TOTAL TRIHALOMETHANES

The regulatory Disinfectant By-Product (DBP) Rule for Stage II sampling for Total Trihalomethanes (TTHMs) requires a running average based on each sample location. In 2012, our highest locational average TTHM result was 59.5 ppb, which is well below the Maximum Contaminant Level (MCL) of 80 ppb. TTHMs are widely occurring class of DBP that form during water treatment disinfection when chlorine reacts with organic material (also known as "precursors"). Factors that influence the formation of DBPs include water temperature, pH, chlorine concentration, precursor concentration, and chlorine contact time. Some individuals who drink water containing TTHMs in excess of the state MCL over many years may experience complications with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer. For more information, visit the EPA website at http://www.epa.gov/safewater/disinfection/.

IRON AND MANGANESE

Because our iron and manganese levels at some of our wells continue to exceed secondary MCLs, we will maintain our increased monitoring of our groundwater wells. These higher levels do not pose a health risk, but can impact the aesthetics of your water. At certain concentrations, iron and manganese can precipitate out and leave stains on plumbing fixtures, dishes, and on laundered clothes. We will continue monitoring wells and will adjust as necessary to ensure these levels are maintained at manageable levels.

TOTAL COLIFORM BACTERIA

Coliform is a bacteria naturally present in the environment and is used as an indicator that other potentially harmful bacteria may exist. Vandenberg collects between 12 to 15 coliform samples each month at selected sites, to include the childcare facilities. In August of 2012, the Child Development Center's monthly bacteriological sample was positive for total coliform. A positive total coliform sample does not necessarily mean that the bacterium is harmful. A state mandated repeat sample was collected within an hour of notification from the same exact location. The second sample was absent for all bacteria. The water lines throughout the entire building were thoroughly flushed to ensure any residual debris was removed. All samples collected and analyzed before and after this positive sample were all absent for coliform and met state requirements.

CONTAMINANT	MCL	MCLG	VAFB WATER	SAMPLE DATE	VIOLATION	MAJOR ORIGINS IN DRINKING WATER
Total Coliform	0	0	1 positive sample	Aug 2012	None, since 2nd sample was negative	Naturally present in the environment

IMPORTANT HEALTH INFORMATION

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. USEPA/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 Safe Drinking Water Hotline (1-800-426-4791).

WATER SYSTEMS IMPROVEMENTS

The drinking water system on Vandenberg is upgraded as required in order to deliver high quality drinking water. Ongoing projects include corrosion prevention and water line replacement. October 2012 marked the completion of two concrete four million gallon main reservoir storage tanks.

CONTAMINANTS IN THE 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.
- Pesticides and herbicides, that may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, agricultural application, and septic systems.
- Radioactive contaminants that can occur naturally or be the result from oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the California Department of Public Health (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

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 water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791) or http://water.epa.gov/infrastructure/drinkingwater/pws/index.cfm.

ABBREVIATIONS:

AL Action Level: *The concentration of a contaminant which, if exceeded, triggers increased monitoring, sampling, treatment, or other requirements that a water system must follow in order to protect public health.*

MCL Maximum Contaminant Level: *The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible Secondary MCLs are not health concerns but are set to protect the odor, taste, and appearance of drinking water.*

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 are set by the U.S. EPA.*

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.*

MRDLG Maximum Residual Disinfectant 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.*

PDWS Primary Drinking Water Standard: *MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.*

PHG Public Health Goal: *The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency (Cal/EPA).*

SDWS Secondary Drinking Water Standard: *MCL requirements for contaminants that do not affect the health at MCLs but that may affect the taste, odor, or appearance of drinking water.*

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

Regulated Substances Primary

Substance (Contaminant)	MCL	PHG (MCLG)	SWP Water (Avg)	Range	Most Recent Sample Date	SA Well Water (Avg)	Range	Most Recent Sample Date	Typical Source of Substances
			Cal. State Water Project			San Antonio Well Water (VAFB)			
Gross Alpha Particle Activity (pCi/L)	15	0	4	4	2012	4.5	ND–4.7	2010	Erosion of natural deposits
Aluminum (ppm)	1.0	0.6	0.07	ND-0.12	2012	ND	ND	2010	Erosion of natural deposits; residue from some surface water treatment processes
Arsenic (ppb)	10	0.004	ND	ND	2012	3.9	ND-7.8	2010	Erosion of natural deposits; runoff from orchards; naturally occurring in groundwater
Fluoride (ppm)	2	1	ND	ND	2012	0.9	0.5-1.2	Monthly 2012	Erosion of natural deposits; water additive that promotes strong teeth
Nitrate as NO_3 (ppm)	45	45	2.2	2.2	2012	ND	ND	2012	Runoff and leaching from fertilizer use; erosion of natural deposits
Selenium (ppb)	50	30	ND	ND	2012	7.6	ND-7.6	2010	Erosion of natural deposits; runoff from livestock lots (feed additive)
* Total Trihalomethanes (TTHM) (ppb)	80	N/A	46	20-77	2012	59.5	1.2-**99**	Qtrly 2012	By-product of drinking water disinfectant
Haloacetic Acids (HAA) (ppb)	60	N/A	11	5.4-17	2012	18.0	ND-29	Qtrly 2012	By-product of drinking water disinfectant
Chlorine (ppm)	4.0	N/A	2.2	1.5-3.1	2012	2.0	0.2-3.7	Weekly 2012	Measure of the disinfectant used in the production of drinking water

