2018 CONSUMER CONFIDENCE REPORT

Diego Garcia Water Systems

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FOREWORD

The U.S. Navy Support Facility (NAVSUPPFAC) Diego Garcia is committed in providing the Diego Garcia community and transient units with safe drinking water that meets the Diego Garcia Final Governing Standards (DGFGS) and Commander, Navy Installations Command Instruction (CNICINST) 5090.1 requirements. The latter applies most of the U.S. Safe Drinking Water Act (SDWA) rules and implementing regulations to drinking water systems located on all overseas U.S. Navy installations. Consumers are entitled to know the sources and quality of water delivered by each system.

NAVSUPPFAC Diego Garcia publishes its Consumer Confidence Report (CCR) annually. It is a drinking water quality report that includes basic information on the source of Diego Garcia water and the levels of any contaminants detected in the water and its compliance status with drinking water standards.

The CCR also provides NAVSUPPFAC Diego Garcia, as the supplier, an opportunity to inform and educate consumers about the quality of their drinking water. Informed consumers who understand their water system operation are more likely to help protect their drinking water sources.

Monitoring data collected for water supplied during calendar year 2017 and other relevant data from prior years are the basis of this 2018 CCR.

J. C. COMPTON
Captain, U.S. Navy
Commanding Officer
Navy Support Facility
Diego Garcia

Diego Garcia Overview

The island of Diego Garcia is one of the more than 50 islands in the Chagos Archipelago, a 22,000 square-mile area known as the Great Chagos Bank.

Figure 1. Diego Garcia is located approximately 1,200 miles south of the southern tip of India and is the largest and southernmost island in the Chagos Archipelago.

The horseshoe-shaped coral atoll is approximately 40 miles in length and encloses a lagoon approximately 48 square miles in area. The atoll is approximately 10.5 square miles with an average elevation of six to eight feet above mean sea level.

Diego Garcia is administered by the British Indian Ocean Territory (BIOT). The eastern half of the atoll is an undeveloped nature reserve, while the western half is used by various military units, with the U.S. Navy Support Facility (NAVSUPPFAC) Diego Garcia serving as the host command under an agreement with the United Kingdom of Great Britain and Northern Ireland.

Overseas Drinking Water Program

Navy policy requires that all Navy facilities located overseas to manage their drinking water systems and provide drinking water in accordance with U.S. drinking water quality standards. In February 2013, CNIC Instruction 5090.1 (U.S. Drinking Water Quality Standards for U.S. Navy Installations Overseas) adopted most of the National Primary Drinking Water Regulations (40 CFR 141) promulgated under the U.S. Safe Drinking Water Act (SDWA) of 1974, under its Overseas Drinking Water (ODW) program.

NAVSUPPFAC Diego Garcia has been actively implementing measures to comply with the requirements of the Navy's ODW program. These include specific projects which are discussed throughout this CCR. The Regional Water Quality Board (RWQB), by recommendation of the Water Quality Oversight Council (WQOC), granted Diego Garcia a Conditional Certificate to Operate (CTO) its water systems in February 2018. Diego Garcia will not receive a Full CTO until all significant deficiencies identified during the latest Sanitary Survey (May 2017) are corrected.

The Diego Garcia Installation Water Quality Board (IWQB) was established by NAVSUPPFAC in April 2014. The IWQB is responsible for implementing and complying with the Navy policy on Drinking Water Quality Standards, and in communicating drinking water quality issues to the RWQB, the WQOC and its consumers. The IWQB is under the chairmanship of the NAVSUPPFAC Commanding Officer. It is comprised of key installation personnel responsible for the production and quality monitoring of safe drinking water, and for monitoring compliance with the Navy's ODW standards.

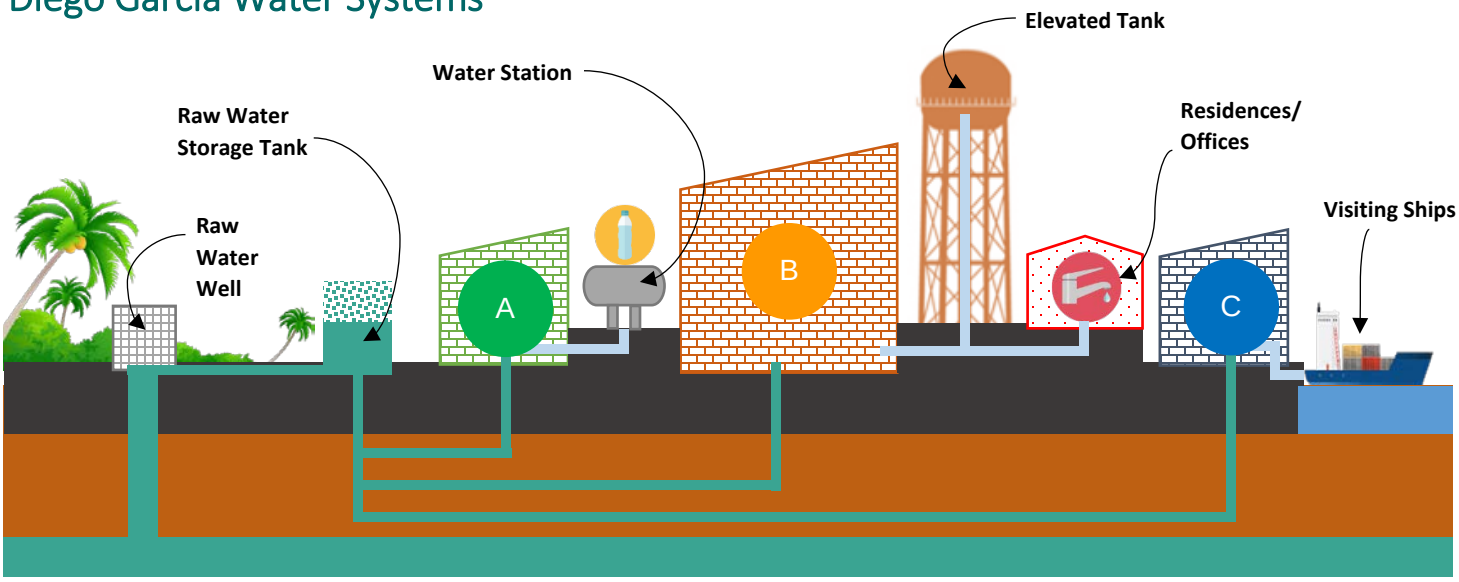
Diego Garcia Final Governing Standards (DGFGS)

