71 child care centers that were previously untested, including the U.S. Custom House. The testing identified contaminants above the EPA's action levels for the following three child care centers:

- **Richard Bolling Federal Building, Kansas City, Missouri** – GSA owns and manages the federal building which contains a GSA child care center. GSA reopened this child care center on August 24, 2020, but did not conduct testing for lead and copper until December 17, 2021. The testing found elevated lead levels of 24.4 ppb and 20.1 ppb in two faucets in the child care center. According to the regional Industrial Hygienist, the faucets were cleaned, flushed, and subsequently retested to confirm that the lead levels were no longer elevated.
- **Union Park Plaza, Lakewood, Colorado** – GSA leases space in the building for federal tenants as well as a GSA child care center. GSA reopened this child care center on May 11, 2020, but did not conduct testing for lead and copper until December 2, 2021. The testing found an elevated copper level of 8280 ppb (more than six times the EPA’s action level) in one fixture and 2490 ppb in another. According to the regional Industrial Hygienist, the two fixtures (both drinking fountains) were taken out of service and the lessor plans to replace them.
- **IRS Service Center, Ogden, Utah** – GSA delegates responsibility for building operations to the Internal Revenue Service. GSA reopened this child care center on March 15, 2021, but did not conduct testing for lead and copper until September 9, 2021. The testing found elevated lead levels of 17.2 ppb and elevated copper levels of 1620 ppb. According to the regional Industrial Hygienist, GSA worked with the US Internal Revenue Service to ensure the impacted fixtures (a drinking fountain and sink faucet) were flushed and subsequently retested to confirm that the lead and copper levels were no longer elevated.

As of June 2022, 33 centers remain untested. As previously discussed, water in closed facilities can stagnate in plumbing systems, increasing the risk of exposure to contaminants. Accordingly, CDC guidance stresses the importance of testing water prior to reopening facilities. Without testing the water in the reopened GSA child care centers, PBS cannot identify potential water contamination and take appropriate action to protect children and staff at the facilities.

PBS’s water testing conducted after the GSA child care centers reopened was not comprehensive because it did not include testing for Legionella bacteria.

While PBS has tested water in 38 GSA child care centers since they reopened, the testing has not been comprehensive to identify potential contamination from *Legionella* bacteria.

According to the Industrial Hygienist overseeing child care center testing, of the 38 child care centers PBS has tested since reopening, none have been tested for *Legionella* bacteria. GSA Order PBS 1000.7 does not require testing for *Legionella* bacteria. However, its companion document, the *PBS Desk Guide for Drinking Water Quality Management*, notes that *Legionella* bacteria is readily present in water and that it poses no risk “unless conditions allow the bacteria to sufficiently amplify and there is a mechanism for exposure.” The prolonged closures of the child care centers provided exactly such conditions.

As previously noted, prolonged closures can lead to water stagnation that can cause the disinfectants used to control bacteria like *Legionella* in public water systems to degrade over time, allowing for bacterial growth and spread. Additionally, when hot water stagnates for too long, its temperature can decrease to a point that enables *Legionella* bacteria to grow. Children and staff at the child care center could subsequently be exposed to *Legionella* through inhaling mists from water fountains or running faucets. Because of these risks, a comprehensive water testing program for the reopened child care centers should include testing for *Legionella* bacteria.

Water testing in child care centers is critical to ensure that children and staff have access to safe drinking water. Although PBS has tested water in some reopened child care centers, the testing has not been comprehensive to enable PBS to fully assess potential contamination so that it can take appropriate corrective action.

Conclusion

PBS did not effectively test for water contamination prior to reopening GSA child care centers that were closed during the pandemic. Due to extended periods of limited or no occupancy, water in these facilities may have become stagnant, which presents a risk for elevated levels of hazardous contaminants like lead and copper metals and *Legionella* bacteria. Without proper testing, PBS cannot ensure that children or staff at the child care centers have access to safe drinking water.

PBS Comments

PBS provided written comments in response to our draft alert memorandum. In summary, PBS responded that:

1. Water system operators are responsible for providing drinking water that meets EPA's National Primary Drinking Water Regulations. PBS is a user of water systems and is not an operator of a water system for any child care center. There is no federal requirement for users of water systems to test at taps.
2. It began flushing water lines in buildings with reduced occupancy in May 2020, and added chlorine and hot water testing in October 2020. This methodology minimizes the risks of exposure to the hazards identified in the alert memorandum and was vetted through the CDC and EPA.
3. As a user of water systems, testing with greater frequency might identify an issue sooner and could validate PBS's flushing program's efficacy. GSA Order PBS 1000.7, *Drinking Water Quality Management*, sets an internal standard for testing water for lead and copper in child care centers at a minimum of once every 3 years, which exceeds applicable federal requirements.

4. It checked for hazards and took steps to mitigate them using the CDC- and EPA-approved methodology.

PBS's written comments are included in their entirety as an attachment.

OIG Response

PBS's comments in response to our draft alert memorandum contain misleading and incomplete information. Our concerns are detailed below.

