

# **Fallon R.V. Park**

## **Water Conservation Plan**

**January 8, 2010**

**Prepared for:**

**Fallon R.V. Park  
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## TABLE OF CONTENTS

Introduction .....	1
Statutory Requirements .....	2
System Description .....	3
Plan Provisions .....	4
Public Education .....	5
Conservation Measures .....	5
Water Management .....	5
Contingency Plan .....	6
Schedule .....	7
Evaluation Measurements .....	7
Conservation Estimates .....	7
Rate Analysis .....	8
Appendices	
A – Conservation Measures .....	10
B – Public Education Materials .....	12
C – End-User Water Savings .....	14

## **Introduction**

The water supply in Nevada is a precious commodity and plays an important role in determining Nevada's future. Nevada is the one of the driest states in the nation as well as one of the fastest growing ones. Nevada's future, both from an economic and a quality of life view, depends heavily upon the wise management of the water supply.

Groundwater, in general, provides about 40 percent of the total water supply used in Nevada. In some areas, groundwater provides the entire water supply. Groundwater usage may vary considerably from year-to-year as it is sometimes pumped to supplement surface water sources.

Water use in Nevada can be classified as:

- Domestic (household, both indoor and outdoor) – Met by public supply or private supply (e.g. wells).
- Commercial (businesses) – Met by public supply or private supply (e.g. non-community systems).
- Industrial (manufacturing/construction) – Met by public supply or private supply (e.g. non-community systems).
- Thermoelectric (electric/fossil fuel/geothermal power generation) – Met by public supply in a minor fraction.
- Mining (mining processes) – Supply source varies widely from operation to operation and is dependent upon the mineral being recovered and the recovery process employed.
- Irrigation (land use) – Met by self-supplied or supplied by irrigation companies or districts.
- Livestock (farm needs) – Supply source varies.

While all classifications of water usages have shown an increase over the years, it has historically been irrigation water use which has accounted for the majority of the water use in Nevada.

It has been estimated that the domestic water use accounts for less than 15 percent of the water used in Nevada, but this is expected to rise to nearly 25 percent as the population increases (based upon existing water use patterns and conservation measures). It is expected that Nevada's population will become increasingly concentrated in its primary urban areas of Las Vegas (Clark County), Reno/Sparks (Washoe County) and Carson City, with varied spillover effects on neighboring counties.

It is vitally important that all residents understand the fundamental science of water, how it is managed in the state, and the issues affecting its management. Water education must become a priority and must include education of children as they are our future.

Because Nevada does not have a comprehensive state-wide conservation program, it is reliant upon the individual water suppliers for developing their own conservation programs. In 1991,

Nevada enacted a law requiring adoption of conservations plans by water suppliers. Minimum standards for plumbing fixtures were adopted in 1991 (Assembly Bill 359) by Nevada and in 1992 minimum flow standards for plumbing fixtures were adopted by the federal government (National Energy and Policy Conservation Act).

Conservation is an essential part of ensuring adequate water supply as it is no longer feasible to develop new sources. It has proven to be a cost-effective way to reduce demands and/or to extend a given water supply. It can easily be pursued by all water users regardless of the water system type. Key to evaluating the program's effectiveness is the water use measurement (through meters and other measurement devices). Various conservation measures can be put into place and the achievement of the goals set with these measures is vital to combating the expected increase in water usage.

## **Statutory Requirements**

This water conservation plan was prepared for the Fallon R.V. Park in accordance with Nevada Revised Statute (NRS) 540. As outlined in NRS 540.141, the provisions of this plan must include:

- a. Public Education
- b. Conservation Measures
- c. Water Management
- d. Contingency Plan
- e. Schedule
- f. Evaluation Measurements
- g. Conservation Estimates

In addition to the provisions of the water conservation plan, listed above, NRS 540.141 also requires a rate analysis to be performed and included with the submittal.

This plan is being submitted to the Nevada Department of Conservation and Natural Resources (DCNR), Division of Water Resources (DWR) for review and approval prior to its adoption by the Fallon R.V. Park, as required by NRS 540.131.

This plan is available for inspection during normal business hours at Fallon RV Park, 5787 Reno Highway, Fallon, NV 89406.

