



# Grand Water & Sewer Service Agency



## Annual Report 2010

## Introduction

Grand Water & Sewer Service Agency is pleased to present its Annual Report for the year 2010. It is hoped that this synopsis of the Agency's activities in 2010 will give all those interested a better understanding of the functions the Agency performs and the issues it faces.

The Board and Staff of the Agency appreciate the opportunity to serve the citizens of Grand County and Spanish Valley.

*Dan Pyatt*  
President

## Recap of 2010 Board Activities

- January 7** • The board approves the updated Conservation Management Plan
- January 21** • Resolution 2010-01-21 GCWCD Water Revenue Bonds Parameters Resolution approved.
- February 18** • The State Senate reappoints Dan Pyatt and Rex Tanner to the Grand County Water Conservancy District. Resolution 2010-02-18 Water Revenue Bonds Final Bond Resolution approved by GCWCD.
- March 18** • Full board meeting. Agency elections held.
- April 22** • The board approves the purchase of the sewer camera van.
- June 3** • The board awards bid for Navajo Ridge booster station to ITT Industries.
- June 24** • Full board meeting. Resolution 2010-06-24 Municipal Wastewater Planning Program for 2009 is approved. 2009 Audit presentation.
- July 8** • 2010 tax rates approved.
- September 9** • The board approves the CIB priority fund list.
- September 16** • Freemont Woodward of GCHA spoke with the board about the Cinema Court project.
- November 4** • 2011 preliminary budgets approved.
- December 9** • Full board meeting - 2011 budgets approved and 2010 budgets amended. SVWSID approves Resolution 2010-12-1 to retain sewage treatment and sewage transmission impact fees beyond six years.

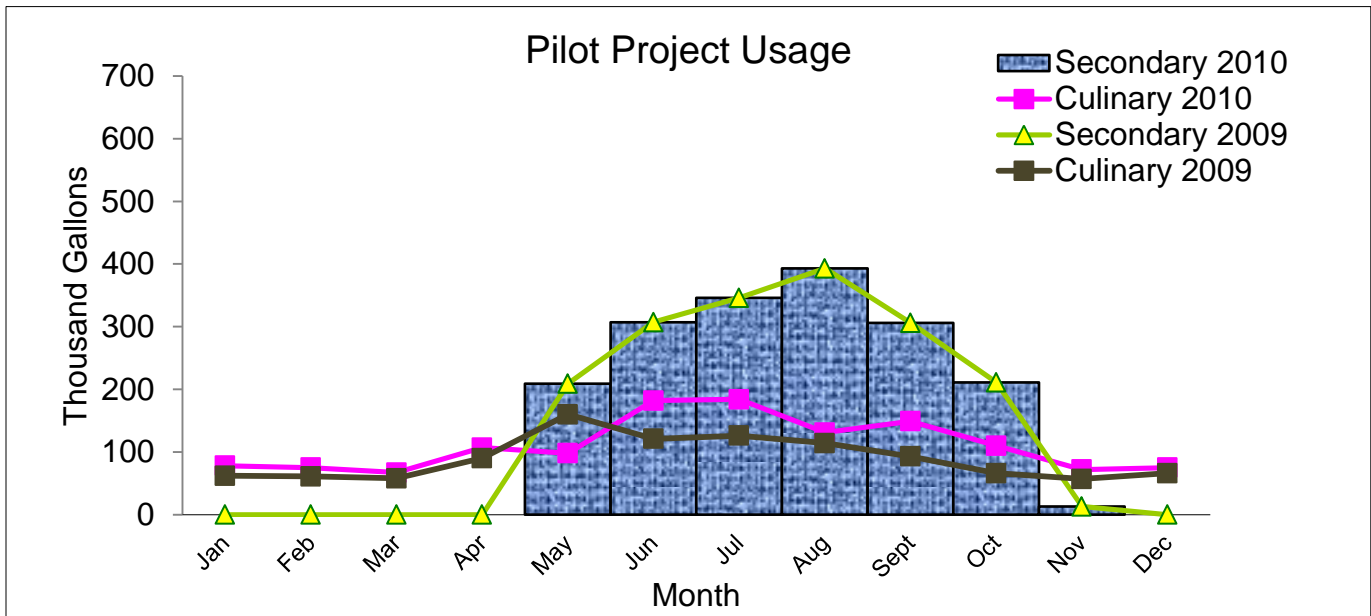
## Report on Projects

### Irrigation System Improvements Loan

The GCWCD applied for a \$250,000 loan from the Division of Water Resources in 2009 to complete improvements to the irrigation system. The funds were used in 2010 to rehabilitate and reequip the Beeman Well. The new pump enables the well to produce over 1000 gallons per minute to the pressurized irrigation system. Also, new meter was installed in the delivery pipe at the Mill Creek diversion that provides more accurate readings than the Sheley Tunnel meter.

### Beeman Road Secondary Pilot Project

Residents on Beeman Rd. in Spanish Valley were invited to participate in a residential secondary water two year pilot project in the spring of 2009. As of this report there are ten residences connected to the system. The following chart details the water use of the participants.



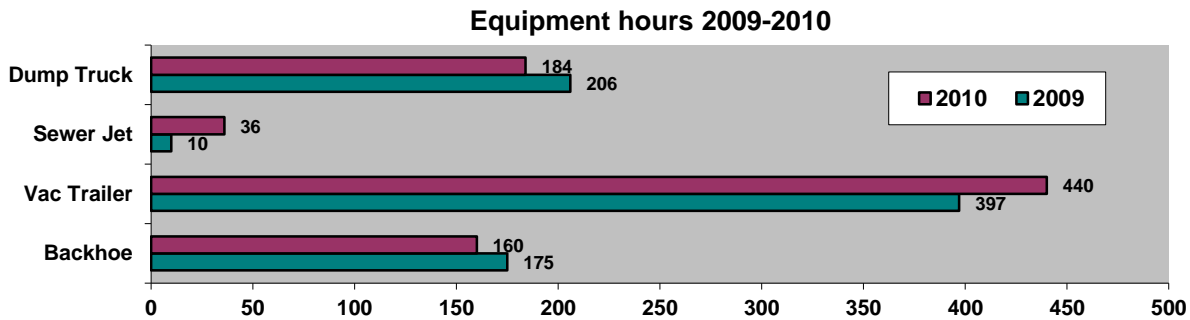
**Millcreek Drive waterline replacements**

The upgrades to the waterlines at either end of Millcreek Drive were completed in conjunction with the road resurfacing and bridge rebuild projects. An 8" waterline was installed across Millcreek Drive at Lasal Rd. prior to the overlay to prevent roadcuts when upgrades to the Hecla Subdivision are initiated. The Pack Creek bridge project on Millcreek Dr. that began in July of 2010 and was completed in November of 2010 included a 10" replacement line across the creek connected to Murphy Ln.

