2018 Annual Consumer Confidence Report Naval Station, Guantanamo Bay (NSGB)

WATER SOURCE AND TREATMENT

We are pleased to provide you with the 2018 Annual Drinking Water Quality Report. This report is designed to inform you about the quality of water and services we deliver to you every day. NSGB's goal is to provide to you a safe and dependable supply of drinking water.

Our drinking water source is seawater drawn from Guantanamo Bay, approximately 220 feet from the shoreline near the DESAL plant. The raw seawater is made into drinking water through a process called reverse osmosis (RO) which is the application of pressure to a concentrated solution (seawater) causeing the passage of liquid from the concentrated solution to a weaker solution across a semi-permeable membrane. The membrane allows the passage of water (solvent); but does not allow the passage of the dissolved solids (solutes), including salts. The RO plant is currently capable of producing approximately 1.6 million gallons per day. Water produced from the RO plant is transferred to water storage tanks before being processed through the water treatment plant (WTP3). WTP3 adds additional lime to make the water less corrosive and adds necessary minerals (calcium) to the water. WTP3 also adds fluoride which has been shown clinically to reduce tooth decay. At WTP3, water is held in large storage tanks before entering the distribution system to the customer's tap.

MONITORING REQUIREMENTS

NSGB routinely monitors/tests for contaminants in your drinking water according to the Environmental Final Governing Standards for Cuba (FGS) and CNICINST 5090 Series. Except where indicated otherwise, this report is based on the results of our monitoring for the period of January 1 to December 31, 2018. If you have any questions about the quality of water at NSGB or would like more information on the Overseas Drinking Water Program, please contact Public Works Department, Environmental Division at 5625 or 5627.

POTENTIAL CONTAMINANTS

The sources of drinking water (both tap water and bottled water) include oceans, rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

1. Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
2. Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas

production, mining, or farming.
3. Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
4. Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
5. Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

To ensure water is safe to drink, the United States Environmental Protection Agency (EPA) prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

INFORMATION ON BACTERIOLOGICAL TESTING

Total coliforms are naturally present in the environment and serve as an indicator that a potential pathway exists through which contamination may enter the drinking water distribution system. On January 16, 2018, coliforms were found during routine sampling for bacteria at Tank 1680, o n l y affecting building 1074. This violation is noted in Table 1, Section C, Microbials, below. It was determined that the root cause of the positive sample was the stagnancy of water in the tank. Water storage tank 1680 does not service a large area. Chlorine is used to effectively prevent bacteriological contamination in most public water systems. To eliminate the risk posed by the presence of bacteria, the Installation Water Quality Board (IWQB) issued a Precautionary Boil Water Notice (PBWN) on the same day for building 1074, pending a return to safe and sanitary conditions at impacted water delivery points supplied by Tank 1680. To resolve the issue, corrective actions were taken by the Water Systems Manager over the next several days. This included taking Tank 1680 offline, super-chlorinating the water in the tank and flushing the water through the impacted lines until all service connections throughout building 1074 contained adequate chlorine levels. On January 19th and 20th, 2018, all test results were found negative for bacteria and the PBWN was lifted. To prevent this from re-occurring building occupants are flushing the building routinely to try and keep chlorine levels up in tank 1680.

To better understand the violation in context, consider the following: NSGB takes routine coliform samples weekly at nine (9) drinking water storage tanks, which is a total of 468 bacteriological tests per year. In addition, 10 routine coliform samples are taken monthly (120 tests/year) at designated housing and facilities throughout the installation. Out of the combined 588 yearly samples, only one routine sample and one repeat sample in 2018 were positive for total coliforms. For more information on coliform testing, please visit the following EPA website: https://www.epa.gov/dwreginfo/revised-total-coliform-rule-and-total-coliform-rule.

INFORMATION ON INORGANICS

An annual requirement to monitor for inorganic contaminants once per year was violated in 2018. The following inorganic contaminants were not sampled: Arsenic, barium, cadmium, chromium, mercury, nickel, selenium, antimony beryllium and thallium. In early 2019 this error was discovered and samples were analyzed for all of these contaminants and none were in violation of the standard. A record review of the last 20 years revealed that none of the contaminants exceeded a standard. This would be expected as the reverse osmosis filters at the plant are very effective in removing contaminants.

INFORMATION ON LEAD

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. 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. Routine sampling for lead is conducted in accordance with the Lead and Copper Rule and the Lead in Priority Areas (LIPA) Program.

