



Consumer Confidence Report Drinking Water System 2017



Naval Communications Detachment (NAVCOMDET)
Chinhae

This report meets Commander, Navy Installations Command Policy Letter 5200, Ser N4/13U84441, 15 Oct 13. This report reflects monitoring data collected in 2016 and will be updated annually.
이 보고서는 귀하의 식수에 대한 중요한 내용이 실려 있습니다. 그러므로 이 보고서를 이해할 수 있는 사람에게 번역해 달라고 부탁하시기 바랍니다.

Your Water is NOT Fit for Human Consumption!

Commander, Fleet Activities Chinhae (CFAC) is pleased to provide this annual Consumer Confidence Report (CCR) of the Drinking Water supplied to the facility (Building 114) on the Republic of Korea (ROK) Navy Base Chinhae.

This report provides information about the water that was supplied to NAVCOMDET Chinhae in 2016. It describes where the water comes from, what it contains, and how it compares to standards for safe drinking water. The goal is, and always has been, to provide safe and dependable drinking water.

Source of Water

The drinking water source comes from surface water. Surface water is water on the surface of the planet such as in a stream, river, lake, wetland, or ocean. Surface water accumulates mainly as a result of direct runoff from rain or snow. The source water for NAVCOMDET Chinhae is supplied from the Nak-Dong River (90%) and Ung-Dong Reservoir (10%).

The ROK Navy Base Chinhae treats the combined water sources prior to distribution. They continuously monitor the raw and treated water for a wide variety of impurities to verify the water that is provided to the ROK Navy Base Chinhae meets Korean water quality standards. Their treatment and distribution systems are monitored and secured at all times.

Water Treatment & Distribution System

ROK Navy Chinhae operates the water treatment and distribution system to provide water to NAVCOMDET Chinhae. The water treatment system consists of chemical addition, flocculation, sedimentation, filtration, disinfection, storage and distribution. The raw (untreated) water (surface water) is collected and stored in a water holding tank. That water then flows into basins where coagulant chemicals are added and mixed to form large particles. The water then flows to sedimentation basins so that the large particle can settle out. The water is then filtered to remove any remaining sediments. It is then treated with chlorine to kill potentially harmful bacteria and viruses. The treated

water is stored in large tanks and then distributed to the ROK Navy Base Chinhae facilities.

Drinking Water Monitoring

U.S. Navy overseas installations are required to meet or exceed National Primary Drinking Water regulations promulgated under the Safe Drinking Water Act of 1974, which was adopted by Commander, Navy Installations Command (CNIC) Instruction 5090.1, and are the same standards used in the U.S. to ensure safe drinking water. CFAC is also required to meet all criteria established in the Korea Environmental Governing Standards (KEGS) 2012, intended to ensure DoD activities and installations in Korea protect human health and the natural environment through the promulgation of specific environmental compliance criteria. These standards require monitoring and testing of the drinking water for contaminants on a regular basis ensuring it is safe to drink.

Samples are analyzed for certain physical and chemical properties using field and laboratory equipment. PWD Chinhae Environmental department conducts monthly sampling and analysis and the remaining required analytical testing, per KEGS and CNICINST 5090.1, is conducted by SGS Laboratories, Inc.

NAVCOMDET Chinhae's drinking water is monitored for and analyzed (analyzing agency shown in *italics*) for the following constituents at the frequencies shown below:

Monthly (*PWD Chinhae*) – Turbidity, Residual Chlorine, and Total Coliform

Quarterly (*Lab*) – PCBs, Herbicides, Pesticides, Volatile Organic Chemicals, Radionuclides, Nitrate and Nitrite, and Disinfection By-Products (TTHM and HAA5)

Semi-Annually (*Lab*) – Lead and Copper

Annually (*Lab*) – Metals, Asbestos, Inorganic Chemicals, and Corrosivity

Water Quality Data

In 2015, PWD Chinhae tested NAVCOMDET Chinhae's drinking water for many possible contaminants. The following table lists the categories with which a particular contaminant is associated. The below results show that NAVCOMDET Chinhae's drinking water does not comply with all the pertinent standards and as such is –