**Report on Programs**

**Equipment Program**

The Agency purchased and/or leased a dump truck, backhoe, sewer jet, and vac-trailer in recent years. Staff has used this equipment extensively to complete projects and maintenance that would have otherwise involved a contractor to complete.



**Safety Program**

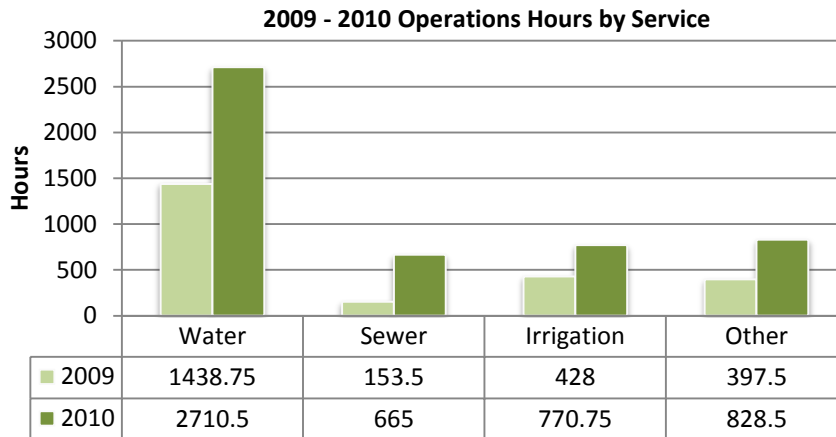
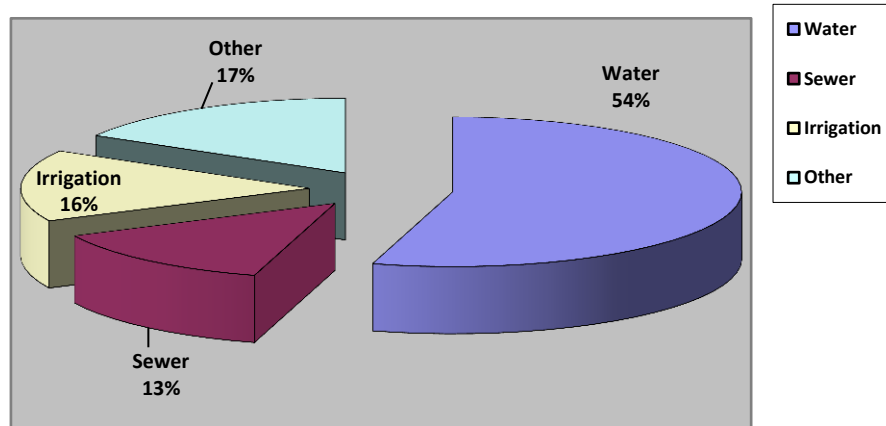
In 2008 the Agency began a comprehensive safety management and training program. Monthly safety meetings attended by all employees cover subjects including confined space entry, blood borne pathogens, risk management, winter driving, and back safety. The safety equipment used by Agency personnel was evaluated and replaced or acquired over time to reduce or eliminate risk associated with daily operations.

**Sewer Inspection and Maintenance Program**

The Agency purchased a sewer camera inspection vehicle in May of 2010. A three year project to inspect the entire system is in progress. Overall, the system is in good condition. Staff has repaired several problem areas that were discovered during the inspection process.

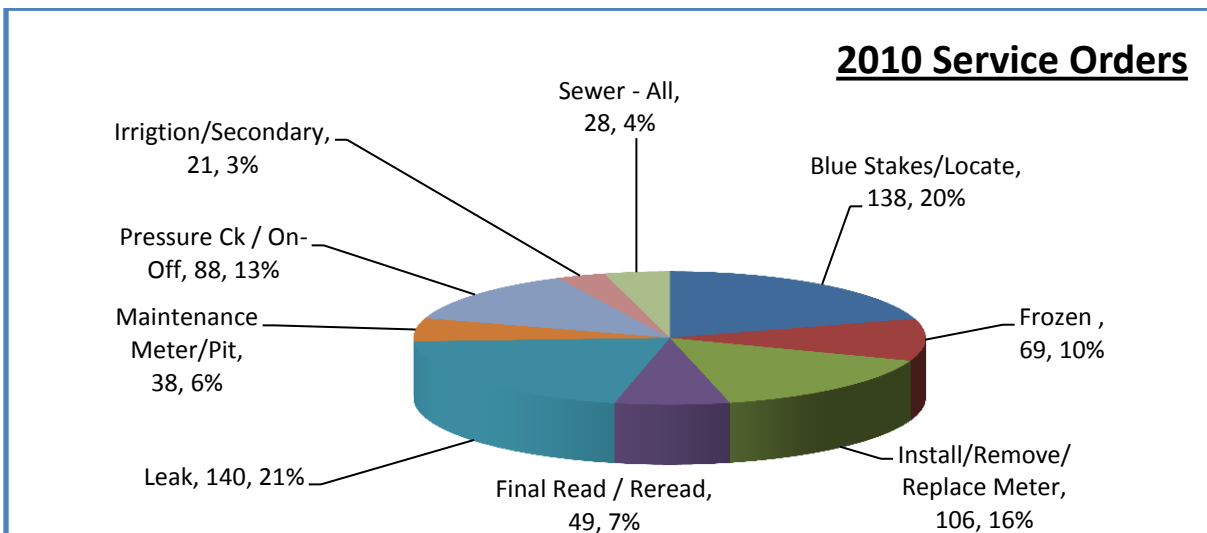
## Operator Hours Tracking by Service

Agency operations staff began tracking working hours by service type in May of 2009. The tracking helped Agency staff budget more accurately by giving an insight into how much of an operator's time is used for each service.



## Service Orders

Service order software allows the Agency to account for operator time, lost water, customer concerns, and to identify potential problems. A total of 677 service orders were completed by staff in 2010.



