

2002 Drinking Water Quality Report for Nellis Air Force Base

This report is a snapshot of calendar year 2002 drinking water quality at Nellis AFB. Included are details about where your water comes from, what it contains, and how it compares to U.S. Environmental Protection Agency (EPA) and state drinking water health standards.

Where does my water come from?

Most of the Nellis AFB Public Water System drinking water is from Lake Mead and is supplied by the Southern Nevada Water System (SNWS). Virtually all of the water in Lake Mead begins as snowmelt in the Rocky Mountains and arrives via the Colorado River. The Las Vegas Wash, which carries stormwater and treated wastewater into Lake Mead, accounts for only 1.5 percent of all the water in the lake. The Virgin River and Muddy River combined also provide approximately 1.5 percent of Lake Mead's water.

The SNWS water is supplemented by a small percentage of groundwater from wells on and near the base. The well water comes from the Las Vegas Valley Aquifer.

Potential sources of contamination for lakes and reservoirs include urban chemicals such as fertilizers and pesticides, industrial activities, and wildlife. Landfills, domestic septic systems, and leaking underground storage tanks are all potential sources of contamination for groundwater aquifers.

Treatment Process

SNWS has advanced water treatment facilities that are designed to provide water that meets Safe Drinking Water Act standards.

All the water drawn from Lake Mead is sent to the Alfred Merritt Smith or River Mountains water treatment facilities. As it arrives, the water is treated with chlorine to kill any potentially harmful microscopic organisms. A multistage filtration system then is used to remove particles from the water. As the water leaves the water treatment facility, additional chlorine is added to protect it on the way to customers' taps. It is also treated to prevent corrosion of the pipelines. The water from base wells is chlorinated and then mixed with the SNWS water.

Analysis and Compliance

Every month, technicians from SNWS collect and analyze water samples from Nellis AFB's drinking water and its water treatment facilities. In fact, the water is tested even

more frequently and extensively than the Safe Drinking Water Act and the Nevada Administrative Code requires. The test results are shown in the table below.

Nellis AFB had one regulatory compliance violation in 2002. Two samples tested positive for total coliforms in April 2002 and a public notification was issued. Subsequent test results were negative. Contact Bioenvironmental Engineering at 702-653-3316 if you need more information.

Why are there contaminants in my drinking 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 water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 800-426-4791.

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 human activity.

Contaminants that may be present in source (untreated) water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm runoff and industrial or domestic wastewater discharges.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential use.
- Organic chemical contaminants, including synthetic or volatile organic chemicals, which are byproducts of industrial processes and can come from gas stations, urban storm water runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of industrial activities.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health. For more information on bottled water quality, call the International Bottled Water Association at 800-WATER11.

Do I need to take special precautions?

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/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 at 800-426-4791.

Other Health Information

The following substances are monitored by SNWS but are not regulated under the Safe Drinking Water Act. We have included this information because consumers have a right to know about issues affecting their water.

Cryptosporidium

This naturally occurring microscopic organism is found in 95 percent of all surface water in the United States. If ingested, it can cause gastrointestinal distress and fever. Laboratory staff test for *Cryptosporidium* in both untreated and treated water. Although it is occasionally found in the untreated water, technicians take all available measures to remove it during the treatment process. Filtration is generally effective at removing *Cryptosporidium*. Both the Alfred Merritt and River Mountains water treatment facilities are currently being equipped with ozonation treatment, which offer an even more effective disinfection process. Ozonation provides excellent protection against microorganisms such as *Cryptosporidium*.

Perchlorate

Perchlorate, a man-made salt consisting of chloride and oxygen, has been detected at low levels in untreated and treated water. Scientists have traced the salt's origin to shallow groundwater entering the Las Vegas Wash. Although there are no federal limits for perchlorate in drinking water, Southern Nevada's water agencies are closely monitoring efforts by the Nevada Division of Environmental Protection to intercept and remove perchlorate at its source.

Frequently Asked Questions

Is my tap water safe to drink?

Your tap water now meets or surpasses all Safe Drinking Water Act standards. The Alfred Merritt Smith Water Treatment Facility has been recognized by the National Partnership for Safe Water for its efforts to ensure that Southern Nevada's municipal water meets these water quality standards. Water samples are taken from our water distribution system monthly and analyzed to ensure compliance with standards.

If tap water is really of good quality, why does it taste the way it does?

Our water's taste is caused by naturally occurring minerals and chlorine. The chlorine is added to keep the water safe from bacteria. Water quality is best measured by the

amount and concentration of contaminants. We have very few contaminants in our drinking water and those that are present are within Safe Drinking Water Act limits.

Do I need to use a water treatment system or drink bottled water?

Not unless you want to improve your tap water's taste or remove the minerals that cause it to be "hard". (Water is considered hard if the mineral concentration is 100 ppm or more; the average hardness in the Las Vegas Valley is 300 ppm.) While many people prefer the taste of bottled water, tap water is subject to more stringent quality standards and is tested more frequently. Additionally, the cost of the average liter of bottled water is more than 1,000 times that of the same amount of tap water. Pregnant women and people with medical conditions affecting their immune system should consult a physician to determine whether a supplemental treatment system is appropriate. For additional information on home water treatment systems, contact the Southern Nevada Water Authority at 702-258-7117 or visit the Web at snwa.com.

