



U.S. NAVAL AIR STATION (NAS) SIGONELLA – MARINAI FAMILY HOUSING AREA 2016 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 2016 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?

The Marinai Family Housing Area purchases treated water from Pizzarotti & C., S.p.A. This water comes from two groundwater wells at a depth of 30 m, which are located outside of the installation property. The water is treated at the Marinai Water Treatment Plant 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.

As a result, 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 agricultural livestock operations;
- **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** 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 an All Hands E-mail message and/or Facebook.
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 an All Hands E-mail message, publication in <i>The Signature</i> , and/or by post on Facebook.
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 March 2016 the Naval Facilities Engineering Command (NAVFAC) conducted a comprehensive sanitary survey of the Marinai Family Housing Area 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 Nitrate

The Marinai drinking water did not exceed the MCL of 44.3 ppm for nitrate. Immediately prior to the reverse osmosis membrane replacement last summer, the nitrate concentration rose to only approximately 50% of the MCL. However, it is important to know the potential effects of nitrate. Nitrate in drinking water at levels above 44.3 ppm as nitrate 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.

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 Marinai Family Housing Area'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 2016 calendar year (unless otherwise noted). NAS Sigonella samples for many more chemicals than are found in this table; only those contaminants detected in the water are presented in the table. The presence of contaminants

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in the water does not necessarily indicate that the water poses a health risk. For those contaminants that are not sampled annually, sample results in this table are the most recent required by the applicable regulations.

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	7.61	7.48-7.79	2016	NO	Naturally present in the environment
Conductivity (µS/cm)	N/A	2,500	1004	600-1400	2016	NO	Naturally present in the environment
Nitrate (as NO ₃ , mg/L)	N/A	44.3	15.5	9.8-24.0	2016	NO	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Ammonium (µg/L)	N/A	500	60	0-410	2016	NO	Erosion of natural deposits; Runoff from fertilizer use
Boron (mg/L)	N/A	1	0.41	0.4-0.42	2016	NO	Erosion of natural deposits
Bromate (µg/L)	N/A	10	2.14	1.10-5.28	2016	NO	Leaching; By-product of drinking water disinfection
Chloride (mg/L)	N/A	250	270	87-270	2016	YES ¹	Erosion of natural deposits
Dry Residues (mg/L)	N/A	1500	415	400-430	2016	NO	Erosion of natural deposits
Copper (mg/L)	N/A	1	0.002	0-0.002	2016	NO	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Fluoride (mg/L)	N/A	4	0.16	0.1-0.2	2016	NO	Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Iron (µg/L)	N/A	200	7	0-27	2016	NO	Corrosion of household plumbing systems; Erosion of natural deposits
Manganese (µg/L)	N/A	50	1.5	0-3	2016	NO	Erosion of natural deposits

¹ In June 2016, you were notified that the level of chloride measured during a routine sampling event was 270 mg/L, and therefore, above the FGS MCL of 250 mg/L. An exceedance of this limit does not present an immediate or long term health concern to the consumer. The limit is in place because water with higher chloride levels may have an unpleasantly salty taste. When notified of the issue, Pizzarotti reacted quickly and accelerated a planned maintenance project to replace the reverse osmosis membranes, which resolved the issue. Chloride concentrations measured since this event have remained well below the MCL.

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Table 2. Cont.

<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>
Sodium (mg/L)	N/A	200	62	60-63	2016	NO	Erosion of natural deposits
Sulfate (mg/L)	N/A	250	110	100-120	2016	NO	Erosion of natural deposits
Total Hardness (as CaCO ₃ , mg/L)	150-500	N/A	193	160-260	2016	NO	Erosion of natural deposits
Zinc (mg/L)	5	N/A	0.009	0-0.02	2016	NO	Erosion of natural deposits
Disinfectant and Disinfection By-Product Components							
Chlorine (mg/L)	N/A	4	0.65	0.226- 1.58	2016	NO	Water additive used to control microbes
Haloacetic acids (µg/L)	N/A	60	16.7	N/A	2015	NO	By-product of drinking water disinfection
Total Trihalomethanes (µg/L)	N/A	30	7.9	N/A	2016	NO	By-product of drinking water chlorination
Other Organic Components							
Total Organic Carbon (mg/L)	TT	N/A	0.28	0-1.1	2016	NO	Naturally present in the environment
Microbiological Components							
Turbidity (NTU)	TT	N/A	0.26	0-0.60	2016	NO	Soil runoff
Total Coliforms		0	0	N/A	2016	NO	Naturally present in the environment
Radiological Components							
Gross Beta (pCi/L)	N/A	50	3.9	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	3.4		2016	NO	Corrosion of household plumbing; Erosion of natural deposits	
Copper (mg/L)	1.3	0.023		2016	NO	Corrosion of household plumbing; Erosion of natural deposits	

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Table 3. 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.

Table 4. 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

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).

In 2016 NAS Sigonella was required to collect seven check monitoring samples at Marinai Family Housing throughout the course of the year. This includes analysis of color, odor, and taste. These parameters are all aesthetic and non-health related. Turbidity is also analyzed. Six samples for each of these components were successfully monitored. For taste, the contracted lab failed to collect the final sample in December. NAS Sigonella monitors the drinking water for taste as required by the FGS; however, there is not currently a lab available that is accredited for measuring taste. We will continue to use our contracted lab, which has a demonstrated quality control plan and is accredited in many other methods, while we look for an accredited resource to meet this requirement. One odor, color, and turbidity sample sent to the approved lab failed to pass the quality control requirements and had to be thrown out. Color and turbidity were also analyzed during the same timeframe by a local lab that is accredited but not yet approved by the Navy. This lab found no exceedances of the color or turbidity requirements.

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NAS Sigonella is required to monitor for glyphosate and its daughter product aminomethylphosphonic acid, or AMPA, quarterly because detections above the limit of detection but well below the MCL were found in previous years. Unfortunately, shipping and laboratory quality control issues prevented a successful sampling event for three of this year's quarters. The sample analyzed by our accredited and approved lab found no detections of either component. One additional sample was successfully analyzed by a laboratory that is not yet accredited in that test, and the lab did not detect either glyphosate or AMPA. Another sample was sent to an accredited and approved lab, but the detection limit was higher than the MCL. This means that we cannot know for sure that the sample was below the limit.

NAS Sigonella is required to monitor once every three years for organic compounds. Two of those compounds are Diquat (an herbicide) and Endothall (an organic component used as an herbicide, biocide, and dessicant). A sample was successfully analyzed with no detection of either component, but the detection limit was higher than the MCL. Currently, there are no accredited and approved laboratories that can reach the MCL of 0.0001 mg/L. We are working through the chain of command to identify a laboratory method capable of meeting the requirement.

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 +39-095-86-7220 or E-mailing the Drinking Water Program Manager, Rachel Methvin, at rachel.methvin@eu.navy.mil. You can also contact the Installation Environmental Program Director, Kristen Bass, at kristen.bass@eu.navy.mil or by calling +39-095-86-2725.