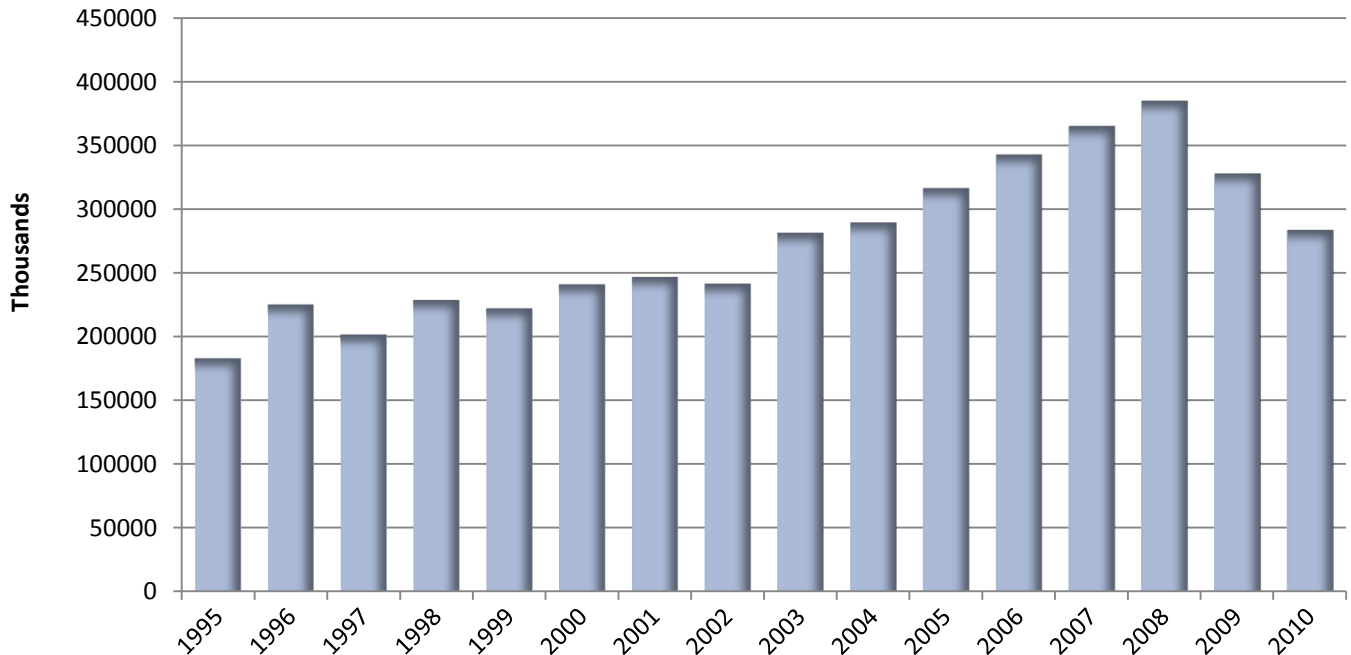
# Culinary Water System

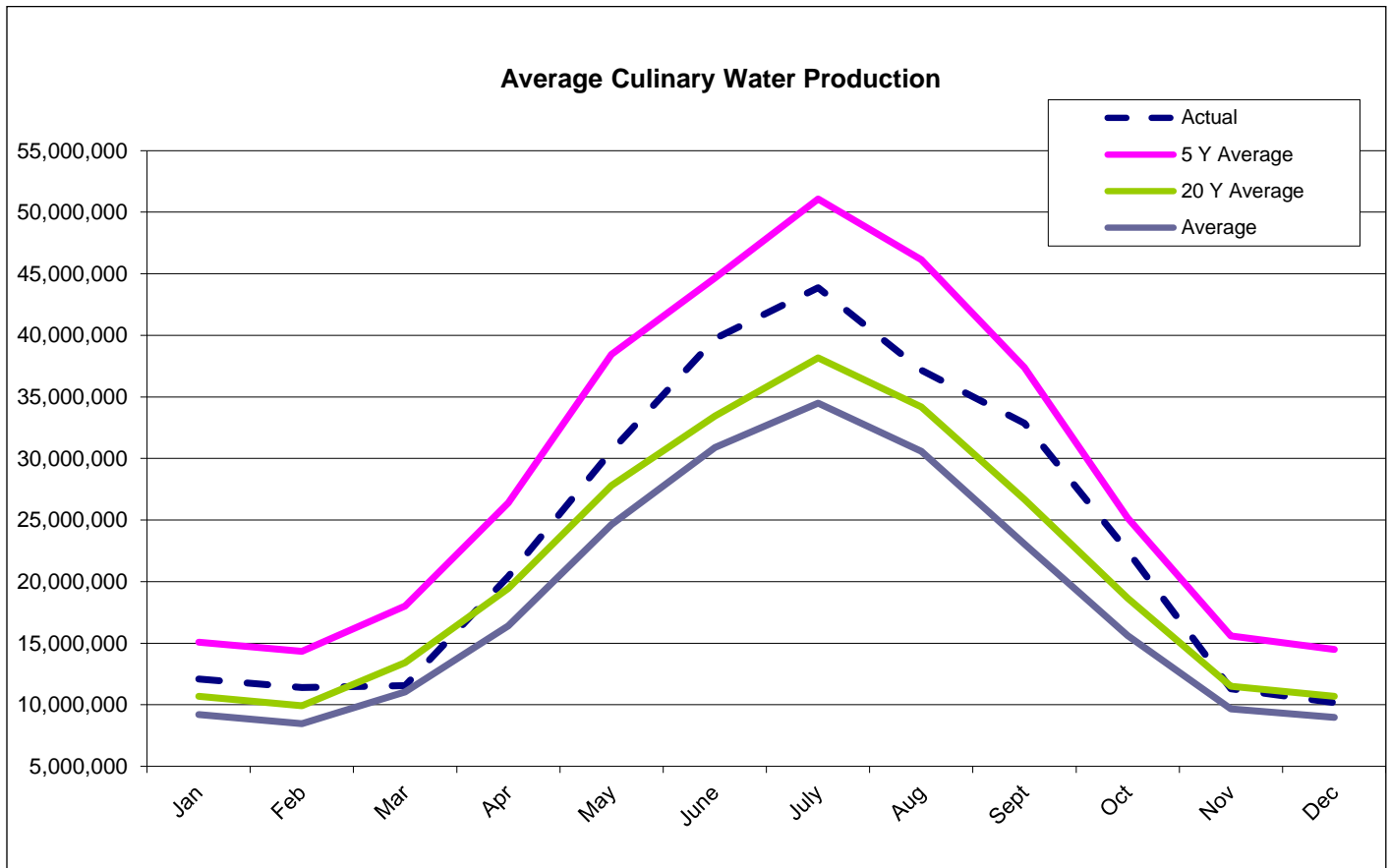
## 2010 Culinary Water Production

	Production 2009	Production 2010
January	15,842,000	12,094,000
February	14,254,000	11,390,000
March	19,884,000	11,545,000
April	26,716,000	20,414,000
May	38,284,000	30,619,000
June	38,981,000	39,730,000
July	46,606,000	43,871,000
August	44,026,000	37,188,000
September	33,454,000	32,869,000
October	23,870,000	22,494,000
November	13,186,000	11,297,000
December	12,892,000	10,187,000
<b>TOTALS</b>	<b>327,995,000</b>	<b>283,698,000</b>
<b>Monthly Average</b>	<b>27,332,917</b>	<b>23,641,500</b>

Culinary Water Production decreased 13.51% from 2009. The decrease can be attributed mainly to corrections made to the master meters.

## Culinary Water Production History 1995-2010





### Culinary Water Production Cost

2010 Water Produced  
2010 Water Production, Treatment & Power Costs

283,698,000 gallons or 870.51 AF  
\$0.27 per 1000 gallons or \$89.54 per AF

Historical Production costs per 1,000 gallons

<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>
\$0.17	\$0.16	\$0.17	\$0.15	\$0.20	\$0.23	\$0.27

### 2009 Culinary Water System Metered Use

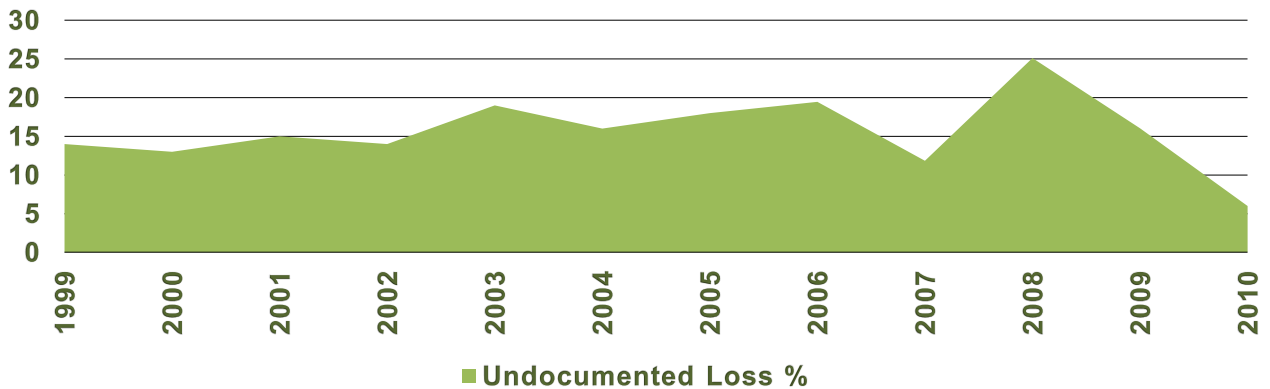
Month	Gallons 2009	Gallons 2010
January	9,449,000	9,003,000
