



GUAM WATERWORKS AUTHORITY

# 2024 Water Quality Consumer Confidence Report

## INTRODUCTION

At Guam Waterworks Authority our mission is “To provide outstanding customer service by delivering excellent water and wastewater services in a safe, reliable, responsible and cost-effective manner”. As part of that effort, we publish this annual Water Quality Report, which provides information about where your water comes from, what it contains, and how it compares to our Guam and Federal standards. Most importantly, it confirms that in 2024, our water met or surpassed all standards set by the U.S. Environmental Protection Agency (EPA) and the Guam Environmental Protection Agency (GEPA) to protect public health. We believe that keeping our public informed about the quality of its drinking water is an important part of our job. Because the health of all Guam's people depends on safe drinking water, it is truly our most precious resource and therefore, every water user needs to actively participate in the conservation and protection of our drinking water sources.

Annually, the Water Quality Report for Guam Waterworks Authority is made available to all GWA customers. Also known as the Consumer Confidence Report (CCR), it contains a wealth of information about your water supply! This water report identifies the source that supplies water for your location. It reports only detected contaminants or elements in the water that ensures your drinking water meets all safe drinking water standards. It describes any treatment process used, if necessary, to make your water safe to drink. This also explains terms used in the regulation of drinking water and tells you where to go for additional information. Except where indicated otherwise, this water quality report is based on the results of GWA monitoring for the period of January 1, 2024, to December 31, 2024.

GWA's drinking water sources contain low levels of a variety of chemicals. Some are of natural origin and some are man-made. Lots of chemicals occur naturally in water and while many are beneficial to human health, some of these can be undesirable if found at levels that may have impacts on your health. Levels of these naturally occurring chemicals are normally so low that they pose no health concern or known risk. Fluoride is one of those naturally occurring chemicals and it is only found at very low levels that poses no known health risks. However, fluoride is also used as an additive which is believed by some officials to promote cavity resistance in a young person's growing teeth but has been found to negatively impact learning ability in young people (Fluoride In Water Linked To Lower IQ In Children ([wateronline.com](http://wateronline.com))). GWA does not add fluoride to our water systems but the US Navy Water System (FENA) does so by federal regulation.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in the water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for human health. It's not always the presence of a chemical that is as important as the amount of a chemical that is present in the water. For example, some of the heavy metals, e. g., cadmium and mercury, occur naturally in water, but are present at such a low level that they do not pose a health risk. Treatment becomes necessary when the amount of any contaminant approaches or exceeds the “Maximum Contaminant Level” (MCL), a level of concentration that the EPA has determined may put some persons at risk of adverse health effects. When this situation is found, GWA has chosen to discontinue the use of such a source or install and operate treatment facilities to remove the contaminants.

We continue to look more closely at drinking water quality as our capabilities improve and as new chemicals of concern come to light as the body of scientific knowledge grows. One of the ways that is used is the “Unregulated Contaminant Monitoring Rule” (UCMR) under the “Safe Drinking Water Act” (SDWA). An example of this is the emerging concern of man-made “Per/PolyFluoro-Alkyl Substances” (PFAS) which came to light during the third round of the Unregulated Contaminant Monitoring Rule in 2015 and is now the focus of UCMR-5, which GWA is currently conducting.

Nature does an excellent job in providing us with abundant drinking water.

However, nature needs our active participation in order to maintain its clarity and purity. Use water wisely. Illegal dumping, soil erosion resulting from grassland fires/poachers, and poorly maintained septic systems all pose threats to our drinking water. Dispose of waste properly, protect our watersheds from arson and poachers, and support recycling. Protecting our water resources begins with protecting our environment.

## SOURCES OF OUR DRINKING WATER

Our water is derived from several sources including ground, surface and spring water. The island's principal source of potable water is our abundant rainfall, most of which becomes groundwater contained in the aquifer beneath the northern half of the island. Groundwater is pumped from 120 wells in this deep underground aquifer into the water distribution system. Surface sources used by GWA include an intake from the Ugum River and water purchased from the Navy's Fena System. Spring water from Santa Rita Spring is used to supplement the water supply from Fena for the villages of Asan, Piti, Anigua, Agat, Santa Rita and sometimes as far as Mongmong-Toto-Maite.

It has long been recognized that our water sources need protection, and GWA is determined to protect our very high-quality water against contamination, not only from percolation and runoff of surface pollution, septic system discharges, water softener and reverse osmosis waste streams but also from salt-water intrusion due to over-pumping of the aquifer. We are working with the Guam Environmental Protection Agency (GEPA) and the Water and Environmental Research Institute of the Western Pacific, University of Guam (WERI) to determine the vulnerability of our water sources to contamination. More information on the water quality of our island is available on the GEPA and WERI web sites.

## WHY ARE THERE CONTAMINANTS IN THE WATER?

All drinking water, including bottled water, may reasonably be expected to contain at least trace amounts of some contaminants of natural origin. The presence of substances dissolved in drinking water does not usually indicate that the drinking water poses a health risk, and many naturally occurring ingredients are beneficial to human health. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at 1-800-426-4791 or GEPA's Safe Drinking Water Program at (671) 300-4779/9026.

In compliance with the Guam Primary Safe Drinking Water Regulations (GPSDWR), our drinking water is monitored for all regulated contaminants and unregulated constituents as it leaves our drinking water sources and enters the distribution system. The contaminants measured include:

- Microbial contaminants, like viruses and bacteria, native to tropical soils, or may come from sewage spills, septic systems, agricultural livestock operations or wildlife or from illegal dumping.
- Inorganic contaminants, such as salts and metals, which are naturally occurring, or may result from stormwater runoff, commercial wastewater discharges, RO and water softener waste streams, farming or from illegal dumping.
- Pesticide and herbicide contaminants, which may come from a variety of sources such as home and garden use, agriculture or urban stormwater runoff.
- Organic chemical contaminants, both synthetic and volatile organic chemicals, which are by-products of industrial processes, (e. g. PFAS) and petroleum production or use, and can also come from gas stations, commercial spills, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of improper disposal of radioactive waste.

This report shows ONLY the contaminants that have been detected at levels of interest. If you would like a complete listing of contaminants monitored by GWA, or if you have any questions regarding this report, contact Jennifer O. Cruz at our Certified Compliance Monitoring Laboratory Services Division at (671)300-6360 during normal business hours.

Some people may be more vulnerable to contaminants in drinking water than others. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly people, and infants MAY be particularly at risk from infections. These people should seek advice about drinking water from their primary health care providers. EPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water hotline at 1-800-426-4791.

## OTHER INFORMATION

**DIELDRLIN:** Dieldrin is a pesticide previously used for crops from the 1950's until 1970 and used in homes to control termites until 1989. The USEPA did not set a drinking water standard for dieldrin because it determined that most people are not likely to be exposed to levels of concern based on its monitoring data and that it is no longer manufactured or used in the U.S. However, the Guam EPA has developed action levels that will require GWA to notify its customers when a specified level is exceeded. GWA will comply with the requirements. Work is ongoing to provide additional treatment at production sources where this compound may be of concern.

**LEAD:** There is no safe level of lead in drinking water. Exposure to lead in drinking water can cause serious health effects in all age groups, especially pregnant people, infants (both formula-fed and breastfed), and young children. Some of the health effects to infants and children include decreases in IQ and attention span. Lead exposure can also result in new or worsened learning and behavior problems. The children of persons who are exposed to lead before or during pregnancy may be at increased risk of these harmful health effects. Adults have increased risks of heart disease, high blood pressure, kidney or nervous system problems. Contact your health care provider for more information about your risks.

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. GWA is responsible for providing high quality drinking water but cannot control the variety of materials used in customer plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (at 1-800-426-4791) or [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

**NITRATE:** The EPA requires the following information to be included in this report as the level of nitrates in three wells (EX-11, F-12, M-01) have reached 5 ppm. Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

**PER/POLYFLUORO-ALKYL SUBSTANCES (PFAS):** PFAS are chemical compounds which contain fluorine to make them water, fire and/or stain resistant. The most familiar forms are Teflon which is used as a lining of cookware, or the coating on the inside of some food packaging, most commonly in microwave popcorn bags. Recent studies of this class of compounds have brought to light potentially adverse health effects of some chemicals in this group for a lifetime of exposure to us. During the third round of the Unregulated Contaminant Monitoring Rule, (UCMR3 in 2015) levels of some of these compounds in drinking water were first monitored. They are now the focus of monitoring in the currently ongoing UCMR5, including lithium.

