



# Grand Water & Sewer Service Agency



## Annual Report 2011

## Introduction

Grand Water & Sewer Service Agency is pleased to present its Annual Report for the year 2011. It is hoped that this synopsis of the Agency's activities in 2011 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 2011 Board Activities

- January 6** • Dale Weiss appointed to mid-term vacancy to the SVWSID. Mike Holyoak appointed to mid-term vacancy to GCSSWD.
- February 3** • Mark Sovine appointed as Agency representative to the Moab Area Watershed Partnership. Residential Secondary Irrigation policy implemented system wide.
- February 17** • Randy Julander of the NRCS presented information on climate data collection and water year prediction calculations.
- March 3** • The board approves residential secondary irrigation rate increase, culinary rate increase, and changes to the connection policies/procedures.
- March 17** • Full board meeting. Elections. The board approves a review of current impact fees to be completed by Sunrise Engineering.
- May 18** • Board member training with LeGrand Bitter of the UASD.
- June 2** • Preliminary report on impact fee study by Sunrise Engineering. Approval of water rights transfer protest to the State Engineer regarding the San Juan Spanish Valley Special Service District.
- June 23** • Full board meeting. Approval of Resolution 2011-06-23 Water and Wastewater Impact Fees Resolution. Audit presentation and acceptance. Approval of 2011 tax rates.
- August 18** • Full board meeting.
- November 17** • The board awards bid for Agency office roof repair. Approve water rights transfer protest to the State Engineer regarding Pinnacle Potash.
- December 8** • Full board meeting - 2012 budgets approved and 2011 budgets amended. Discussion of Moab Irrigation Bylaw changes. Board approves 2011 policy changes – Resolutions 2011-12-8 and 2011-12-8a.

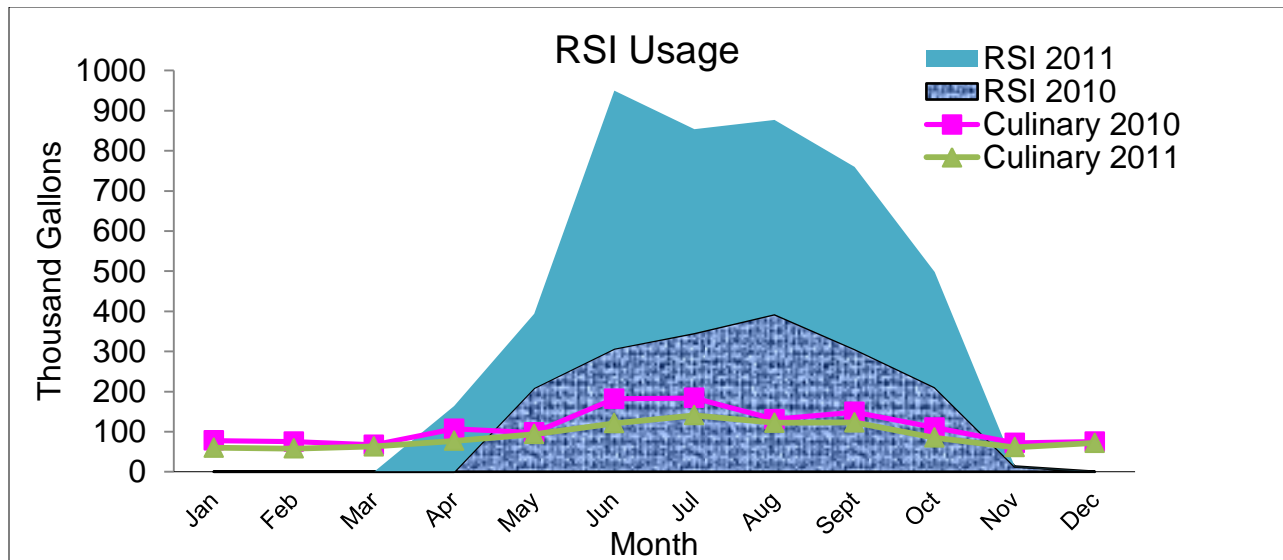
## Report on Projects

### 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. All non functioning irrigation customer meters were replaced in 2011. The project is complete. Meters were read at the end of the 2011 season and the Agency will begin to charge for overuse in the 2012 season.