This is the original Water Conservation Plan for the Fallon R.V. Park.

In accordance with NRS 540.131, this plan will be reviewed from time-to-time to reflect changes and must be updated every five (5) years to comply with NRS 540.131 and NRS 540.141. The next update of this plan is to be on, or before, January 8, 2015.

## **System Description**

The Fallon R.V. Park is privately-owned combined transient non-community water system and has a current water operation permit, NV0002534. The Fallon R.V. Park provides water to 63 R.V. space rental customers in its service area located 4 miles west of the City of Fallon, Churchill County. It is located on roughly 8-acres of private property on Reno Highway. The terrain is flat.

In 2009, the Fallon R.V. Park served a transient population of about 35 customers per day, which equates to over 12,000 transient customers per year. This includes customers for the Country Market as well as the R.V. Park. The Fallon R.V. Park provides R.V. space rental (which includes electricity, cable television, water, and sewer service) to transient customers. Occupancy rates and the population served vary throughout the year. The Fallon R.V. Park does not anticipate enlarging its park to include more rental spaces. The Fallon R.V. Park estimates that its customer base will be about the same, or decrease, over the next couple of years due to the economic downturn. The State of Nevada, through its State Water Plan, estimates the population growth for Churchill County through 2010 to be 2.28% annually.

The water supply is from groundwater which is located within the Carson Desert Basin. There are a total of two wells supplying the system and a total of one hydro-pneumatic tank (3,000 gallons). One of the wells (Well #2 – West) is out of service because it is not needed at this time. Each of the wells is identified in the table below (Table 1). Water supply is more than sufficient to meet the demands, both current and future.

**Table 1 – Source of Supply**

<b>Well No.</b>	<b>Depth (feet)</b>	<b>Production (gpm)</b>
<b>#1 - East</b>	<b>172</b>	<b>20 max</b>
<b>#2 - West</b>	<b>149</b>	<b>20 max</b>

The Fallon R.V. Park has been granted water rights in the total amount of 5.49 AF per year. The current water rights are listed in the table below (Table 2). The combined duty of certificated water rights may not exceed 1.786 million gallons annually (5.49 AF).

**Table 2 – Water Rights**

<b>Application No.</b>	<b>Well No. &amp; Name</b>	<b>Rate of Diversion</b>	<b>Annual Use</b>
<b>13620</b>	<b>Well 1</b>	<b>0.02 c.f.s.</b>	<b>1.786 Mgal (combo)</b>
<b>13621</b>	<b>Well 2</b>	<b>0.04 c.f.s.</b>	<b>1.786 Mgal (combo)</b>

Water is pumped into the hydro-pneumatic tank and then transferred to the filtering units for manganese reduction. Water filtration is performed at the pump house. Water is then distributed through 3-inch PVC piping.

The Fallon R.V. Park does not require a certified operator at present.

The Fallon R.V. Park is required to perform quarterly and yearly monitoring and testing of water quality. The Fallon R.V. Park does not have any outstanding water quality issues.

The last sanitary survey performed by the Nevada Department of Environmental Protection (NDEP) was completed on November 9, 2006, and shows two deficiencies with the system. These deficiencies were: (1) cross connection at treatment plant and (2) the well casing is not equipped with a vent pipe; pipe height is not adequate, properly oriented or screened. These issues have all been resolved.

The Fallon R.V. Park does not currently meter individual spaces for water use. The flat-rate R.V. space rent includes electricity, cable television, water, and sewer service for all transient customers. The Fallon R.V. Park does not have a tiered rate usage fee.

Wastewater collected from the service area is handled by an on-site septic system.

Current R.V. space rental rates were established in March 2009. Rates are reviewed every six months and adjusted when necessary.

## **Plan Provisions**

In accordance with NRS 540.131, this plan will be reviewed from time-to-time to reflect changes and must be updated every five (5) years to comply with NRS 540.131 and NRS 540.141. The next update of this plan is to be on, or before, January 8, 2015.

The Fallon R.V. Park will appoint a staff member to oversee the conservation efforts and this staff member will be responsible for implementation of conservation programs, monitoring of water use, and will review /revise the conservation plan when needed.