In April 10, 2024, EPA announced the final standards for six PFAS compounds: PFOA (4 ppt), PFOS (4 ppt), PFHxS (10 ppt), PFNA (10 ppt) and GenX (10 ppt). GWA has completed screening drinking water sources for these chemicals under this rule and detected levels at points of entry into the distribution system are reported in this document. While GWA has treatment systems in place at several production facilities, work is underway to design and construct additional treatment systems to address these contaminants in line with EPA's compliance schedule.

If you remain concerned about PFAS in your drinking water, the EPA recommends that you consider installing an in-home water treatment system (e.g., filters) that is certified to reduce the levels of PFAS in your water. Visit [www.epa.gov/pfas/meaningful-and-achievable-steps-you-can-take-reduce-your-risk](http://www.epa.gov/pfas/meaningful-and-achievable-steps-you-can-take-reduce-your-risk) for more information

## REVISED TOTAL COLIFORM RULE (RTCR) LEVEL 1 OR LEVEL 2 ASSESSMENTS:

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in the water treatment or distribution. When this occurs, we are required to conduct assessments(s) to identify problems and to correct any problems that were found during these assessments.

During the past year we were required to conduct two Level 1 assessments – one for Central system and one for Southern system. All Level 1 assessments were completed. In addition, we were required to take no corrective actions as no sanitary defects were found within the systems during the assessments. The rainy weather conditions during sample collection were likely the contributing factor to the coliform contamination.

**SANITARY SURVEY:** As part of the SDWA, Guam EPA conducted a review of GWA's water systems to assess our ability to supply safe drinking water. There were eight areas surveyed: source, treatment, distribution system, finished water storage, pumps, monitoring and reporting, management and operation, and operator compliance. Any deficiencies found are addressed and those pending corrections are identified in this report. GWA diligently aims to complete all necessary corrections.

## STIPULATED ORDER FOR PRELIMINARY RELIEF AND THE 2011 COURT ORDER:

In December 2002, a civil suit was filed against GWA and the Government of Guam by the United States Department of Justice (DOJ) seeking to address Public Health compliance issues in GWA's wastewater and drinking water systems. In June 2003, Federal DOJ, USEPA, GWA and the Government of Guam negotiated the terms of the Stipulated Order for Preliminary Relief; Civil Case No. 02-0035 (SO). With it GWA, under CCU and EPA oversight, undertook a broad initiative to restore its facilities and to provide safe, reliable service to the island while meeting all regulations. The compliance issues to be addressed under the SO included drinking water focused construction and rehabilitation projects, and training of GWA personnel. There were reporting requirements and notice provisions incorporated in the SO that were more stringent than normal regulatory reporting. A full-scale Water Resources Master Plan was also produced.

USEPA has been satisfied with GWA's progress with the SO mandates and USEPA & Guam EPA concur that GWA's drinking water now meets or exceeds the SDWA and GPDWR requirements.

On October 10, 2011, the SO was replaced by a District Court Order (CO) which recognizes GWA's progress in providing reliable and safe drinking water, is focused more on environmental issues, and the need to complete the projects identified in the Water Resources Master Plan. GWA is working closely with both USEPA and Guam EPA in order to achieve or exceed the goals of the CO, and has completed over 98% of the required projects under the CO as of 2024.

The updated "Water Resources Master Plan" and the "Order for Preliminary Relief RE: Deadlines for Projects Under the Amended Stipulated Order, Civil Case No. 02-0035" are posted on the GWA web site at: [guamwaterworks.org/compliance-and-safety/](http://guamwaterworks.org/compliance-and-safety/). If you want more information on the CO, please call Paul Kemp, GWA Assistant General Manager-Compliance and Safety at (671) 300-6885.

## LEAD SERVICE LINE (LSL) INVENTORY REPORT

EPA added new regulations under the 2021 Lead and Copper Rule Revision, requiring public water systems to take the inventory of its service line materials and notify customers of the material types. You can view our LSL Inventory Report in person by visiting any of our GWA Customer Service Centers during regular business hours. The LSL inventory report is also online at: [guamwaterworks.org/wp-content/uploads/2025/03/LSL-Inventory-for-Web-Site.pdf](http://guamwaterworks.org/wp-content/uploads/2025/03/LSL-Inventory-for-Web-Site.pdf)