The Diego Garcia Final Governing Standards (DGFGS) sets out the implementation guidance, procedures and standards for environmental compliance of U.S. military based in Diego Garcia. DGFGS is the compilation of host nation (BIOT/United Kingdom) environmental laws and regulations and the U.S. Department of Defense Overseas Environmental Baseline Guidance Document (OEBGD) requirements. DGFGS Chapter 3 (Drinking Water) contains the criteria for providing potable water in Diego Garcia. Additionally, CNICINST 5090.1 extended most of the U. S. Safe Drinking Water Act provisions overseas and imposes additional requirements to the DGFGS. In all cases, the more stringent requirement takes precedence. Forthcoming update of the DGFGS in 2018 will incorporate all CNIC ODW policies.

Both DGFGS Chapter 3 and CNICINST 5090.1 established the criteria for providing fit for human consumption (FFHC) water in Diego Garcia. FFHC water is drinking water that is fit for drinking, bathing, showering, cooking, dishwashing and maintaining oral hygiene. FFHC is the new term used in lieu of "potable" water.

DGFGS and CNICINST 5090.1 also set the standards for levels of contaminants in drinking water that may have adverse effect on human health, provide the monitoring or testing requirements (e.g. quantity and frequency of analyses and specific procedures) for treating and producing drinking water, and specify the requirements for Public Notification when water systems are out of compliance.

Diego Garcia Water Systems



A Nanofiltration Hauled Water System

This system is presently separated from the main water system in order to have a distinction between FFHC and non-FFHC systems. It consists of the Cantonment and Air Ops Nanofiltration systems and produces FFHC water. FFHC water is delivered (using water tank trucks and 5-gallon capacity containers) to various facilities throughout the island (e.g. offices, base gym, air passenger terminal, etc.), Figure 7. Bulk FFHC water is trucked to water tanks located throughout the island such as: residential areas and hydro-pneumatic systems located at all dining facilities and remote sites.

Note

Following FFHC declaration of the main WTP, only some water stations for hydration would be retained.

Figure 2. Water delivery truck delivers FFHC water to 500 gallon water tank

C Deep Draft Wharf (DDW) Water System

This system is co-located with the Air Ops Nanofiltration WTP at the Air Operations area. It produces FFHC water intended solely for the DDW distribution system, having 3 water service lines at the wharf where visiting vessels connect for FFHC water support.

Note

Due to the high levels of Lead found in the DDW Service Lines on 2017, the lines supplying water to the visiting vessels were secured. At present, water demand is being fulfilled by trucking water from the main WTP to the visiting vessels.

Figure 3. Nanofiltration Units at DDW WTP

B Main Water System

The new main water treatment plant (WTP), located at the downtown area is constructed under a military construction project (MILCON P-184) and commissioned in Dec 2016. It treats water extracted from wells at Cantonment and Air Ops. In 2017, water produced from the main WTP is considered non-FFHC water which supplies water to the Cantonment-Air Ops distribution system. At present, the main WTP now supplies FFHC water to the main distribution system as recently declared by the NAVSUPPFAC Diego Garcia Water Quality Board. Distribution pipelines were disconnected from their site-specific WTPs at the three remote locations. Water produced from the main WTP is trucked to storage tanks to remote sites and supplied into their distribution systems for other than drinking or human consumption use.

FFHC Declaration

On 28 February 2018, the NAVSUPPFAC Diego Garcia Water Quality Board, in consultation with Regional Water Quality Board, has determined the water supplied by the main water system fit for human consumption based on the requisite year-long water quality performed upon completion of the new water treatment plant.

This CCR reports water testing results from the main WTP prior to FFHC declaration.

Figure 4. Main WTP at Cantonment

Note

High levels of lead and copper were found in the main water distribution system on the first 2017 semi-annual monitoring conducted in February. Adjustments in the pH of the water at the main WTP were made to improve water quality. Due to this changes, levels of lead and copper decreased to acceptable limits on the second 2017 semi-annual monitoring conducted in August. Additional corrective actions, such as materials evaluation, lead pipe replacements, and corrosion control capability are being programmed to further improve the main water system.