In an effort to promote voluntary conservation and aid in Nevada's future, the Fallon R.V. Park will enact the voluntary conservation measures found in the ***Conservation Measures*** section. When more stringent measures are needed, the Fallon R.V. Park will enact the measures found in the ***Contingency Measures*** section. All measures can be found in Appendix A.

As required by NRS 540.141, the water conservation plan must include the following provisions:

- a. Public Education
- b. Conservation Measures
- c. Water Management
- d. Contingency Plan
- e. Schedule
- f. Evaluation Measures
- g. Conservation Estimates

Each provision is discussed below.

### **Public Education**

Public education is a key for cooperation with conservation efforts, so funding for public education is crucial. The Fallon R.V. Park recognizes this and will establish a conservation education program and corresponding budget.

While the Fallon R.V. Park is not a water purveyor charging individual customers, as in the case of a water company, it is the goal of the Fallon R.V. Park to increase public awareness to conserve water within the confines of the park.

The conservation education program will include education materials such as flyers and posters encouraging conservation measures. Customers can be provided flyers and will be able to see the posters on the parks premises (see Appendix B).

### **Conservation Measures**

The Fallon R.V. Park has actively implemented conservation measures. For example, it has reduced lawn areas, installed desert landscaping, and modified timed irrigation units for its property. In addition it has installed low-flow toilets in its bathrooms and prohibits washing of cars and R.V. units.

In the event these conservation measures are insufficient to control the water shortage, the Fallon R.V. Park may wish to implement the mandatory measures discussed in the *Contingency Plan* section below.

At present, it is not viable to offer any water conservation incentives to its transient customers.

### **Water Management**

The Fallon R.V. Park does not monitor water levels at its well.

There are no other local water purveyors available to provide additional water. However, there are two wells, which provide redundancy within the system should one well go out of service.

The Fallon R.V. Park does not actively monitor unaccounted for water losses. There are no meters at the R.V. rental sites to monitor usage. Currently, there is no way to monitor between production and usage.

The Fallon R.V. Park does not have a formal leak detection program. All leaks are repaired immediately when found.

The Fallon R.V. Park does not have a formal well head protection program.

The Fallon R.V. Park does not have a formal capital improvement plan in place. Distribution lines are replaced when needed and there are sufficient funds available to do this.

The Fallon R.V. Park does not have a system for reusing of effluent.

Churchill County has adopted a Plumbing Water Conservation Ordinance which applies to structures which are renovated as well as all new construction. This ordinance is furnished to local suppliers and contractors. The Churchill County Building Department checks new construction, renovation, and expansions within the Churchill County to ensure compliance with this ordinance.

## **Contingency Plan**

The objective of the contingency plan would be to manage the available resources to ensure continued supply of potable water during periods of drought or extended drought.

It is envisioned that voluntary conservation will be sufficient to ensure an adequate supply of water and reduce water usage. However, if a sustained drought (lack of precipitation) is encountered, it may be necessary to implement mandatory restrictions in order to ensure an adequate supply of water to meet essential needs.

The Fallon R.V. Park plans for drought response would be three (3) stages of drought response: (1) warning stage, (2) alert stage, and (3) emergency stage. The stages are describes as follows:

In Stage 1, the warning stage, the Fallon R.V. Park may install meters and begin to monitor its water supplies. It would begin creating public awareness of the water supply situation and the need to conserve. Conservation measures at this stage would be voluntary.

In Stage 2, the alert stage, the Fallon R.V. Park would call for wide-based community support to achieve conservation and implement water use restrictions. Conservation measures at this stage would be mandatory.

In Stage 3, the emergency stage, the Fallon R.V. Park would declare a drought and water shortage emergency and would enforce water use restrictions. Media relations would be activated in order to inform the customers and monetary assistance may need to be secured in an effort to mitigate the effects of the drought (e.g. federal funding assistance).

When a drought is declared over, voluntary conservation measures (see *Conservation Measures* section) will be reinstated and water supplies would continue to be monitored.

## **Schedule**

All of the provisions listed are currently in place and are actively working to achieve results. Education materials will be developed and utilized, as necessary.