February	9,549,000	10,930,000
March	8,931,000	8,458,000
April	17,146,000	16,703,000
May	28,202,000	23,487,000
June	34,776,000	37,022,000
July	38,839,000	39,870,000
August	38,838,000	36,559,000
September	39,209,000	34,781,000
October	23,278,000	23,625,000
November	10,696,000	11,123,000
December	9,876,000	9,441,000
<b>Total</b>	<b>268,789,000</b>	<b>261,002,000</b>
<b>Monthly Average</b>	<b>22,399,083</b>	<b>21,750,167</b>

## Water Audit

2010 Metered Use	261,002,000 gallons
Water in Storage	4,000,000 gallons
2010 Production	283,698,000 gallons
2010 Lost water	18,696,000 gallons
Documented Loss	1,712,000 gallons
Undocumented Loss	16,984,000 gallons
% of Water Lost	5.99%

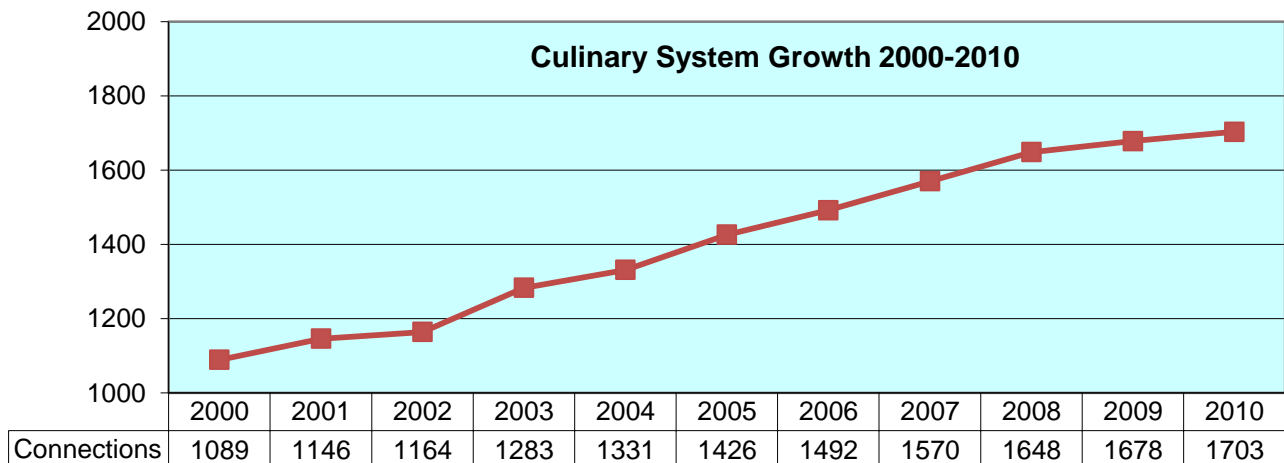
*Lost water due to leakage, fire flows, un-metered use and meter malfunction.*

### Undocumented Loss 1999-2010



## Water System

New 2010 Residential Connections	21
New 2010 Commercial Connections	4
Total 2010 Residential Connections	1588
Total 2010 Commercial Connections	115
<b>Total 2010 Connections</b>	<b>1703</b>
Average Active Connections/Month	1666
Average % of Connections Active	98%
2010 System Growth Rate	1.49%



## Compliance with Safe Drinking Water Act

2010 saw no violations of the Safe Drinking Water Act occur on the culinary water system.

