

McDermitt General Improvement District Water System Conservation Plan
October 20, 2014

McDermitt General Improvement District

Water Conservation Plan
October 20, 2014

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NOV 20 2014

Prepared for:

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STATE ENGINEERS OFFICE

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State of Nevada Water

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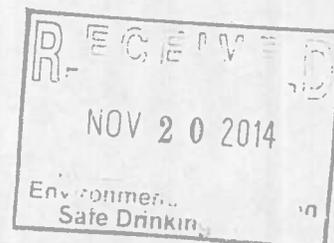
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Introduction

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:

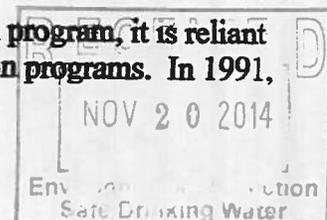
- Domestic (household, both indoor and outdoor) – Met by public supply or private supply (e.g. wells).
- Commercial (businesses) – Met by public supply or private supply (e.g. non-community systems).
- Industrial (manufacturing/construction) – Met by public supply or private supply (e.g. non-community 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,



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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 McDermitt General Improvement District 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.

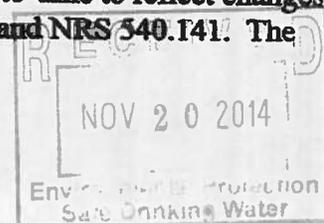
This plan is being submitted to the Nevada Department of Conservation and Natural Resources (DCNR), Division of Water Resources (DWR) for review and approval prior to its adoption by the McDermitt General Improvement District, as required by NRS 540.131.

This plan is available for inspection during normal business hours at McDermitt branch of the Humboldt County Library.

This plan will conform to all public notice requirements as found in NRS 540 and NRS 318.

The original Water Conservation Plan for the McDermitt General Improvement District was developed on October 2007.

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, October 20, 2019.



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System Description

The McDermitt General Improvement District is a publicly-owned Non-Transient Community Water System operating permit, NV0000162. The McDermitt General Improvement District serves water to 200 consumers on 87 connections of which 77 are residential and 10 are commercial customers. The system consists of 2 wells and 1 storage tank that supply water to metered residential and commercial customers in its service area in McDermitt, which is located in Humboldt County, Nevada. The service area boundaries are within the town of McDermitt. The service area's terrain is mostly flat. The annual amount of water served is about 10.95 MG or 30,000 gpd. The estimated population served in 2010 was 200. The McDermitt General Improvement District estimates that its customer base will increase by 0% on a yearly basis through 2020. The State of Nevada, through The Nevada State Demographer, estimates the population growth for Humboldt County through 2017 to be 1.025% annually.

The water supply is from groundwater which is located within the Upper Quinn Basin# 16040201 of the Black Rock Desert Hydrographic Region #160402. There are a total of 2 wells supplying the system and 1 storage tank. Each of these is identified in the tables below (Table 1 and Table 2).

Table 1 – Source of Supply

Well No.	Depth (feet)	Production (gpm)
1	609	235
2	835	200

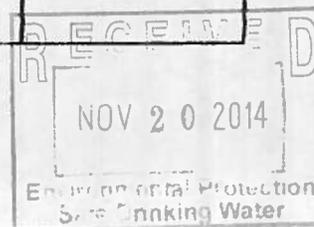
Table 2 – Storage Tanks

Tank No.	Volume (gallons)
1	250,000

The McDermitt General Improvement District has been granted water rights in the total amount of 178.192 Acre Feet per year. Applications # 23253, 28362, 43728, and 48073 have been certified. The current water rights are listed in the table below (Table 3).

Table 3 – Water Rights

Application (Certificate No.)	Well No.	Rate of Diversion	Annual Use
Application 23253 Certificate 7866	1	0.119	86.14



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Application 28363 Certificate 10986	1	0.926	99.25
Application 43728 Certificate 13959	2	0.780	43.39
Application 48073 Certificate 13075	1	0.926	28.54

Water is pumped from Wells 1 and 2 to the storage tank. Water is then distributed to the customers through 12", 8", and 6" PVC, ACP, and PE water mains.

The McDermitt General Improvement District requires, at a minimum, a Water Distribution Grade 1 operator. Kirk Peterson of SPB Utilities holds a Water Distribution Grade 3 certificate and provides contract operator services for McDermitt General Improvement District.