## **Evaluation Measurements**

Because usage is not currently metered, it is impossible to determine the effectiveness of each plan element. However, once the Fallon R.V. Park monitors its production and usage, it will be able to evaluate the effectiveness of each plan element. In that regard, as a plan element is activated, production figures will be compared to same-month historical data to estimate the plan element's effectiveness. This information will be utilized as a basis for any future water conservation plan revision and plan elements.

If there is a decrease in production as a result of a particular measure/incentive, that measure/incentive can be expanded or improved upon, if possible. If it is discovered that a particular measure/incentive is ineffective, it will be discontinued and a new one can then be implemented to take its place.

## **Conservation Estimates**

During the Stage 1 phase of the conservation plan, it is estimated that conservation measures could be expected to provide a 5 to 10% reduction in water use.

During the Stage 2 phase of the conservation plan, it is estimated that conservation measures could be expected to provide a 10 to 15% reduction in water use.

During the Stage 3 phase of the conservation plan, it is estimated that conservation measures could be expected to provide a 15 to 30% reduction in water use.

The estimated water savings for various end-user efforts can be found in Appendix C.

## **Rate Analysis**

The charging of variable rates for the use of water has sometimes been shown to encourage conservation of water, but not in all systems. Oftentimes the end-user will continue to pay increasing block rates out of necessity for the water used. The use of variable water rates needs to be evaluated on a case-by-case basis.

Because the Fallon R.V. Park does not charge customers for water usage, there is no need or basis for a rate analysis at this point in time. However, this may become necessary in the future and will be evaluated at that time.

## **Appendices**

**APPENDIX A**  
**CONSERVATION MEASURES**

### **Stage 1 – Warning Stage**

1. The Fallon R.V. Park may begin monitoring of water supplies.
2. The Fallon R.V. Park would begin creating public awareness of the water supply situation and the need to conserve.
3. The Fallon R.V. Park would inform customers of voluntary conservation measures.

### **Stage 2 – Alert Stage**

1. The Fallon R.V. Park will call for wide-based community support to achieve conservation.
2. The Fallon R.V. Park would inform customers of mandatory conservation measures.

### **Stage 3 – Emergency Stage**

1. The Fallon R.V. Park would declare a drought and water shortage emergency and use media relations to supplement efforts to keep customers informed.
2. The Fallon R.V. Park would inform customers of prohibited water uses.
3. The Fallon R.V. Park would seek monetary assistance in an effort to mitigate the drought (e.g. federal funding).

**APPENDIX B**  
**PUBLIC EDUCATION MATERIALS**

There are several publications available for use at U.S. EPA website for general distribution (currently located at <http://epa.gov/watersense/pubs/index.htm#ideas>). These publications include such topics as:

These publications can be utilized until the Fallon R.V. Park develops system-specific publications.

There are also numerous website that provide tips for conserving water. One of these is: <http://www.wateruseitwisely.com/100-ways-to-conserve/index.php>. Customers can be directed to this website for tips to conserve water.

**APPENDIX C**  
**END-USER WATER SAVINGS**

Here are just a few of the end-user water savings that could be realized:

### **Leaky Faucets**

**Issue:** Leaky faucets that drip at the rate of one drip per second can waste more than 3,000 gallons of water each year.

**Fix:** If you're unsure whether you have a leak, read your water meter before and after a two-hour period when no water is being used. If the meter does not read exactly the same, you probably have a leak.

### **Leaky Toilets**

**Issue:** A leaky toilet can waste about 200 gallons of water every day.

**Fix:** To tell if your toilet has a leak, place a drop of food coloring in the tank; if the color shows in the bowl without flushing, you have a leak.

### **Showering**

**Issue:** A full bath tub requires about 70 gallons of water, while taking a five-minute shower uses 10 to 25 gallons.

**Fix:** If you take a bath, stopper the drain immediately and adjust the temperature as you fill the tub.

### **Brushing Teeth Wisely**

**Issue:** The average bathroom faucet flows at a rate of two gallons per minute.

**Fix:** Turning off the tap while brushing your teeth in the morning and at bedtime can save up to 8 gallons of water per day, which equals 240 gallons a month!