# NORTHERN SYSTEM SANITARY SURVEY SIGNIFICANT DEFICIENCIES SUMMARY

| CATEGORY                               | SIGNIFICANT DEFICIENCY                                                                                                                                                                                                                                              | LOCATION                                                                                                                                                                          | CORRECTIVE ACTION                                                                                                                             |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Booster Pumps<br>Pumps/Pump Facilities | Metal base is corroded. Pump is sitting on a metal base that is corroding/rusted. The structure of the base for the pumps needs to be stable. Pump #2 is not bolted down on a permanent structure.                                                                  | Mataguac BPS-N03                                                                                                                                                                  | This will be corrected as part of GWA's CIP Booster Pump Renovation GWA Project No. 12104                                                     |
| Booster Pumps<br>Pumps/Pump Facilities | BPS Flow meter is not working.                                                                                                                                                                                                                                      | Agana Heights BPS-N08                                                                                                                                                             | Corrected as of February 2025.                                                                                                                |
| Booster Pumps<br>Pumps/Pump Facilities | Inlet/Outlet meters are not working.                                                                                                                                                                                                                                | Agana Heights BPS-N08                                                                                                                                                             | Procurement for replacement meters is in process.                                                                                             |
| Booster Pumps<br>Pumps/Pump Facilities | Leak at pump #2 check valve.                                                                                                                                                                                                                                        | Access BPS-N07;<br>Mataguac BPS-N03                                                                                                                                               | Corrected as of February 2025.                                                                                                                |
| Booster Pumps<br>Pumps/Pump Facilities | No floor drain in the pump room. The pump room must have a floor drain to prevent flooding.                                                                                                                                                                         | Access BPS-N07;<br>Hyundai BPS-N05                                                                                                                                                | GWA disputes finding.                                                                                                                         |
| Booster Pumps<br>Pumps/Pump Facilities | No redundancy provided for the pumps. Only one pump is working. Redundancy is needed to eliminate single points of failure in the system.                                                                                                                           | Mataguac BPS-N03; Adawag BPS-N09; Camacho BPS-N16; Tenorio BPS-N17                                                                                                                | This project is part of the CIP Booster Pump Renovation.                                                                                      |
| Booster Pumps<br>Pumps/Pump Facilities | Pumps are not bolted down on a permanent structure.                                                                                                                                                                                                                 | Chalan Palaun BPS-N06 Pump #1; Yigo BPS-N01 Pump #1; Adawag BPS-N09 #2; Ulloa/Untalan BPS-N1 Pump #1; Ulloa/ Untalan BPS-N10 Pump #2; Chalan Palaun BPS-N06 Pump #2               | Corrected as of February 2025.                                                                                                                |
| Booster Pumps<br>Pumps/Pump Facilities | Support for pump #2 is corroded/rusted. The pump is sitting on a metal base that is corroding and rusted. The structure of the base for the pumps needs to be stable.                                                                                               | Access BPS-N07                                                                                                                                                                    | GWA disputes deficiency classification; Procurement in process.                                                                               |
| Booster Pumps<br>Pumps/Pump Facilities | The pump is subject to trespassing/vandalism. The front gate was found to be open and not secured with damage. This booster pump station also had its louvers taken and a broken door.                                                                              | Access BPS-N07                                                                                                                                                                    | Work to correct this deficiency is on-going.                                                                                                  |
| Distribution                           | PSI at the lowest point in the distribution system at Manenggon is 163.55 PSI. Normal working pressure is approximately 60-80 psi as per the Ten States Standards and the 2019 EPA's Learner's Guide on How to Conduct a Sanitary Survey of Drinking Water Systems. |                                                                                                                                                                                   | GWA disputes deficiency classification.                                                                                                       |
| Production Wells                       | Leak at the wellhead.                                                                                                                                                                                                                                               | D-6                                                                                                                                                                               | Procurement for material in process.                                                                                                          |
| Production Wells                       | The pressure gauge and flow meter not read daily.                                                                                                                                                                                                                   | D-2                                                                                                                                                                               | Corrected as of January 2025.                                                                                                                 |
| Production Wells                       | Data recorded are inconsistent with flow meter.                                                                                                                                                                                                                     | A-10; D-22; M-23                                                                                                                                                                  | GWA disputes deficiency classification; Part of CIP Defective Meter Replacement Project.                                                      |
| Production Wells                       | Electrical wiring is not in conduit.                                                                                                                                                                                                                                | Y-15                                                                                                                                                                              | Repair in progress.                                                                                                                           |
| Production Wells                       | Flow meter is defective.                                                                                                                                                                                                                                            | A-13; A-19; D-8; D-10; D-11; D-12; D-14; D-26; D-27; EX-5A; F-8; F-11; F-15; F-16; F-17; F-18; H-1; M-6; M-15; M-17A; M-18; M-20A; Y-9; Y-10; Y-12; Y-14; Y-17; Y-18; Y-21A; Y-23 | Part of CIP Defective Meter Replacement Project.                                                                                              |
| Production Wells                       | Inaccurate reporting on the daily records; flow meter read 248 GPM and 230 GPM was recorded. Rovers are providing incorrect data for the production well.                                                                                                           | M-9                                                                                                                                                                               | GWA disputes this as a significant deficiency as it does not affect the quality of the water produced. Flow has been verified and is correct. |
| Production Wells                       | Insufficient seal around sounding tube. There is a hole in wellhead plate around sounding tube.                                                                                                                                                                     | F-1                                                                                                                                                                               | Work to correct this deficiency is on-going.                                                                                                  |
| Production Wells                       | Leaks at various points.                                                                                                                                                                                                                                            | A-17                                                                                                                                                                              | Corrected as of January 2025.                                                                                                                 |
| Production Wells                       | Leaks at various points.                                                                                                                                                                                                                                            | A-3; A-30; D-4; D-14; F-5; F-3 F-7; F-8; HGC-2; Y-3; Y-15                                                                                                                         | Procurement for material and supplies is in process.                                                                                          |
| Production Wells                       | No air vent. The well is not equipped with an air vent. The well air vent is imperative to preventing a vacuum within the well, which could draw in contaminated water.                                                                                             | A-4; D-14;                                                                                                                                                                        | Corrected as of February 2025.                                                                                                                |
| Production Wells                       | No air vent. Well is not equipped with an air vent. Well air vent is imperative to preventing a vacuum within well, which could draw contaminated water.                                                                                                            | D-12; NAS-1; Y-3                                                                                                                                                                  | Air vent pending installation/welding.                                                                                                        |
| Production Wells                       | Opening around the sounding tube. There is a hole in the wellhead plate around the sounding tube.                                                                                                                                                                   | D-14                                                                                                                                                                              | Corrected as of February 2025.                                                                                                                |
| Production Wells                       | Opening around the sounding tube. There is a hole in the wellhead plate around the sounding tube.                                                                                                                                                                   | F-8; Y-7; Y-15;                                                                                                                                                                   | Procurement for material and supplies is in process.                                                                                          |
| Production Wells                       | Opening at wellhead plate. The opening on plate needs to be sealed. This is a direct opening to the production well and susceptible to contamination.                                                                                                               | AG-1                                                                                                                                                                              | Procurement for replacement is in process.                                                                                                    |
| Production Wells                       | Opening around the sounding tube. There is a hole in the wellhead plate around the sounding tube.                                                                                                                                                                   | D-18                                                                                                                                                                              | Corrected as of February 2025.                                                                                                                |
| Production Wells                       | Opening at wellhead plate. The opening needs to be sealed. This is a direct opening to the production well and susceptible to contamination.                                                                                                                        | F-13                                                                                                                                                                              | Corrected as of February 2025.                                                                                                                |
| Production Wells                       | Pedestal support for the manifold (flange) is temporary or not sufficient.                                                                                                                                                                                          | F-3; F-8                                                                                                                                                                          | Work to correct this deficiency is on-going.                                                                                                  |
| Production Wells                       | Pump-to-waste is heavily corroded. There is a large hole on the side of the pump-to-waste.                                                                                                                                                                          | F-5                                                                                                                                                                               | Procurement for replacement in progress.                                                                                                      |
| Production Wells                       | The electrical panel is not secured.                                                                                                                                                                                                                                | D-6                                                                                                                                                                               | Work to correct deficiency is on-going.                                                                                                       |
| Production Wells                       | Wellhead casing has insufficient seal. The sanitary seal of the wellhead cover is cracked or insufficient.                                                                                                                                                          | D-14; D-15; D-16; D-26; EX-5A; F-4                                                                                                                                                | Corrected as of February 2025.                                                                                                                |
| Production Wells                       | Wellhead casing has insufficient seal. The sanitary seal of the wellhead cover is cracked or insufficient.                                                                                                                                                          | D-6; F-2; F-7; F-13; F-15; H-1; M-21; Y-3; Y-7; Y-19; Y-21A;                                                                                                                      | Work to correct deficiency is on-going.                                                                                                       |



