

THE CITY OF BOULDER CITY 2016

WATER QUALITY CONSUMER CONFIDENCE REPORT



THE 2016 WATER QUALITY REPORT is published in accordance with the Federal Safe Drinking Water Act (SDWA) 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.

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%), Virgin River (1.45%), Muddy River (.05%), and Las Vegas Wash (1.5%).

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 the result of industrial activities.

To ensure that tap water is safe to drink, the U. S. Environmental Protection Agency (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.

Your water meets the State and Federal requirements for lead, but if present at elevated levels, this contaminant can cause serious health problems, especially for pregnant and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Boulder City's Water System is responsible for providing high quality drinking water but cannot control the variety of materials used in indoor plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking and cooking. If you are concerned about lead in your drinking water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water.

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/sdwa
Nevada Division of Environmental Protection	
Bureau of Safe Drinking Water	(775) 687-9520
Website.....	ndep.nv.gov/bsdwa
International Bottled Water Association.	(800)WATER11
NSF International Consumer Hotline....	(800) 673-8010
Website.....	nsf.org

BOULDER CITY 2016 WATER QUALITY DATA				ALFRED MERRITT SMITH WATER TREATMENT PLANT ⁽¹⁾			
REGULATED CONTAMINANTS	UNIT	MCL (EPA Limit)	MCLG (EPA Goal)	MINIMUM	MAXIMUM	AVERAGE	POSSIBLE SOURCES OF CONTAMINATION
Alpha Emitters	pCi/L	15	0	4.5	6.6	5.7	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	1	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 ⁽²⁾	0	3.5 ⁽³⁾	3.5 ⁽³⁾	3.5 ⁽³⁾	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	2	16 ⁽⁴⁾	8 ⁽⁵⁾	By-product of drinking-water disinfection with ozone
Cyanide, Free ⁽⁸⁾	ppb	200	200	N/D	6	N/D	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride	ppm	4.0	4.0	0.4	0.7	0.7	Erosion of natural deposits; water additive ⁽⁹⁾
Nitrate (as Nitrogen)	ppm	10	10	0.4	0.7	0.5	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Radium 226 and 228 (combined)	pCi/L	5	0	N/D	0.6	0.2	Erosion of natural deposits
Selenium	ppb	50	50	2	2	2	Discharge from petroleum refineries; erosion of natural deposits; discharge from mines
Turbidity	NTU	95% of the samples <0.3 NTU ⁽¹³⁾	N/A	100% of the samples were below 0.3 NTU. The maximum NTU was 0.18 on April 15, 2015.			Soil runoff
Uranium	ppb	30	0	4	5	4	Erosion of natural deposits

FOOTNOTES:

- (1) 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 Water Treatment Plant).
- (2) The actual MCL for beta particles is 4 mrem/year. The U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.
- (3) Annual testing not required, data is from 2011.
- (4) Maximum levels greater than the MCL are allowable as long as the running annual average (RAA) does not exceed the MCL.
- (5) This value is the highest RAA reported in 2015. Reports are filed quarterly.
- (6) Samples are from the Boulder City customers' taps.
- (7) 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.
- (8) Cyanide was analyzed as total cyanide which includes free cyanide.
- (9) By state law, the Southern Nevada Water Authority (SNWA) is required to fluoridate the municipal water supply.
- (10) Chlorine is regulated by MRDL, with the goal stated as a MRDLG.
- (11) 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).
- (12) This value is the highest locational running annual average (LRAA) reported in 2015. Reports are filed quarterly.
- (13) 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.
- (14) Monitoring for this contaminant was conducted to comply with the Unregulated Contaminant Monitoring Rule (UCMR) set by the U.S. EPA Safe Drinking Water Act. Per the rule, monitoring is conducted within the Distribution System only. Unregulated contaminant monitoring helps the U.S. EPA to determine where certain contaminants occur and whether the Agency should consider regulating those contaminants in the future. With the exception of Chromium (Total), these contaminants have no MCLs or MCLGs.
- (15) Monitoring for this regulated contaminant was performed under the UCMR3 at lower detection limits than are required under current monitoring rules. Monitoring for Chromium (Total), in conjunction with UCMR3 Assessment Monitoring, is required under the authority provided in Section 1445 (a)(1)(A) of the SDWA.
- (16) Coliforms are bacteria that are naturally present in the environment. EPA considers total coliforms a useful indicator of other pathogens for drinking water. Boulder City Water System had one positive detection for total coliform in August 2015. Additional sampling was performed and all samples have shown no further indication of total coliforms.

BOULDER CITY 2016 WATER QUALITY DATA				BOULDER CITY DISTRIBUTION SYSTEM ⁽¹⁾			
REGULATED CONTAMINANTS	UNIT	MCL (EPA Limit)	MCLG (EPA Goal)	MINIMUM	MAXIMUM	AVERAGE	POSSIBLE SOURCES OF CONTAMINATION
Chromium (Total) ⁽¹⁴⁾ <i>unregulated</i>	ppb	100 ⁽¹⁵⁾	100 ⁽¹⁵⁾	0.4	0.4	0.4	See chromium-6 for source information; the amount measured when analyzing "total chromium" is the sum of all its valence states
Chromium-6 ⁽¹⁴⁾ <i>unregulated</i>	ppb	N/A	N/A	0.05	0.05	0.05	Naturally-occurring element; used in making steel and other alloys; chromium 6 forms are used for chrome plating, dyes and pigments, leather tanning and wood preservation
Copper ⁽⁶⁾	ppm	1.3 ⁽⁷⁾ (Action Level)	1.3	0.02	1.3	0.73 (90th% value)	Corrosion of household plumbing systems; erosion of natural deposits
Fluoride	ppm	4.0	4.0	0.7	0.7	0.7	Erosion of natural deposits; water additive ⁽⁹⁾
Free Chlorine Residual	ppm	4.0 ⁽¹⁰⁾ (MRDL)	4.0 ⁽¹⁰⁾ (MRDLG)	N/D	1.6	0.9 ⁽⁵⁾	Water additive used to control microbes
Haloacetic Acids	ppb	60	N/A ⁽¹¹⁾	7	27	28 ⁽¹²⁾	By-product of drinking-water disinfection
Lead ⁽⁶⁾	ppb	15 ⁽⁷⁾ (Action Level)	0	N/D	2.8	1.9 (90th% value)	Corrosion of household plumbing systems; erosion of natural deposits
Molybdenum ⁽¹⁴⁾ <i>unregulated</i>	ppb	N/A	N/A	4.7	4.8	4.8	Naturally occurring element found in ores and present in plants, animals and
Strontium ⁽¹⁴⁾ <i>unregulated</i>	ppm	N/A	N/A	1.2	1.2	1.2	Naturally occurring element
Total Coliforms	number positive per month	≤ 1	0	0	1	<1 ⁽¹⁶⁾	Naturally present in the environment.
Total Trihalomethanes	ppb	80	N/A ⁽¹¹⁾	39	77	67 ⁽¹²⁾	By-product of drinking-water disinfection
Vanadium ⁽¹⁴⁾	ppb	N/A	N/A	1.6	1.9	1.8	Naturally occurring element

DEFINITIONS:

Action Level (AL): 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 con-

tamination.

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.

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 SDWA requires.

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.

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.

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 (800)673-8010 or at 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 odd-numbered months. The meetings begin at 9:00 a.m. in the SNWA Board Chambers 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.

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