VULNERABLE RESIDENTS

Drinking water (including bottled water) may reasonably be expected to contain at least small amounts of contaminants. Their presence does not necessarily indicate that water poses a health risk. Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons (such as those with cancer undergoing chemotherapy; persons who have undergone organ transplants; people with HIV / AIDS or other immune system disorders) and some elderly and infants can be particularly at risk from infections. People who are immune-compromised should seek advice about drinking water from their health care providers, EPA, the Centers for Disease Control and Prevention (CDC) for guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426- 4791).

TERMS AND ABBREVIATIONS

You may find unfamiliar terms and abbreviations in the tables below and throughout the document. To help you better understand these terms we've provided the following definitions:

AL: Action Level. The concentration of a contaminant which, if exceeded, triggers further treatment or other procedures that the water system must follow to lower the level.

Level 1 Assessment: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

Level 2 Assessment: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

MCL: Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water (by regulation).

mg/L: milligrams per liter; equivalent to parts per million.

NA: Not applicable.

ND: Not detectable. A value below the detectable limit by the lab test procedure.

NPDWR: National Primary Drinking Water Regulations: legally enforceable standards that apply to public water supply systems. Primary standards aim at protecting drinking water quality by setting limits on the levels of specific contaminants that can adversely affect public health and are known or anticipated to occur in public water systems.

NSDWR: National Secondary Drinking Water Regulations: non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply.

NTU: Nephelometric Turbidity Units: a measure of the clarity of water. Turbidity is measured with an instrument called a nephelometer, which measures the intensity of light scatted by suspended matter in the water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Total coliforms: a group of related bacteria that are naturally present in the environment and are not harmful to humans (with few exceptions). EPA considers total coliforms a useful indicator of other pathogens for drinking water. Total coliforms are used to determine the adequacy of water treatment and the integrity of the distribution system.

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

Turbidity: A measure of the cloudiness of water. We measure turbidity because it is a good indicator of the effectiveness of the water treatment system.

TABLE 1. NPDWR (enforceable)

Contaminant	Sampling Site	Units	MCL or Highest Level Allowed	Level Detected (or Range of Detections)	Violations (Y/N)	Typical Source of Contaminant
A. ORGANICS						
Total Trihalomethanes (TTHM's)	AV-526 LP BEQ	mg/L	0.080	0.01915 -0.03660	No	by-product of disinfection by chlorination
HaloAceticAcid5 (HAA5)	Residential units	mg/L	0.060	0.00201 – 0.00944	No	by-product of disinfection by chlorination
B. INORGANICS						
Copper	Residential units	mg/L	AL=1.3	0.010 – 0.074	No	corrosion of plumbing; erosion of natural deposits
Lead	Residential units	mg/L	AL=0.015	0.00 – 0.0091	No	corrosion of plumbing; erosion of natural deposits
Fluoride	Water Plant #3Bldg 815	mg/L	4	ND	No	water treatment additive which prevents tooth decay; erosion of natural deposits
Nitrate	Water Plant #3 Bldg 815	mg/L	10	ND	No	run-off from fertilizeruse; erosion of natural deposits
C. MICROBIALS						
Total Coliform Bacteria	Residential Units/Water Storage Tanks	Number of Positi	No more than one Positive Sampleper Month	1routine 1repeat	Yes*	naturally present in the environment; indicator species for potential distribution line contamination
Turbidity	Reverse OsmosisPlant Product Water	NTU	0.3	0.01-0.29	No	breakdown of natural minerals and deposits, soil runoff; indicator of filter efficiency

*Jan 16, 2018 – Tank 1680 routine and repeat sample violation; see page 2, Information on Bacteriological Testing, for details.

TABLE 2. NSDWR (recommended/non-enforceable)

Contaminant	Sampling Site	Units	MCL or Highest Level Allowed	Level Detected (or Range of Detections)	Violations (Y/N)	Typical Source of Contaminant
Sodium	Water Plant #3 Bldg 815	mg/L	250	120	n/a	breakdown of natural minerals and deposits
Chlorides	Water Plant #3 Bldg 815	mg/L	250	181 - 225	n/a	breakdown of natural minerals and deposits
Iron	Water Plant #3 Bldg 815	mg/L	0.3	0.00 – 0.13	n/a	water distribution pipe corrosion
Sulfate	Water Plant #3 Bldg 815	mg/L	250	0.00 - 2.00	n/a	run-off from fertilizer use; erosion of natural deposits
Total Dissolved Solids	Water Plant #3 Bldg 815	mg/L	500	293 - 439	n/a	breakdown of natural minerals and deposits