1. In its comments, PBS does not acknowledge its responsibility for water quality within its buildings. PBS asserts that public water system operators are responsible for providing PBS facilities with drinking water that meets federal regulations. In so doing, PBS gives the misleading impression that it does not bear responsibility for water quality in its buildings. In recognition of its responsibilities, PBS established a drinking water quality management program under GSA Order PBS 1000.7. The order acknowledges that drinking water quality can be influenced by circumstances within GSA facilities, and requires that PBS "ensure consistent access to safe, quality drinking water for consumption and use by all occupants, contractors, and visitors in GSA-controlled facilities."
2. PBS states that it followed a CDC- and EPA-approved flushing methodology to minimize the risk of exposure to water quality hazards. However, PBS did not provide any documentation to substantiate that its methodology was CDC- and EPA-approved. PBS issued flushing guidance in May 2020, and issued its enhanced guidance in October 2020 to include chlorine and hot water testing. However, by the time PBS issued the enhanced guidance, 56 of the 84 child care centers that closed had already reopened. Moreover, we observed that the flushing guidance was applied inconsistently and not fully followed.
3. PBS states that it "recognizes that testing with greater frequency might allow PBS to identify water quality concerns sooner," and that "testing could validate [its] flushing program's efficacy." Because of these benefits, PBS adds that GSA Order PBS 1000.7, "sets an internal standard for testing water for lead and copper in child care centers at a minimum of once every 3 years, which exceeds applicable Federal requirements."

However, PBS is not complying with these testing requirements and the policy itself is not comprehensive. During our audit survey, we found that PBS did not test for lead and copper in 57 of its 92 child care centers within the 3-year time frame specified under the order. For example, PBS tested the water in the child care center in the Chet Holifield Federal Building, Laguna Niguel, California, in June 2018, but did not retest the water until June 2022—nearly 4 years later.

Further, the testing requirements prescribed under GSA Order PBS 1000.7 are not comprehensive because they do not require PBS to test for *Legionella*.

4. PBS stated that it checked for water quality hazards and took steps to mitigate them. While PBS did flush water systems in its facilities, PBS's efforts suffered from inadequate and tardy guidance and inconsistent application as described in the second item above. Furthermore, we found no evidence that PBS tested for hazards such as lead, copper, and *Legionella* in child care centers in response to the prolonged period of reduced occupancy.

Therefore, we reaffirm our position that PBS did not effectively test for water contamination prior to reopening GSA child care centers that were closed during the pandemic. Without proper testing, PBS cannot ensure that children or staff at the child care centers have access to safe drinking water.

Compliance Statement

This alert memorandum complies with the Council of Inspectors General on Integrity and Efficiency's Quality Standards for Federal Offices of Inspector General. The related ongoing audit, when completed, will comply with generally accepted government auditing standards.

Audit Team

This assignment is being managed out of the Southeast Sunbelt Region Audit Office and conducted by the individuals listed below:

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Attachment – PBS Comments

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Public Buildings Service

August 11, 2022

MEMORANDUM FOR: R. NICHOLAS GOCO
ASSISTANT INSPECTOR GENERAL FOR AUDITING (JA)

FROM: NINA M. ALBERT
COMMISSIONER
PUBLIC BUILDINGS SERVICE (P)

SUBJECT: Response to the Office of Inspector General Alert
Memorandum: *"PBS Did Not Test Water Prior to Reopening
Child Care Centers Closed During the COVID-19
Pandemic,"* Memorandum Number A201018-8

The U.S. General Services Administration (GSA), Public Buildings Service (PBS) thanks you for the opportunity to review and comment on the subject Alert Memorandum. The health and safety of occupants at facilities under the jurisdiction, custody or control of GSA (GSA-controlled facilities) is of utmost importance to me, and I appreciate the Office of Inspector General's (OIG's) attention to this matter. The PBS Office of Facilities Management (OFM) has reviewed the Alert Memorandum and offers the following feedback:

General Comments:

The Environmental Protection Agency (EPA) Lead and Copper Rule, 40 CFR Part 141, Subpart I, mandates that operators of public water systems perform testing. Water systems are responsible for providing drinking water that meets EPA's National Primary Drinking Water Regulations. PBS is not an operator of a water system for any child care center.

It should be noted that on-site testing provides only a snapshot of water quality and, for that reason, the actual quality of water supplied to GSA-controlled facilities can differ from the quality indicated by the test results. However, PBS, as a user of water systems, recognizes that testing with greater frequency might identify an issue sooner. For that reason, GSA Order PBS 1000.7, *Drinking Water Quality Management* sets an internal standard for testing water for lead and copper in child care centers at a minimum of once every three years, which exceeds those Federal requirements applicable to water systems (See 40 CFR § 141.92). There is no Federal requirement for users of water systems to test at taps.

