



U.S. NAVAL AIR STATION (NAS) SIGONELLA – NAS SIGONELLA II 2014 DRINKING WATER CONSUMER CONFIDENCE REPORT



Is our water safe to drink?

Yes. Naval Air Station (NAS) Sigonella's drinking water systems provide water that is safe and Fit for Human Consumption (potable) as determined by the Installation Commanding Officer's Record of Decision dated 7 Feb 2014. NAS Sigonella is proud to support the Navy's commitment to provide safe and reliable drinking water to our service members and their families. In fact, NAS Sigonella's four water systems were among the first overseas drinking water facilities to receive Conditional Certificates to Operate from Commander, Navy Installations Command. This annual Consumer Confidence Report for calendar year 2014 includes general and mandatory information to educate everyone about our water source(s), treatment processes, standard requirements, and other details to help assure you that our water is safe to drink.

Our drinking water fully complies with the DoD's Italy Final Governing Standards (FGS), which are derived from the Overseas Environmental Baseline Guidance Document and U.S. Environmental Protection Agency (EPA) and Italian drinking water standards. When Italian and U.S. standards differ, the most protective requirement is adopted into the FGS. A detailed list of constituents found in our drinking water is included in this report, along with a comparison to the maximum levels considered safe for the general public by these standards.

NAS Sigonella's Commanding Officer and Naval Facilities Engineering Command EURAFSWA recognize the importance of protecting the health and well-being of our Sigonella Citizens. To further the goal of improving the program, a dedicated Drinking Water Program Manager position within the Public Works Department, Environmental Division was created and staffed in 2015. The main focus of this Environmental Engineer's work is to ensure that NAS Sigonella's drinking water meets the expectations of our community and the safety standards set by the Italy FGS.

Where does our water come from and how is it treated?

NAS Sigonella produces water for NAS II at the NAS II Water Treatment Plant. This water comes from three groundwater wells located off-base. The wells withdraw water from the confined deep aquifer beneath the Plain of Catania at a depth of approximately 45m. The water is pumped to the Water Treatment Plant and treated using sand filters, an advanced reverse osmosis membrane filtration system, and disinfection prior to distribution. Regardless of differences in the source or the treatment process, all drinking water provided to the NAS Sigonella community must meet the same performance standards.

Why are there contaminants in drinking water?

Drinking water, including bottled water, may reasonably be expected to contain small amounts of some contaminants. The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring contaminants and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Due to this some contaminants may be present in source drinking water such as:

- **Microbial contaminants**, such as viruses and bacteria, that may come from wildlife, sewage treatment plants, septic systems, and livestock;
- **Pesticides and herbicides**, which may come from a variety of sources, such as agriculture, urban storm water runoff, and residential uses;

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- **Inorganic contaminants** naturally occurring such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming;
- **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 storm water runoff, and septic systems; and
- **Radioactive contaminants**, which can be naturally occurring or be the result of oil and gas production and mining activities.

Drinking water from any source may also include **Disinfection by-products**, formed when disinfectants used in water treatment plants react with bromide and/or natural organic matter (i.e., decaying vegetation) present in the source water. Different disinfectants produce different types or amounts of disinfection byproducts. Disinfection byproducts for which regulations have been established include trihalomethanes, haloacetic acids, bromate, and chlorite.

The presence of contaminants does not necessarily indicate that water poses a health risk. In order to ensure that tap water is safe to drink, regulations limit the amount of certain contaminants in water provided by public water systems. Regular sampling is conducted to detect the level of contaminants in the water system. If the results are above regulatory limits, you will be notified by an All Hands e-mail, an article in *The Signature*, and/or by Facebook post.

The U.S. Environmental Protection Agency (EPA) established a three tier public notification plan for drinking water, which is summarized in Table 1 below. NAS Sigonella follows this outline to ensure that you are notified in a timely manner if notifications are necessary.

Table 1. The 3 Tiers of Public Notification*		
	Required Distribution Time	Notification Delivery Method
Tier 1: Immediate Notice	Any time a situation occurs where there is the potential for human health to be immediately impacted, water suppliers have 24 hours to notify people who may drink the water of the situation.	Should a Tier 1 notification be necessary, NAS Sigonella will notify you via Facebook and/or an All Hands E-mail message.
Tier 2: Notice as Soon as Possible	Any time a water system provides water with levels of a contaminant that exceed EPA or state standards or that hasn't been treated properly, but that doesn't pose an immediate risk to human health, the water system must notify its customers as soon as possible, but within 30 days of the violation.	NAS Sigonella will notify you of a Tier 2 concern through post on Facebook, publication in <i>The Signature</i> , and/or by an All Hands E-mail message.
Tier 3: Annual Notice	When water systems violate a drinking water standard that does not have a direct impact on human health (For Example, failing to take a required sample on time) the water supplier has up to a year to provide a notice of this situation to its customers.	Tier 3 notifications are published annually in this document, the Consumer Confidence Report.