# **NORTHERN SYSTEM SANITARY SURVEY SIGNIFICANT DEFICIENCIES SUMMARY**

| CATEGORY                            | SIGNIFICANT DEFICIENCY                                                                                                                                                                                                                                                                            | LOCATION                                                                                                                                                             | CORRECTIVE ACTION                                                                                                                                |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Production Wells                    | The well is not protected against trespassing or vandalism. The security conditions show that the facility is potentially vulnerable to tampering and vandalism that may affect the quality of water and disturbance to water supply operations. The barbed wire at the facility is not adequate. | A-30; D-28; F-7; F-18; Y-1; Y-2; Y-7; Y-9;                                                                                                                           | GWA disputes deficiency classification. However, work to correct deficiency is on-going.                                                         |
| Production Wells                    | Wellhead casing has insufficient sanitary seal. The sanitary seal of the wellhead cover is cracked or insufficient.                                                                                                                                                                               | D-6; F-2; F-7; F-13; F-15; H-1; M-21; Y-3; Y-7; Y-19; Y-21A;                                                                                                         | Work to correct deficiency is on-going.                                                                                                          |
| Production Wells                    | Wellhead concrete casing is not at least 12 inches above the well slab or 18 inches above the ground. The casing is currently only 10 inches from the ground and needs to be at least 18 inches from the ground to protect the well from flooding.                                                | A-10; D-16; D-20; D-21; EX-5A; EX-11; F-10; F-11; G-501; NAS-1; Y-5; Y-6                                                                                             | GWA disputes deficiency classification; addressed and resolved                                                                                   |
| Pumps/Pump Controls Pump Facilities | Corroded bolts on pump #2.                                                                                                                                                                                                                                                                        | Brigade BPS-N15                                                                                                                                                      | Procurement for replacement in progress.                                                                                                         |
| Pumps/Pump Controls Pump Facilities | Leak at discharge pipe.                                                                                                                                                                                                                                                                           | Pago Bay BPS-N14                                                                                                                                                     | No leak, this was standing water from rain.                                                                                                      |
| Pumps/Pump Controls Pump Facilities | No flow meter at the pump.                                                                                                                                                                                                                                                                        | Tenorio BPS-N17                                                                                                                                                      | Corrected as of February 2025.                                                                                                                   |
| Pumps/Pump Controls Pump Facilities | PRVs are not screened properly. The PRVs need to be screened with a #24 non-corrosive mesh.                                                                                                                                                                                                       | Brigade BPS-N16; Pago Bay BPS-N14                                                                                                                                    | Corrected as of February 2025.                                                                                                                   |
| Pumps/Pump Controls Pump Facilities | Pump is not bolted down on a permanent structure.                                                                                                                                                                                                                                                 | Camacho BPS-N16                                                                                                                                                      | Corrected as of February 2025.                                                                                                                   |
| Pumps/Pump Controls Pump Facilities | Leaks at various points.                                                                                                                                                                                                                                                                          | Brigade BPS-N15; Tumon Maui Well BPS-N19                                                                                                                             | Work to correct deficiency is on-going.                                                                                                          |
| Pumps/Pump Controls Pump Facilities | SCADA readings are inconsistent. The SCADA readings are different from the actual pressure readings from inside the booster pump house.                                                                                                                                                           | Tumon Maui Well BPS-N19                                                                                                                                              | GWA disputes deficiency classification.                                                                                                          |
| Reservoirs/ Storage Tanks           | Access hatch is not locked.                                                                                                                                                                                                                                                                       | ST15 Mangilao Reservoir No. 2                                                                                                                                        | Corrected as of February 2025.                                                                                                                   |
| Reservoirs/ Storage Tanks           | Air vent is not screened properly. The air vent is a direct opening to the storage tank and must be screened with a #24 non-corrodible mesh screen.                                                                                                                                               | ST17 Chaot Reservoir No. 1                                                                                                                                           | Work to correct deficiency is on-going.                                                                                                          |
| Reservoirs/ Storage Tanks           | Check valve is held up by a string.                                                                                                                                                                                                                                                               | ST19 Manenggon Reservoir                                                                                                                                             | Part of GWA 2011 Court Order Projects.                                                                                                           |
| Reservoirs/ Storage Tanks           | Drain pipe flapper valve does not seal properly. Flapper valve has an opening/gap and does not seal the drain pipe properly.                                                                                                                                                                      | ST15 Mangilao Reservoir No. 2                                                                                                                                        | Work to correct deficiency is on-going.                                                                                                          |
| Reservoirs/ Storage Tanks           | Drain pipe is not screened properly. The opening is a potential pathway for insects and other contaminants to enter the tank.                                                                                                                                                                     | ST13 Barrigada Heights Reservoir No. 2                                                                                                                               | Corrected as of February 2025.                                                                                                                   |
| Reservoirs/ Storage Tanks           | Ladder is not locked.                                                                                                                                                                                                                                                                             | ST19 Manenggon Reservoir; ST24 Tumon Maui Reservoir                                                                                                                  | Corrected as of February 2025.                                                                                                                   |
| Reservoirs/ Storage Tanks           | Leak at the inlet/outlet pipe.                                                                                                                                                                                                                                                                    | ST13 Barrigada Heights Reservoir No. 2                                                                                                                               | Celaned off debris - no leak on flange                                                                                                           |
| Reservoirs/ Storage Tanks           | Leak in the middle of the tank.                                                                                                                                                                                                                                                                   | ST13 Barrigada Heights Reservoir No. 2                                                                                                                               | Work to correct deficiency is on-going.                                                                                                          |
| Reservoirs/ Storage Tanks           | No cathodic protection. Steel tanks must have cathodic protection to control corrosion.                                                                                                                                                                                                           | ST07 Tumon Airport Reservoir                                                                                                                                         | This project is part of a GWA CIP for Tank Replacement and Repair.                                                                               |
| Reservoirs/ Storage Tanks           | No cathodic protection. Steel tanks must have cathodic protection to control corrosion.                                                                                                                                                                                                           | ST19 Manenggon Reservoir                                                                                                                                             | This project is part of a GWA CIP for Tank Replacement and Repair.                                                                               |
| Reservoirs/ Storage Tanks           | Outflow sample tap is not secured. The outflow sample tap must be locked to prevent vandalism.                                                                                                                                                                                                    | ST09 Kaiser Reservoir                                                                                                                                                | Corrected as of February 2025.                                                                                                                   |
| Reservoirs/ Storage Tanks           | Overflow pipe is not at least two diameters above the ground or storage tank surface.                                                                                                                                                                                                             | ST24 Tumon Maui Reservoir                                                                                                                                            | GWA disputes deficiency classification. Work to correct deficiency is on-going.                                                                  |
| Reservoirs/ Storage Tanks           | Overflow pipe is not screened properly. The opening is a potential pathway for insects and other contaminants to enter the tank.                                                                                                                                                                  | ST04 Santa Rosa Reservoir No. 2; ST07 Tumon Airport Reservoir; ST11 Barrigada Reservoir No. 2; ST13 Barrigada Heights Reservoir No. 2; ST15 Mangilao Reservoir No. 2 | Corrected as of February 2025.                                                                                                                   |
| Reservoirs/ Storage Tanks           | Overflow pipe susceptible to cross-contamination. The overflow pipe is underneath the surface inside a cylindrical concrete containment with no drainage. The overflow pipe containment can flood itself which is a cross-connection.                                                             | ST15 Mangilao Reservoir No. 2                                                                                                                                        | GWA disputes this finding as a significant deficiency as this tank is OFFLINE and undergoing repairs/rehabilitation.                             |
| Reservoirs/ Storage Tanks           | Overflow pipe is not at least two diameters above the ground or storage tank surface.                                                                                                                                                                                                             | ST24 Tumon Maui Reservoir                                                                                                                                            | GWA disputes deficiency classification. Work to correct deficiency is on-going.                                                                  |
| Reservoirs/ Storage Tanks           | Site is not protected against trespassing/ vandalism. There is a large hole in the fencing where a dog enters the facility.                                                                                                                                                                       | ST17 Chaot Reservoir No. 1; ST18 Chaot Reservoir No. 2; ST19 Manenggon Reservoir                                                                                     | GWA disputes deficiency classification. Work to correct deficiency is on-going.                                                                  |
| Reservoirs/ Storage Tanks           | Tank seams are corroded. The seams at the base of the tank are corroding and rusted.                                                                                                                                                                                                              | ST21 Windward Hills Reservoir                                                                                                                                        | Corrected as of February 2025.                                                                                                                   |
| Reservoirs/ Storage Tanks           | The ladder cage is broken.                                                                                                                                                                                                                                                                        | ST13 Barrigada Heights Reservoir No. 2                                                                                                                               | GWA disputes this finding as a significant deficiency. This tank is part of the CIP refurbishment. The ladder will be fixed as part of this CIP. |
| Reservoirs/ Storage Tanks           | The water level measurement device does not work properly.                                                                                                                                                                                                                                        | ST14 Mangilao Reservoir No. 1                                                                                                                                        | GWA disputes deficiency classification. Work to correct deficiency is on-going.                                                                  |