## Residential Secondary Irrigation (RSI)

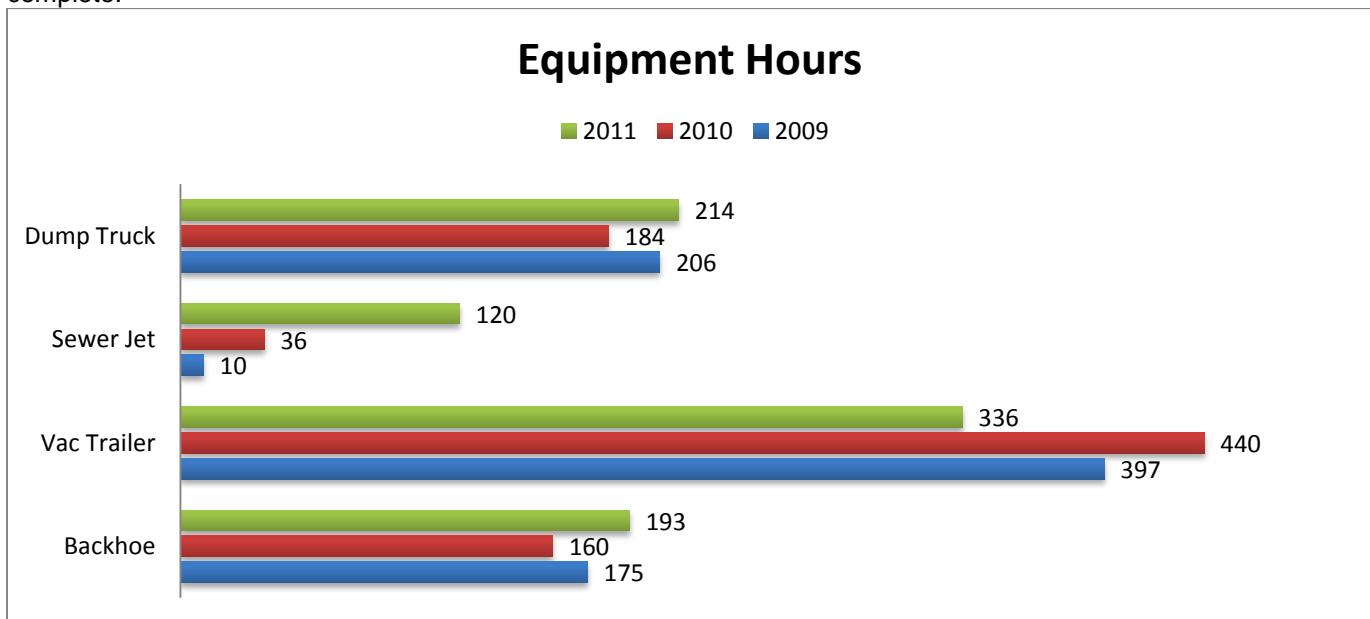
In 2011 the Board approved the residential secondary irrigation program for all customers. The chart below demonstrates the overall increase in RSI water usage from 2010 to 2011 and little change in the overall culinary usage from 2010 to 2011. There was a total of 8.44 AF used with an average revenue of \$207.32 per acre foot.



