

# THE CITY OF BOULDER CITY 2014 WATER QUALITY CONSUMER CONFIDENCE REPORT



**The 2014 Water Quality Report** is published in accordance with the federal Safe Drinking Water Act which establishes drinking water standards and requires purveyors to provide water quality information to their customers. The City of Boulder City believes it is essential that our customers know all the facts about Southern Nevada's drinking water. This report, which will be issued each July, includes test results, a source water analysis, an overview of the treatment process and other valuable information relating to the quality of our municipal water supply. If you have any questions or concerns relating to this report, please call Boulder City Public Works at (702) 293-9200.

## Boulder City's Water Supply

The Boulder City public water system purchases water from the Southern Nevada Water Authority (SNWA).

The water delivered to Boulder City consumers is treated surface water from the Colorado River System drawn from two intakes at Lake Mead.

**Source Name:** Lake Mead **Inflows:** Colorado River (97.08%), Virgin River (1.38%), Muddy River (.10%) and Las Vegas Wash (1.45%)

**Potential sources of contamination:** Urban activities (fertilizers, pesticides, etc.), industrial activities and wildlife activities.

## Treatment

Boulder City water is treated at the Alfred Merritt Smith Water Treatment Facility. As the water arrives through the intake pipe, it is treated with ozone and chlorine to kill potentially harmful bacteria and microscopic organisms. After disinfection, the water moves through a direct filtration process to remove harmful particles. Before the water leaves the treatment facility, it is disinfected again and treated for corrosion control.

## Primary Water Analysis Results

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 Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791, or the Nevada Division of Environmental Protection at (775) 687-9520.

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, 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 water runoff and industrial or domestic wastewater discharges.

*Pesticides and herbicides*, which may come from a variety of sources such as urban storm water runoff and residential uses.

*Organic chemical contaminants*, including synthetic or volatile organic chemicals, which are by-products 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.

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

## Additional Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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. Similarly, pregnant women should be especially careful about everything they consume. These people should seek advice about drinking water from their health care providers. EPA/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 (800) 426-4791.

## Information Sources

Southern Nevada Water Authority .....	(702) 564-7697
Las Vegas Valley Water District	
Water Quality .....	(702) 258-3215
Public Information .....	(702) 258-3930
Boulder City Public Works.....	(702) 293-9200
EPA Safe Drinking Water	
Hotline .....	(800) 426-4791
Website .....	epa.gov/drink
Nevada Division of Environmental Protection	
Bureau of Safe Drinking Water .....	(775) 687-9520
Website .....	ndep.nv.gov/bsdw
International Bottled Water Association .....	(800) WATER11
NSF International Consumer Hotline .....	(800) 673-8010
Website .....	nsf.org

**Testing:** Every month, scientists collect and analyze hundreds of water samples from throughout Clark County. In fact, water treatment facility technicians test more frequently and extensively than the Safe Drinking Water Act requires.

