

**INDIAN WELLS VALLEY COOPERATIVE
GROUNDWATER MANAGEMENT COMMITTEE
WATER CONSERVATION PUBLIC ADVISORY**

BACKGROUND

The Indian Wells Valley Cooperative Groundwater Management Committee (IWVCGMC) was formed in September 1995. Part of the IWVCGMC charter is to encourage water conservation and preservation of the water resources within the Indian Wells Valley. This plan is focused on domestic, commercial, industrial, and agricultural water uses as well as the utilization of reclaimed water and graywater use where practical.

The groundwater aquifer system in the Indian Wells Valley is complex and the supply is limited. Substantial data is available regarding groundwater production in the Valley but only limited data exist pertaining to aquifer characteristics. While considered data has been collected through individual and cooperative technical studies, there is still a need for additional information to further characterize the watershed and to support the management of the aquifer system in the Valley.

Careful use of water is a prudent policy in any desert environment. Adequate water supplies in the local groundwater basin exist but all water users must use and reuse the resource wisely to extend the useful life of the resource. According to the Indian Wells Valley Water District, the average consumption per connection in Ridgecrest was .84 acre feet in the 1980's. The average consumption was .72 acre feet per connection, while residential connections were as low as .67 acre feet in 2002. In 2007, the average consumption for all connections was .77 acre feet while the average consumption for residential connections was .64 acre feet. The following guidelines have been developed for all domestic, commercial, industrial, and agricultural water users in the valley. This policy is not intended to reduce the availability of water to any water user, but is intended to help reduce unnecessary or excessive water uses. In addition, the Indian Wells Valley Water District web site (<http://www.iwvwd.com>) continues to provide conservation and Xeriscape tips and information.

RECOMMENDATIONS

Guidelines for Residential Water Use (Outdoor and Indoor Uses)

- a. Existing Landscape. Reduce landscape water use by incorporating:
 - (1) Low water usage plants (Xeriscape, etc.) based on hydrozoning principles.
 - (2) Groundcovers and shrubs instead of grass.
 - (3) Low precipitation sprinkler heads in irrigation systems properly located to minimize overspray or by implementing bubbler or drip irrigation.

- (4) A post-installation maintenance program with an appropriate watering schedule.
- (5) Borders, flower beds, and similar catchments to capture, retain and use runoff water from existing turf areas.
- (6) Mulching shrubs and planted bed areas to a depth of 2 to 3 inches. Mulches slow down water evaporation from soil so that the homeowner is able to extend the length of time between watering of landscape areas.

b. Lawn Watering. No garden, lawn, or other exterior watering or sprinkling is recommended from May 1st through September 30th except between the hours of 8:00 p.m. and 9:00 a.m. Reduce the amount of water used to water lawns by:

- (1) Periodically aerating the soil to allow water to percolate.
- (2) Using the proper type of irrigation equipment.
- (3) Placing sprinklers properly and regulating the flow so that the spray does not fall on any impervious (paved) surface.
- (4) Using timing devices to water during periods of low water evaporation and shut off water after a set period.
- (5) Promptly repairing (reporting) all leaks.
- (6) Keeping sprinkler heads free of grass, etc.
- (7) Avoid over-watering (i.e., it is best to sprinkle for a few minutes, shut off sprinklers before run-off occurs, then sprinkle again).

To access and download .pdf documents entitled, “Water Efficient Landscapes” and “The Essential Tool Kit for Making Your Home Landscape Water Efficient” please visit: <http://www.owue.water.ca.gov/landscape/pubs/pubs.cfm>

c. Vehicle Washing. Wash privately owned vehicles using a bucket and hose equipped with a shut-off nozzle for quick rinses.

d. General Cleaning. Do not wash or rinse with a hose or watering device any sidewalk, driveway, parking area, tennis court, patio, or other exterior paved area, except in a manner that prevents the runoff water from entering the street or diverts such water to other productive purposes such as landscape irrigation.

e. General Indoor Ideas.

- (1) Install low-flow showerheads and faucet aerators in kitchen and bathrooms as well as water displacement devices in toilet tanks if a low-flow toilet is not being used.
- (2) Install water-conserving appliances and devices whenever and wherever possible.
- (3) Only run dishwashers and washing machines with full loads.
- (4) Reuse water after boiling potatoes, noodles, and spaghetti for indoor plants.
- (5) Insulate exposed piping and faucets.
- (6) Disconnect and drain outdoor hoses to prevent water breaks in freezing weather.