The McDermitt General Improvement District has the services of a contract operator who is responsible for all sampling, other than total coliform, writes the consumer confidence report for the water system and is the operator of record. The system also employs a local operator to oversee the daily system operations and collect the total coliform samples.

The McDermitt General Improvement District does currently have outstanding water quality issues. Both well 1 and 2 have arsenic levels that exceed the maximum contaminant level. The McDermitt General Improvement District is in the process of developing a third well to remediate the arsenic issue.

The last sanitary survey performed by the Nevada Department of Environmental Protection (NDEP) was completed on August 9, 2012 and shows no deficiencies with the system.

The McDermitt General Improvement District charges metered rates to most customers and charges flat rates to the Public Library and the Fire Department. It does have a tiered rate usage fee. A breakdown of the customer type, number, and charge is found in the tables below.

Residential and Commercial customers are billed a monthly fee in addition to a quantity charge. The fees are detailed in the table below (Table 4).

Table 4 – Residential and Commercial Customers and Usage Charges

Meter Size	Number	Monthly Fee	Quantity Fee (\$/1,000 gallon)
3/4 inch	82	\$27.25	\$0.91 after 11,250
1.5 inch	2	\$100.00	\$0.91 after 56,250
2 inch	2	\$174.11	\$0.91 after 101,250
3 inch	1	\$355.00	\$0.91 after 153,750

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Wastewater collected from the service area is maintained by the McDermitt General Improvement District and is discharged into a waste water pond.

Current water rates were established on May 1, 2014. Water rates are reviewed every annually.

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, October 20, 2019.

The McDermitt General Improvement District will appoint a board member, if economically feasible, 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 McDermitt General Improvement District will enact the voluntary conservation measures found in the *Conservation Measures* section. When more stringent measures are needed, the McDermitt General Improvement District will enact the measures found in the *Contingency Measures* section. All measures can be found in Appendix A.

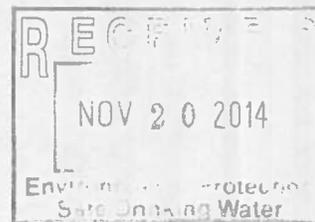
As required by NRS 540.141, the water conservation plan must include the following provisions:

- 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 McDermitt General Improvement District recognizes this and will establish a conservation education program and corresponding budget, if economically feasible.



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It is the goal of the McDermitt General Improvement District to increase public awareness to conserve water, encourage reduction in lawn sizes, encourage the use of climate-appropriate plants, encourage the use of drip irrigation, and encourage conscious decisions for water use.

The conservation education program includes education materials such as bill inserts, pamphlets, flyers, and posters. New customers will be provided these materials when service is established, while existing customers will receive these materials periodically through bill inserts or direct mail. Educational pamphlets will be provided to all customers upon request and should include an explanation of all costs involved in supplying drinking water and demonstrate how the water conservation practices will provide water users with long-term savings. Education materials should also encourage reduction of lawn sizes, use of drip irrigation, use of climate-appropriate plants, and conservation tips and techniques (see Appendix B).

Customers should also be able to read and understand their water bills. Bills should be informative, going beyond the basic billing information. Bills should include comparisons to previous bills and tips on water conservation that can help customers make informed choices about their water usage. Bill inserts can also include this information.

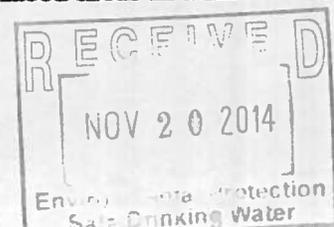
The McDermitt General Improvement District could participate in public outreach opportunities such as Earth Day, provide information at a variety of school programs, participate at workshops for plumbers/suppliers/builders, and could provide incentives for conservation efforts.

The McDermitt General Improvement District could also establish a water conservation advisory committee that would involve the public in the conservation process and provide feedback to the system concerning its efforts, thus fostering support for conservation in the community.