Source of Water

The Diego Garcia Water Systems' source of water is groundwater from wells. Due to the aquifers' shallow nature and susceptibility to contamination from surface runoff percolating through the ground, they are classified as ***groundwater under the direct influence of surface water (GWUDISW)*.** Water facilities are located at or near the aquifers to extract, treat, and distribute water.

Raw Water Wells
Groundwater from the aquifers is pumped using shallow production wells.

Raw Water Modules
Wells are grouped together by proximity to each other. Each group pumps water to a groundwater module.

Transfer Stations
As with wells, modules are grouped together by proximity. Modules then pump water to the transfer stations.

Raw Water Storage Tanks
From the transfer stations, water is then pumped to the raw water storage tanks in the water treatment plants. This is where water is drawn to be treated.

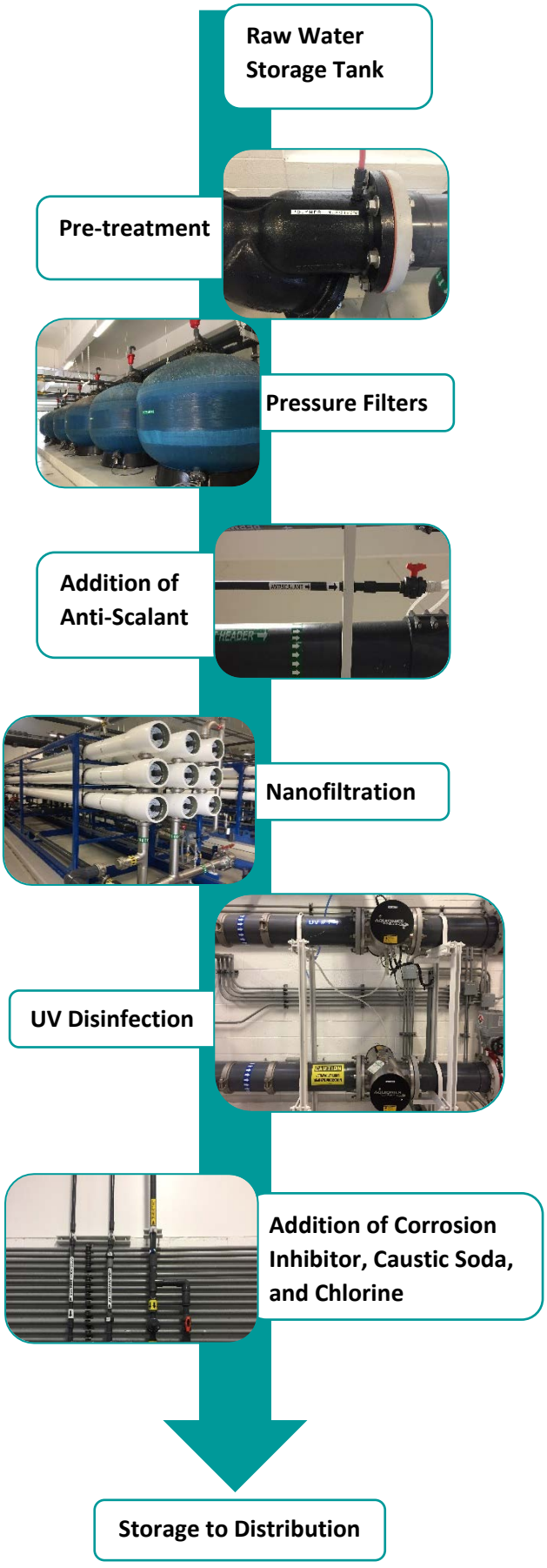
Water Production and Treatment Process

Organic compounds, if not removed, react with chlorine during the disinfection process and form the total trihalomethanes (TTHM) and haloacetic acids (HAA5). All Diego Garcia Water Systems use nanofiltration systems to remove organic content in the groundwater.

The main WTP is designed to treat, produce and distribute water through pipelines from the Cantonment area to Thunder Cove. The main water system has to meet the production, treatment, distribution and water quality monitoring requirements of DGFGS and CNICINST 5090.1. Appropriate Navy authority will have to duly approve the system as FFHC once it has completed and met all regulatory requirements. Conversion of the main (Cantonment-Air Ops) distribution system (from non-FFHC) to FFHC will eliminate the trucking of water to consumers, reduce the level of vulnerability of drinking water to possible contaminants, and allow consumers to drink from the tap. Water produced from the main WTP will remain trucked to the remote sites such as: I-Site or South Power Plant, T-Site and GEODSS.

