

# WATER QUALITY REPORT 2008

City of Henderson





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## WHY ARE YOU RECEIVING A WATER QUALITY REPORT?

The City of Henderson is committed to providing you with high quality water and sewer services, and has made protecting and preserving our natural resources for future generations a top priority.

*The purpose of this report is to:*

- Provide you with information about your drinking water
- Present water quality data from the year 2007
- Comply with U.S. Environmental Protection Agency (EPA) requirements for reporting to customers
- Provide you with an overview of the City of Henderson’s water, wastewater and reclaimed water services

The City of Henderson is proud of the quality of its water supply, which meets or surpasses all federal and state water quality requirements. If you have any questions about your water quality or about information presented in this report, contact us at (702) 267-5900 or visit our web site at [cityofhenderson.com](http://cityofhenderson.com).

# A MESSAGE FOR YOU

DEAR HENDERSON RESIDENT,

Henderson is a thriving community that offers abundant amenities and opportunities for residents and businesses alike. Living in a city like Henderson, it is easy to take for granted our ability to simply turn on our faucet to access clean and healthy drinking water. Rest assured, though, that your elected officials, and our highly-trained staff take our responsibility to protect your water and your health very seriously. The City has long been a leader in protecting and conserving our precious water resources. Our community uses less water today than it did in 2002, despite our significant population growth during that same time period. We can thank you, our conscientious residents, for your successful efforts to use water wisely and efficiently.

Conserving water resources is just one important component in being responsible stewards of our natural resources and building a green and sustainable community. To protect and preserve our natural resources for future generations, we are developing a comprehensive sustainability program that will address long-term water and energy conservation, urban design initiatives, natural habitat protection and alternative transportation options.

As your Mayor and Council, our mission is to provide services and amenities that enhance the quality of life for those who live, learn, work and play in the City of Henderson. Natural resource management, commitment to sustainable living and lifestyles and more specifically, providing you with clean and safe drinking water, will continue to be a high priority for the City.



Please be assured that, as your elected Mayor and Council, we will continue to do all in our power to conserve and to keep high quality drinking water flowing out of your taps that is clean and safe to drink.

# WATER SOURCE & ASSESSMENT

## WHERE DOES YOUR WATER COME FROM?

All of the water we use in the City of Henderson comes from the Colorado River and its tributaries. It begins as snow in the Colorado Rockies, which melts and travels down the Colorado River, through the Grand Canyon and into Lake Mead.

## WHERE AND HOW IS IT TREATED?

At Saddle Island in Lake Mead, there are three water intakes: two underwater intakes from the Southern Nevada Water Authority (SNWA) and one intake tower owned and operated by Basic Water Company (BWC). The SNWA intakes deliver water to the Alfred Merritt Smith Water Treatment Facility and River Mountains Water Treatment Facility, which treat the water and then pump it to member agencies of the SNWA. The majority of Henderson's residents receive their water from SNWA facilities, but some of our citizens receive their water from the City of Henderson Water Treatment Facility on Water Street in downtown Henderson. At each of these facilities, the water is treated to meet extremely high standards before being sent to homes and businesses throughout our service area.



Erin (Accounting Clerk, Finance Department) drinks from a public water fountain. On average, we provide 69 million gallons of clean and safe drinking water to Henderson taps every day.



## WHAT ABOUT TASTE AND HARDNESS?

As the water makes its journey through canyons, rivers and reservoirs, it picks up natural elements like calcium and magnesium that give our water its hardness and taste. Customers often ask what the hardness of the water is in either grains per gallon or parts per million in order to set water softeners. Our water averages approximately 325 mg/L of CaCO<sub>3</sub> (Calcium Carbonate). Usually water softener manufacturers ask for the hardness in grains per gallon (gpg). 1 gpg = 17.12 mg/L. Therefore, 325 mg/L divided by 17.12 mg/L equals 19 grains per gallon of hardness.