**NORTHERN SYSTEM SANITARY SURVEY SIGNIFICANT DEFICIENCIES SUMMARY**

| CATEGORY                     | SIGNIFICANT DEFICIENCY                                                                                                                                                                                           | LOCATION                                                         | CORRECTIVE ACTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reservoirs/<br>Storage Tanks | Unknown leak at chlorination facility. Large leak coming from inside of an old chlorination room and operators did not have a key to open the door.                                                              | ST17 Chaot Reservoir No. 1;<br>ST18 Chaot Reservoir No. 2        | Corrected as of February 2025.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Reservoirs/<br>Storage Tanks | Vandalism on wall of the tank. The tank is not protected from unauthorized entry or vandalism.                                                                                                                   | ST09 Kaiser Reservoir                                            | GWA disputes this finding as a significant deficiency. This tank is part of the CIP refurbishment.                                                                                                                                                                                                                                                                                                                                                                                        |
| Treatment                    | No fan for vent suction.                                                                                                                                                                                         | M-17A                                                            | Procurement for replacement in progress.                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Treatment                    | Opening on the back wall of the chlorination room.                                                                                                                                                               | M-17B                                                            | GWA disputes deficiency classification. Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                                                                                                                           |
| Treatment                    | Chlorine gas cylinders not in use. There are two gas cylinders in the facility that are not in use.                                                                                                              | M-5                                                              | Corrected as of February 2025.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Treatment                    | Defective chlorine analyzer.                                                                                                                                                                                     | M-2; M-6                                                         | The replacement of chlorine analyzers is part of an on-going CIP project.                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Treatment                    | Defective LED for chlorine/power backup battery.                                                                                                                                                                 | M-23; A-14; D-21; D-26; EX-11;<br>F-6; F-16; H-1; Y-4; Y-6; Y-18 | GWA disputes deficiency classification. However, procurement is in process.                                                                                                                                                                                                                                                                                                                                                                                                               |
| Treatment                    | Door cannot be locked.                                                                                                                                                                                           | D-3B                                                             | GWA disputes deficiency classification. Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                                                                                                                           |
| Treatment                    | High charge rate on the battery power backup. A high charge rate indicates that the battery may need replacement soon.                                                                                           | M-4                                                              | GWA will consult with GPA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Treatment                    | Leak at chlorine analyzer.                                                                                                                                                                                       | D-4; D-14; D-17B; F-8; F-11                                      | The replacement of chlorine analyzers is part of an on-going CIP project.                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Treatment                    | Leak at lead GAC pressure gauge.                                                                                                                                                                                 | NAS-1                                                            | GWA disputes deficiency classification. Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                                                                                                                           |
| Treatment                    | Leak at pump in chlorination room.                                                                                                                                                                               | D-17B; H-1; HGC-2                                                | Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Treatment                    | Missing bolts on the pump.                                                                                                                                                                                       | F-10; F-15                                                       | GWA disputes deficiency classification. Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                                                                                                                           |
| Treatment                    | Multiple chlorine cylinders stored outside the facility with no proper security. Approximately 20+ gas chlorine cylinders are stored on the property between production wells A-29 and A-30 and are not secured. | A-30                                                             | Currently, the property between A-29 and A-30 is used as a delivery/staging area for drop off of new chlorine cylinders and the pickup of empty cylinders from the vendor. The storage racks are equipped with securable gates, which will be locked when no active cylinder exchange is occurring. GWA will undertake a CIP to provide site security and will advise of estimated completion time.                                                                                       |
| Treatment                    | No mark or label "full" or "empty" of stored/backup gas cylinders.                                                                                                                                               | A-14; A-21                                                       | GWA disputes deficiency classification. Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                                                                                                                           |
| Treatment                    | No power backup battery.                                                                                                                                                                                         | D-17B; TMW                                                       | GWA disputes deficiency classification. However, procurement is in process.                                                                                                                                                                                                                                                                                                                                                                                                               |
| Treatment                    | Not in use gas cylinders. There are two gas chlorine cylinders not in use at chlorination room.                                                                                                                  | M-1                                                              | GWA disputes deficiency classification. Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                                                                                                                           |
| Treatment                    | Opening in the ground at the entrance of the chlorine room.                                                                                                                                                      | M-20A                                                            | GWA disputes deficiency classification. Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                                                                                                                           |
| Treatment                    | Pump in the chlorination room needs to be bolted down.                                                                                                                                                           | M-2; M-3; M-9; NAS-1; TMW                                        | GWA disputes deficiency classification. Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                                                                                                                           |
| Treatment                    | Outflow sample tap is not secured. The outflow sample tap must be locked to prevent vandalism.                                                                                                                   | ST09 Kaiser Reservoir                                            | Corrected as of February 2025.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Treatment                    | Rover doesn't note where chlorine residual sample is taken.                                                                                                                                                      | D-11                                                             | Corrected as of May 2025.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Treatment                    | Scales not bolted down properly. Secure the scales properly to ensure that the weight of the gas chlorine is accurate.                                                                                           | F-4; M-2                                                         | GWA disputes deficiency classification. Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                                                                                                                           |
| Treatment                    | Switch for ventilation is capped.                                                                                                                                                                                | D-12                                                             | Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Treatment                    | The treatment plant is not protected from trespassing/vandalism. Graffiti found on the walls inside of the chlorination room.                                                                                    | F-6; F-15; F-18; Y-14                                            | GWA disputes this as a significant deficiency as it does not affect the quality of the water produced. GWA Operations staff will work with GWA's Safety team to determine what measures need to be implemented to ensure that the treatment plant is protected from trespassing/vandalism. The graffiti inside the chlorine room will be cleaned. This will be as part of GWA's CIP project. Scope of work and hiring of contractor to complete the repair will require at least 2 years. |
| Treatment                    | Unknown drain hole in the chlorination room.                                                                                                                                                                     | Y-21A                                                            | Corrected as of January 2025.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Treatment                    | Unknown pipe opening in floor of chlorination room.                                                                                                                                                              | Y-10; Y-14                                                       | Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

**CENTRAL SYSTEM SANITARY SURVEY SIGNIFICANT DEFICIENCIES SUMMARY**

| CATEGORY      | SIGNIFICANT DEFICIENCY                                                                                      | LOCATION                | CORRECTIVE ACTION                                                                                                                             |
|---------------|-------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Intake        | Santa Rita spring bears evidence that it maybe groundwater under direct influence (GWUDI) of surface water. | Santa Rita Springs      | GWA disagrees with the conclusion of this finding, as no evidence is presented to indicate that Santa Rita Springs is GWUDI of surface water. |
| Booster Pumps | Pump #2 is down. Repair/replace pump #1 to provide redundancy.                                              | Santa Ana Lower BPS-C02 | Corrected as of March 2025.                                                                                                                   |

**SOUTHERN SYSTEM SANITARY SURVEY SIGNIFICANT DEFICIENCIES SUMMARY**

| CATEGORY               | SIGNIFICANT DEFICIENCY                                                                                                                                                                                                                   | LOCATION                         | CORRECTIVE ACTION                                                                                                                                                                                                                                                                                                                          |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Treatment              | Several fish are in the sedimentation basins. There should not be any living organisms where treatment is applied.                                                                                                                       | Ugum WTP- Sedimentation Basins   | Corrected as of March 2025.                                                                                                                                                                                                                                                                                                                |
| Treatment              | SCADA does not function properly – acid washes have to be done manually. For the treatment process to function correctly, operators are working around the SCADA to perform chemical washes.                                             | Ugum WTP- Membranes              | SCADA replacement is part of a comprehensive CIP to upgrade SCADA for GWA's systems. In the interim, GWA is seeking SCADA technical support assistance to restore functionality and continues the manual process.                                                                                                                          |
| Treatment              | The air compressor and receiver should not be next to chemicals. Without regular servicing and inspections, there are serious risks due to the pressure built up as stored energy within vessel.                                         | Ugum WTP - Chemical Storage Room | This is being addressed as part of GWA's CIPs. In the interim, chemicals are moved in temporary storage.                                                                                                                                                                                                                                   |
| Treatment              | Unknown chemicals in the sludge feed room. There are 9 drums with unknown contents inside.                                                                                                                                               | Ugum WTP - Sludge Feed Room      | Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                    |
| Treatment              | Drums of chemicals that are expired/old. Drums of expired/old chemicals were found in the Chemical Storage Room.                                                                                                                         | Ugum WTP - Chemical Storage Room | Work to correct this deficiency is on-going. Anticipated to be removed by end of May 2025.                                                                                                                                                                                                                                                 |
| Treatment              | Incompatible chemicals stored together in the chemical storage room. Citric acid ignites in the presence of sulfuric acid and should not be stored in the chemical storage room.                                                         | Ugum WTP - Chemical Storage Room | This is being addressed as part of GWA's CIPs. In the interim, chemicals are moved in temporary storage.                                                                                                                                                                                                                                   |
| Treatment              | No secondary containment for the chemicals in drums. Caustic soda, citric acid, sulfuric acid don't have secondary containments for spills or leaks.                                                                                     | Ugum WTP - Chemical Storage Room | This is being addressed as part of GWA's CIPs. Facility has now been provided with spill response kits to mitigate impacts from potential spills.                                                                                                                                                                                          |
| Treatment              | No secondary containment for ACH in day tanks.                                                                                                                                                                                           | Ugum WTP - Chemical Feed Room    | This project is being addressed as part of GWA's CIPs.                                                                                                                                                                                                                                                                                     |
| Treatment              | No secondary containment for the chemicals in drums. Chemicals are being stored in the sludge feed room without secondary containments and should be removed if they are not-in-use.                                                     | Ugum WTP - Sludge Feed Room      | This project is being addressed as part of GWA's CIPs. Secondary containment and removal in progress.                                                                                                                                                                                                                                      |
| Treatment              | Chemicals not-in-use at the Ugum WTP should be removed. Chemicals are being stored in the sludge feed room without secondary containments and should be removed if they are not-in-use.                                                  | Ugum WTP - Sludge Feed Room      | This project is being addressed as part of GWA's CIPs. Secondary containment and removal in progress.                                                                                                                                                                                                                                      |
| Treatment              | The ACH container is leaking. There is a slow leak on the bottom of the ACH container.                                                                                                                                                   | Ugum WTP - Chemical Feed Room    | Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                    |
| Treatment              | Sodium Hypochlorite tank and equipment are offline and no plans for reuse. No other chemicals can be stored in the same room as chlorine gas.                                                                                            | Ugum WTP - Chlorine Room         | GWA disputes this as a significant deficiency. No other chemicals are being stored in this room.                                                                                                                                                                                                                                           |
| Production Well        | Unknown opening at the production well. The opening creates a potential for cross-connection.                                                                                                                                            | MJ-2                             | Corrected as of January 2025.                                                                                                                                                                                                                                                                                                              |
| Booster Pumps          | Leak at pump #2. Leaking water can produce moisture around motor, unsafe conditions around pump room, and a pathway for contaminants to enter the water supply if vacuum conditions occur at the stuffing box when the pump shuts off.   | Malojloj Line BPS-S01            | Procurement for repair is in process.                                                                                                                                                                                                                                                                                                      |
| Booster Pumps          | No fence for security around the booster pump. Not secured from unauthorized entry/vandalism. The pumps and controls are vulnerable to public access resulting in unauthorized entry and vandalism that may impact the quality of water. | Pigua BPS-S03                    | This project is being addressed as part of GWA's CIPs.                                                                                                                                                                                                                                                                                     |
| Booster Pumps          | Large gap in the fencing. Not secured from unauthorized entry/vandalism. Pumps and controls are vulnerable to public access resulting in unauthorized entry and vandalism that may impact the quality of water.                          | WPB-2 BPS-S05                    | Corrected as of April 2025.                                                                                                                                                                                                                                                                                                                |
| Booster Pumps          | Exterior of Ija BPS has no fencing. Not secured from unauthorized entry and vandalism. The pumps and controls are vulnerable to public access resulting in unauthorized entry and vandalism that may impact the quality of water.        | Ija BPS-S08                      | Pumps, controls and appurtenances are in a locked building to prevent unauthorized entry and vandalism. Construction of fencing and additional security measure is pending resolution of property ownership issues. Site was "transferred" from UOG to GWA but has property issues that need resolution before new construction can start. |
| Booster Pumps          | Pump #1 not bolted down on permanent structure.                                                                                                                                                                                          | Ija BPS-S08                      | Corrected as of April 2025.                                                                                                                                                                                                                                                                                                                |
| Booster Pumps          | Pump #2 not bolted down on permanent structure.                                                                                                                                                                                          | Ija BPS-S08                      | Corrected as of April 2025.                                                                                                                                                                                                                                                                                                                |
| Booster Pumps          | Not protected against trespassing/vandalism due to missing barb wire on left side of the fence. Barb wires are broken that need to be fixed.                                                                                             | Ugum River PS-S1                 | Work to correct deficiency is on-going.                                                                                                                                                                                                                                                                                                    |
| Finished Water Storage | No bypass around the tank for maintenance. A bypass is needed to ensure that maintenance to the tank can be accomplished if needed.                                                                                                      | Ugum Reservoir                   | All repairs including fencing of the Ugum Reservoir is being addressed as part of the 2011 Court Order under the CIP project W14-007-BND funding                                                                                                                                                                                           |
| Finished Water Storage | Fencing is incomplete and existing fencing is damaged. The back half of fencing is incomplete with some parts of the existing fencing missing barbed wire and damaged.                                                                   | Ugum Reservoir                   | All repairs including fencing of the Ugum Reservoir is being addressed as part of the 2011 Court Order under the CIP project W14-007-BND funding                                                                                                                                                                                           |
| Finished Water Storage | No cathodic protection. Steel tanks must have cathodic protection to control corrosion.                                                                                                                                                  | Malojloj Reservoir               | Cathodic Protection will be addressed as part of GWA's 2011 Court Order funding under CIP W19-003-BND                                                                                                                                                                                                                                      |