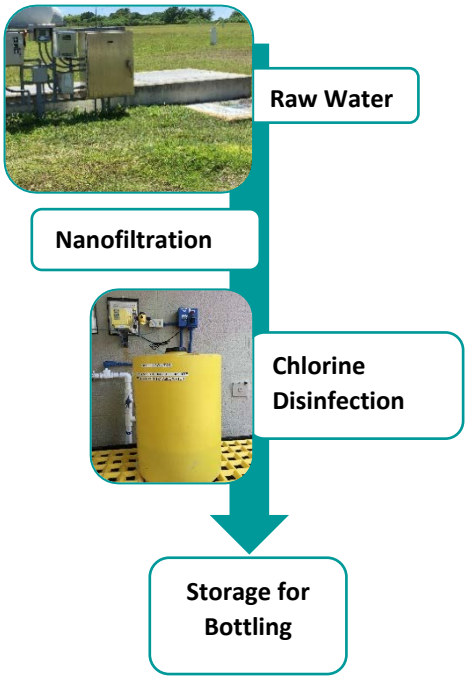
Main Water Treatment Plant

The main WTP was declared FFHC in Feb 2018. The main WTP draws raw water from the Cantonment **Raw Water Storage Tanks**. As raw water enters the plant, it undergoes **Pre-treatment** by injecting a polymer. The polymer acts as a coagulant to make particles of dirt and other dissolved substances in the water clump together so that they can be easily removed. After injecting the polymer, the water then passes through **Pressure Filters**. These filters are composed of multimedia filters wherein the clumps of dirt created by the polymer are deposited. After the pressure filters, **Anti-Scalant** is added to the water before entering the nanofilters to inhibit formation of scale and prevent nanofiltration units from clogging. **Nanofiltration** units are used to remove the remaining contaminants in the water, i.e. suspended solids, bacteria, and viruses. After passing through the nanofiltration units, water is then passed through **Ultraviolet (UV) Units** which inactivates bacteria, viruses, and protozoa rendering them incapable of reproducing and infecting. After passing through the UV Units, **Corrosion Inhibitor** in the form of Orthophosphates are added to water to bind with metals in pipes to form complexes on the inside of pipes preventing metals like lead to get in the water. **Caustic Soda** is then added to the water to prevent the water from being too acidic. Acidic water will cause corrosion in the pipes. After pH correction, **Chlorine** is added to the water to kill bacteria and viruses, preventing water-borne diseases like cholera and typhoid. After chlorination, water is now sent to storage for distribution.



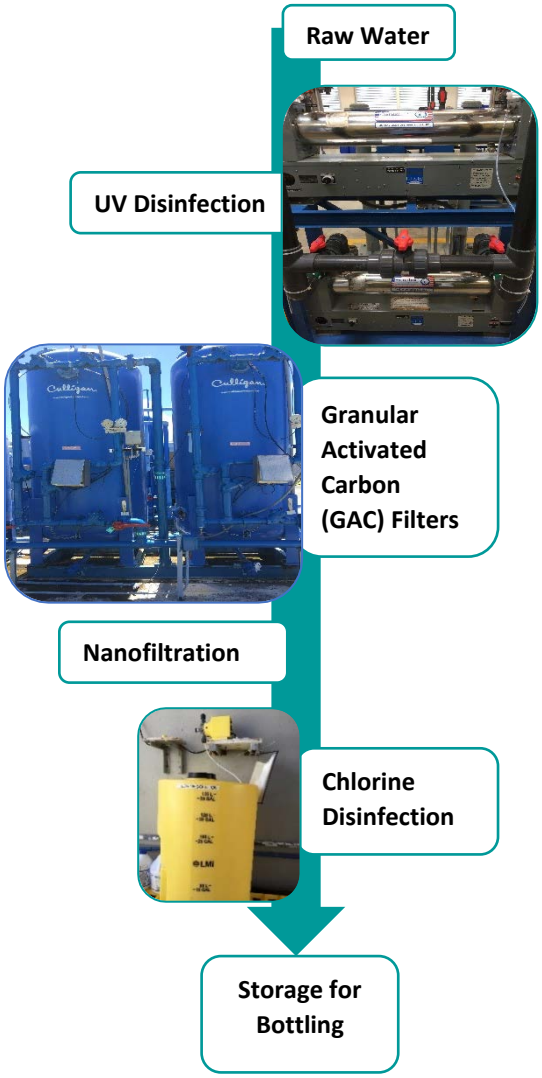
Cantonment Nanofiltration Water Treatment Plant

The Cantonment Nanofiltration WTP is a FFHC water system. It draws raw water from hand-picked wells with the highest quality. Due to the pristine quality of the water, pre-filtration is not required. The raw water is treated through nanofiltration units to remove the organics and other contaminants in the water. Chlorine is then added to the product water for disinfection and sent to storage tanks.



Air Ops and DDW Nanofiltration Water Treatment Plants

FFHC water is produced from these WTPs by passing raw water through UV Units first to inactivate bacteria and keep them from propagating. After the UV Units, water then passes through the **Granular Activated Carbon (GAC) Filters** to decrease the level of organic compounds and remove dieldrin, the termicide used to prevent termite damage to underground power cables during construction activities in the early 1970's. Dieldrin was later included in the EPA Listing of Carcinogens (or cancer-causing chemicals) in July 1980. There has been no detection of dieldrin in FFHC and non-FFHC waters. The use of GAC filters is a precautionary measure to protect public health. After the GAC filters, water is then let to pass through Nanofiltration Units. Product water is then chlorinated for disinfection and then stored for distribution.



Water Quality Monitoring

Diego Garcia Water Systems must comply with DGFGS Chapter 3 (Drinking Water) and CNICINST 5090.1. Both standards require testing of drinking water for contaminants on a regular basis to protect the consumer's public health and safety.

The Water Annex of the Base Operations Support (BOS) Contractor regularly performs water quality testing for bacteria and residual disinfectant (chlorine) in the FFHC and non-FFHC water distribution system. Maintaining a disinfectant residual in the water protects against any microbial contamination. Required water samples for other potential contaminants are sent to Universal Laboratories in Virginia, USA for analysis. The Universal Laboratories, a sub-contractor by BOS Contractor, is accredited by National Environmental Laboratory Accreditation Program (NELAP). In 2018, NAVSUPPFAC hires the US Army Lab in Camp Zama, Japan to perform water analysis for other potential contaminants. The Army Laboratory is accredited by American National Standards Institute American Association for Laboratory Accreditation (A2LA) for ISO 17025: General requirements for comoetence of testing and calibration laboratories.