Lead and Copper Rule

Substance (Contaminant)	AL	PHG	VAFB Water	Number of sites	Number of sites over AL	Sample Date	Typical Source of Substances
Lead (ppb)	15	0.2	0.51	30	0	2011	Internal corrosion of household water plumbing systems; erosion of natural deposits
Copper (ppm)	1.3	0.3	0.078	30	0	2011	

Regulated Substances Secondary MCLs

Substance (Contaminant)	Secondary MCL	SWP Water (Avg)	Range	Most Recent Sample Date	SA Well Water (Avg)	Range	Most Recent Sample Date	Typical Source of Substances
		Cal. State Water Project			San Antonio Wells water (VAFB)			
Color	15 units	ND	ND	2012	2.8	ND-5	2010	Naturally-occurring organic materials
Iron (µg/L)	300	ND	ND	2012	210.8	58-**390**	2012	Leaching from natural deposits
*Manganese (µg/L)	50	ND	ND	2012	61.9	52-**74**	2012	Leaching from natural deposits
Odor – Threshold	3 units	ND	ND	2012	2.0	1-3	2010	Naturally-occurring organic materials
Turbidity	5 units	0.05	0.04-0.1	2012	2.8	0.1-10.5	2010	Soil runoff
Total Dissolved Solids (mg/L)	1,000	308	202-417	2012	525	450-560	2010	Runoff/leaching from natural deposits
Specific Conductance (µs/cm)	1,600	522	344-706	2012	820	730-900	2010	Substances that form ions when in water; seawater influence
Chloride (mg/L)	500	86	46-146	2012	107.2	89-130	2010	Runoff/leaching from natural deposits; seawater influence
Sulfate (mg/L)	500	71	71	2012	80.7	66-100	2010	Runoff/leaching from natural deposits; seawater influence

Non- Regulated Substances

Substance (Contaminant)	SWP Water (Avg)	Range	Most Recent Sample Date	SA Well Water (Avg)	Range	Most Recent Sample Date	Notes
	Cal. State Water Project			San Antonio Wells water (VAFB)			
Sodium (ppm)	62	62	2012	72	63-76	2010	Neither sodium nor hardness has an MCL but, we are presenting the data as customers have shown an interest.
Hardness, Total (ppm)	101	64-156	2012	255	220-290	2010	

*** Please see coordinating substance specific paragraph on the opposite page.**

ACRONYMS
CCWA: Central Coast Water Authority
CFU/ml: Colony Forming Units per milliliter
NA: Not applicable
ND: Not detectable above testing limits
NTU: Nephelometric turbidity units (a measure of turbidity/clarity)
ppb: Parts per billion or micrograms per liter (µg/L)
ppm: Parts per million or milligrams per liter (mg/L)
SA: San Antonio
SWP: State Water Project
µmho/cm: micromhos per centimeter (measure of water's ability to conduct an electrical current)

GENERAL INFORMATION

We are pleased to present our 2012 water quality report. This report is designed to inform you about the quality of drinking water we deliver to you daily. Our constant goal is to provide you with a dependable supply of drinking water. The sources of drinking water (both tap 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. This requires disinfection for all water sources. The U.S. Environmental Protection Agency (U.S. EPA) and the California Department of Public Health prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health. Disinfectant treatment ensures your water meets public health requirements to eliminate microbial contamination. A source assessment of the San Antonio (SA) Water Wells was completed in April 2010. The SA groundwater source has the potential to be impacted by activities relating to the military installation, other domestic water supply wells, roads/streets, surface water, and freeways/state highways. However, no substances associated with these sources have been detected in the wells. A copy of the complete assessment is available at: 30 MDOS/SGOJ, Building 13850, VAFB, CA 93437. If you would like to receive a summary of the assessment by mail, call: 30 MDOS/SGOJ at (805) 606-7811.