Definitions and Abbreviations:

**MCLG:** Maximum Contaminant Level Goal, or the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a significant margin of safety.

**MCL:** Maximum Contaminant Level, or the highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technique or measurement ability.

**MRDL:** Maximum Residual Disinfectant Level, or the level of a disinfectant that may not be exceeded at the consumer’s tap without an unacceptable possibility of health effects.

**MRDLG:** Maximum Residual Disinfectant Level Goal, or the maximum level of a disinfectant added to the water treatment at which no known or anticipated adverse health effect would occur. MRDLGs allow for a significant margin of safety.

**AL:** Action Level, or the concentration of a contaminant which, when exceeded triggers treatment or other requirements that a water system must follow. Examples are Copper AL = 1300 ppb; Lead AL = 15 ppb.

**LHAL:** Lifetime Health Advisory Level. A concentration level of a contaminant in drinking water at which adverse health effects are not anticipated to occur over a lifetime of exposure.

**TT:** Treatment Technique is a required process intended to reduce the level of a contaminant in drinking water.

**RV:** Reporting Value, is the level used for determining compliance with an MCL, and is the highest average value for any single source tested. For IOCs, SOC, VOCs and radionuclides, RV= the highest value detected. If the RV is below the MCL, the water is meeting the health and safety-based standards.