## Consumer Confidence Report

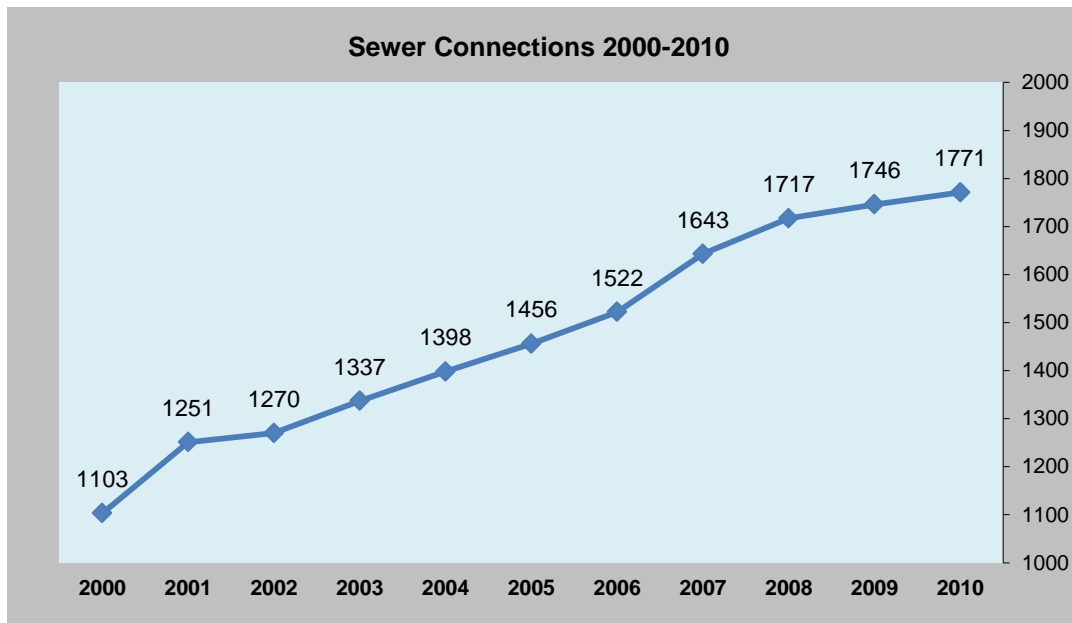
The 2010 Consumer Confidence Report is included in *Appendix A*.

## Sanitary Survey

The Division of Drinking Water completed a Sanitary Survey of the system on October 22, 2008. The system was credited ten points for having a current Emergency Action plan. No deficit points were given. Sanitary Surveys are completed by the DDW every three years.

## Sewer System

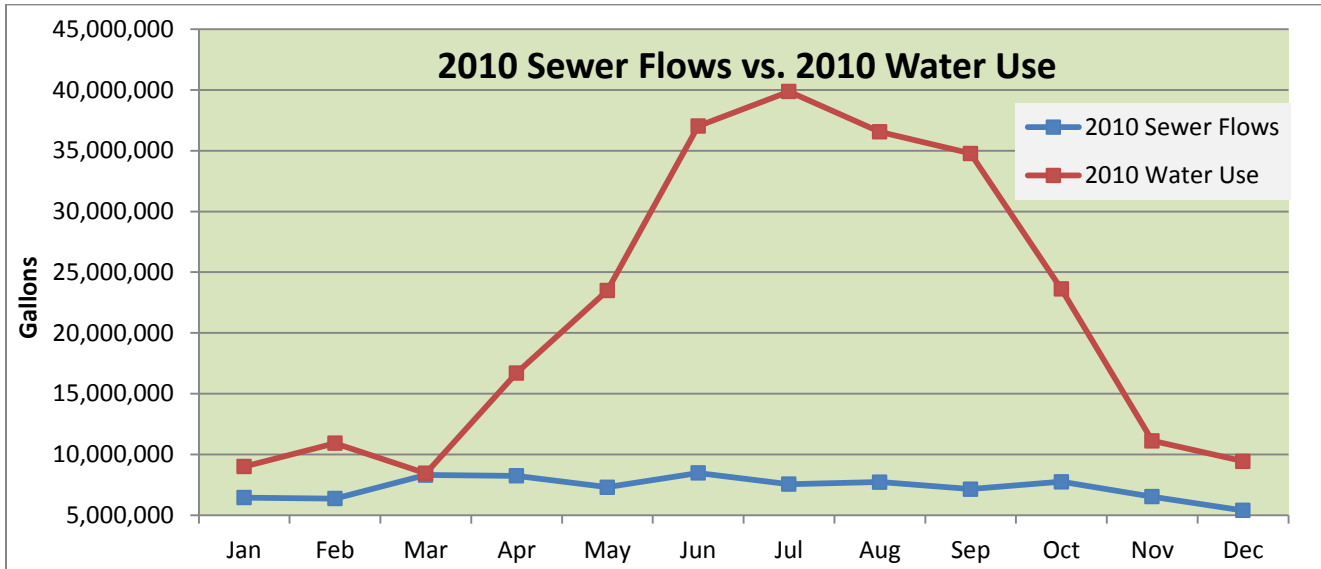
New 2010 Residential Connections	21
New 2010 Commercial Connections	4
Total 2010 Residential Connections	1651
Total 2010 Commercial Connections	120
<b>Total 2010 Connections</b>	<b>1771</b>
Average Active Connections/Month	1735
Average % of Connections Active	98%
2010 System Growth Rate	1.43%





### Sewer Flows Vs. Water Use

The following chart shows the metered sewer flows to Moab City for the year compared with the annual metered water use. It is illustrative of consumption of culinary water for outdoor use.