## 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.

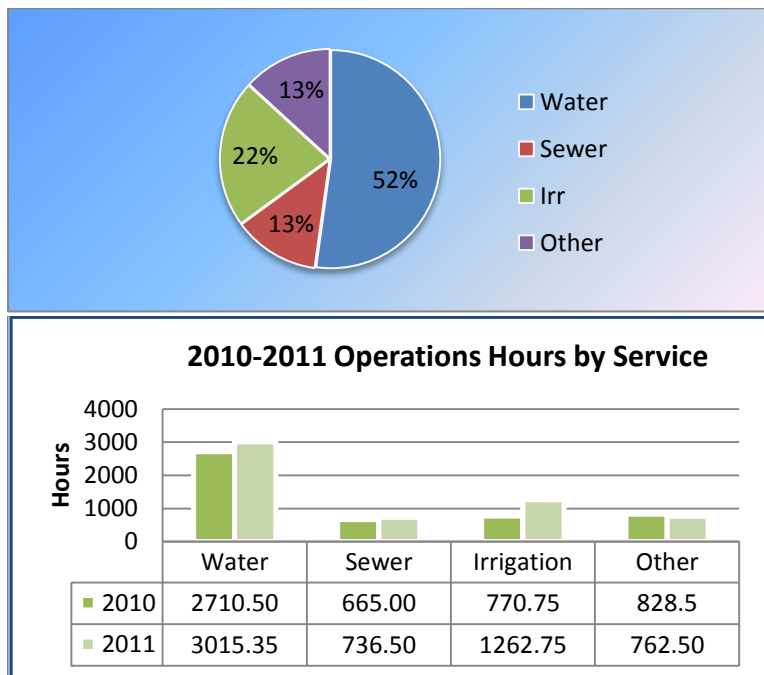
**Sewer Inspection and Maintenance Program**

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.



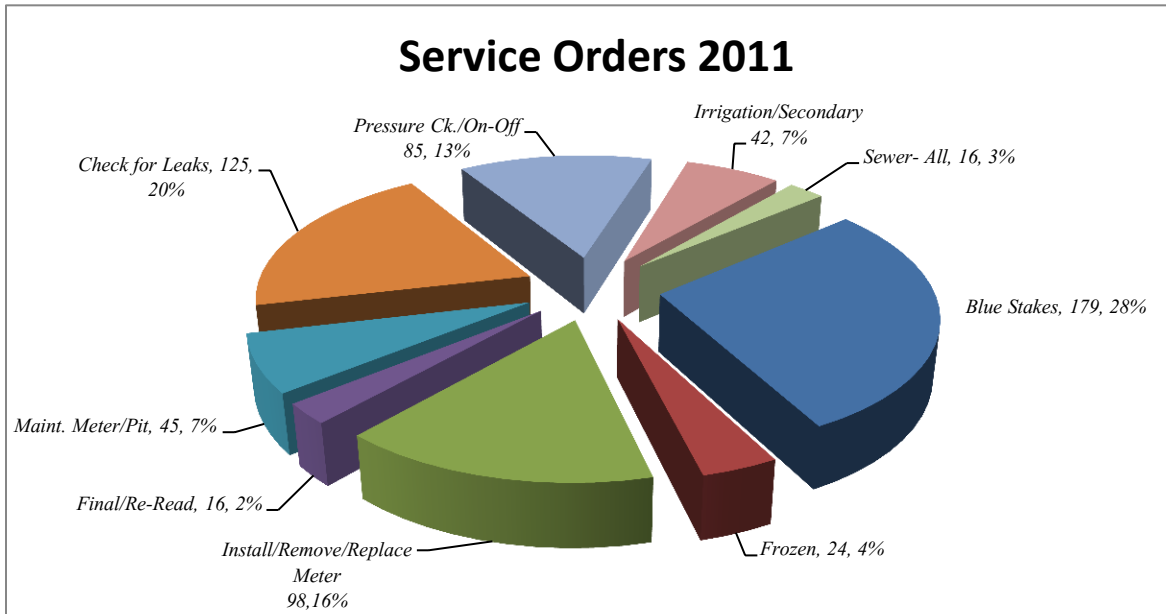
**Operator Hours Tracking by Service**

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 630 service orders were completed by staff in 2011.