## SURFACE WATER SOURCE ASSESSMENT

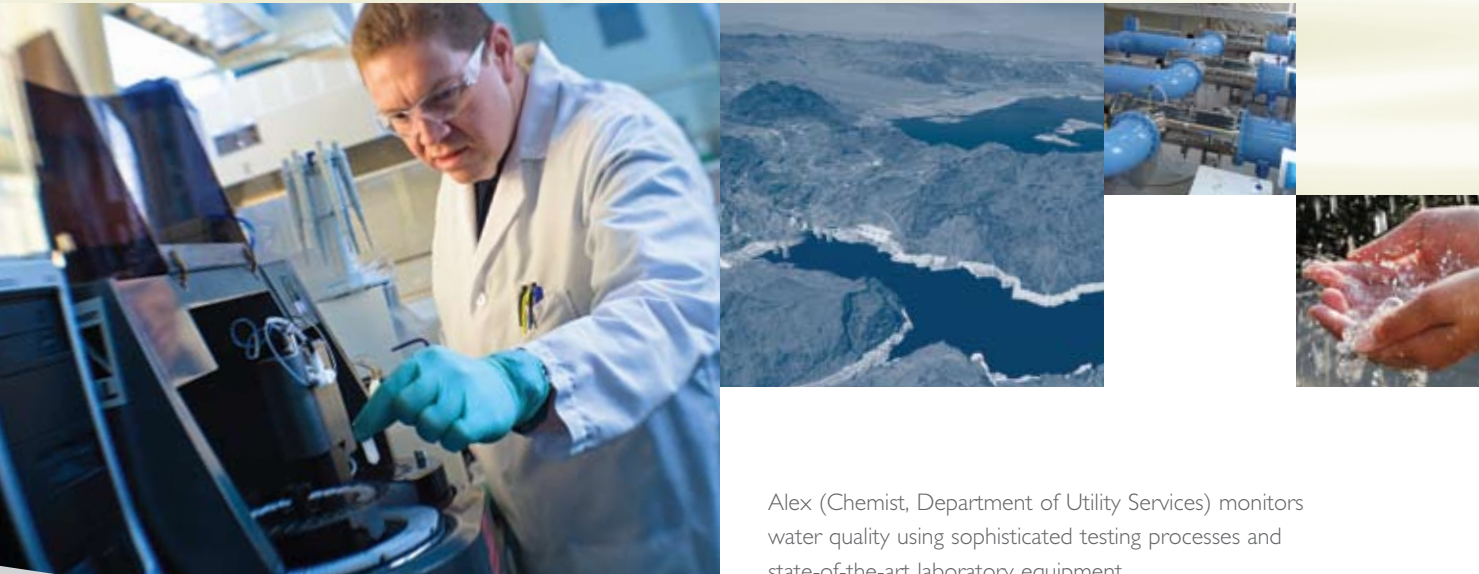
The federal Safe Drinking Water Act was amended in 1996 and requires states to develop and implement source water assessment programs to analyze existing and potential threats to the quality of public drinking water throughout the state. A summary of the City of Henderson's susceptibility to potential sources of contamination was initially provided by the State of Nevada in 2003. The summary of this source water assessment was first included in the City of Henderson's 2004 Water Quality Report and now may be accessed online at [www.cityofhenderson.com](http://www.cityofhenderson.com).

Information pertaining to the initial findings of the source water assessment is available for viewing in person at the offices of the Bureau of Safe Drinking Water, 901 South Stewart St., Ste. 4001, Carson City, NV 89701. Appointments are suggested; please call (775) 687-9520. Office hours are 8 a.m. to 5 p.m., Monday through Friday.



## Important Health Information

Some people may be more vulnerable to contaminants in the 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. These people should seek advice about drinking water from their health care provider. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and *Giardia* and other microbial contaminants are available from the EPA's Safe Drinking Water Hotline at (800) 426-4791.



Alex (Chemist, Department of Utility Services) monitors water quality using sophisticated testing processes and state-of-the-art laboratory equipment.

# UNDERSTANDING WATER QUALITY

## WHY IS THERE ANYTHING IN YOUR TAP WATER?

A contaminant is any substance that is not H<sub>2</sub>O. All drinking water—including bottled water—can reasonably be expected to contain at least small amounts of some contaminants. Listed on the following pages are the contaminants detected in Henderson's drinking water from 1/1/07 through 12/31/07. 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. Water can also pick up substances resulting from the presence of animals or human activity. Contaminants that may be present in source water include:

**MICROBIAL CONTAMINANTS**, such as viruses and bacteria, which may come from septic systems, agricultural livestock operations, wastewater treatment plants 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, HERBICIDES AND FUNGICIDES**, which may come from a variety of sources such as agriculture, urban runoff, and residential uses.