SOURCES OF WATER

VAFB purchases water from the California State Water Project (SWP). SWP water originates in the upper Feather River (pictured on the front) in northern California and is stored in Lake Oroville and the San Luis Reservoir. The Central Branch of the Central Coast Water Authority (CCWA) delivers SWP water via pipelines to VAFB from their Polonio Pass Water Treatment Plant located approximately 125 miles northeast of the base. When additional water is needed to supplement state water or the Polonio Pass Water Plan is down for maintenance, water is obtained from groundwater wells located on VAFB in the San Antonio (SA) Groundwater Basin. Water from both sources is disinfected and fluoridated.

WATER SOURCE ASSESSMENT

In July 2012 the California Department of Public Health (CDPH) updated Vandenberg's Source Water Assessment for the base groundwater wells. The assessment determined that there are no possible contaminating activities that have had a direct impact on Vandenberg's groundwater source. For a fuller summary of the assessment, please contact George Croll, 30 CES/CEO, at 805-606-4749. A copy of the complete assessment may be viewed at DHS Drinking Water Field Operations Branch, 1180 Eugenia Place, Suite 200, Carpenteria, CA 93013, or you may request a summary of the assessment be sent to you by contacting Kurt Souza, District Engineer, at 805-566-1326.

WATER CONSERVATION

PROTECT OUR RESOURCE

We must all take steps to ensure we have an adequate supply of drinking water in the future. The best way to achieve this goal is by using water sparingly in our daily lives. Vandenberg AFB is also required to prevent storm water pollution. Here are some tips on how to conserve water and also prevent storm water pollution:

- Water your lawn only when necessary. Step on your grass and if it springs back after you lift your foot then it doesn't need water. Set your sprinklers for more days in between watering. ***This saves 750-1,500 gallons per month.***
- Look for leaky faucets and plumbing joints. ***This saves 600 gallons per month for each leak fixed.***
- Run only full loads in washing machines and dishwashers. ***This saves 300-800 gallons per month.***
- Shorten your showers. ***This saves up to 700 gallons per month.***
- Catch water (while waiting for hot water) in a watering can to use on plants or in the garden. ***This saves 200-300 gallons per month.***
- Turn off the water while brushing your teeth and/or shaving. ***This saves 10 gallons per day.***
- Visit www.epa.gov/watersense for more information.

PREVENT WATER POLLUTION

During storm events runoff mobilizes contaminants such as oil and gasoline from parking lots, sediment and fertilizers from landscaping, and pet waste from parks. Storm water runoff eventually makes its way into groundwater or receiving water bodies such as rivers and lakes and has the potential to contaminate water supplies. Keep storm water leaving your home or workplace clean. Prevent contamination of drinking water by following these simple guidelines:

- Use a commercial car wash facility.
- Keep vehicles maintained to prevent leaks.
- Clean up after your pet.
- Use pesticides and fertilizers sparingly and never before anticipated rain.
- Sweep driveways and walkways rather than hosing them down.
- If you see polluted storm water runoff or materials such as motor oil discharging or being dumped into Vandenberg AFB storm drains, please call the **Storm Water Hotline at 606-7541 or 606-0503.**

Recycle waste oil and used antifreeze. Waste motor oil, used antifreeze, and car batteries can be taken to the Consolidated Collection Accumulation Facility, Building 3300 on New Mexico Avenue. Military Family Housing waste can be taken to Balfour Beatty Communities Self Help Center. They can be reached at 734-1488.

QUESTIONS

If you have questions about your water quality, this report, or service, please contact the appropriate department.

REPORT INFORMATION

- **Asset Management Flight, Water Resources Program, (805) 606-7541**

HOUSING MAINTENANCE CONCERNS

- **Balfour Beatty, Facility Maintenance, (805) 734-1488**

WATER SAMPLING INFORMATION

- **Bioenvironmental Engineering, (805) 606-7811**

HEALTH CONCERNS

- **Public Health, (805) 606-0648**

WATER EMERGENCIES

- **Water & Fuels Maintenance, (805) 606-5885**

WATER CONSERVATION

- **Utility Engineer, (805) 606-8538**

VANDENBERG AFB
ANNUAL DRINKING WATER QUALITY REPORT
2012

ADVISORY

This report contains important information regarding your drinking water. If you need additional information or have questions, contact Bioenvironmental Engineering at 606-7811, 338 South Dakota Avenue, Vandenberg AFB CA 93437.

AVISO

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

READING THIS REPORT

This Annual Drinking Water Report presents information about your drinking water, its two sources, and how they compare to federal and California standards. To help ensure that your drinking water meets these standards, Vandenberg Air Force Base (VAFB) routinely samples and examines your water for over one hundred different water quality parameters on a weekly, monthly, quarterly, annual, and triennial basis as required by base, Air Force, state, and federal procedure or regulation. This report will give you a representative idea of the quality of your drinking water, and goes into further detail about some of the constituents found in your water. The data represented this report reveals all detected substances that are regulated by the state of California.