Conservation Measures

In an effort to promote conservation and voluntarily conserve water, the McDermitt General Improvement District is adopting water-use regulations to promote water conservation during non-emergency situations. These regulations include the following non-essential water use:

- 1) Use of water through any connection when the McDermitt General Improvement District has notified the customer in writing to repair a broken or defective plumbing, sprinkler, watering or irrigation system and the customer has failed to make such repairs within 10 days after receipt of such notice.
- 2) Use of water which results in flooding or run-off in gutters, waterways, patios, driveway, or streets.
- 3) Use of water for washing aircraft, cars, buses, boats, trailers or other vehicles without a positive shut-off nozzle on the outlet end of the hose. Exceptions include washing vehicles at commercial or fleet vehicle washing facilities operated at fixed locations where equipment using water is properly maintained to avoid wasteful use.
- 4) Use of water through a hose for washing buildings, structures, sidewalks, walkways, driveways, patios, parking lots, tennis courts, or other hard-surfaced areas in a manner which results in excessive run-off or waste.



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- 5) Use of water for watering streets with trucks, except for initial wash-down for construction purposes (if street sweeping is not feasible), or to protect the health and safety of the public.
- 6) Use of water for construction purposes, such as consolidation of backfill, dust control, or other uses unless no other source of water or other method can be used.
- 7) Use of water for more than minimal landscaping in connection with any new construction.
- 8) Use of water for watering outside plants and turf areas using a hand-held hose without a positive shut-off valve.
- 9) Use of water for the filling or refilling of swimming pools.

In the event these conservation measures are insufficient to control the water shortage, the McDermitt General Improvement District may wish to implement the mandatory measures discussed in the *Contingency Plan* section below.

The McDermitt General Improvement District also promotes the development of water conserving principles into the planning, development, and management of new landscape projects such as public parks, building grounds, and golf course. Customers are encouraged to consult with the local nursery or perform an internet search on the availability of water conservation plants and how to renovate existing landscapes. Customers are also encouraged to evaluate irrigation management systems using metering, timing, and water sensing devices.

Water Management

The McDermitt General Improvement District monitors and records water levels at all well sites biannually via use of a well sounding device. Tank levels are monitored 24 hours a day via use of transducers that monitor and record the levels on the S.C.A.D.A. system. If water levels began to show a trending drop the water system will consider enacting conservation provisions of this plan as a response.

Working relationships with other local water purveyors are not maintained to ensure adequate water supplies are available as there are no other local water purveyors.

The McDermitt General Improvement District does actively monitor unaccounted for water losses. Production versus sales and authorized usage allows the determination of unaccounted for water losses. Current-to-historical comparisons are examined and evaluation methods are examined to locate leaks, if significant differences are found.

McDermitt General Improvement District does not have a formal leak detection program.

The McDermitt General Improvement District does not currently have a formal well head protection program, but will be working with RCI and the State of Nevada to establish one.

The McDermitt General Improvement District does not have a formal meter replacement program. The McDermitt General Improvement District does replace stuck meters and will have meters tested if there is any indication that the meter is reading inaccurately.

A customer metering program has been implemented, requiring water meters to be installed on all new construction and property ownership changes. These meters are read monthly to obtain usage information.

A capital improvement plan is not in place. Water facilities are replaced when necessary. The McDermitt General Improvement District does track the depreciation of assets and has initiated capital projects and operating reserves accounts.

Contingency Plan

Prohibiting Waste of Municipal Water: It shall be a civil infraction for any person to waste McDermitt GID water within the district. Prima facie evidence of district water waste includes water escaping through defective plumbing or, when watering yards, gardens or other vegetation, allowing McDermitt GID water to escape and flow onto adjoining property or into or along a public street, alley or gutter.

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.

Contingency Plan -- Additional Prohibition of Certain Uses:

1. If the conditions indicate a drought or emergency, additional prohibitions of water usage may be ordered subject to civil fines for any person to use district water for those additional prohibited uses identified under this section.
2. The above mandatory civil infraction may be imposed if the following conditions occur:
 - a. Two (2) members of the McDermitt GID verify with the city manager and the city utilities director verify in writing that either of the two (2) following conditions exist:
 1. The total water storage capacity of the city has dropped below fifty percent (50%); and/or
 2. Daily water use exceeds maximum plumbing ability.
 - b. The district has cause to be published in a newspaper of local circulation, a one-time notice that beginning at none o'clock (9:00) A.M. the next morning following the publication of the notice that the district will begin issuing civil infraction citations for violations of the approved outdoor watering requirements.

- c. That prior to the issuance of a civil infraction citation to any person, said person will first be issued a one-time warning citation, and upon the next violation a civil infraction citation subject to a civil fine will be issued.