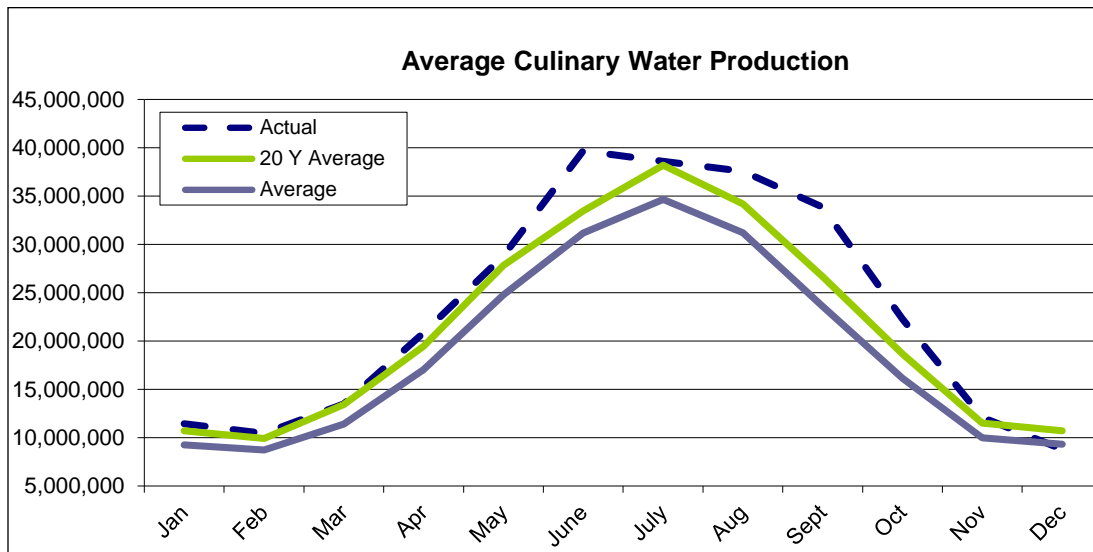
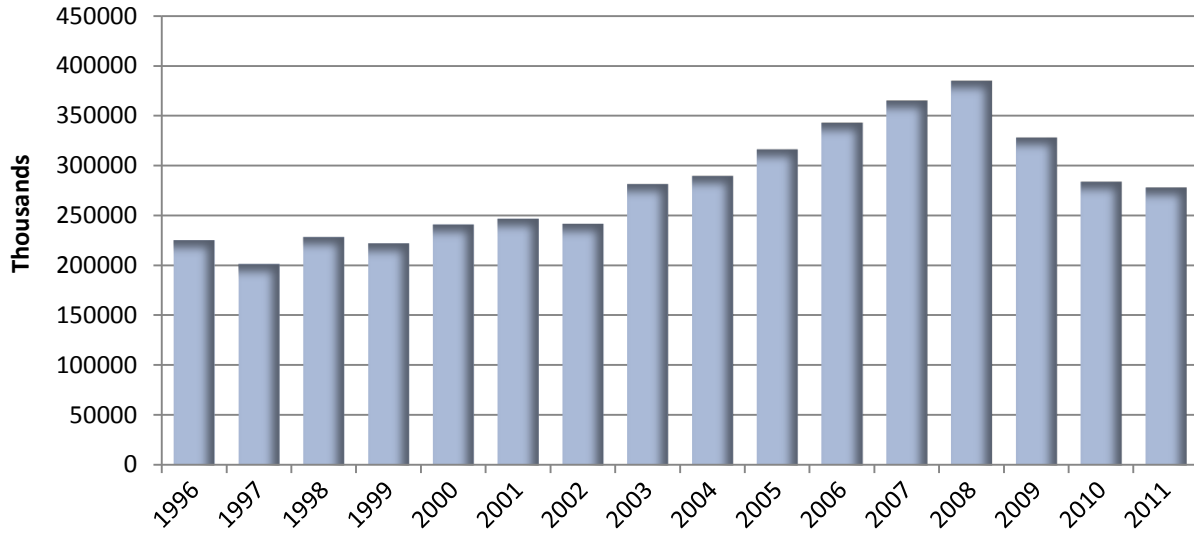
## Culinary Water System