*Definitions taken from EPA website. See

<http://water.epa.gov/lawsregs/rulesregs/sdwa/publicnotification/basicinformation.cfm> for more information.

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You can learn more about contaminants and any potential health effects by calling the EPA's Safe Drinking Water Hotline: +1-800-426-4791 or by visiting the EPA's Drinking Water Standards web site: <http://permanent.access.gpo.gov/lps21800/www.epa.gov/safewater/standards.html>.

Source Water Assessment

In January 2013 the Naval Facilities Engineering Command (NAVFAC) conducted a comprehensive sanitary survey of the NAS II drinking water system. This survey provided an evaluation of the adequacy of the drinking water source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water. NAVFAC is continually improving the drinking water system based on the recommendations in the report.

Some People Must Use Special Precautions

There are people who 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/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the EPA's Safe Drinking Water Hotline: +1-800-426-4791 or by visiting www.epa.gov/safewater/sdwa.

Additional Information for Bromate

If present, elevated levels of bromate can cause serious health problems. Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer. Information on bromate in drinking water and the steps you can take to minimize exposure is available from the USEPA Safe Drinking Water website, www.epa.gov/safewater/sdwa.

Additional Information for Lead

Corrosion of household plumbing systems and erosion of natural deposits are the typical sources for lead and copper in drinking water. To meet the EPA and Italy FGS action level for lead and copper, 90 percent of the buildings tested must have lead levels below 15 micrograms per liter ($\mu\text{g/L}$) and copper levels below 1.3 milligrams per liter (mg/L). This measurement is referred to as the 90th percentile. Of all NAS II's Lead and Copper Rule sampling sites, 100% of the buildings tested were below these limits. 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. NAVFAC Sigonella Public Works is responsible for providing high-quality drinking water and has direct control over the materials used in plumbing components on the facility. This ensures that no lead service lines or components are used in the drinking water system. As a general safety practice, whenever - and wherever - you plan to use tap water for drinking or cooking, you can minimize the potential for lead exposure by flushing the tap for 30 seconds to 2 minutes prior to use. Information on lead in drinking water and steps you can take to minimize exposure is available from the USEPA Safe Drinking Water website: www.epa.gov/safewater/lead.

Water Quality Data Table

The table below lists all of the drinking water contaminants and relevant sampling data collected during the 2014 calendar year (unless otherwise noted). The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. Sample results in this table from 2013 are the most recent required by the Italy FGS.

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Table 2. Results of Latest Required Drinking Water System Testing

<u>Contaminants</u> (Units)	<u>MCLG</u> or <u>MRDLG</u>	<u>MCL,</u> <u>TT, or</u> <u>MRDL</u>	<u>Your</u> <u>Water</u>	<u>Range</u> <u>Low-High</u>	<u>Sample</u> <u>Date</u>	<u>Violation</u>	<u>Typical</u> <u>Source</u>
Inorganic Components							
pH	N/A	6.5-9.5	7.75	7.43-8.20	2014	NO	
Conductivity (µS/cm)	N/A	2,500	530	125.8-530	2014	NO	
Nitrate (as Total N, mg/L)	N/A	10	2.0	N/A	2014	NO	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Bromate* (µg/L)	N/A	10	23.8	0-23.8	2014	YES	Leaching; By-product of drinking water disinfection
Iron (mg/L)	N/A	0.2	0.026	0-0.026	2014	NO	Corrosion of household plumbing; Erosion of natural deposits
Disinfectant Components							
Chlorine (mg/L)	N/A	4	0.748	0.014-1.50	2014	NO	Water additive used to control microbes
Microbiological Components							
Turbidity (NTU)	TT	N/A	0.57	0.11-0.57	May- 2014	NO	Soil runoff
Total Coliforms		0	0	N/A	2014	NO	Naturally present in the environment
Radiological Components							
Gross Beta (pCi/L)	N/A	50	1.3	N/A	2013	NO	Decay of natural and man-made deposits
Lead and Copper Components							
	AL	Your Water 90th Percentile		Sample Date	Violation	Typical Source	
Lead (µg/L)	15	3.1		2013	NO	Corrosion of household plumbing; Erosion of natural deposits	
Copper (mg/L)	1.3	0.12		2013	NO	Corrosion of household plumbing; Erosion of natural deposits	

*The 10 µg/L MCL for bromate was exceeded at Building 452, a DLA Warehouse, during a sampling event in December of 2014. The level was 23.8 µg/L. After this sampling event, public notification was distributed in *The Signature*, All Hands E-mails, and on Facebook in accordance with EPA's Tier 2 guidance. NAS Sigonella's Water Quality Board is working with experts from Command Navy Region EURAFSWA and across the U.S. to determine the cause of this exceedance. The level of bromate found at this location does not pose an immediate health risk. However, some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer. Public notifications were distributed following each sampling event when a violation occurred.