Compliance: The GID may, by majority vote at a properly noticed meeting, discontinue the process of issuing mandatory civil infraction citations and reinstate the voluntary compliance provisions of this section if in its discretion the GID believes circumstances have sufficiently changed so as to justify such action.

Notice of Civil Infraction Form: A notice of civil infraction must be on a form which must contain the following information:

1. The location in which the violation occurred;
2. The date and time of the violation;
3. The signature of the person who issued the notice of civil infraction;
4. The section of the code which is allegedly being violated;
5. Information advising of the manner and the time in which the notice of civil infraction must be answered.

Duties of Respondent:

1. A person who responds to a notice of infraction must either:
 - a. "Admit" the commission of the infraction and pay the appropriate civil fine; or
 - b. "Deny" liability for the infraction.
2. A person may "admit" to the infraction of this section by paying the amount of the civil fine which is appropriate for the violation to the GID.
3. A person may "deny" liability by appearing in person before the GID at the time specified on the notice of infraction.

Commencement Of Civil Action Procedure: If liability is denied in the manner set forth herein or if there is no admission or denial within the prescribed time, judicial enforcement of notices of infraction must be by way of civil suit in the municipal court if the person denies the liability. The civil action must be commenced by the filing of a complaint in the name of the city and the issuance of a summons with respect thereto and service of such complaint and summons on the defendant must be made by certified mail, return receipt requested, addressed to the defendant at his or her last known address or in any other manner which is authorized by law. The proceedings in municipal court for actions commenced pursuant to this subsection shall be governed by rule 1 and rules 3 through 87 of the Nevada justice court rules of civil procedure, except that there shall be no right of trial by jury.

Schedule Of Civil Fines: The civil fines imposed on any person violating this water conservation section of this chapter shall be established by a resolution as adopted by the GID.

Termination Of Service For Waste Of Water: Where negligent or wasteful use of water exists from a customer's premises, the water department may terminate the service if such practices are not remedied after it has given the customer written notice to such effect by certified mail or citation issued by the GID three (3) days prior to proposed date of termination.

Schedule Of Civil Fines: The civil fines imposed on any person violating this water conservation section of the Elko Water Code shall be as follows:

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First civil infraction	\$50.00
Second civil infraction within one year of the date of first infraction	\$100.00
Third civil infraction within one year of the date of the first civil infraction	\$300.00

Schedule

All of the provisions listed are currently in place and are actively working to achieve results.

Evaluation Measurements

An audit comparing water production with metered amounts will be performed prior to the implementation of measures/incentives. Additional audits will then be done every year thereafter. Results from the initial audit will be compared with those of the subsequent annual audits in order to determine the effectiveness of the measures/incentives.

As a plan element is activated (e.g. mailing literature or declaring a drought stage), 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.

Usage amounts measured will include summer use, average use per connection, and per capita use. If there is a decrease in usage 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.

In addition to changes resulting from audits, updates, and modifications to conservation measures/incentives there will be changes made to meet changing conditions (e.g. customer growth and demand, changing use, new technologies, etc.).

Conservation Estimates

With mandated water meters initiated the GID now has the means to measure and track per capita water usage to develop a baseline value. From this value the GID will set a goal of reducing consumption by 5% over the next five years.

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. Often 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.

Appendices

[[ATTACH ALL CONSERVATION MEASURES/STAGES. ATTACH ALL PUBLIC EDUCATION MATERIALS. AND ATTACH END-USER WATER SAVING EFFORTS.]]

APPENDIX A
CONSERVATION MEASURES

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Contingency Plan – Additional Prohibition of Certain Uses:

3. If the conditions indicate a drought or emergency, additional prohibitions of water usage may be ordered subject to civil fines for any person to use district water for those additional prohibited uses identified under this section.
4. The above mandatory civil infraction may be imposed if the following conditions occur:
 - d. Two (2) members of the McDermitt GID verify with the city manager and the city utilities director verify in writing that either of the two (2) following conditions exist:
 3. The total water storage capacity of the city has dropped below fifty percent (50%); and/or
 4. Daily water use exceeds maximum plumbing ability.
 - e. The district has cause to be published in a newspaper of local circulation, a one-time notice that beginning at nine o'clock (9:00) A.M. the next morning following the publication of the notice that the district will begin issuing civil infraction citations for violations of the approved outdoor watering requirements.
 - f. That prior to the issuance of a civil infraction citation to any person, said person will first be issued a one-time warning citation, and upon the next violation a civil infraction citation subject to a civil fine will be issued.