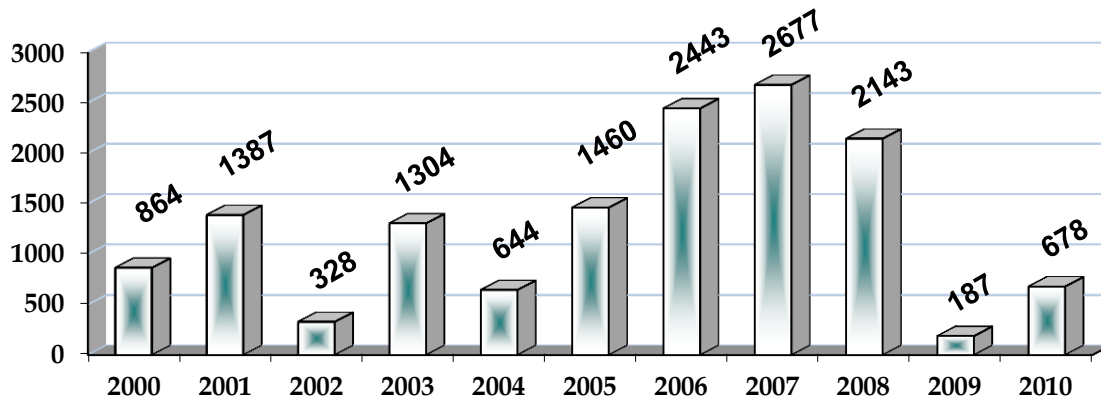


### Ken's Lake Irrigation System

#### Estimate of 2010 Ken's Lake Seepage

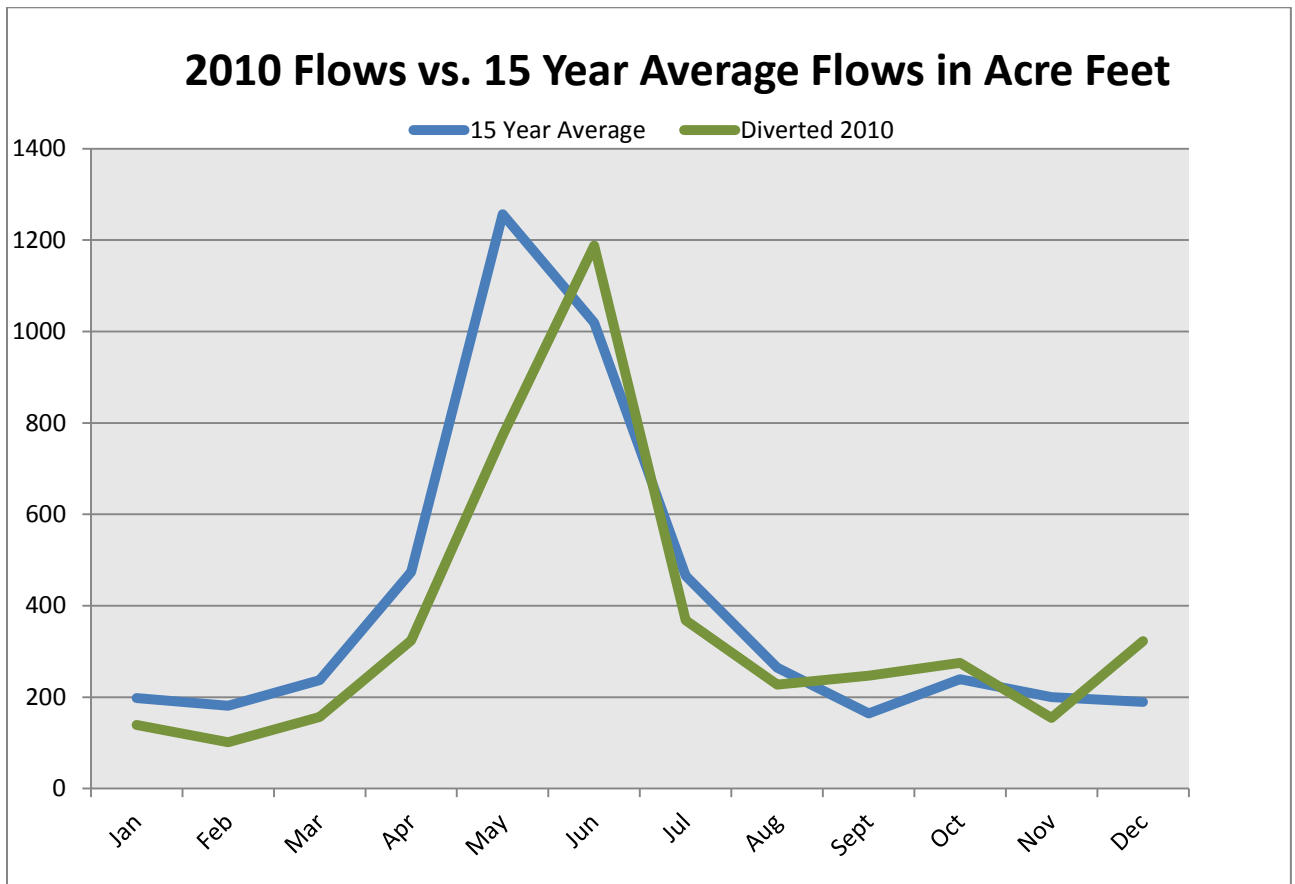
Amount in storage at end of 2009	476 AF
Amount diverted to Ken's Lake	4276 AF
Amount delivered to Irrigation pipeline	3062 AF
Evaporation Estimate	200 AF
Amount in storage at end of 2010	812 AF
Estimated seepage	678 AF

#### Estimated Seepage in AF 2000-2010



## 2010 Water Diverted Through Sheley Tunnel

Month	15 Year Average AF	Diverted 2010 AF	% of Average
January	198	139	70%
February	181	102	56%
March	237	156	66%
April	474	324	68%
May	1257	773	62%
June	1019	1188	117%
July	465	368	79%
August	265	227	86%
September	164	247	150%
October	239	275	115%
November	200	155	77%
December	190	322	170%
<b>Total</b>	<b>4890</b>	<b>4276</b>	