BOULDER CITY 2014				BOULDER CITY DISTRIBUTION SYSTEM <sup>(1)</sup>			POSSIBLE SOURCES OF CONTAMINATION
REGULATED CONTAMINANTS	UNIT	MCL (EPA Limit)	MCLG (EPA Goal)	MINI- MUM	MAXI- MUM	AVERAGE	
Alpha Particles	pCi/L	15	0	Entry Point Monitoring Only			Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation
Arsenic	ppb	10	0				Erosion of natural deposits
Barium	ppm	2	2				Erosion of natural deposits; discharge from metal refineries; discharge of drilling wastes
Beta Particles and Photon Emitters	pCi/L	50 <sup>(2)</sup>	0				Decay of natural and man-made deposits of certain minerals that are radioactive and may emit a form of radiation known as photons and beta radiation
Bromate	ppb	10	0				By-product of drinking-water disinfection with ozone
Nitrate (as Nitrogen)	ppm	10	10				Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Radium 226 and Radium 228 (combined)	pCi/L	5	0				Erosion of natural deposits
Selenium	ppb	50	50				Discharge from petroleum refineries; erosion of natural deposits; discharge from mines
Uranium	ppb	30	0				Erosion of natural deposits
Turbidity	NTU	95% of the samples <0.3 NTU <sup>(6)</sup>	N/A	Treatment Facility Monitoring Only			Soil runoff
Copper <sup>(7)</sup>	ppm	1.3 <sup>(8)</sup> (Action Level)	1.3	0.02 <sup>(9)</sup>	1.1 <sup>(9)</sup>	0.7 <sup>(9)</sup> (90th% value)	Corrosion of household plumbing systems; erosion of natural deposits
Free Chlorine Residual	ppm	4.0 <sup>(10)</sup> (MRDL)	4.0 <sup>(10)</sup> (MRDLG)	0.04	1.6	0.9 <sup>(5)</sup>	Water additive used to control microbes
Haloacetic Acids	ppb	60	N/A <sup>(11)</sup>	14	36	LRAA <sup>(12)</sup> 36	By-product of drinking-water disinfection
Lead <sup>(7)</sup>	ppb	15 <sup>(8)</sup> (Action Level)	0	N/D <sup>(9)</sup>	5.5 <sup>(9)</sup>	2.5 <sup>(9)</sup> (90th% value)	Corrosion of household plumbing systems; erosion of natural deposits
Total Trihalomethanes	ppb	80	N/A <sup>(11)</sup>	43	88 <sup>(13)</sup>	RAA <sup>(5)</sup> 70 LRAA <sup>(12)</sup> 82	By-product of drinking-water disinfection
Fluoride	ppm	4.0	4.0	0.7	0.7	0.7	Erosion of natural deposits; water additive <sup>(14)</sup>

**Footnotes:**

- Some Safe Drinking Water Act (SDWA) regulations require monitoring from the distribution system, while other SDWA regulations require monitoring at the entry points to the distribution system. (Alfred Merritt Smith WTP).
- The actual MCL for beta particles is 4 mrem/year. The U. S. Environmental Protection Agency (USEPA) considers 50 pCi/L to be the level of concern for beta particles.
- Annual testing not required, data is from 2011.
- Maximum levels greater than the MCL are allowable as long as the running annual average (RAA) does not exceed the MCL.
- This value is the highest running annual average (RAA) reported in 2013. Reports are filed quarterly.
- Turbidity is regulated by a Treatment Technique (TT) requirement - 95% of all samples taken after filtration each month must be less than 0.3 NTU. Maximum turbidity cannot exceed 1.0 NTU.
- Samples are from the Boulder City customers' taps.
- Lead and copper are regulated by a Treatment Technique (TT) that requires systems to control the corrosiveness of their water. If more than 10% of tap-water samples exceed the action level, water systems must take additional steps. For copper the action level is 1.3 ppm, and for lead it is 15 ppb.
- Annual testing not required, data is from 2012.
- Chlorine is regulated by MRDL, with the goal stated as a MRDLG.
- No collective MCLG but there are MCLGs for some of the individual contaminants. Haloacetic Acids: dichloroacetic acid (0), trichloroacetic acid (300 ppb); Trihalomethanes: bromodichloromethane (0), bromoform (0), dibromochloromethane (60 ppb).
- This value is the highest locational running annual average (LRAA) reported in 2013. Reports are filed quarterly.
- Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems of the liver, kidneys or central nervous system, and may have an increased risk of cancer.
- By state law, the Southern Nevada Water Authority (SNWA) is required to fluoridate the municipal water supply.