### 2011 Culinary Water Production

Culinary Water Production		
	Production 2010	Production 2011
January	12,094,000	11,442,000
February	11,390,000	10,430,000
March	11,545,000	13,467,000
April	20,414,000	20,815,000
May	30,619,000	28,800,000
June	39,730,000	39,658,000
July	43,871,000	38,594,000
August	37,188,000	37,560,000
September	32,869,000	33,855,000
October	22,494,000	22,269,000
November	11,297,000	12,088,000
December	10,187,000	8,761,000
TOTALS	283,698,000	277,739,000
Monthly Average	23,641,500	23,144,917

\*Culinary Water Production numbers from August to December 2011 are averaged based on a percentage of use. Lightning strikes to master flow meters caused data collection issues.

## Culinary Water Production History 1996-2011



### Culinary Water Production Cost

2011 Water Produced  
 2011 Water Production, Treatment & Power Costs

277,739,000 gallons or 852.35 AF  
 \$0.24 per 1000 gallons or \$78.46 per AF

Historical Production costs per 1,000 gallons

<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>
\$0.16	\$0.17	\$0.15	\$0.20	\$0.23	\$0.27	\$0.24

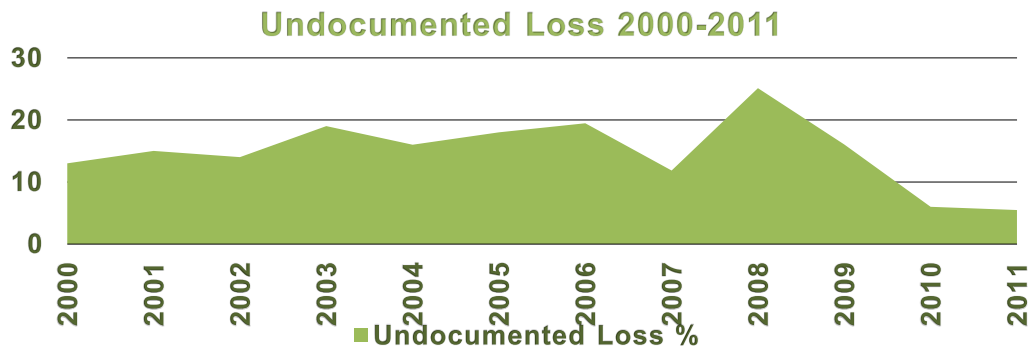
## 2011 Culinary Water System Metered Use

Month	Gallons 2010	Gallons 2011
January	9,003,000	9,164,000
February	10,930,000	8,845,000
March	8,458,000	10,363,000
April	16,703,000	17,166,000
May	23,487,000	25,729,000
June	37,022,000	31,762,000
July	39,870,000	38,407,000
August	36,559,000	36,769,000
September	34,781,000	35,951,000
October	23,625,000	23,374,000
November	11,123,000	11,893,000
December	9,441,000	8,088,000
<b>Total</b>	<b>261,002,000</b>	<b>257,511,000</b>
<b>Monthly Average</b>	<b>22,399,083</b>	<b>21,459,250</b>