In addition to the testing recommended by the EPA, the Centers for Disease Control and Prevention (CDC) recommends frequent flushing of water systems so that systems do not become stagnant and develop water quality problems such as elevated lead and

copper levels or Legionella bacteria. Recognizing this, PBS implemented water flushing in our facilities early in the pandemic. In May 2020, PBS began flushing water lines in buildings with reduced occupancy. Then PBS met with experts from the CDC and EPA to further improve the process for regular flushing and the final plan, vetted through CDC and EPA, also included their recommendation to add chlorine testing. That enhanced plan began in October 2020 and was implemented at facilities with reduced occupancy, including those with childcare centers. This combination of flushing, along with chlorine and hot water testing, is a proactive approach that is more protective than spot testing because it minimizes the risk of leaching metals and also reduces the risk of exposure to the specific hazards identified in the Audit Memorandum, as well as other metals and biological hazards. These meaningful and relevant actions taken by PBS are not mentioned anywhere in the Alert Memorandum. The omission of this information mistakenly leads readers of this document to believe that PBS did nothing to help ensure the water quality in GSA-controlled facilities.

Specific Comments:

Comment #1 - Page 1, Paragraph 1 - Memorandum Language:

"Without proper testing, PBS cannot ensure that children or staff at the child care centers have access to safe drinking water."

Reply: As detailed above, PBS's enhanced plan, which is more protective than spot testing and combined flushing (started in May 2020), along with chlorine and hot water testing, began in October 2020 and was implemented at facilities with reduced occupancy, including those with childcare centers. PBS developed this proactive approach in order to check for and mitigate the referenced potential water quality hazards. However, while not required, PBS accepts that there may be a momentary benefit from water test results at a temporarily closed child care center immediately before reopening. The testing could validate the flushing program's efficacy, and it could help identify a water quality issue. With these thoughts in mind, PBS asks that the Alert Memorandum language be modified as follows for accuracy. "While PBS followed a CDC and EPA-approved flushing methodology to help ensure water quality for child care centers, PBS may have further benefited from the knowledge gained through the performance of a comprehensive water test at those centers before reopening after an extended closure."

Comment #2 - Page 2, Paragraph 1 - Memorandum Language:

"Accordingly, the CDC guidance states that plumbing systems should be checked for these hazards "before reopening after a prolonged period of building inactivity."

Reply: PBS checked for these hazards and took steps to mitigate them using a CDC and EPA-approved methodology discussed in the general comments above.

Comment #3 - Page 3, Paragraph 2 - Memorandum Language:

"Prior to reopening, PBS did not effectively test water in GSA child care centers that were closed during the COVID-19 pandemic. PBS did not conduct water testing before reopening almost all of the GSA child care centers closed during the COVID-19 pandemic. While PBS has since tested the water in certain child care centers, this testing was not comprehensive. As a result, PBS does not have the assurance that

children and staff at the child care centers have access to clean and safe water.”

Reply: See reply to Comment #1.

Comment #4 - Page 3 Paragraph 4 - Memorandum Language:

“For example, in April 2019, PBS tested the water in the child care center at the U.S. Custom House in Chicago, Illinois. The test found elevated levels of both lead and copper in some fixtures. For one kitchen faucet, lead levels were more than twice the EPA action level of 15 ppb. To address this, PBS flushed the faucet and subsequently confirmed that the lead level had improved. This child care center was closed in March 2020 due to the COVID-19 pandemic. Notwithstanding the previous findings of elevated levels of lead and copper, PBS reopened the child care center in June 2020 without conducting water tests”

Reply: As communicated to the OIG during the audit, PBS verified through testing that flushing was sufficient to reduce the lead level at the one outlet that tested high in 2019. That outlet was older and had not been included in a recent (pre-2019) renovation where most outlets in the childcare center were changed. There were no results of elevated levels for copper above EPA levels in the 2019 testing. As a further measure, PBS Region 5 directed the Operations & Maintenance contractor to replace the remaining kitchen fixtures. By the end of 2019, the previously-identified water quality issues had already been fully addressed, and additional testing was unnecessary. As written, the Alert Memorandum minimizes the magnitude of the renovation work performed, and does not mention that GSA provided bottled water to tenants, conducted comprehensive follow-up water testing that validated the successful response actions, or replaced the additional fixtures as an extra measure to eliminate potential future risks.

Comment #5 - Page 4 Paragraph 4 - Memorandum Language:

“As previously discussed, water in closed facilities can stagnate in plumbing systems, increasing the risk of exposure to contaminants. Accordingly, CDC guidance stresses the importance of testing water prior to reopening the facility. Without testing the water in the reopened GSA child care centers, PBS cannot identify potential water contamination and take appropriate action to protect children and staff at the facilities.”

Reply: See reply to Comment #1.

Comment #6 - Page 5 Paragraph 3 - Memorandum Language:

“Due to extended periods of limited or no occupancy, water in these facilities may have become stagnant, which presents a risk for elevated levels of hazardous contaminants like lead and copper metals and Legionella bacteria. Without proper testing, PBS cannot ensure that children or staff at the child care centers have access to safe drinking water”.

Reply: See reply to Comment #1.