Figure 5. Chemist testing for inorganic compounds in water

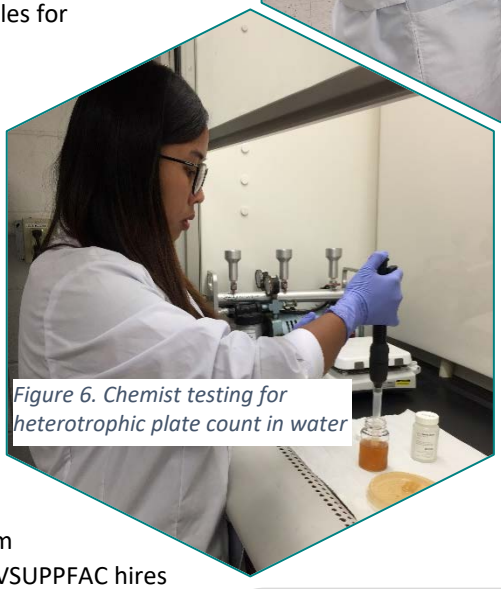


Figure 6. Chemist testing for heterotrophic plate count in water

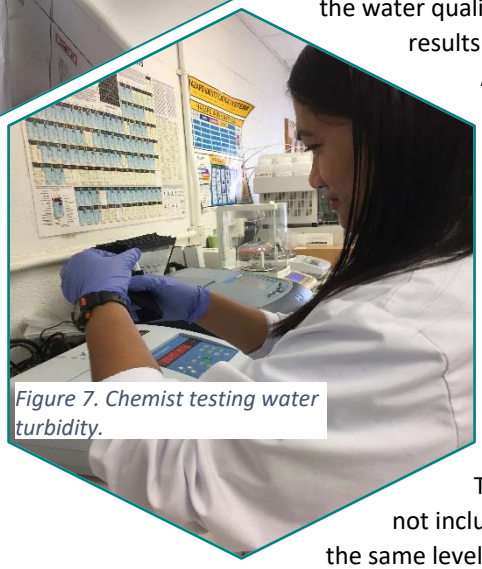


Figure 7. Chemist testing water turbidity.

The Navy Branch Health Clinic also performs regular independent health and sanitation inspections on DG water systems and facilities. Any discrepancies found are immediately reported to PWD and facility operators for immediate investigation, and corrective and preventive actions.

In 2017, over 70,000 tests were conducted to monitor DG's water quality. The same level of testing and monitoring was performed for both Diego Garcia's FFHC and non-FFHC water. A comprehensive summary of the water quality monitoring results is provided in Appendix A: "2017 Water Quality Data".

At present, all distribution lines and fixtures for tap water are marked, "Not suitable for drinking due to high Total Trihalomethanes". These warnings do not include HAA5. However, the same level of monitoring is conducted for TTHM and HAA5 and both are included in public notification campaigns. After the declaration of the main water system as fit for human consumption last February 2018, removal of the aforementioned markings is now being put into motion.

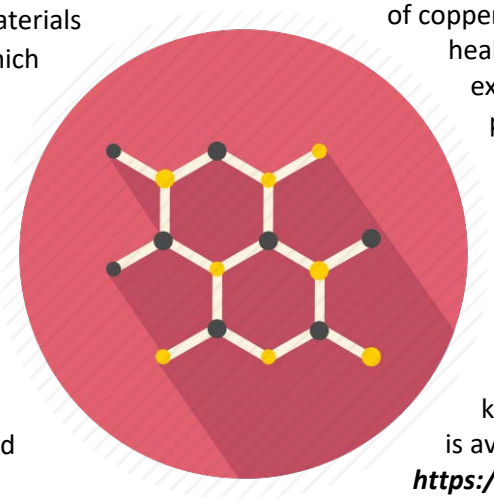
Note

The Diego Garcia FFHC/drinking water or "DG-bottled water" fully meets the DGFGS and CNICINST 5090.1 for water quality compliance requirements for safe drinking water including the required levels for TTHM and HAA5.

Group	Potential Contaminants	Frequency of Sampling
Microorganisms	Bacteria	Monthly
Disinfectants	Residual Chlorine	Hourly, Daily, Monthly
Disinfection Byproducts	TTHM, HAA5	Quarterly
Inorganic Chemicals	Metals	Annually
Organic Chemicals	Synthetic (Volatile and Pesticides)	Every 3 years
	Dieldrin	Quarterly, Annually
Radionuclides	Alpha/Beta Particles, Radium, Uranium	Every 4 years

What Should You Know About Certain Contaminants?

Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5). TTHM and HAA5 are groups of chemicals formed when the naturally-occurring organic materials in raw water reacts with the chlorine which is added as disinfectant. DGFGS and CNICINST 5090.1 water quality standards set the maximum contaminant level (MCL) for TTHM and HAA5 at 80 and 60 micrograms per liter, respectively. The source of organic materials in raw water is thought to be rainwater percolating through decaying vegetation. Potential health effects from exposure to THM and HAA5 depend on a variety of factors, including concentration of the chemicals, and duration and frequency of exposure.