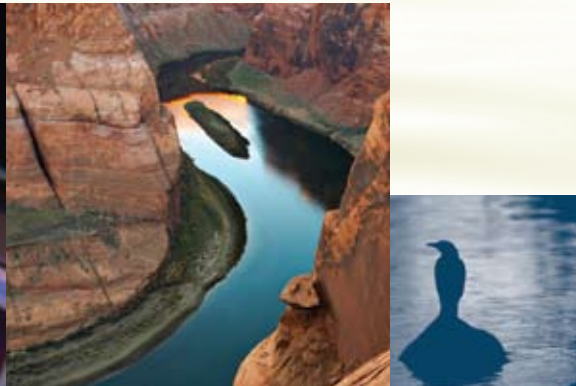
**RADIOACTIVE CONTAMINANTS**, which can be naturally occurring or be the result of oil and gas production and mining activities.

**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 runoff and septic systems.

Rita (Chemist, Department of Utility Services) performs one of the more than 52,000 tests conducted annually by our Water Quality Laboratory.

## IS YOUR TAP WATER SAFE TO DRINK?

In order to ensure that tap water is safe to drink, the Environmental Protection Agency and Nevada Division of Environmental Protection prescribe regulations which limit the amount of certain contaminants in the water provided by the public water system. The City of Henderson's and Southern Nevada Water Authority's water treatment facilities treat water according to these regulations.



Brett (Water Facilities Operator, Department of Utility Services) monitors the computerized controls that manage water flow throughout our system.

The City's water supply is tested for all the contaminants required by law, plus additional substances we feel are important to monitor, including:

**CRYPTOSPORIDIUM** is a microscopic organism that, if ingested, can cause fever and gastrointestinal symptoms. Crypto is made harmless or removed from water through a successful treatment combination of filtration, sedimentation and disinfection using ultraviolet light and ozone. Our water treatment facilities carefully monitor our water for the presence of this organism.

**MTBE** is a chemical agent used in gasoline to reduce smog. Methyl tertiary butyl ether became an environmental concern throughout the nation after being detected in groundwater supplies. The City of Henderson does not rely on groundwater, but has carefully tested for this compound and has not detected it in our water supply.

**PHARMACEUTICALS** and personal care products, known in the water industry as PPCPs, are a group of compounds consisting of human and veterinary drugs (prescription or over-the-counter) and consumer products, such as fragrance, lotions, sunscreens and housecleaning products.

These compounds have been detected in trace amounts in surface water, drinking water and wastewater effluent sampling because water professionals have the technology today to detect more substances, at lower levels, than ever before. Many PPCP compounds are being found at extremely low levels, typically single-digit parts per trillion (ppt). Drinking-water standards are typically set in the parts-per-billion range, which is 1,000 times higher. The fact that a substance is detectable in drinking water does not mean the substance is harmful to humans. To date, research throughout the world has not demonstrated an impact on human health from trace amounts of PPCPs found in drinking water.

The water community is committed to protecting public health. Water professionals are examining the occurrence of PPCPs in drinking-water supplies and the effectiveness of current treatment techniques on removal, and are paying close attention to health-effects research in this area, including research being conducted by the Southern Nevada Water Authority. In addition, the U.S. EPA maintains an active program called the Contaminant Candidate List to identify contaminants in public drinking water that warrant detailed study. While the list does not currently include any PPCPs, EPA may consider these compounds in the future.

**PERCHLORATE**, a man-made salt consisting of chloride and oxygen, has been detected in Lake Mead since 1997. Scientists have traced the salt's origin to shallow groundwater entering the Las Vegas Wash. Southern Nevada's water agencies closely monitor continuing efforts by the Nevada Division of Environmental Protection to intercept and remove perchlorate at its source. Since 1997, local perchlorate levels have been significantly reduced; levels in 2007 averaged about 3 parts per billion.



# 2007 WATER QUALITY ANALYSIS RESULTS

## HOW TO READ THESE TABLES

The tables on these pages list contaminants which: 1) have associated Primary Maximum Contaminant Levels (MCLs) that are regulated and 2) were detected by the City of Henderson, Alfred Merritt Smith or River Mountains water quality laboratories.

A contaminant is any substance other than the hydrogen or oxygen molecules that make up the chemical formula of water (H<sub>2</sub>O). Drinking water—including bottled water—may reasonably be expected to contain at least small amounts of some contaminants. Contaminants do not pose a health risk when they are present at levels below the MCL.