Not Fit for Human Consumption

Contaminant		Typical Sources	Unit of Measure	Regulatory Criteria – KEGS & CNICINST 5090.1		Laboratory Results		
				MCLG or MRDLG	MCL, TT or MRDL	Result		Violation
						Low*	High*	
Inorganics	Heavy Metals	Erosion of natural deposits	mg/L	0.001 to 0.5	0.002 to 2.0	ND (various)	0.015	No
	Total Nitrite & Nitrate	Run off from fertilizer use	mg/L	NA	10	1.13	2.09	No
	Asbestos	Decay of asbestos cement water mains; Erosion of natural deposits	MFL	NA	7	ND (0.1)	ND (0.1)	No
	Fluoride	Discharge from plastic and fertilizer factories	mg/L	NA	4.0	ND (0.100)	ND (0.100)	No
	Cyanide	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories	mg/L	0.01	0.2	ND (0.010)	ND (0.010)	No
Organics	Volatile Organics	Discharge from industrial and agricultural chemical factories	mg/L	0.002 to 0.7	0.005 to 10	ND (various)	ND (various)	No
	Semi Volatile Organics & Pesticides /PCB	Run off from landfills; Discharge of waste chemicals; Runoff from herbicide used on crops and soil fumigants	mg/L	0.02 to 0.07	3×10^{-8} to 0.5	ND (various)	0.00008	No
Microbiological	Turbidity	Soil runoff	NTU	NA	1 maximum & 0.3 for 95% of the monthly samples	0.09	0.16	YES ¹
	Total Coliform Bacteria	Naturally present in the environment	NA	0	No more than one positive sample per month	0 Positive	0 Positive	No
Disinfectant & Disinfection By-Products	Halo Acetic Acids (HAA5)	Byproduct of drinking water disinfection	mg/L	0 to 0.3	Annual average 0.030 to 0.060	0.0179	0.0408	No
	Total Tri-Halo-Methanes (TTHM)	Byproduct of drinking water disinfection	mg/L	0 to 0.06	Annual average 0.040 to 0.080	0.0342	0.0649	No
Radionuclide	Gross Alpha/Radium-226 and 228	Erosion of natural deposits	pCi/L	0	5	ND (various)	ND (various)	No

Contaminant	Typical Sources	Unit of Measure	Regulatory Criteria – KEGS & CNICINST 5090.1		Laboratory Results		Violation
			MCLG	AL	Low*	High*	
Lead	Corrosion of household plumbing systems; erosion of natural deposits.	mg/L	0	0.015 based on 90 th percentile results exceeding AL	NC	NC	YES²
Copper	Corrosion of household plumbing systems; erosion of natural deposits.	mg/L	1.3	1.3 based on 90 th percentile results exceeding AL	NC	NC	YES²

Note *: Practical Quantification Limit presented in parenthesis.

Note 1: Continuous 4-hour monitoring not conducted at Building 114. The KEGS requires the turbidity of filtered water will be monitored at least once every 4 hours that the system is in operation.

Note 2: Lead and copper sampling required to be conducted as first draw sampling was not conducted. The tap water must be standing in plumbing at least six hours before collection without flushing the tap.

Data Table Key: Unit Descriptions

mg/L	mg/L: number of milligrams of substance in one liter of water
ppm	ppm: parts per million, or milligrams per liter
ppb	ppb: parts per billion, or micrograms per liter
ppt	ppt: parts per trillion, or nanograms per liter
MFL	MFL: million fibers per liter (fibers greater than 10 micrometers in length)
NTU	NTU: nephelometric turbidity units
pCi/L	pCi/L: picocuries per liter (a measure of radioactivity)
NA	NA: not applicable
NC	NC: not conducted
ND	ND: not detected
NR	NR: monitoring not required

Important Drinking Water Definitions

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 MCLG 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 systems must follow.
MRDLG	Maximum Residual Disinfectant Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health (4 mg/L of chlorine). 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 (4 mg/L of chlorine). There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

The tables above list all of the drinking water contaminants detected that are applicable for the calendar year of this report. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. USFK and CNIC require monitoring for certain contaminants less than once per year because the concentrations of these contaminants do not change.

Violations and Exceedances: Treatment Technique, Turbidity, and Lead/Copper

Treatment Technique: The current water treatment technique being used at the ROK Navy Base Chinhae uses Combined Filter Effluent (CFF) monitoring for turbidity testing. However, U.S. and USFK regulations (CNICINST 5090.1 and Korea Environmental Governing Standards) require the Individual Filter Effluent (IFF) monitoring to be used to meet standards.

Turbidity: 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 headaches. Monthly monitoring by PWD Chinhae occurs for turbidity during total coliform sampling. Continuous 4-hour monitoring is required to track the turbidity levels; which is not currently being performed.