According to the U.S. Environmental Protection Agency (EPA) (***https://www.epa.gov/your-drinking-water/table-regulated-drinking-water-contaminants#Byproducts)***, some people who drink water containing TTHMs in excess of the MCL over many years may experience liver, kidney, or central nervous system problems and increased risk of cancer.

Coliforms in Drinking Water. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present in drinking water. It is a warning of potential problems if coliforms are found in more water samples than allowed. Information on total coliforms in drinking water is available at ***https://safewater.zendesk.com /hc/en-us/sections/202366208***.

Lead in Drinking Water. Elevated levels of lead in drinking water can cause serious health problems, especially for pregnant women. Adults who drink water containing lead in excess of the action level over many years could develop kidney problems and high blood pressure. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. When water has been sitting for several hours, potential for lead exposure can be minimized by flushing the tap for 30 seconds to 2 minutes before using water for drinking or cooking. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at *https://www.epa.gov/safewater/lead*.

Copper in Drinking Water. All living organisms including humans need copper to survive; therefore, a trace amout of copper in our diet is necessary for good health. However, some forms of copper or excess amounts can also cause health problems. Some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastro-intestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. Information on copper is available at ***https://safewater.zendesk.com/hc/en-us/sections/202346427-Copper***.

Perfluorochemicals (PFC). Perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) are perfluorochemicals (PFC), manmade chemicals that are of increasing concern to the EPA and State regulators. These substances are very stable and persistent in the environment and because they are not adsorbed well in soil, they can migrate to drinking water sources. At present, these substances are considered "emerging contaminants" for which there are no SDWA regulatory standards. The EPA has established health advisories for PFOS and PFOA to provide a margin of protection for all consumers throughout their life from adverse health effects resulting from exposure to these fluorinated organic chemicals. The established lifetime health advisory level (LHAL) for combined PFOS and PFOA is 70 parts per trillion (ppt). EPA's health advisories are non-enforceable and non-regulatory. They provide technical information on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination. Studies indicate that exposure to PFOA and PFOS over certain levels may result in adverse health effects, including developmental effects to fetuses during pregnancy or to breastfed infants (e.g., low birth weight, accelerated puberty, skeletal variations), cancer (e.g., testicular, kidney), liver effects (e.g., tissue damage), immune effects (e.g., antibody production and immunity), thyroid effects and other effects (e.g., cholesterol changes). EPA's drinking water health advisories for PFOA and PFOS can be found at: ***https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos***

PFOS/PFOA contamination has been identified in raw water from Air Operations wells. Wells with very high levels of PFOS/PFOA have been removed from production since the contamination was discovered in July 2016. Diego Garcia is currently seeking approval from Navy chain to perform remediation. According to the health risk assessment done by the Navy Marine Corp Public Health Assessment (NMCPHC) in February 2017, the current drinking water treatment process at Diego Garcia, when properly maintained and operated, should be able to provide drinking water with PFOS/PFOA levels below LHAL from the remaining Air Ops active wells. Quarterly monitoring of treated water and in-service wells at the Air Ops is done to ensure PFOS/PFOA levels are below the LHAL. Diego Garcia is currently obtaining approval to perform remediation to reduce the high levels of PFOS and PFOA in the groundwater from the contaminated Air Ops wells with PFOS/PFOA above the LHAL before they can be brought back into service as sources of drinking water that can be effectively treated by existing water treatment system processes.

Other Potential Contaminants. As water travels over the surface of the land or percolates through the ground, it dissolves naturally-occurring minerals. It can also pick up other substances resulting from the presence of animals or human activity. Diego Garcia water systems may reasonably produce water containing at least trace amounts of some contaminants. However, the presence of these contaminants does not necessarily indicate that water poses a health risk. For more information about contaminants and potential health effects, please visit the U.S. EPA website: ***https://www.epa.gov/your-drinking-water/table-regulated-drinking-water-contaminants***.

Additional Information About Your Water

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

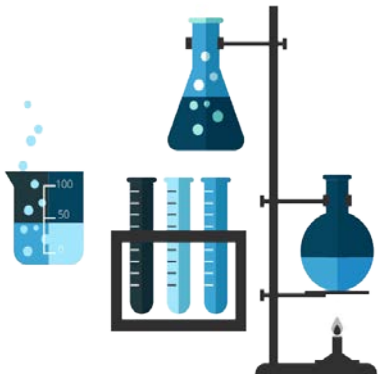
For Customers with Special Health Concerns

Some people may be more vulnerable to contaminants in drinking water than the general population. 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, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by microbiological contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Questions?

On how we carry out drinking water requirements:
Francis De Luna, Installation Drinking Water Compliance Program Manager
DSN (315) 370-4540 or email: Francis.DeLuna.RP@fe.navy.mil

About health effects of potential contaminants in water:
HMC David Cano, Installation Preventive Medicine Authority
DSN (315) 370-4218 or email: David.Cano8.mil@mail.mil



Appendix A:
2017 Water Quality Data

The table below lists the substances/contaminants which were detected during sampling performed for calendar year 2017. Water samples were collected from the sources, distribution systems, nanofiltration systems and water stations, and analyzed using the parameters and methods required by U.S. National Primary Drinking Water Regulations (40 CFR 141) either on-island by BOS Contractor or off-island by Universal Laboratories in Virginia, USA. The presence of substances does not necessarily indicate that the water poses a health risk. Information about contaminants and potential health effects are available at U.S. EPA's Drinking Water Standards website: ***https://www.epa.gov/your-drinking-water/table-regulated-drinking-water-contaminants***