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Table 3. Unit Descriptions	
<u>Term</u>	<u>Definition</u>
mg/L	milligrams per liter (mg/L) or parts per million
µg/L	micrograms per liter (µg/L) or parts per billion
NTU	Nephelometric Turbidity Units
pCi/L	picocuries per liter (a measure of radioactivity)
µS/cm	Microsiemens per centimeter

Table 4. Important Drinking Water Definitions	
<u>Term</u>	<u>Definition</u>
MCLG	Maximum Contaminant Level Goal: 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.
MCL	Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
TT	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Variances and Exemptions	EPA permission not to meet an MCL or a treatment technique under certain conditions.
MRDLG	Maximum residual disinfection level goal. 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 contaminants.
MRDL	Maximum residual disinfectant level. 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.
ND	Not Detected, also below the PQL
N/A	Not Applicable
PQL	Practical Quantitation Limit, the lowest limit at which the contaminant can be detected reliably.

Monitoring Violations

This section provides the Tier 3 notification in accordance with EPA procedures. Tier 3 notifications do not have an impact on human health but are required by the EPA (See Table 1). The FGS requires that dry residues at 180°C are measured annually. During calendar year 2014, the total dissolved solids (TDS) were measured and were found to be in the drinking water at an average concentration of 147 mg/L and a range of 89-204 mg/L. The EPA secondary drinking water standard for TDS is 500 mg/L. While TDS is a component of dry residues, it is not a complete assessment. The sample will be analyzed correctly in 2015.

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Several quarterly samples were also missed in calendar year 2014. Please refer to the table below for the missed quarterly samples or “check samples” as they are listed in the Italy FGS. **NAS Sigonella conducted a root cause analysis regarding these violations and has taken corrective actions to ensure full compliance in the future.**

Table 5. Missed Sampling Events				
	Q1	Q2	Q3	Q4
Ammonium				X
pH	X		X	
Iron				X
Conductivity	X		X	
Turbidity			X	X

During December of calendar year 2014, sampling errors resulted in the loss of most of the annual sampling data required by the Italy Final Governing Standards. The samples were collected again as soon as possible but not until February of calendar year 2015, with the exception of free cyanide which was collected in May. The results are displayed separately in the table below for this reason. For the contaminants reported here, neither samples collected in 2013 nor in 2015 exceeded the MCLs established in the Final Governing Standards. NAS II has not had chronic issues with these contaminants in the past.

Table 6. 2013 and 2015 sampling results

<u>Contaminants</u> (Units)	<u>MCLG</u> or <u>MRDLG</u>	<u>MCL,</u> <u>TT, or</u> <u>MRDL</u>	<u>Your</u> <u>Water</u>	<u>Sample</u> <u>Date</u>	<u>Violation</u>	<u>Typical</u> <u>Source</u>
Inorganic Components						
Chloride (mg/L)	N/A	250	96 9	Nov-2013 Feb-2015	NO	Erosion of natural deposits
Fluoride (mg/L)	N/A	1.50	0.1 0	Nov-2013 Feb-2015	NO	Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Oxidizability (reported as TOC, mg/L)	N/A	5.0	0.65 0	Nov-2013 Feb-2015	NO	Naturally present in the environment
Sulfate (mg/L)	N/A	250	160 2.9	Nov-2013 Feb-2015	NO	Erosion of natural deposits
Barium (mg/L)	N/A	2.0	0.008 0	Nov-2013 Feb-2015	NO	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Boron (mg/L)	N/A	1	0 0.3	Nov-2013 Feb-2015	NO	Erosion of natural deposits
Sodium (mg/L)	N/A	200	95 9.9	Nov-2013 Feb-2015	NO	Erosion of natural deposits
Hardness (as CaCO ₃ , mg/L)	150-500	N/A	250 76	Nov-2013 Feb-2015	NO	Erosion of natural deposits

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Note: Tables 2 and 6 list all of the contaminants which were detected in the water. All other Inorganic Compounds, Organic Compounds, Pesticides, PCBs, Disinfection By-Products, and Radionuclides which are regulated in the Italy FGS were not detected.

Points of Contact

If you have any questions regarding this report or about the drinking water processes, please contact the NAS Sigonella Installation Water Quality Board by calling 095-86-7220 or E-mailing the Drinking Water Program Manager, Rachel Methvin, at rachel.methvin@eu.navy.mil.