### **Watering Wisely**

**Issue:** The typical single-family suburban household uses at least 30 percent of their water outdoors for irrigation. Some experts estimate that more than 50 percent of landscape water use goes to waste due to evaporation or runoff caused by overwatering.

**Fix:** Drip irrigation systems use between 20 to 50 percent less water than conventional in-ground sprinkler systems. They are also much more efficient than conventional sprinklers because no water is lost to wind, runoff, and evaporation. If the in-ground system uses 100,000 gallons annually, you could potentially save more than 200,000 gallons over the lifetime of a drip irrigation system should you choose to install it. That adds up to savings of at least \$1,150!

### **Washing Wisely**

**Issue:** The average washing machine uses about 41 gallons of water per load.

**Fix:** High-efficiency washing machines use less than 28 gallons of water per load. To achieve even greater savings, wash only full loads of laundry or use the appropriate load size selection on the washing machine.

### **Flushing Wisely**

**Issue:** If your toilet is from 1992 or earlier, you probably have an inefficient model that uses at least 3.5 gallons per flush.

**Fix:** New and improved high-efficiency models use less than 1.3 gallons per flush—that's at least 60 percent less than their older, less efficient counterparts. Compared to a 3.5 gallons per flush toilet, a WaterSense labeled toilet could save a family of four more than \$90 annually on their water bill, and \$2,000 over the lifetime of the toilet.

### **Dish Washing Wisely**

**Issue:** Running dishwasher partial full and pre-rinsing dishes before loading the dishwasher.

**Fix:** Run the dishwasher only when it's full and use the rinse-and-hold dishwasher feature until you're ready to run a full load. Pre-rinsing dishes does not improve cleaning and skipping this step can save you as much as 20 gallons per load, or 6,500 gallons per year. New water-saver dishwashers use only about 4 gallons per wash.

Estimated water savings from EPA Water Conservation Guidelines 1998 (Appendix B, Table B-1):

Type	Estimated Usage (gpcpd)	Conservation Usage (gpcpd)	Savings (gpcpd)	Savings (%)
Toilet	18.3	10.4	7.9	43 %
Clothes Washers	14.9	10.5	4.4	30 %
Showers	12.2	10.0	2.2	18 %
Faucets	10.3	10.0	.3	3 %
Leaks	6.6	1.5	5.1	77 %

Benchmarks from selected conservation measures from EPA Water Conservation Guidelines 1998 (Appendix B, Table B-4):

Category	Measure	Reduction of End Use (% or gpcpd)
Universal metering	Connection metering	20 %
	Sub metering	20 – 40 %
Costing and pricing	10% increase in residential prices	2 – 4 %
	10% increase in non-residential prices	5 – 8 %
	Increasing-block rate	5 %
Information and education	Public education and behavior changes	2 – 5 %
End-use audits	General industrial water conservation	10 – 20 %
	Outdoor residential use	5 – 10 %
	Large landscape water audit	10 – 20 %
Retrofits	Toilet tank displacement devices (for toilets using > 3.5 gallons/flush)	2 – 3 gpcpd
	Toilet retrofit	8 – 14 gpcpd
	Showerhead retrofit (aerator)	4 gpcpd
	Faucet retrofit (aerator)	5 gpcpd
	Fixture leak repair	0.5 gpcpd
	Governmental building (indoors)	5 %
Pressure management	Pressure reduction, system	3 – 6 % of total production
	Pressure-reducing valves, residential	5 – 30%
Outdoor water use efficiency	Low water-use plants	7.5 %
	Lawn watering guides	15 – 20 %
	Large landscape management	10 – 25%
	Irrigation timer	10 gpcpd
Replacements and promotions	Toilet replacement, residential	16 – 20 gpcpd
	Toilet replacement, commercial	16 – 20 gpcpd
	Showerhead replacement	8.1 gpcpd
	Faucet replacement	6.4 gpcpd
	Clothes washers, residential	4 – 12 gpcpd
	Dishwashers, residential	1 gpcpd
	Hot water demand units	10 gpcpd
Water-use regulation	Landscape requirements for new developments	10 – 20 % in sector
	Greywater reuse, residential	20 – 30 gpcpd