## Water Audit

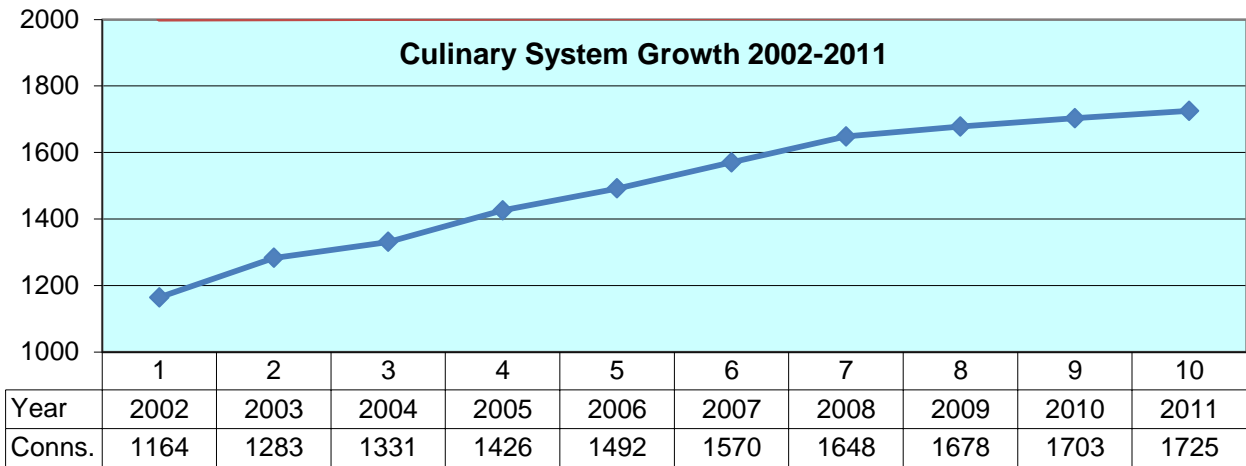
2011 Metered Use	257,511,000 gallons
Water in Storage	4,000,000 gallons
2011 Production	277,739,000 gallons
2011 Lost water	16,228,000 gallons
Documented Loss	1,042,100 gallons
Undocumented Loss	15,185,900 gallons
% of Water Lost	5.47%

Lost water due to leakage, fire flows, un-metered use and meter malfunction. The outflow meter at the Chapman Chlorinator building was struck by lightning in 2011. The culinary water production numbers are estimated 8/11 through 12/11.



## Water System

New 2011 Residential Connections	21
New 2011 Commercial Connections	1
Total 2011 Residential Connections	1609
Total 2011 Commercial Connections	116
<b>Total 2011 Connections</b>	<b>1725</b>
Average Active Connections/Month	1690
Average % of Connections Active	93%
2011 System Growth Rate	1.01%



### Compliance with Safe Drinking Water Act

2011 saw no violations of the Safe Drinking Water Act occur on the culinary water system.

### Consumer Confidence Report

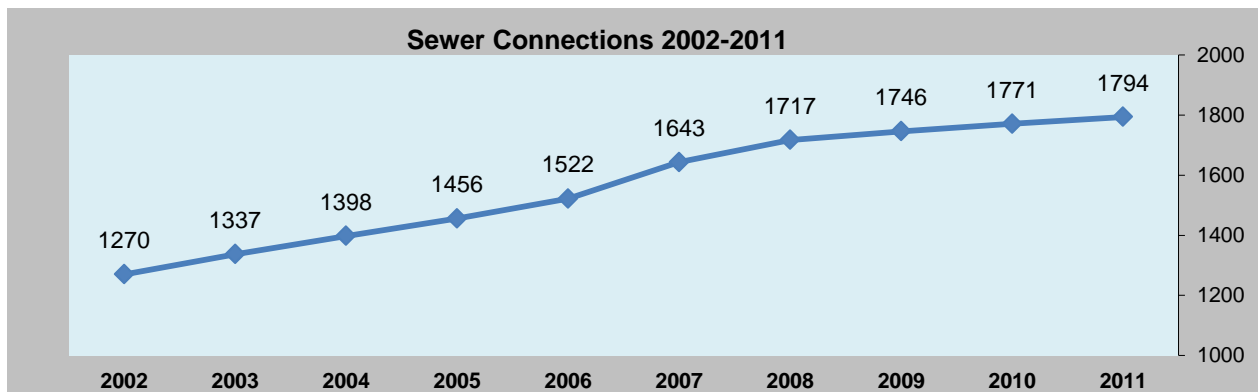
The 2011 Consumer Confidence Report is included in *Appendix A*.