Regulations require us to monitor for certain contaminants (like lead and copper) less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of current water quality, are more than one year old.

## TERMS, ABBREVIATIONS & DEFINITIONS

<b>Maximum Contaminant Level (MCL)</b>	The highest level of a contaminant that is allowed in drinking water.
<b>Maximum Contaminant Level Goal (MCLG)</b>	The level of a contaminant in drinking water below which there is no known or expected risk to health.
<b>Maximum Residual Disinfectant Level (MRDL)</b>	The highest level of a disinfectant allowed in drinking water.
<b>Maximum Residual Disinfectant Level Goal (MRDLG)</b>	The level of a drinking water disinfectant below which there is no known or expected risk to health.
<b>ppm</b>	parts per million
<b>ppb</b>	parts per billion
<b>Action Level</b>	The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. 90% of samples must be below the action level.
<b>pCi/L</b>	Picocuries per liter is a measure of the radioactivity in water. A picocurie is 10 <sup>-12</sup> curies and is the quantity of radioactive material producing 2.22 nuclear transformations per minute.
<b>NTU</b>	Nephelometric Turbidity Unit
<b>TT-Treatment Technique</b>	A required process intended to reduce the level of a contaminant in drinking water
<b>ND</b>	Not detected
<b>NA</b>	Not applicable



Bryan (Water Facilities Operator, Department of Utility Services) maintains the ultraviolet light chambers that assist in disinfecting our water supply.



Listed below are the contaminants detected in Henderson's drinking water from 1/1/2007 through 12/31/2007. All regulated contaminants were below allowed levels.

## REGULATED CONTAMINANTS

Substance	MCL (EPA Limit)	CITY OF HENDERSON WATER TREATMENT PLANT		ALFRED MERRITT SMITH WATER TREATMENT FACILITY		RIVER MOUNTAINS WATER TREATMENT FACILITY		MCLG (EPA Goal)	Potential Sources of Contaminant
		Range	Average	Range	Average	Range	Average		
<b>Gross Beta Activity<sup>(1)</sup></b>	50 pCi/L <sup>(2)</sup>	6.4 pCi/L	6.4 pCi/L	ND	ND	ND	ND	0	Decay of natural and man-made deposits of certain minerals that are radioactive
<b>Arsenic<sup>(1)</sup></b>	10 ppb	ND-2.0 ppb	1.3 ppb	ND-2.0 ppb	1.3 ppb	1.7-2.5 ppb	2.1 ppb	0	Erosion of natural deposits; runoff from orchards
<b>Barium<sup>(1)</sup></b>	2 ppm	0.12-0.13 ppm	0.12 ppm	0.12-0.13 ppm	0.12 ppm	0.12-0.13 ppm	0.12 ppm	2 ppm	Erosion of natural deposits; discharge from metal refineries; discharge of drilling wastes
<b>Bromate<sup>(1)</sup></b>	10 ppb	NA	NA	4.7-16 ppb <sup>(3)</sup>	8.7 <sup>(4)</sup> ppb	1.4-10 ppb <sup>(4)</sup>	7.6 ppb <sup>(4)</sup>	0	By-product of drinking water disinfection
<b>Nitrate (as Nitrogen)<sup>(1)</sup></b>	10 ppm	0.49-0.77 ppm	0.64 ppm	0.53-0.60 ppm	0.56 ppm	0.54-0.67 ppm	0.60 ppm	10 ppm	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
<b>Selenium<sup>(1)</sup></b>	50 ppb	ND-4.5 ppb	3.1 ppb	ND-3.9 ppb	2.6 ppb	ND-4.1 ppb	2.8 ppb	50 ppb	Discharge from petroleum & metal refineries; erosion of natural deposits; discharge from mines
<b>Radium 226/228 (combined)<sup>(1)</sup></b>	5 pCi/L	0.75 pCi/L	0.75 pCi/L	ND	ND	ND	ND	0	Erosion of natural deposits
<b>Uranium<sup>(1)</sup></b>	30 ppb	4.7 ppb	4.7 ppb	4.8 ppb	4.8 ppb	4.7 ppb	4.7 ppb	0	Erosion of natural deposits
		Maximum Turbidity (in NTU) and Date Found	% Samples <0.3 NTU	Maximum Turbidity (in NTU) and Date Found	% Samples <0.3 NTU	Maximum Turbidity (in NTU) and Date Found	% Samples <0.3 NTU		
<b>Turbidity<sup>(9)</sup></b>	TT	0.23 NTU (May 20 and Jul 10)	100%	0.081 NTU (Jan 27)	100%	0.052 NTU (Sep 15)	100%	NA	Soil runoff

