

2010 – 2030

Water Resource Plan

Appendix C

Draft October 2009

**Appendix C:
2009 Water Quality Report**

2009 WATER QUALITY REPORT

DATA COLLECTED FOR CALENDAR YEAR 2008

TMWA's water quality is among the best in the country!

On behalf of the staff and Board of Directors of Truckee Meadows Water Authority (TMWA), I am pleased to provide you with our annual Water Quality Report. In accordance with the U.S. Environmental Protection Agency (EPA) Consumer Confidence Rule, this brochure is provided to our customers so that we can help you understand the issues vital to our water supply. We are very pleased to report that for the eighth year since TMWA's inception in 2001, our system is in compliance with every water quality regulation, meeting all EPA and State of Nevada drinking water health standards. TMWA's team of highly skilled engineers, scientists and operators provide you with clean, safe drinking water and dependable service. If you would like additional information, please feel free to contact us at 834-8080, option 2. Our water experts are happy to answer any of your questions. To learn more about your water company, visit us online at www.tmh2o.com.

Yours in good health,



Interim General Manager



Clean, clear water begins at the source

Lake Tahoe is more than a beautiful place—it is the main source of our water supply. More than 85 percent of our drinking water comes from the Truckee River, which originates at Lake Tahoe and is fed by snow melt and rain throughout the northern Sierra Nevada. The remaining 15 percent is groundwater that comes from deep-water aquifers, which we tap through 32 wells located within TMWA's service area. TMWA's highly skilled staff of scientists, engineers and operators continually monitors our water quality. More than 1,000 laboratory tests are performed each month on over 180 samples taken from various locations in the TMWA distribution system. Testing is performed both at the treatment plants and throughout the distribution system to ensure high-quality water is delivered to our customers.

Why is protecting the Truckee River important?

As the major source of our water supply, the river's environmental health can directly impact human health. Preventing pollution is far less expensive than spending money on water treatment. Protecting this remarkable jewel in our semi-arid region benefits the water supply as well as fish and wildlife habitat and recreation.

Our water operations process meets regulations

TMWA treats the water we serve our customers at two top-notch treatment facilities – the Chalk Bluff and Glendale Water Treatment Plants. We are proud to report that each year our water treatment and distribution process meets all regulatory requirements. In a continued effort to provide the best drinking water possible to our customers, TMWA has joined Partnership for Safe Water. This Partnership is a cooperative effort between the U.S. Environmental Protection

Agency (EPA), American Water Works Association (AWWA), and other drinking water organizations, including surface water utilities. Their goal is to provide a new measure of safety to millions of Americans by implementing prevention programs where legislation or regulation does not exist. By joining Partnership for Safe Water, TMWA wishes to increase protection against microbial contamination in our drinking water supply. TMWA is also committed to ensuring the delivery of high-quality water by continually improving our water distribution system. Since the inception of TMWA in 2001, we have spent more than \$150 million on repairing and rehabilitating the water system's aging infrastructure, including underground water mains, water tanks, pump stations, wells and treatment facilities.

How does our tap water compare to bottled water?

Tap water is every bit as safe as bottled water. In fact, tap water undergoes more testing than bottled water, according to the AWWA. To ensure tap water is safe to drink, the EPA develops and sets regulatory standards that limit the amount of contaminants in public water supplies. These water quality standards are among the world's most stringent, requiring water utilities to monitor for more than 100 contaminants. The EPA's standards are enforced by the State of Nevada Division of Environmental Protection and the Washoe County District Health Department.

Pharmaceuticals not found in our source water

For an update and more information on the reports regarding possible pharmaceuticals in source water, visit us online at www.tmh2o.com.

Truckee Meadows Water Authority (TMWA) is a not-for-profit, community-owned water utility, overseen by elected officials and citizen appointees from Reno, Sparks and Washoe County.

TEST RESULTS: 2008 WATER QUALITY DATA

The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. 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 calendar year of the report. 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.

CONTAMINANTS	MCLG or MRDLG	MCL, TT or MRDL	Your Water	Range Low	Range High	Sample Date	Violation	Typical Source
Disinfectants & Disinfection By-Products (There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.)								
Chlorine (as Cl ₂) (ppm)	4	4	1.2	0.4	1.2	2008	No	Water additive used to control microbes.
Haloacetic Acids (HAA ₅) (ppb)	NA	60	20.4	ND	39.6	2008	No	By-product of drinking water chlorination.
TTHMs [Total Trihalomethanes] (ppb)	NA	80	39.6	ND	54.6	2008	No	By-product of drinking water disinfection.
Inorganic Contaminants								
Antimony (ppb)	6	6	3.1	ND	8.37	2008	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder.
Arsenic (ppb)	0	10	6.78	ND	15	2008	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
Barium (ppm)	2	2	0.147	ND	0.147	2008	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Chromium (ppb)	100	100	29	ND	29	2008	No	Discharge from steel and pulp mills; Erosion of natural deposits.
Fluoride (ppm)	4	4	0.3	ND	0.3	2008	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate [measured as Nitrogen] (ppm)	10	10	7.3	ND	7.3	2008	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Nitrite [measured as Nitrogen] (ppm)	1	1	0.086	ND	0.086	2008	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Radioactive Contaminants								
Alpha emitters (pCi/L)	0	15	5.1	ND	5.1	2008	No	Erosion of natural deposits.
Beta/photon emitters (pCi/L)	0	50	6.4	ND	6.4	2008	No	Decay of natural and man-made deposits.
Radium (combined 226/228) (pCi/L)	0	5	2.043	ND	2.043	2008	No	Erosion of natural deposits.
Volatile Organic Contaminants								
Tetrachloroethylene (ppb)	0	5	2.82	ND	2.82	2008	No	Discharge from factories and dry cleaners.
Trichloroethylene (ppb)	0	5	1.15	ND	1.15	2008	No	Discharge from metal degreasing sites and other factories.