Compliance: The GID may, by majority vote at a properly noticed meeting, discontinue the process of issuing mandatory civil infraction citations and reinstate the voluntary compliance provisions of this section if in its discretion the GID believes circumstances have sufficiently changed so as to justify such action.

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6. The location in which the violation occurred;
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9. The section of the code which is allegedly being violated;

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10. Information advising of the manner and the time in which the notice of civil infraction must be answered.

Duties of Respondent:

4. A person who responds to a notice of infraction must either:
 - c. "Admit" the commission of the infraction and pay the appropriate civil fine; or
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5. A person may "admit" to the infraction of this section by paying the amount of the civil fine which is appropriate for the violation to the GID.
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Commencement Of Civil Action Procedure: If liability is denied in the manner set forth herein or if there is no admission or denial within the prescribed time, judicial enforcement of notices of infraction must be by way of civil suit in the municipal court if the person denies the liability. The civil action must be commenced by the filing of a complaint in the name of the city and the issuance of a summons with respect thereto and service of such complaint and summons on the defendant must be made by certified mail, return receipt requested, addressed to the defendant at his or her last known address or in any other manner which is authorized by law. The proceedings in municipal court for actions commenced pursuant to this subsection shall be governed by rule 1 and rules 3 through 87 of the Nevada justice court rules of civil procedure, except that there shall be no right of trial by jury.

Schedule Of Civil Fines: The civil fines imposed on any person violating this water conservation section of this chapter shall be established by a resolution as adopted by the GID.

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Schedule Of Civil Fines: The civil fines imposed on any person violating this water conservation section of the Elko Water Code shall be as follows:

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APPENDIX B

PUBLIC EDUCATION MATERIALS

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

- **Simple Steps to Save Water,**
- **Ideas for Residences,**
- **Ideas for Commercial,**
- **Using Water Wisely In the Home,**
- **Outdoor Water Use in the US,**
- **Toilet Flush Facts,**
- **Watering Can Be Efficient,**
- **Irrigation Timers for the Homeowner, and**
- **Water Efficient Landscaping,**

These publications can be utilized until the McDermitt General Improvement District 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.

Specific tips for landscaping that can be provided to the customers are listed below. During drought conditions outdoor watering restrictions may be imposed, and therefore some of the following tips will not apply.

Tips for Landscaping

Watering:

- Detect and repair all leaks in irrigation systems.
- Use properly treated wastewater for irrigation where available.
- Water the lawn or garden during the coolest part of the day (early morning is best). Do not water on windy days.
- Water trees and shrubs, which have deep root systems, longer and less frequently than shallow-rooted plants which require smaller amounts of water more often. Check with the local nursery for advice on the amount and frequency of watering needed in your area.
- Set sprinklers to water the lawn or garden only—not the street or sidewalk.
- Use soaker hoses and trickle irrigation systems.
- Install moisture sensors on sprinkler systems.

Planting:

- Have your soil tested for nutrient content and add organic matter if needed. Good soil absorbs and retains water better.
- Minimize turf areas and use native grasses.
- Use native plants in your landscape—they require less care and water than ornamental varieties.
- Add compost or peat moss to soil to improve its water-holding capacity.

Maintaining:

- Use mulch around shrubs and garden plants to reduce evaporation from the soil surface and cut down on weed growth.
- Remove thatch and aerate turf to encourage movement of water to the root zone.
- Raise your lawn mower cutting height to cut grass no shorter than three inches—longer grass blades encourages deeper roots, help shade soil, cut down on evaporation, and inhibit weed growth.
- Minimize or eliminate fertilizing which requires additional watering, and promotes new growth which will also need additional watering.

Ornamental Water Features:

- Do not install or use ornamental water features unless they recycle the water. Use signs to indicate that water is recycled. Do not operate during a drought.

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

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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

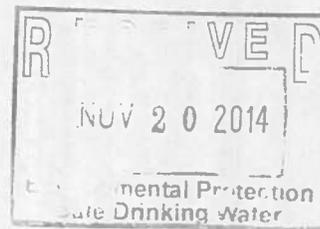
Issue: The average bathroom faucet flows at a rate of two gallons per minute.

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.

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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

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