## SAMPLES COLLECTED IN CITY OF HENDERSON DISTRIBUTION SYSTEM<sup>(11)</sup>

<b>Fluoride<sup>(12)</sup></b>	4 ppm	0.76-0.98 ppm	0.83 ppm					4 ppm	Erosion of natural deposits, water additive <sup>(10)</sup>
<b>Free Chlorine Residual<sup>(12)</sup></b>	4 ppm <sup>(5)</sup>	0.18-1.76 ppm	1.02 ppm <sup>(4)</sup>					4 ppm <sup>(5)</sup>	Water additive used to control microbes
<b>Copper<sup>(6)</sup></b>	1.3 ppm <sup>(7)</sup> (Action Level)	0.05-1.2 ppm	0.84 ppm (90th % Value)					1.3 ppm	Corrosion of household plumbing systems; erosion of natural deposits
<b>Lead<sup>(6)</sup></b>	15 ppb <sup>(7)</sup> (Action Level)	ND-21 ppb	2.2 ppb (90th% Value)					0	Corrosion of household plumbing systems; erosion of natural deposits
<b>Total Trihalomethanes (THM)<sup>(12)</sup></b>	80 ppb	29-79 ppb	50.9 ppb					NA <sup>(8)</sup>	By-product of drinking water disinfection
<b>Haloacetic Acids (HAA)<sup>(12)</sup></b>	60 ppb	9.8-28 ppb	18.9 ppb <sup>(4)</sup>					NA <sup>(8)</sup>	By-product of drinking water disinfection
<b>Total Coliforms<sup>(12)</sup></b>	5% positive/month	0-1.7% positive/mo	0.6% positive/mo					0	Naturally present in environment

## UNREGULATED CONTAMINANTS

<b>Sulfate</b>	NA	250-270 ppm	262 ppm	250-260 ppm	252 ppm	250-260 ppm	255 ppm	NA	NA
<b>Perchlorate</b>	NA	1.1-5.7 ppb	3.5 ppb	1.8-4.8 ppb	2.8 ppb	2.0-5.9 ppb	3.0 ppb	NA	NA

(1) Data is from the entry points to the distribution system

(2) The actual MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.

(3) Maximum levels equal to or greater than the MCL are allowable as long as the running annual average of all locations does not exceed the MCL.

(4) This value is the highest running annual average reported in 2007. Reports are filed quarterly.

(5) Chlorine is regulated by MRDL with the goal stated as MRDLG.

(6) Samples are from Henderson customers' taps. Data is from the most recent testing done in accordance with the regulations (2007). Lead and copper analysis is required every 3 years.

(7) Action Level - 90% of samples must be below this level.

(8) No collective MCLG, but there are MCLGs for some individual contaminants: HAAs: dichloroacetic acid (0), trichloroacetic acid (300 ppb); THMs: bromodichloromethane (0), bromoform (0), dibromochloromethane (60 ppb)

(9) Turbidity has a Treatment Technique (TT) requirement - 95% of all samples taken after filtration each month must be less than 0.3NTU. Maximum turbidity cannot exceed 1.0 NTU.

(10) By state law, the City of Henderson and the Southern Nevada Water Authority are required to fluoridate the municipal water supply.

(11) City of Henderson Distribution System numbers come from all three water treatment facilities.

(12) This data is from the COH distribution system

# DEPARTMENT OF UTILITY SERVICES

## City of Henderson

### DEPARTMENT OF UTILITY SERVICES

The Department of Utility Services is responsible for all facets of water, wastewater and reclaimed water services for the Henderson community. The Department provides treatment and delivery of drinking water, collection and reclamation of wastewater, laboratory testing services, utility infrastructure planning and management, and customer services.

### WATER QUALITY

Henderson is fortunate to have one of the highest quality and cleanest drinking water sources in the nation—the Colorado River. The river originates as snow fall on the western slopes of the Colorado Rocky Mountains. That snow melts in the spring and slowly collects in rivulets and streams to eventually form the Colorado River.