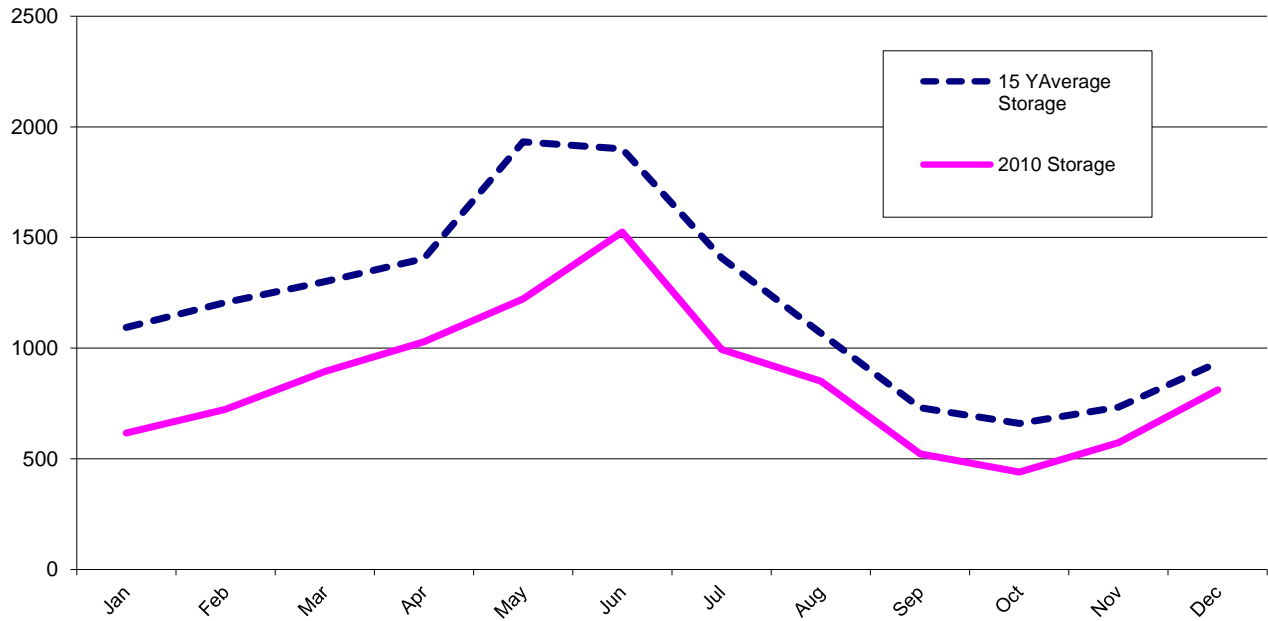


### Ken's Lake Storage Vs. 15 Year Average

Month	15 Year Average AF	2010 Storage AF	% of Average	% of Capacity
January	1094	616	56%	24%
February	1206	724	60%	28%
March	1300	894	69%	34%
April	1404	1028	73%	39%
May	1932	1223	63%	47%
June	1900	1525	80%	58%
July	1407	994	71%	38%
August	1068	851	80%	33%
September	730	522	71%	20%
October	660	440	67%	17%
November	733	573	78%	22%
December	935	812	87%	31%

Total Capacity is 2610 AF

**2010 Irrigation Storage vs. 15 Year Average - In Acre Feet**



## Review of Water Management and Conservation Plan

The Grand Water & Sewer Service Agency Water Management and Conservation Plan (WM&CP) states, "A portion of the Agency's Annual Report should discuss progress and accomplishments of the Water Conservation Program." The Conservation Plan Update was submitted in 2009. The primary goal of the Plan is to reduce the 19 year average use per connection per month of 18,762 gallons by 25% or 5% below the state average of 183 gpcd or 174 gpcd. Preliminary data from the US Census Bureau was used in the below calculations and is considered provisional and subject to change.

### 2010 Accomplishments of the Water Conservation Program

#### Conservation Oriented Water Rate

A conservation oriented water rate was adopted by the Agency Board effective September of 1999. Following is an analysis of how that rate has affected water use:

Month	2009	2009	2009	2010	2010	2010
	Active Connections	Water Use	Use per Connection	Active Connections	Water Use	Use per Connection
Apr	1634	17,146,000	10,493	1668	16,703,000	10,014
May	1645	28,202,000	17,144	1673	23,487,000	14,039
June	1651	34,776,000	21,064	1694	37,022,000	21,855
July	1652	38,839,000	23,510	1656	39,870,000	24,076
Aug	1649	38,838,000	23,552	1669	36,559,000	21,905
Sept	1653	39,209,000	23,720	1667	34,781,000	20,864
Oct	1652	23,278,000	14,091	1666	23,625,000	14,181

#### Yearly Comparison – Active Average Connections over 12 Months

The average use per month per connection between 1985 - 2004 was 17,953 gallons.

Year	Average Active Connections	Average Monthly Use Per Connection
2005	1370	15,350
2006	1464	15,011
2007	1516	16,715
2008	1602	14,655
2009	1645	13,617
2010	1666	13,055

## Per Capita Use Calculation

2010 population = 3750

Gallons per day use = 715,074

715,074 gallons / 3750 population = **191 Gallons per capita per day use**

## Conclusion

Due to the number of vacation homes and condominiums compared to year-round resident occupied housing units the data is skewed for both use calculations. The use per connection method includes many connections that are not occupied by residents. This causes the use to appear less per connection. Conversely, the use per capita calculation includes use by the seasonal residents who are not counted in the census. This causes the use per person to increase.

## Education

The Water Management & Conservation Plan (WM&CP) states "Grand Water & Sewer Service Agency shall endeavor to educate all of its customers on proper and conservative use."

- Educational flyers, previously mailed to all GW & SSA customers, are available at the Agency office. These flyers, suggesting practices for indoor and outdoor water conservation, are given to all new customers at time of application for water service.
- The Agency's website – [www.grandwater.org](http://www.grandwater.org) is an excellent source of conservation information and links to water professionals statewide. The conservation education information is updated seasonally. The Agency directs customers to the website via messages on the monthly billing that also include seasonal conservation tips.

## Water Audit

The WM & CP requires that a water audit be "...performed at least once per year for the drinking water system." That audit is located in the **Culinary Water System** portion of this report. The audit indicates undocumented lost water on the system of 5.99% a decrease of 62% from 2009. Much of the decrease in water loss can be attributed to recalibration of master meters. In 2009 staff began tracking and reporting lost water on a monthly basis. This allows for any potential problems to be addressed in a timely fashion.

## Outdoor Watering Restrictions

Watering during the heat of the day between 10:00 a.m. and 6:00 p.m. is recognized as inefficient use of outside water. The Agency shall ask all users of water to restrict outside watering during that time period. Water users shall be informed periodically by use of mailings, bill inserts, brochures, and news media.