FFHC Water produced from the Nanofiltration Hauled and Deep Draft Wharf Water Systems

Substances [a]	Cantonment Nanofiltration System	Air Ops Nanofiltration System	Deep Draft Wharf	Sample Date	Regulated Levels	Common Sources
Microorganisms						
Total Coliform (including fecal coliform and E. Coli) [b]	0	0	0	2017	MCLG = 0 MCL = 5% of total samples	Coliforms are naturally present in the environment; as well as feces; fecal coliforms and E. Coli only come from human and animal fecal waste.
Inorganic Chemicals						
Barium (ppm)	<0.002	0.17	0.41	2017	MCLG = 2 MCL = 2	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits
Sodium (ppm) [c]	5.3	6.8	5.9	2017	---	---
Fluoride (ppm)	<0.1	0.1	<0.1	2017	MCLG = 4 MCL = 4 SMCL = 2	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Radionuclides[d]						
Gross Alpha (pCi/L)	<0.71	<0.77	<0.63	2013-2014	MCLG = 0 MCL = 15	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation
Gross Beta (millirems per year)	<0.82	1.6	1.6	2013-2014	MCLG = 0 MCL = 4	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation
Combined Radium 226 and Radium 228 (pCi/L)	<0.506	<0.523	<0.477	2013-2014	MCLG = 0 MCL = 5	Erosion of natural deposits
Uranium (ppb)	<0.10	<0.10	<0.10	2013-2014	MCLG = 0 MCL = 30	Erosion of natural deposits
Disinfectants						
Residual Chlorine (ppm)	1.12 (0.83 - 1.53)		1.34 (0.89 - 1.88)	2017	MRDLG = 4 MRDL = 4.0	Water additive used to control microbes
Disinfection Byproduct						
TTHM (ppb)	15.7 (3.36 – 32.7)		22.2 (16.1 – 29.2)	2017	MCLG = N/A MCL = 80	Byproduct of drinking water disinfection
HAA5 (ppb)	8.96 (2.00 – 24.6)		27 (11.8 – 37.7)	2017	MCLG = N/A MCL = 60	Byproduct of drinking water disinfection
Lead and Copper[e]						
Lead (ppm)	0.0019 (< 0.001 – 0.011)		0.051 (0.004 – 0.051)	1st Semi-Annual 2017	MCLG = 0 AL = 0.015	Corrosion of household plumbing systems; erosion of natural deposits
			0.051 (0.001 – 0.017)	2nd Semi-Annual 2017		
Copper (ppm)	0.539 (< 0.005 – 0.67)		0.290 (0.013 – 0.410)	1st Semi-Annual 2017	MCLG = 1.3 AL = 1.3	Corrosion of household plumbing systems; erosion of natural deposits
			0.813 (0.001 – 1.462)	2nd Semi-Annual 2017		

Non-FFHC Water produced from the Main Water System

Substances [a]	Main Water System		Outlying Water Systems			Sample Date	Regulated Levels	Common Sources
	Cantonment	Air Ops	I-Site	T-Site	GEODSS			
Microorganisms								
Total Coliform (including fecal coliform and E. Coli) [b]	0	0	0	0	0	2017	MCLG = 0 MCL = 5% of total samples	Coliforms are naturally present in the environment; as well as feces; fecal coliforms and E. Coli only come from human and animal fecal waste.
Inorganic Chemicals								
Barium (ppm)	0.0068	0.021	0.06	0.056	0.2	2017	MCLG = 2 MCL = 2	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits
Sodium (ppm) [c]	23	27	16	21	24	2017	---	---
Radionuclides[d]								
Gross Alpha (pCi/L)	<3.8	<4.4	<5.1	<2.9	<2.3	2013-2014	MCLG = 0 MCL = 15	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation
Gross Beta (millirems per year)	<4.1	<4.5	8.5	<3.1	2.4	2013-2014	MCLG = 0 MCL = 4	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation
Combined Radium 226 and Radium 228 (pCi/L)	<0.623	<0.480	<0.593	<0.463	<0.449	2013-2014	MCLG = 0 MCL = 5	Erosion of natural deposits
Uranium (ppb)	0.13	0.23	<0.10	0.21	0.51	2013-2014	MCLG = 0 MCL = 30	
Disinfectants								
Residual Chlorine (ppm)	1.28 (1.11-1.36)		1.20 (0.81 - 1.86)	1.29 (0.83 - 1.80)	1.13 (0.70 - 1.72)	2017	MRDLG = 4 MRDL = 4.0	Water additive used to control microbes
Disinfection Byproducts								
TTHM (ppb)	31.1 (14.8 – 65.0)		43.6 (27.6 – 76.4)	49.3 (25.5 – 92.4)	53.8 (31.1 – 89.3)	2017	MCLG = N/A MCL = 80	Byproduct of drinking water disinfection
HAA5 (ppb)	19.34 (10.3 – 32.0)		30.3 (24.3 – 36)	38.2 (24.3 – 49)	41.2 (33 – 50)	2017	MCLG = N/A MCL = 60	Byproduct of drinking water disinfection
Lead and Copper[e]								
Lead (ppm)	0.022 (< 0.001 – 0.050)		0.013 (0.004 – 0.017)	0.014 (0.004 – 0.015)	0.010 (0.0021 – 0.014)	1st Semi-Annual 2017	MCLG = 0 AL = 0.015	Corrosion of household plumbing systems; erosion of natural deposits
	0.010 (<0.002 - 0.043)		0.005 (<0.002-0.006)	0.009 (<0.002 - 0.015)	0.009 (<0.002 - 0.010)	2nd Semi-Annual 2017		
Copper (ppm)	1.700 (0.040 - 3.00)		0.390 (0.170 – 0.440)	0.350 (0.065 – 0.430)	0.150 (0.035 – 0.150)	1st Semi-Annual 2017	MCLG = 1.3 AL = 1.3	
	0.615 (0.010 - 1.341)		0.234 (0.055 - 0.272)	0.247 (0.040 - 0.258)	0.099 (0.037 - 0.106)	2nd Semi-Annual 2017		