### Sanitary Survey

The Division of Drinking Water completed a Sanitary Survey of the system on August 25, 2011. 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 2011 Residential Connections	21
New 2011 Commercial Connections	1
Total 2011 Residential Connections	1672
Total 2011 Commercial Connections	122
<b>Total 2011 Connections</b>	<b>1794</b>
Average Active Connections/Month	1733
Average % of Connections Active	95%
2011 System Growth Rate	1.01%



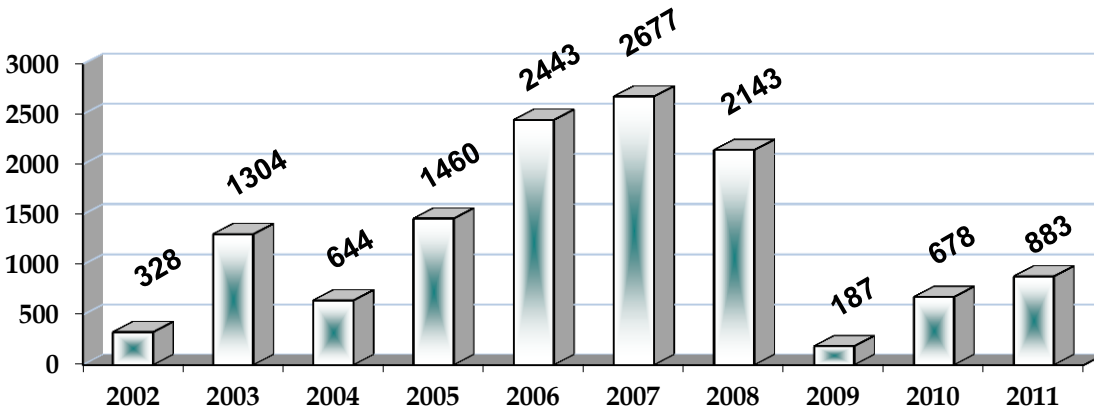


# Ken's Lake Irrigation System

## Estimate of 2011 Ken's Lake Seepage

Amount in storage at end of 2010	812 AF
Amount diverted to Ken's Lake	5162 AF
Amount delivered to Irrigation pipeline	3322 AF
Evaporation Estimate	200 AF
Amount in storage at end of 2011	1569 AF
Estimated seepage	883 AF

## Estimated Seepage in AF 2002-2011



## 2011 Water Diverted Through Sheley Tunnel

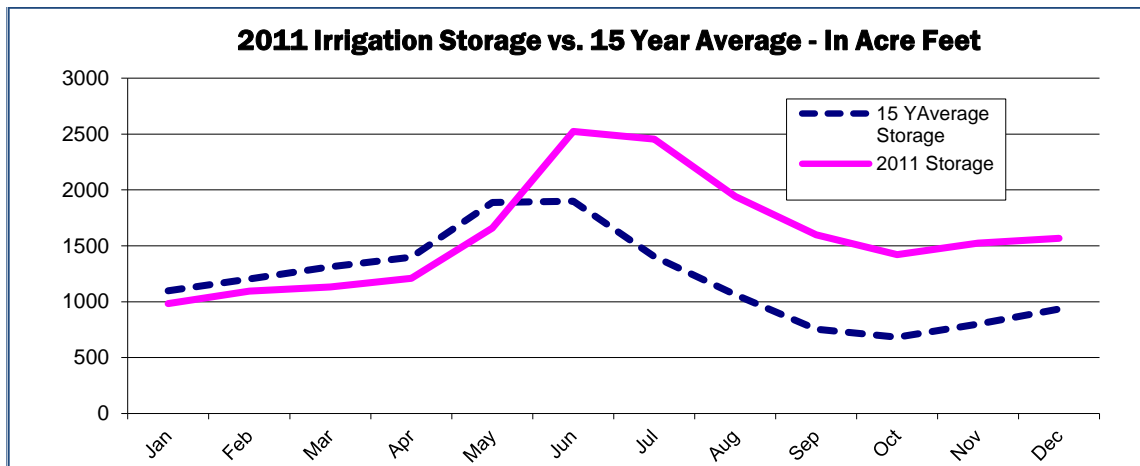
Month	15 Year Average AF	Diverted 2011 AF	% of Average
January	200	252	126%
February	179	178	100%
March	240	148	62%
April	458	334	73%
May	1285	953	74%
June	1077	1506	140%
July	475	581	122%
August	292	470	161%
September	159	297	187%
October	258	282	109%
November	200	118	59%
December	180	50	28%
<b>Total</b>	<b>5002</b>	<b>5169</b>	<b>103%</b>