# Appendix A

# ***Annual Drinking Water Quality Report 2010***

## ***Grand Water & Sewer Service Agency***

*We're pleased to present to you this year's Annual Drinking Water Quality Report. This report is designed to inform you about the quality of the water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water. Our water sources are George White Well #4, George White Well #5, Chapman Well and the Spanish Valley Well. The wells draw water from the Glen Canyon Aquifer.*

The Drinking Water Source Protection Plan for Grand Water & Sewer Service Agency is available for your review. It contains information about source protection zones, potential contamination sources and management strategies to protect our drinking water. Our sources have been determined to have a low level of susceptibility from potential contamination from sources such as septic tanks, roads, residential or industrial development. We have also developed management strategies to further protect our sources from contamination. Please contact us if you have questions or concerns about our source protection plan.

There are many connections to our water distribution system. When connections are properly installed and maintained, the concerns are very minimal. However, unapproved and improper piping changes or connections can adversely affect not only the availability, but also the quality of the water. A cross connection may let polluted water or even chemicals mingle into the water supply system when not properly protected. This not only compromises the water quality but can also affect your health. So, what can you do? Do not make or allow improper connections at your homes. Even that unprotected garden hose lying in the puddle next to the driveway is a cross connection. The unprotected lawn sprinkler system after you have fertilized or sprayed is also a cross connection. When the cross connection is allowed to exist at your home, it will affect you and your family first. If you'd like to learn more about helping to protect the quality of our water, call us for further information about ways you can help.

This report shows our water quality and what it means to you our customer. If you have any questions about this report or concerning your water utility, please contact Mark Sovine Manager/Operator at (435) 259-8121. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. They are held on the first and third Thursday of each month at 7:00 p.m. at the Agency Office, 3025 E. Spanish Trail Road, Moab, Utah, 84532. Individual reports will not be mailed but are available upon request.

GWSSA routinely monitors for constituents in our drinking water in accordance with the Federal and Utah State laws. The following table shows the results of our monitoring for the period of January 1<sup>st</sup> to December 31<sup>st</sup>, 2010. All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some constituents. It's important to remember that the presence of these constituents does not necessarily pose a health risk.

In the following table you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

***Non-Detects (ND)*** - laboratory analysis indicates that the constituent is not present.

***ND/Low - High*** - For water systems that have multiple sources of water, the Utah Division of Drinking Water has given water systems the option of listing the test results of the constituents in one table, instead of multiple

tables. To accomplish this, the lowest and highest values detected in the multiple sources are recorded in the same space in the report table.

**Parts per million (ppm) or Milligrams per liter (mg/l)** - one part per million corresponds to one minute in two years or a single penny in \$10,000.

**Parts per billion (ppb) or Micrograms per liter (ug/l)** - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

**Parts per trillion (ppt) or Nanograms per liter (nanograms/l)** - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

**Picocuries per liter (pCi/L)** - picocuries per liter is a measure of the radioactivity in water.

**Nephelometric Turbidity Unit (NTU)** - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**Action Level (AL)** - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

**Maximum Contaminant Level (MCL)** - The “Maximum Allowed” (MCL) is 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 “Goal” (MCLG) is 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.

**Date**- Because of required sampling time frames i.e. yearly, 3 years, 4 years and 6 years, sampling dates may seem out-dated.

<b>TEST RESULTS</b>							
Contaminant	Violation Y/N	Level Detected ND/Low-High	Unit Measurement	MCLG	MCL	Date Sampled	Likely Source of Contamination
<b>Microbiological Contaminants</b>							
Total Coliform Bacteria	N	ND	N/A	0	Presence of coliform bacteria in 5% of monthly samples	2010	Naturally present in the environment
Turbidity for Ground Water	N	ND-.56	NTU	N/A	5	2010	Soil runoff
<b>Radioactive Contaminants</b>							
Radium 228	N	ND-3	pCi/l	0	5	2008	Erosion of natural deposits
<b>Inorganic Contaminants</b>							
Chromium	N	ND-4	ppb	100	100	2010	Discharge from steel and pulp mills; erosion of natural deposits
Copper a. 90% results b. # of sites that exceed the AL	N	a. 80 b. 0	ppb	1300	AL=1300	2008	Corrosion of household plumbing systems; erosion of natural deposits



Fluoride	N	140-267	ppb	4000	4000	2010	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Lead a. 90% results b. # of sites that exceed the <b>AL</b>	N	a. 2 b. 0	ppb	0	AL=15	2008	Corrosion of household plumbing systems, erosion of natural deposits
Nitrate (as Nitrogen)	N	300-500	ppb	10000	10000	2010	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium	N	1-2	ppb	50	50		Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
Sodium	N	9-21	ppm	None set by EPA	None set by EPA	2010	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills.
Sulfate	N	42-102	ppm	1000*	1000*	2010	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills, runoff from cropland
TDS (Total Dissolved solids)	N	162-280	ppm	2000**	2000**	2010	Erosion of natural deposits
<b>Disinfection By-products</b>							
TTHM [Total trihalomethanes]	N	500	ppt	0	80,000	2008	By-product of drinking water disinfection
Chlorine	N	640	ppb	4000	4000	2010	Water additive used to control microbes

\*If the sulfate level of a public water system is greater than 500 ppm, the supplier must satisfactorily demonstrate that: a) no better water is available, and b) the water shall not be available for human consumption from commercial establishments. In no case shall water having a level above 1000 ppm be used.

\*\*If TDS is greater than 1000 ppm the supplier shall demonstrate to the Utah Drinking Water Board that no better water is available. The Board shall not allow the use of an inferior source of water if a better source is available.

EPA requires monitoring of over 80 drinking water contaminants. Those contaminants listed in the table above are the only contaminants detected in your 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. GWSSA 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>.

As you can see by the table, our system had no violations. We're proud that your drinking water meets or exceeds all Federal and State requirements. We have learned through our monitoring and testing that some constituents have been detected. The EPA has determined that your water IS SAFE at these levels.

All sources of drinking water are subject to potential contamination by constituents that are naturally occurring or man made. Those constituents can be microbes, organic or inorganic chemicals, or radioactive materials.

All 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 the 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 1-800-426-4791.

MCLs are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

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/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

We at GWSSA work around the clock to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future.