**Range:** range of values actually detected in samples from all the water tested

**VOC:** Volatile Organic Chemical

**SOC:** Synthetic Organic Chemical

**IOC:** Inorganic Chemical

**NTU:** nephelometric turbidity units

**ppm:** parts per million, or milligrams per liter

**ppb:** parts per billion, or micrograms per liter

**ppt:** parts per trillion, or nanograms per liter

**pCi/l:** picocuries per liter, a measure of radioactivity

**mrem/yr:** millirems per year, a measure of radioactivity

**nd:** not detectable at testing limits

**n/a:** not applicable

**ns:** no standard

**8:2 FTS:** 1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid

**6:2 FTS:** 1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid

**PFBS:** Perfluorobutane sulfonic acid

**PFBA:** Perfluorobutanoic acid

**PFHpA:** Perfluoroheptanoic acid

**PFHxS:** Perfluorohexanesulfonic acid

**PFHxA:** Perfluorohexanoic acid

**PFOS:** Perfluorooctane sulfonic acid

**PFOA:** Perfluorooctanoic acid

**PFPeS:** Perfluoropentanesulfonic acid

**PFPeA:** Perfluoropentanoic acid

2024 Water Quality Data

Primary Standards: Mandatory Health-Related Standards¹

| CONTAMINANT (units)          | MCLG | MCL             | NORTHERN<br>GROUND WATER |        |                 |           | CENTRAL<br>GROUND AND FENA WATER |        |                 |           | SOUTHERN<br>UGUM WATER |       |                 |           | Major Sources of Contaminant                                 |
|------------------------------|------|-----------------|--------------------------|--------|-----------------|-----------|----------------------------------|--------|-----------------|-----------|------------------------|-------|-----------------|-----------|--------------------------------------------------------------|
|                              |      |                 | Range                    | RV     | Year<br>sampled | Violation | Range                            | RV     | Year<br>sampled | Violation | Range                  | RV    | Year<br>sampled | Violation |                                                              |
| <b>Regulated IOCs</b>        |      |                 |                          |        |                 |           |                                  |        |                 |           |                        |       |                 |           |                                                              |
| Antimony (ppb)               | 6    | 6               | nd - 1.9                 | 1.9    | 2024            | No        | nd                               | nd     | 2024            | No        | nd                     | nd    | 2024            | No        | Erosion of natural deposits                                  |
| Arsenic (ppb)                | N/A  | 10              | nd - 2.3                 | 2.3    | 2024            | No        | nd                               | nd     | 2024            | No        | nd                     | nd    | 2024            | No        | Erosion of natural deposits                                  |
| Barium (ppb)                 | 2000 | 2000            | nd - 8.0                 | 8.0    | 2024            | No        | nd                               | nd     | 2024            | No        | 4.3                    | 4.3   | 2024            | No        | Erosion of natural deposits                                  |
| Chromium (ppb)               | 100  | 100             | nd - 12                  | 12.0   | 2024            | No        | nd                               | nd     | 2024            | No        | nd                     | nd    | 2024            | No        | Erosion of natural deposits                                  |
| Copper (ppb)                 | 1300 | AL=1300         | nd - 77                  | 77     | 2024            | No        | 2.9 -4.2                         | 4.2    | 2024            | No        | 26                     | 26    | 2024            | No        | Erosion of natural deposits                                  |
| Lead (ppb)                   | 0    | AL=15           | nd - 6.9                 | 6.9    | 2024            | No        | nd                               | nd     | 2024            | No        | nd                     | nd    | 2024            | No        | Erosion of natural deposits                                  |
| Nitrate-N (ppm)              | 10   | 10              | 0.73 - 5.4               | 5.4    | 2024            | No        | 0.13 - 2.2                       | 2.2    | 2024            | No        | nd                     | nd    | 2024            | No        | Runoff from fertilizer use; leaching from septic tank sewage |
| Nitrite-N (ppm)              | 1    | 1               | <0.005 - 0.013           | 0.013  | 2022            | No        | <0.005                           | <0.005 | 2022            | No        | 0.007                  | 0.007 | 2022            | No        | Runoff from fertilizer use; leaching from septic tank sewage |
| Selenium (ppb)               | 50   | 50              | nd - 13                  | 13.000 | 2024            | No        | nd - 4.2                         | 4.2    | 2024            | No        | nd                     | nd    | 2024            | No        | Erosion of natural deposits                                  |
| <b>Regulated SOC</b> s       |      |                 |                          |        |                 |           |                                  |        |                 |           |                        |       |                 |           |                                                              |
| Chlordane (ppb)              | 0    | 2               | nd - 1.4                 | 1.4    | 2024            | No        | nd                               | nd     | 2024            | No        | nd                     | nd    | 2024            | No        | Banned termiticide residue                                   |
| Endrin (ppb)                 | 2    | 2               | nd - 0.029               | 0.029  | 2024            | No        | nd                               | nd     | 2024            | No        | nd                     | nd    | 2024            | No        | Canceled pesticide residue                                   |
| Heptachlor Epoxide (ppb)     | 0    | 0.2             | nd - 0.023               | 0.023  | 2024            | No        | nd                               | nd     | 2024            | No        | nd                     | nd    | 2024            | No        | Breakdown of the banned pesticide heptachlor                 |
| Picloram (ppb)               | 500  | 500.0           | nd                       | nd     | 2024            | No        | nd - 0.17                        | 0.17   | 2024            | No        | nd                     | nd    | 2024            | No        | Herbicide runoff                                             |
| <b>Regulated VOC</b> s       |      |                 |                          |        |                 |           |                                  |        |                 |           |                        |       |                 |           |                                                              |
| Trichloroethylene (ppb)      | 0    | 5.0             | nd - 0.81                | 0.81   | 2023            | No        | nd                               | nd     | 2021            | No        | nd                     | nd    | 2021            | No        | Discharge from metal degreasing sites and other factories    |
| <b>Radionuclides</b>         |      |                 |                          |        |                 |           |                                  |        |                 |           |                        |       |                 |           |                                                              |
| Radium 226 (pCi/l)           | 0    | 5               | 0.60 - 2.93              | 2.9    | 2024            | No        | nd - 2.0                         | 2.0    | 2021/2024       | No        | nd                     | nd    | 2021            | No        | Erosion of natural deposits                                  |
| Radium 228 (pCi/l)           | 0    | 5               | nd                       | nd     | 2021            | No        | nd                               | nd     | 2021            | No        | nd                     | nd    | 2021            | No        | Erosion of natural deposits                                  |
| Gross Alpha Activity (pCi/l) | 0    | 15              | 5.0 - 10.8               | 10.8   | 2024            | No        | nd - 2.3                         | 2.30   | 2021/2024       | No        | nd                     | nd    | 2021            | No        | Erosion of natural deposits                                  |
| Gross Beta Activity (pCi/l)  | 0    | 50 <sup>a</sup> | nd - 4.5                 | 4.5    | 2023            | No        | nd- 5.9                          | 5.9    | 2023            | No        | nd                     | nd    | 2021            | No        | Decay of natural and man-made deposits                       |
| Uranium (µg/L)               | 0    | 30              | nd - 4.5                 | 4.5    | 2021            | No        | nd                               | nd     | 2021            | No        | nd                     | nd    | 2021            | No        | Erosion of natural deposits                                  |

a The MCL for beta particles is 4 mrem/year. However, EPA considers 50 pCi/l to be the level of concern for beta particles.

Lead and Copper Rule²

| CONTAMINANT (units) | MCLG | MCL     | NORTHERN                 |                     |                 |           | CENTRAL                  |                     |                 |           | SOUTHERN                 |                     |                 |           | Major Sources of Contaminant    |
|---------------------|------|---------|--------------------------|---------------------|-----------------|-----------|--------------------------|---------------------|-----------------|-----------|--------------------------|---------------------|-----------------|-----------|---------------------------------|
|                     |      |         | 90th Percentile<br>Level | Samples<br>above AL | Year<br>sampled | Violation | 90th Percentile<br>Level | Samples<br>above AL | Year<br>sampled | Violation | 90th Percentile<br>Level | Samples<br>above AL | Year<br>sampled | Violation |                                 |
| Copper (ppb)        | 1300 | AL=1300 | 160                      | 0                   | 2022            | No        | 240                      | 0                   | 2022            | No        | 53                       | 0                   | 2022            | No        | Corrosion of household plumbing |
| Lead (ppb)          | 0    | AL=15   | 1.5                      | 0                   | 2022            | No        | 1.5                      | 0                   | 2022            | No        | 0.83                     | 0                   | 2022            | No        |                                 |

Microbial Contaminants²

| CONTAMINANT (units)                                            | MCLG | MCL             | NORTHERN SYSTEM |                 |           | CENTRAL SYSTEM    |                 |           | SOUTHERN SYSTEM   |                 |           | Major Sources of Contaminant     |
|----------------------------------------------------------------|------|-----------------|-----------------|-----------------|-----------|-------------------|-----------------|-----------|-------------------|-----------------|-----------|----------------------------------|
|                                                                |      |                 | RV              | Year<br>sampled | Violation | RV                | Year<br>sampled | Violation | RV                | Year<br>sampled | Violation |                                  |
| Total Coliform (TC)                                            | 0    | 5% <sup>b</sup> | 1.2%            | 2024            | No        | 3 positive sample | 2024            | Yes       | 2 positive sample | 2024            | Yes       | Naturally present in environment |
| Fecal coliform (FC) or E. coli<br>(at the distribution system) | 0    | 0               | 0               | 2024            | No        | 0                 | 2024            | No        | 0                 | 2024            | No        | Human and animal fecal waste     |

b MCL is based monthly. For Central and Southern systems: One positive samples per month. See RTCR: Level 1 or 2 Assessments for more information.

Disinfection Byproducts (DBPs) and Disinfection Residuals²

| CONTAMINANT (units)                   | MCLG         | MCL         | NORTHERN SYSTEM |      |                 |           | CENTRAL SYSTEM |      |                 |           | SOUTHERN SYSTEM |      |                 |           | Major Sources of Contaminant              |
|---------------------------------------|--------------|-------------|-----------------|------|-----------------|-----------|----------------|------|-----------------|-----------|-----------------|------|-----------------|-----------|-------------------------------------------|
|                                       |              |             | Range           | RV   | Year<br>sampled | Violation | Range          | RV   | Year<br>sampled | Violation | Range           | RV   | Year<br>sampled | Violation |                                           |
| HAA5 (Five Haloacetic Acids)<br>(ppb) | n/a          | 60          | nd - 16         | 6.7  | 2024            | No        | 4.5 - 22       | 17.5 | 2024            | No        | 15 - 27         | 19.5 | 2024            | No        | By-product of drinking water chlorination |
| Total Trihalomethanes (ppb)           | n/a          | 80          | nd - 120 °      | 44.5 | 2024            | No        | 37 - 85        | 62.3 | 2024            | No        | 32 - 52         | 43.3 | 2024            | No        | By-product of drinking water chlorination |
| Chlorine (ppm)                        | <b>MRDLG</b> | <b>MRDL</b> |                 |      |                 |           |                |      |                 |           |                 |      |                 |           | Water additive to control microbes        |
|                                       | 4            | 4           | 0.2 - 3.2       | 1.6  | 2024            | No        | 0 - 3.5        | 1.4  | 2024            | No        | 0 - 3.5         | 1.0  | 2024            | No        |                                           |

c Some people who drink trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

1. Data presented in these tables list the results of tests done between Jan 1 – Dec 31, 2024. Tables list only the contaminants detected. Detection does not necessarily mean a violation or exceedence of an MCL or Treatment Technique. GWA monitors for some constituents less than once per year because they are not expected to vary significantly from year to year. Therefore, some of the water quality data reported, although representative, may be more than one year old. If you have questions about this water quality report, please contact Jennifer O. Cruz, GWA's Compliance Monitoring Laboratory Administrator at (671) 300-6360.

2. Microbial, lead and copper, haloacetic acids (HAA5), and total trihalomethanes (TTHM) samples were taken from the distribution system, not from source waters. Compliance for chlorine is based on annual running average (ARA) calculated monthly (highest average). Compliance with MCL for HAA5 and TTHM monitoring is based on LRAA (locational running annual average) calculated quarterly. Required number of HAA5 and TTHM monitoring sites are as follows: Northern - 6 sites; Central - 4 sites; Southern - 2 sites.