Because our water originates in the mountains and must travel through rocky substrate to form the Colorado River, there is a relatively higher concentration of naturally occurring minerals making the water “hard”. Hardness in drinking water is caused by two minerals in the Colorado River system – calcium and magnesium. It is called “hardness” because the minerals make it “hard” to form a lather or suds for washing.

The levels of these minerals found in our tap water are well within Safe Drinking Water Act guidelines and are small compared to the amounts generally found in foods. They should not pose a health concern.

Henderson’s drinking water is tested daily, and meets or exceeds all federal and state drinking water standards, as set forth in the Safe Drinking Water Act and administered by the Nevada Division of Environmental Protection. Our drinking water meets even higher standards than those imposed on bottled water.

Rawley (Henderson native) is one of nearly 270,000 residents that enjoy the high quality drinking water provided by the City of Henderson’s Department of Utility Services.



## WATER TREATMENT

Because our source water is of such a high quality to begin with, the treatment process is relatively simple. "Raw" or untreated water from the Colorado River, by way of Lake Mead, is delivered to the treatment plant. Small particles such as clay, silt and algae are first removed from the water, then the water is filtered to further remove impurities. The filtered water is then disinfected by using ultraviolet (UV) light. UV light has been shown to be a superior and environmentally-friendly method for disinfection, without the use of chemicals. A small amount of chlorine is then added to maintain disinfection of the water as it travels through the distribution system to your tap.

The Water Treatment Plant supplies approximately 15% of the Henderson community's drinking water; the remaining 85% is supplied by the Southern Nevada Water Authority. On an average day, the City treats and delivers more than 67 million gallons of water to residents and businesses.

## NATURAL RESOURCE MANAGEMENT

Providing you with safe and clean drinking water will always be a high priority for the City, and we will continue to explore and implement emerging technologies that improve our water quality. In addition to protecting water quality, our commitment to building a sustainable community includes water conservation programs that encourage wise and efficient use of water indoors and out.

We have the ability to reclaim the water that you use indoors. When you wash dishes or take a shower, the wastewater flows down your drain and into the sanitary sewer system. This wastewater flows to Henderson's Water Reclamation Facility where it is cleaned and highly treated, then returned to the Colorado River system by way of Lake Mead, or used for landscape irrigation.

For every gallon of water we return to the Colorado River, we are allowed to remove one equal gallon of drinking water from the system. This process is referred to as return flow credits, and it increases the amount of water we are allowed to withdraw from Lake Mead beyond our limited yearly allocation. Return flow credits are a key component to sustaining our water resources.

While nearly all the water you use indoors can be reclaimed, the water you use outdoors cannot. It is either consumed by your landscape, evaporates, or is wasted due to inefficient water use. That is why it is essential to that we be efficient in how we use water outdoors, by replacing turf with drought-tolerant landscaping, following the seasonal watering restrictions, and using pool covers.

## MORE INFORMATION

For more information on water quality and efficient water use, contact the Customer Care Center at (702) 267-5900 or [cohutil@cityofhenderson.com](mailto:cohutil@cityofhenderson.com).



## Our Mission

is to provide vital water and wastewater services to our citizens while protecting the environment, health and prosperity of our community.

# WATER QUALITY REPORT 2008

City of Henderson

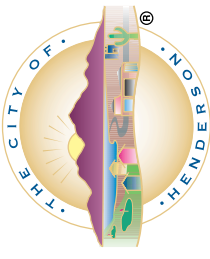
Department of Utility Services  
Customer Care Center  
(702) 267-5900  
[cityofhenderson.com](http://cityofhenderson.com)

This report is being sent to you by the City of Henderson to comply with federal Environmental Protection Agency requirements.

Este reporte contiene información importante sobre la calidad del agua en su comunidad. Tradúzcalo o hable con alguien que lo entienda bien. Si necesita ayuda con esto, llame nuestro Centro del Cuidado del Cliente en (702) 267-5900 para la ayuda.

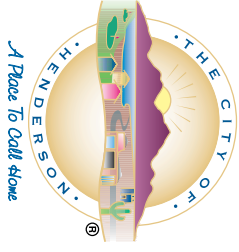


PUBLISHED JUNE 2008



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**City of Henderson**  
**240 Water Street**  
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**Henderson, NV 89105**



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Mary Kay Peck, FAICP, City Manager  
Mark T. Calhoun, PE, Assistant City Manager  
Bristol S. Ellington, AICP, Assistant City Manager  
Dennis B. Porter, PE, Director of Utility Services