Lead/Copper: Lead and copper sampling is required to be conducted as first draw sampling which is not conducted. The tap water must be standing in plumbing at least six hours before collection without flushing the tap. Risk of exposure to lead can cause damage to brain, red blood cells, and kidneys especially young children and pregnant women. Risk of exposure to copper can cause stomach and intestinal distress, liver or kidney damage, and complications of Wilson's disease in genetically predisposed people.

Corrective Actions: Currently, NAVCOMDET Chinhae uses bottle water for drinking, cooking, and hand washing. In the interim NAVCOMDET Chinhae will continue to use bottle water until a new NAVCOMDET facility is built on Commander, Fleet Activities Chinhae in 2017.

You may obtain more information about contaminants and potential health effects by calling the EPA's Safe Drinking Water Hotline 1-800-426-4791, or see their website at <http://water.epa.gov/drink/hotline/index.cfm>

Lastly, remember saving water is simple and inexpensive. Practicing a few of the following tips can make a difference in conserving our planets most precious resource:

- Take short showers - a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.
- Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!
- Call PWD Chinhae for repair of any water leaks; e.g., faucets and toilets.
- Visit www.epa.gov/watersense for more information.

For more information on this report, issues related to drinking water quality, or if you would like to review a complete listing of analytical results please contact PWD Chinhae Environmental Office (N45) at 762-5648.

General Information about Drinking Water

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 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:

- Microbial contaminants such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants such as salts and metals, that 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 that are byproducts of industrial processes and petroleum production and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- Radioactive contaminants that can be naturally occurring or be the result of oil and gas production and mining activities.
- Pesticides and herbicides that may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

Other Useful Information

Possible Source of Contaminants

As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals. It can also pick up other substances resulting from the presence of animals or human activity. Drinking water, including bottled water, may reasonably be expected to contain at least trace amounts of some contaminants. The presence of contaminants does not necessarily indicate that the 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 persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, persons with HIV/AIDS or other immune 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 and the Center 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 Hotline at 1-800-426-4791.

Potential Contaminants

Lead

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. Our tap water did not exceed the lead drinking water health standards required by the KEGS. To take extra precaution in avoiding possible lead contamination, when water has been sitting for several hours, you can further minimize the potential for lead exposure by flushing the tap for 30 seconds to two minutes before using water for drinking or cooking. Information on lead in drinking water is available at <http://www.epa.gov/safewater/lead>.

Nitrate/Nitrite

Nitrates are naturally present in soil, water, and food. Nitrates themselves are relatively nontoxic. However, when swallowed, they are converted to nitrites that can react with hemoglobin in the blood creating methemoglobin. This methemoglobin cannot transport oxygen thus causing conditions of shortness of breath and blue baby syndrome. Our tap water did not exceed the Nitrate/Nitrite drinking water health standards required by the KEGS. Information on Nitrate in drinking water is available at <http://water.epa.gov/drink/contaminants/basicinformation/nitrate.cfm>

Arsenic

Arsenic is odorless and tasteless. It enters drinking water supplies from natural deposits in the earth or from agricultural and industrial practices. Some people who drink water containing arsenic in excess of the Maximum Contaminant Level (MCL) for many years could experience skin damage or problems with their circulatory system and may have an increased risk of getting cancer. Last year, as in years past, our tap water met the Arsenic drinking water health standards required by the KEGS. Information on Arsenic in drinking water is available at <http://water.epa.gov/drink/contaminants/basicinformation/arsenic.cfm>

Frequently Asked Questions

Why does the water sometimes look rusty?

Rusty or reddish tinted water may occur because of a sudden change in pressure which can cause rust in distribution piping to become dislodged. Iron causes the discoloration (rust is a secondary drinking water standard having mostly cosmetic or aesthetic effects) and it is not a health risk. If water looks rusty, flush the tap for three minutes or until clear before using water. Running the water will clear the piping system. If hot tap water is rusty, the water heater may need to be flushed.

I don't like the taste/smell/appearance of my tap water. What's wrong with it?

Even when water meets standards, you may still object to its taste, smell, or appearance. Taste, smell and appearance are also known as aesthetic characteristics and do not pose health risks. Common complaints about water aesthetics include: temporary cloudiness (typically caused by air bubbles) or chlorine taste (which can be improved by letting the water stand exposed to the air). If you want to improve the taste, smell and appearance of water, you can install a home water filter. Please keep in mind that filters require regular maintenance and replacement; if ignored, water taste, smell, or appearance issues may reoccur.

Is it okay to drink from a garden hose?

The water coming out of the tap and into the hose is safe but a garden hose is treated with special chemicals that make it flexible. Those chemicals are not good for you and neither are the bacteria that may be growing inside the hose.