Turbidity as Indicator of Filtration Performance<sup>d</sup>

| CONTAMINANT (units) | MCLG | MCL             | UGUM WATER |           |             | FENA WATER |           |             | Major Sources of Contaminant |
|---------------------|------|-----------------|------------|-----------|-------------|------------|-----------|-------------|------------------------------|
|                     |      |                 | RV         | Violation | Sample Year | RV         | Violation | Sample Year |                              |
| Turbidity (ntu)     | n/a  | TT= 1 NTU       | 0.13       | No        | 1/3/24      | 0.212      | No        | 6/15/24     | Soil runoff                  |
|                     |      | TT <sup>e</sup> | 100.0%     | No        | 2024        | 100.0%     | No        | 2024        |                              |

d Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headache.

e TT = 95 % of samples measured every 4 hours < 0.3 ntu

Unregulated Contaminants (Monitoring Required)<sup>f</sup>

| CONTAMINANT (units)                                      | MCLG | MCL | NORTHERN<br>GROUND WATER |     |                | CENTRAL<br>GROUND AND FENA WATER |     |                | SOUTHERN<br>UGUM WATER |    |             |
|----------------------------------------------------------|------|-----|--------------------------|-----|----------------|----------------------------------|-----|----------------|------------------------|----|-------------|
|                                                          |      |     | Range                    | RV  | Sample<br>Year | Range                            | RV  | Sample<br>Year | Range                  | RV | Sample Year |
| Unregulated Per-and Polyfluoroalkyl<br>Substances (PFAS) |      |     |                          |     |                |                                  |     |                |                        |    |             |
| PFOS (ppt)                                               | ns   | ns  | nd - 150                 | 5.8 | 2024           | 2.0 - 4.1                        | 2.6 | 2024           | nd                     | nd | 2024        |
| PFOA (ppt)                                               | ns   | ns  | nd - 11                  | 1.1 | 2024           | nd - 2.2                         | 0.4 | 2024           | nd                     | nd | 2024        |
| PFHxA (ppt)                                              | ns   | ns  | nd -29                   | 3.7 | 2024           | nd                               | nd  | 2024           | nd                     | nd | 2024        |
| PFHxS (ppt)                                              | ns   | ns  | nd - 39                  | 6.3 | 2024           | nd - 2.7                         | 1   | 2024           | nd                     | nd | 2024        |
| PFBS (ppt)                                               | ns   | ns  | nd - 31                  | 3.2 | 2024           | nd                               | nd  | 2024           | nd                     | nd | 2024        |
| PFHpA (ppt)                                              | ns   | ns  | nd - 148                 | 1.3 | 2024           | nd                               | nd  | 2024           | nd                     | nd | 2024        |
| PFBA (ppt)                                               | ns   | ns  | nd - 13                  | 0.8 | 2024           | nd                               | nd  | 2024           | nd                     | nd | 2024        |
| PFNA (ppt)                                               | ns   | ns  | nd - 0.95                | 0.0 | 2024           | nd                               | nd  | 2024           | nd                     | nd | 2024        |
| PFPeA (ppt)                                              | ns   | ns  | nd - 35                  | 2.9 | 2024           | nd                               | nd  | 2024           | nd                     | nd | 2024        |
| PFPeS (ppt)                                              | ns   | ns  | nd - 9.4                 | 0.2 | 2024           | nd                               | nd  | 2024           | nd                     | nd | 2024        |
| 6:2 FTS (ppt)                                            | ns   | ns  | nd - 85                  | 1.0 | 2024           | nd                               | nd  | 2024           | nd                     | nd | 2024        |
| 8:2 FTS (ppt)                                            | ns   | ns  | nd - 16                  | 0.1 | 2024           | nd                               | nd  | 2024           | nd                     | nd | 2024        |

f Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether there is a need to regulate those contaminants. (UCMR 5 and Expanded Sampling Data)

Secondary Standards - Consumer Acceptance Limits<sup>g</sup>

| CONTAMINANT (units)    | MCLG | MCL       | NORTHERN GROUND WATER |             | CENTRAL GROUND AND FENA WATER |             | SOUTHERN UGUM WATER |             |
|------------------------|------|-----------|-----------------------|-------------|-------------------------------|-------------|---------------------|-------------|
|                        |      |           | Range                 | Sample Year | Range                         | Sample Year | Range               | Sample Year |
| Chloride (ppm)         | n/a  | 250       | 5 - 410               | 2024        | 15 - 75                       | 2024        | 10 - 70             | 2024        |
| Conductivity (mmho/cm) | n/a  | 1600      | 374 - 2000            | 2024        | 266 - 469                     | 2024        | 113 - 169           | 2024        |
| Fluoride (ppm)         | n/a  | 2.0       | nd - 0.17             | 2024        | nd - 0.53                     | 2024        | 0.083               | 2024        |
| pH (units)             | n/a  | 6.5 - 8.5 | 6.96 - 7.86           | 2024        | 7.37 - 7.90                   | 2024        | 7.30 - 7.68         | 2024        |
| Sulfates (ppm)         | n/a  | 250       | 3.7 - 51              | 2024        | 1.4                           | 2024        | 1.7                 | 2024        |

g Secondary MCL monitoring helps GWA to determine areas in need of adjustment, additional maintenance or rehabilitation in order to provide a high quality water that appeals to the consumer.

Additional Constituents Analyzed

| CONTAMINANT (units)       | MCLG | MCL | NORTHERN GROUND WATER |             | CENTRAL GROUND AND FENA WATER |             | SOUTHERN UGUM WATER |             |
|---------------------------|------|-----|-----------------------|-------------|-------------------------------|-------------|---------------------|-------------|
|                           |      |     | Range                 | Sample Year | Range                         | Sample Year | Range               | Sample Year |
| Alkalinity as CaCO3 (ppm) | n/a  | n/a | 22 -343               | 2024        | 95 - 200                      | 2024        | 35 - 61             | 2024        |
| Aldrin (ppb) (ppm)        | n/a  | n/a | nd - 0.024            | 2024        | nd                            | 2024        | nd                  | 2024        |
| Bromacil (ppb)            | n/a  | n/a | nd - 0.11             | 2024        | nd                            | 2024        | nd                  | 2024        |
| Dieldrin (ppb)            | n/a  | n/a | nd - 2.0              | 2024        | nd                            | 2024        | nd                  | 2024        |
| Hardness as CaCO3 (ppm)   | n/a  | n/a | 0 - 484               | 2024        | 94 - 222                      | 2024        | 32 - 54             | 2024        |
| Nickel (ppm)              | n/a  | n/a | nd - 0.0081           | 2024        | nd                            | 2024        | nd                  | 2024        |
| Sodium (ppm)              | n/a  | n/a | nd - 220              | 2021        | 16 - 52                       | 2024        | 12                  | 2021        |

Other Treatment

| CONTAMINANT (units) | MCLG | MCL             | GROUND WATER | FENA WATER             |             | UGUM WATER |
|---------------------|------|-----------------|--------------|------------------------|-------------|------------|
| Acrylamide          | 0    | TT <sup>h</sup> | n/a          | RV                     | Sample Year | n/a        |
|                     |      |                 |              | ≤ 0.05% dosed at 1 ppm | 2024        |            |

h The combination (or product ) of dose and monomer level of acrylamide should never exceed 0.05% dosed at 1 ppm.

Ground Water Rule Special Notice

| CONTAMINANT (units)                                                | MCLG | MCL | NORTHERN SYSTEM |              |           |                              |
|--------------------------------------------------------------------|------|-----|-----------------|--------------|-----------|------------------------------|
|                                                                    |      |     | RV              | Year Sampled | Violation | Major Source of Contaminant  |
| Fecal coliform (FC) or E. coli (untreated raw groundwater source)* | 0    | 0   | 3               | 2024         | No        | Human and animal fecal waste |

\* On April 24, 2024, distribution system routine sampling in Agana Heights resulted in one total coliform positive sample, which triggered a source water monitoring. On April 25, 2024, result for Well A-31 was positive for E. coli. GWA issued a Boil Water Notice to affected areas. Preventative measures and corrective actions were taken immediately including repeat sampling, increased flushing, placing well offline, subsequent sampling to confirm the system was clear, and following GEPA requirements and approval to place Well A-31 back online. Note that treated samples collected concurrent with the raw samples tested negative for E. coli.

Health Effects. Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.