Additional Information and Input

If you would like a copy of this report or have questions, please contact the Public Affairs Office, Mr. Michael Estrada at 702-652-2750 or 800-859-3804, or Bioenvironmental Engineering at 702-653-3316. Questions and comments can also be mailed to the Public Affairs Office at: AWFC/PA, 4370 N. Washington Blvd., Suite 223, Nellis AFB, NV 89191-7078.

For additional information on the quality of your water, call SNWS at 702-564-7697 or go to SNWA's website at snwa.com. Information on Nevada's Safe Drinking Water Program is available from the Nevada Bureau of Health Protection Services at 702-486-5068. General information on drinking water can be found on the EPA's website at epa.gov/safewater.

Water Quality Data Table

The table below lists the drinking water contaminants that were detected. 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 2002 calendar year. The EPA or the state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently.

REGULATED CONTAMINANTS				All data is based upon 2002 analyses except as noted.	
SUBSTANCE	RANGE	AVERAGE	MCL (EPA LIMIT)	MCLG (EPA GOAL)	Possible Source
Arsenic	ND – 5 ppb	3 ppb	50 ppb (10 ppb in Jan 2006)	None	Erosion of natural deposits
Barium	89 – 92 ppb	90 ppb	2,000 ppb	2,000 ppb	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits
Chromium	ND - 3 ppb	2 ppb	100 ppb	100 ppb	Erosion of natural deposits
Total Trihalomethanes	1 – 78 ppb	42 ppb	80 ppb (effective Jan 2004)	None	By-product of drinking water disinfection
Fluoride	98–890 ppb	721 ppb	4,000 ppb (2,000 ppb recommended)	4,000 ppb	Erosion of natural deposits; water additive which promotes strong teeth
Nitrate (as N)	454 – 570 ppb	512 ppb	10,000 ppb	10,000 ppb	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits
Lead (2000)	ND – 4 ppb	2 ppb (90 th percentile value)	15 ppb*	0	Corrosion of household plumbing systems; erosion of natural deposits
Copper (2000)	120 – 700 ppb	690 ppb (90 th percentile value)	1,300 ppb*	1,300 ppb	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Gross Beta Activity	8.4 pCi/L (one sample)	8.4 pCi/L	50 pCi/L**	None	Erosion of natural deposits; decay of man-made deposits
Haloacetic Acids	ND – 47 ppb	20 ppb	60 ppb (effective Jan 2004)	None	By-product of drinking water disinfection
Total Coliform	0 – 2 monthly positive samples	<1 monthly positive sample	1 monthly positive sample	0	Naturally present in the environment
Sulfate	68 - 214 ppm	141 ppm	250 ppm***	None	***Secondary standard, non-enforceable guideline/recommendation
Free Chlorine Residual (as Cl ₂)	ND – 4.8 ppm	1.0 ppm	MDRL is 4.0 ppm (effective Jan 2004)	MDRLG is 4.0 ppm (effective Jan 2004)	By-product of drinking water disinfection

* Action Level: 90% of samples taken must be below this amount.

** The actual MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/l to be the level of concern for beta particles. The highest quarterly running annual average reported in 2002.

Total coliform MCL violation in April 2002. Public notification issued. Subsequent samples tested negative.

UNREGULATED CONTAMINANTS		
SUBSTANCE	RANGE	AVERAGE
Perchlorate:		
Alfred Merritt Smith WTF	ND – 17 ppb	10 ppb
River Mountains WTF	4 – 15 ppb	7 ppb

Important Definitions:

National Primary Drinking Water Regulations- National Primary Drinking Water Regulations (NPDWRs or primary standards) are legally enforceable standards that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water.

National Secondary Drinking Water Regulations- National Secondary Drinking Water Regulations (NSDWRs or secondary standards) are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. The U.S. Environmental Protection Agency recommends secondary standards to water systems but does not require systems to comply.

Unregulated Contaminants- These contaminants are not presently subject to any proposed or promulgated national primary drinking water regulation (NPDWR).

Maximum Contaminant Level (MCL)- The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to Maximum Contaminant Level Goals (MCLGs) as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.

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 and are non-enforceable public health goals.

Maximum Residual Disinfectant Level (MRDL)- The highest level of a disinfectant allowed in drinking water.

Maximum Residual Disinfectant Level Goal (MRDLG)- The level of a drinking water disinfectant below which there is no known or expected risk to health.

Action Level – The concentration, which, if exceeded, triggers a treatment, or other requirement, which a water system must follow.

Variance – State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

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

ND – Not detected

Disinfection by-product – A substance created by chemicals or processes used for disinfection.

NTU – Nephelometric Turbidity Unit – A measurement of water’s clarity

ppb – Part per billion – A unit used to describe the levels of detected contaminants. Equivalent to about 1 dissolved aspirin tablet in a 100,000-gallon (25 meter) swimming pool. Same as micrograms per liter (ug/l).

ppm – Part per million - A unit used to describe the levels of detected contaminants. Equivalent to about ½ of a dissolved aspirin tablet in a full bathtub of water (about 50 gallons). Same as milligram per liter (mg/l).

pCi/L – Picocuries per liter - a measure of radioactivity. Low levels of radiation occur naturally in many water systems, including the Colorado River.

N/A – Not applicable