CONTAMINANTS	MCLG	AL	Your Water	Sample Date	# Samples Exceeding AL	Exceeds AL	Typical Source
Inorganic Contaminants							
Copper - action level at consumer taps (ppm)	1.3	1.3	0.078	2008	0	No	Corrosion of household plumbing systems; Erosion of natural deposits.
Lead - action level at consumer taps (ppb)	0	15	1.5	2008	0	No	Corrosion of household plumbing systems; Erosion of natural deposits.

UNIT DESCRIPTIONS			
Term	Definition	Term	Definition
ppm	Parts per million, or milligrams per liter (mg/L)	NA	Not applicable
ppb	Parts per billion, or micrograms per liter (µg/L)	ND	Not detected
pCi/L	Picocuries per liter (a measure of radioactivity)	NR	Monitoring not required, but recommended

Notes: PCE/ARSENIC/HAA/ANTIMONY: Compliance for these constituents is determined by calculating the running annual average. Sampling is conducted either on a daily basis or a quarterly basis at designated locations. A corresponding quarterly average is determined from these samples and the running annual average is calculated by using the four most recent quarterly averages. A single sample may show that an individual elevated result is over the MCL but the compliance value remains below the MCL. All water meets all local, state and federal standards and your water is safe to drink.

IMPORTANT DRINKING WATER DEFINITIONS

Term	Definition
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 allow for a margin of safety.
MCL	Maximum Contaminant Level: 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.
TT	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Variances and Exemptions	State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
MRDLG	Maximum Residual Disinfection 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.
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.

HEALTH INFORMATION ABOUT WATER QUALITY

RESULTS OF *CRYPTOSPORIDIUM* MONITORING

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water and/or finished water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people are at greater risk of developing a life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

Truckee Meadows Water Authority routinely monitors our source water and finished water for *Cryptosporidium*. No *Cryptosporidium* oocysts were detected in the finished water sampled from the Chalk Bluff and Glendale Water Treatment Facilities.

RESULTS OF RADON MONITORING

Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the United States. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will, in most cases, be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 picocuries per liter of air (pCi/L) or higher. There are simple ways to fix a radon problem that are not too costly. For additional information, call your state radon program or call EPA's Radon Hotline (800-SOS-RADON).

There is no current federal standard for radon in drinking water. TMWA last monitored for radon in our groundwater wells in 2004 showing an average result of 543 pCi/L and a highest detected value of 975 pCi/L.

ADDITIONAL INFORMATION FOR ARSENIC

While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

ADDITIONAL INFORMATION

Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection by-products. These by-products include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these by-products in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer. Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

Some people who drink water containing trichloroethylene and tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer. Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.

WATER TREATMENT PLANT FILTER LOADING RATE

After satisfactory demonstration, TMWA has been granted approval by the Nevada State Health Division, Bureau of Health Protection Services to operate the conventional treatment plants at the accelerated filter loading rate up to 7.5 gpm/square foot. This approval is under the condition that any individual filter does not exceed 0.2 NTU while operating at the accelerated filter loading rate.

ADDITIONAL INFORMATION FOR NITRATE

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

Treatment process focuses on health

The water delivered to your tap meets all U.S. Environmental Protection Agency (EPA) and State of Nevada drinking water health standards. It undergoes a multi-stage treatment process and is rigorously tested daily. Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people such as people with cancer undergoing chemotherapy, people 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 from their health care providers about their drinking water.

The EPA/CDC has guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants. More information about these and other contaminants and potential health effects can be obtained by calling the Safe Drinking Water Hotline at (800) 426-4791. We test for *Cryptosporidium* weekly in both our source water and treated water. *Cryptosporidium* can be present in the Truckee River, but has not been found in the treated water that goes to your tap.

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

Required Consumer Confidence Report (CCR) statement addressing lead in drinking water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. TMWA is responsible for providing high-quality drinking water, but cannot control the variety of materials used in 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 or cooking. If you are concerned about lead in your 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 <http://www.epa.gov/safewater/lead>.

Where can I get water quality data?

All water quality information is available free of charge upon customer request. TMWA sends this data to local and state health departments in periodic reports. TMWA has an open-door policy on all water quality issues, and customers are encouraged to ask questions regarding any aspect of our water purification system.

The TMWA Web site (www.tmh2o.com) contains information about all aspects of our organization and includes many answers to questions frequently asked by our customers. Our Water Quality section contains a water quality lookup page. This provides basic water quality information for different areas of TMWA's service territory. TMWA maintains a page with informational fact sheets, and we also maintain a page with water quality information.

Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (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 water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which 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, which 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, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. In addition, the Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Source Water Assessment and its availability

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 TMWA'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 TMWA 2004 Water Quality Report and may now be accessed online at www.tmh2o.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 687-9520. Office hours are 8 a.m. to 5 p.m., Monday through Friday.

If you have additional questions, or need more information, please contact any of the following employees:

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