\*November and December inflow numbers were extrapolated from lake data due to a meter malfunction.

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

Month	15 Year Average AF	2011 Storage AF	% of Average	% of Capacity
January	1097	982	90%	38%
February	1203	1095	91%	42%
March	1313	1133	86%	43%
April	1400	1210	86%	46%
May	1888	1658	88%	64%
June	1900	2522	133%	97%
July	1403	2456	175%	94%
August	1065	1942	182%	74%
September	754	1598	212%	61%
October	682	1423	209%	55%
November	800	1525	191%	58%
December	935	1569	168%	60%

Total Capacity is 2610 AF



## 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.

### 2011 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:

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

Month	2010	2010	2010	2011	2011	2011
	Active Connections	Water Use	Use per Connection	Active Connections	Water Use	Use per Connection
Apr	1668	16,703,000	10,014	1687	17,166,000	10,175
May	1673	23,487,000	14,039	1686	25,729,000	15,260
June	1694	37,022,000	21,855	1687	31,762,000	18,828
July	1656	39,870,000	24,076	1680	38,407,000	22,861
Aug	1669	36,559,000	21,905	1702	36,769,000	21,603
Sept	1667	34,781,000	20,864	1692	35,951,000	21,248
Oct	1666	23,625,000	14,181	1698	23,374,000	13,766

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
2011	1690	12,698

#### Per Capita Use Calculation

2011 population estimate= 3750

Gallons per day use = 705,509 gallons

705,509 gallons / 3750 population = **188 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 “per connection” and “per capita” 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 5.47% an decrease of 1.10% from 2010. Data from August to December 2011 are estimated due to a lightning strike to the Chapman outflow meter.

## 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, billing messages, brochures, and/or news media.

# Appendix A

## ***2011 Annual Drinking Water Quality Report*** ***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 have been determined to be from groundwater. 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, Agency Manager 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. Current and past reports are also available on our website at [www.grandwater.org](http://www.grandwater.org).

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>, 2011. 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-Detect (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.

**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.

**Waivers (W)** - Because some chemicals are not used or stored in areas around drinking water sources, some water systems have been given waivers that exempt them from having to take certain chemical samples; these waivers are also tied to Drinking Water Source Protection Plans.

### TEST RESULTS

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-1	N/A	0	Presence of coliform bacteria in 5% of monthly samples	2011	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 <b>AL</b>	N	a.88 b.0	ppb	1300	AL=1300	2011	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. 1 b. 0	ppb	0	AL=15	2011	Corrosion of household plumbing systems, erosion of natural deposits
Nitrate (as Nitrogen)	N	300-500	ppb	10000	10000	2011	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Selenium	N	1-2	ppb	50	50	2010	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
<p>*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.</p> <p>**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.</p>							
<b>Disinfection By-products</b>							
Chlorine	N	640	ppb	4	4000	2011	Water additive used to control microbes

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.

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.

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>.

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 from their health care providers about drinking water. 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.