BOULDER CITY  
2014ALFRED MERRITT SMITH  
WATER TREATMENT  
FACILITY <sup>(1)</sup>

REGULATED CONTAMINANTS	UNIT	MCL (EPA Limit)	MCLG (EPA Goal)	MINI-MUM	MAXI-MUM	AVERAGE	POSSIBLE SOURCES OF CONTAMINATION
Alpha Particles	pCi/L	15	0	2.2	2.2	2.2	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation
Arsenic	ppb	10	0	2	2	2	Erosion of natural deposits
Barium	ppm	2	2	0.1	0.1	0.1	Erosion of natural deposits; discharge from metal refineries; discharge of drilling wastes
Beta Particles and Photon Emitters	pCi/L	50 <sup>(2)</sup>	0	3.5 <sup>(3)</sup>	3.5 <sup>(3)</sup>	3.5 <sup>(3)</sup>	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit a form of radiation known as photons and beta radiation
Bromate	ppb	10	0	3	11 <sup>(4)</sup>	7 <sup>(5)</sup>	By-product of drinking-water disinfection with ozone
Nitrate (as Nitrogen)	ppm	10	10	0.4	0.9	0.5	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Radium 226 and Radium 228 (combined)	pCi/L	5	0	0.4	0.4	0.4	Erosion of natural deposits
Selenium	ppb	50	50	2	3	2	Discharge from petroleum refineries; erosion of natural deposits; discharge from mines
Uranium	ppb	30	0	4	4	4	Erosion of natural deposits
Turbidity	NTU	95% of the samples <0.3 NTU <sup>(6)</sup>	N/A	100% of the samples were below 0.3 NTU. The maximum NTU was 0.089 on June 6, 2013.			Soil runoff
Copper <sup>(7)</sup>	ppm	1.3 <sup>(8)</sup> (Action Level)	1.3	Distribution System Monitoring Only			Corrosion of household plumbing systems; erosion of natural deposits
Free Chlorine Residual	ppm	4.0 <sup>(10)</sup> (MRDL)	4.0 <sup>(10)</sup> (MRDLG)				Water additive used to control microbes
Haloacetic Acids	ppb	60	N/A <sup>(11)</sup>				By-product of drinking-water disinfection
Lead <sup>(7)</sup>	ppb	15 <sup>(8)</sup> (Action Level)	0				Corrosion of household plumbing systems; erosion of natural deposits
Total Trihalomethanes	ppb	80	N/A <sup>(11)</sup>				By-product of drinking-water disinfection
Fluoride	ppm	4.0	4.0	0.6	0.8	0.7	Erosion of natural deposits; water additive <sup>(14)</sup>

**Definitions:**

**Action Level:** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

**Disinfection by-product (DBP):** A substance created by the chemicals or process used to destroy potentially harmful microorganisms.

**Maximum Contaminant Level (MCL):** 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.

**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.

**Maximum Residual Disinfectant Level (MRDL):** 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.

**Maximum Residual Disinfectant Level Goal (MRDLG):** 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 contamination.

**N/A:** Not applicable

**N/D:** Not detected. Does not equate to zero, but refers to an amount below analytical reporting limits.

**Nephelometric Turbidity Unit (NTU):** A measurement of water's clarity.

**Part per billion (ppb):** A unit used to describe the levels of detected contaminants. Equivalent to 1 cent in \$10 million.

**Part per million (ppm):** A unit used to describe the levels of detected contaminants. Equivalent to 1 cent in \$10,000.

**Picocuries per liter (pCi/L):** A measure of the radioactivity in water. Low levels of radiation occur naturally in many water systems, including the Colorado River.

**Running annual average (RAA):** Based on the monitoring requirements, the average of 12 consecutive monthly averages or the average of four consecutive quarters.

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

**Turbidity:** A measure of water clarity, which serves as an indicator of the treatment facility's performance.

## Additional Analysis Results

The surface water source assessment includes an analysis of the current water quality data at the intake and the vulnerability of the intake to potential contaminating activities located within the Las Vegas Valley watershed. The vulnerability analysis includes the time of travel from potential contaminating activities to the intake, physical barrier effectiveness of the watershed, the risk associated with the potential contaminating activities, and evaluation of historical water quality data prior to treatment. It is noteworthy that this study represents an initial survey of the drinking water intake vulnerability and is based on land use in the watershed rather than an analysis of the drinking water. Even before undergoing treatment, the water quality at the intake meets all maximum contaminant levels (MCLS) for drinking water except for microbiological contaminants that are naturally found in all surface waters. The vulnerability analysis of land use shows that the potential contaminating activities with the highest vulnerability rating include septic systems, golf courses/ parks, storm channels, gasoline stations, auto repair shops, construction and wastewater treatment plant discharges. Based on water quality data (prior to treatment) and the results of the vulnerability analysis of potential contaminating activities, the drinking water intake is at a moderate level of risk for volatile organic (VOC), synthetic organic (SOC), microbiological and radiological contaminants and at a high level of risk for inorganic (IOC) contaminants. All of the Las Vegas Valley governmental agencies coordinate their watershed management programs to minimize the vulnerability risk to Lake Mead. The findings of the source water assessment will be used to enhance those programs. It should be noted that treated drinking water delivered by SNWA has always met all State of Nevada and Safe Drinking Water Act standards.