Special Test Results[(f)]

Substances[(a)]	F-1505 Main WTP POE, Cantonment	F-309 Main WTP POE, Air Ops	Sample Date	Regulated Levels	Common Sources
Radionuclides					
Gross Beta *(pCi/L)*	5.0 ± 2.0	3.4 ± 1.8	2017	MCL = 50	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation
Gross Alpha *(pCi/L)*	-1.5 ± 1.6	-1.5 ± 1.3	2017	MCL = 15	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation
Radium-226 *(pCi/L)*	-0.08 ± 0.23	-0.05 ± 0.17	2017	MCL = 5	Erosion of natural deposits
Radium-228*(pCi/L)*	-2.2 ± 0.7	0.26 ± 0.64	2017	MCL = 5	
Combined Radium-226 and -228 *(pCi/L)*	< 0.86	< 0.66	2017	MCL = 5	
Uranium *(pCi/L)*	0.01 ± 0.01	0.01 ± 0.01	2017	MCL = 20.271	
Lead and Copper					
Lead (ppm)	< 0.0010	< 0.0010	2017	MCLG = 0 AL = 0.015	Corrosion of household plumbing systems; erosion of natural deposits
Copper (ppm)	< 0.0010	0.0024	2017	MCLG = 1.3 AL = 1.3	

Perfluorochemicals (PFCs)[(g)]

Sample Location	Water Type	Average Level Detected (Combined PFOS and PFOA)	Current Status
Water Treatment Plants			
Main Water Treatment Plant: Cantonment	Non-FFHC	ND	In Service
Main Water Treatment Plant: Air Ops	Non-FFHC	ND	In Service
Cantonment Nanofiltration WTP	FFHC	ND	In Service
Air Ops Nanofiltration WTP	FFHC	ND	In Service
Deep Draft Wharf Nanofiltration WTP	FFHC	4.2	In Service
Raw Water Storage Tanks			
F-1671 Raw Water Storage Tank (Cantonment)	Ground Water	24	In Service
F-107 Raw Water Storage Tank (Cantonment)	Ground Water	22.9	In Service
F-145 DG Nano Raw Water Inlet Line	Ground Water	ND	In Service
F-308A Wet Well Tank (Air Ops)	Ground Water	55.2	In Service
F-307 Raw Water Storage Tank (Air Ops)	Ground Water	57.8	In Service
F-328 Raw Water Storage Tank (Air Ops)	Ground Water	58.2	In Service
Air Ops Wells			
AO-12, AO-15 to AO-17, AO-24	Ground Water	31.4 (20.8 – 50.2)	In Service
AO-13, AO-19 to AO-21, AO-23, AO-26	Ground Water	73.6 (51.1 – 95)	Standby[(h)]
AO-2 to AO-11, AO14, AO-18, AO-22, AO-25	Ground Water	8,066 (96 – 86,630)	Out of Service

Definition of Terms

In the provided tables you may find unfamiliar terms and abbreviations. To help you better understand these terms, we've provided the following definitions:

Action Level (AL). The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Maximum Contaminant Level (MCL). The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology.

Secondary Maximum Contaminant Level (SMCL). These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

Maximum Contaminant Level Goal (MCLG). The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL). The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG). The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

Acronyms

POE. Point of Entry to the distribution

TTHM. Total Trihalomethanes

HAA5. Haloacetic Acids

ppm. parts per million or milligrams per liter

ppb. parts per billion or micrograms per liter

pCi/L. picocuries per liter

<. less than

ND. Not Detected.

N/A. Not Applicable

PFOS. Perfluorooctane sulfonate

PFOA. Perfluorooctanoic acid

Notes

(a) Only substances detected during sampling performed in calendar year 2017 and any relevant data from prior year

(b) Values are reported as number of positive samples. MCL is computed using number of positive samples per month.

(c) Sodium has no established MCL. Monitoring is required so concentration levels can be made available upon request.

(d) Required sampling and testing frequency for Radionuclides is once every 4 years.

(e) 90th Percentile values reported.

(f) Special tests out-of-cycle monitoring conducted to assess FFHC certification of the main water system.

(g) Navy Policy of 14 Sep 2015 required sampling of all overseas drinking water systems for PFC. Diego Garcia's sampling and testing documented the presence of PFC in some of its treated water and groundwater sources in 2017. While the EPA does not enforce LHA levels, Navy policy requires notification, additional testing, and corrective measures if a PFC sample exceeds the LHAL in Navy drinking water systems.

(h) Standby wells may be used only if needed, i.e. water demand is high.