**Exemptions and Variances** The State of Nevada requires that, in addition to regularly scheduled filter maintenance, all drinking water treatment plants wash their filters upon restart when they have been out of service. After extensive small scale testing of restarting filters without additional washing, the State of Nevada granted the SNWA Alfred Merritt Smith Water Treatment Facility a variance for this requirement. This testing proved to the State of Nevada that there are no negative impacts to drinking water quality from this procedure.

**Violations** Boulder City has no violations of Safe Drinking Water Act Standards.

## Frequently Asked Questions

### ***What's that taste in the tap water?***

When you "taste" tap water, what you are probably tasting is the chlorine. Our tap water also contains naturally occurring calcium and magnesium, which may contribute to the water's taste. These two harmless minerals are what cause "cloudy" ice and chalky deposits on faucets.

### ***Why does tap water leave a residue on my kitchen and bathroom fixtures?***

Ninety-seven percent of Lake Mead's water comes from the mountains via the Colorado River. Along the way, it dissolves harmless minerals from the river banks — particularly calcium and magnesium. These materials remain dissolved in the water all the way to your tap. When the water finally evaporates, it leaves the minerals behind. The average hardness of Boulder City's water is approximately 17 grains per gallon (290 ppm).

### ***Do home water treatment devices really work?***

There are a wide variety of water treatment systems and filters available to consumers. Most of these will affect the aesthetic qualities of tap water. Advertisers' claims about safety concerns, however, are not as clear. Purchasing a home water treatment system is strictly a personal decision which should be based solely on preference. NSF International, an independent, not-for-profit organization, certifies water treatment systems and can provide information about the benefits of various devices. Consumers can reach NSF International at (877) 867-3435 or at [www.nsf.org](http://www.nsf.org) on the Internet. *All home water treatment devices require periodic maintenance.*

**Input and Information** The Southern Nevada Water Authority (Board of Directors) meets the third Thursday of each month. The meetings start at 9:00 a.m. in the Colorado River Conference Rooms located at Molasky Corporate Center, 100 City Parkway, Suite 700 (7th floor) Las Vegas, NV 89106. If you would like to speak on matters within the jurisdiction of the Southern Nevada Water Authority that are not listed on the agenda, you may do so after all matters listed on the posted agenda have been considered. No action can be taken on matters that are not listed on the posted agenda.

**Public Notice for Water Quality Rule Extension** As part of the Safe Drinking Water Act, the Environmental Protection Agency revised the Disinfection Byproduct (DBP) Rule.

**Trihalomethanes (THMs)** are governed by this rule, having a Maximum Contaminant Level (MCL) of 0.080 mg/L. Compliance with the current version of the rule is based on calculating a running annual average of the results obtained from samples at all monitoring locations across the system. The Boulder City Public Works Department meets the requirements of the existing DBP rule because the system-wide averages for THMs are consistently below the MCL.

The compliance date for the new method for calculating compliance was April 1, 2012, and is based on the locational running annual average of sample results obtained at each specific monitoring location. From water sampling performed in 2009, the Boulder City Public Works Department believes it may be difficult to meet the requirements of the revised regulation without making a substantial investment in City owned distribution system upgrades.

As allowed by federal law, the Boulder City Public Works Department in cooperation with the Southern Nevada Water System received a two-year extension for compliance with the new rule in order to complete construction of a third intake (\$780 million project started in 2008). The extension began April 1, 2012, and ended March 31, 2014. Ensuring that water supplied to Boulder City customers meets or surpasses all state and federal standards is of utmost importance to the Boulder City Public Works Department. Therefore, in 2010, the Boulder City Public Works Department began making operational changes to reduce water retention time within the distribution system to reduce the formation of THMs. During the two year period of the extension, the Boulder City Public Works Department continued to monitor THM levels and use operational approaches for THM reduction.

Have any questions regarding this report? Contact Mike Noe, Water & Sewer Supervisor, at (702) 293-9266 or [mnoe@bcnv.org](mailto:mnoe@bcnv.org).