- (7) Periodically check exposed valves, faucets, and toilets for leaks.
 - (8) Take shorter showers.
- f. Recycling for Reuse. Recycle water for reuse whenever and wherever possible (see section on Graywater Use below).
- g. Emergencies. Locate master shutoff valve (usually where main water line connects to front of the house/building) and let other family members know where it is and when to turn it off.

Industrial Water Conservation Practices

Domestic water conservation measures apply equally to industrial uses. The first step is the implementation of some common sense water use reduction measures such as installation of low-flow showerheads and faucet aerators where possible, automatic shut-off faucets where appropriate, recycling of cooling tower water, and treatment and reuse of sewage effluent. Graywater systems can now be used in commercial, industrial, and multifamily projects, as well as single-family residences.

Agricultural Water Conservation Practices

- a. Irrigation water conservation falls into three categories: cultural practices, irrigation water management, and irrigation system modifications. Examples respectively include: chiseling compacted soils for improved water percolation through the crop root zone (cultural); improving distribution uniformity and scheduling based on crop water needs (management); and, replacing flood or furrow with drip or sprinkler irrigation (system).
- b. Cultural practices involve improvements to water delivery without making changes to management strategies or irrigation systems. Land leveling, breaking restrictive soil layers, improving soil tilth, for example, help to bring water where it is needed. Cultural practices in conjunction with irrigation water management and system improvements may further improve overall efficiency allowing maintained or improved crop yields with less water.
- c. Improving irrigation water management can reduce the amount of water required to irrigate a crop effectively by reducing evaporative losses, supplying the right amount of water at the appropriate crop growth phase, and uniformly applying water to reduce losses to deep percolation and excessive runoff. In making irrigation management decisions, irrigators should consider:
- Timing crop water needs relative to real time evapotranspiration rates (use CIMIS data, reference ETo, crop coefficients to schedule irrigations).
 - Soil water holding capacity (i.e. sand holds less water than clay).

Irrigation system limitations and inefficiencies (e.g. clogged drip emitters, pump efficiency).

Using soil moisture monitoring devices (shovel, gypsum blocks, tensiometers) to ensure adequate available soil water.

d. Improvements or changes to the irrigation system involve modifying, augmenting or outright replacement of the method of water delivery to the crop. For example, installing drop tubes to center pivots to bring the sprinkler heads closer to the crop, constructing a tailwater recovery return flow system to bring runoff back into the system, or installing buried drip tubing/emitters to replace above ground micro-jet sprinklers.

Graywater Use

Any water that has been used in the home, except water from toilets, is called graywater. Dish, shower, sink and laundry water comprise 50 to 80% of residential “waste” water. This may be reused for other purposes, especially landscape irrigation. In addition to conserving water and probably reducing your water and sewer bills, one will also be “drought-proofing” the landscape by using graywater. Since more than half of indoor water can be reused as graywater, during drought or possible water shortages, the homeowner will have a constant source of useable water. With landscapes valued at between 5 percent and 10 percent of the value of a home, this back-up supply of water may be an important economical insurance policy for the homeowner. Furthermore, the nutrients in graywater may be beneficial to plants. The seven steps to follow to put graywater to use in a residential landscape are:

- (1) Investigate the permit process.
- (2) Prepare a plan.
- (3) Design the graywater system.
- (4) Submit the plan for review and approval.
- (5) Install the system.
- (6) Arrange for system inspection and approval.
- (7) Use, monitor, and maintain the system.

More information on the use of graywater can be found in the California Graywater Standards (Title 24, Part 5 of the California Administrative Code). To access the Water Use Efficiency Home Page and download the “Graywater Guide,” please visit the California Department of Water Resources web site at: <http://www.owue.ca.gov/docs/graywater-guide-book.pdf>

Reclaimed/Recycled Water

Recycled water should be used where appropriate. Examples of reclaimed water uses locally are: Reclaimed water use by the Navy at the China Lake Golf Course (the Navy currently uses up to 1.4 million gallons per day of reclaimed domestic wastewater for irrigation at their golf course); and, reclaimed water use at the Searles Valley Mineral Corporation mining operations in Trona. Other reclaimed water use projects should be encouraged and coordinated with the City of Ridgecrest.

Resources and Contact Information

- City of Ridgecrest (Wastewater)
100 W. California Ave., Ridgecrest, CA 93555 760.371.3700
<http://www.ci.ridgecrest.ca.us>
- Indian Wells Valley Water District
P.O. Box 1329, Ridgecrest, CA 93555 760.375.5086
<http://www.iwvwd.com>
- Inyokern Community Services District
P.O. Box 1418, Inyokern, CA 93527 760.377.4708
- NAWS China Lake 760.939.1683
Public Affairs Office, 1 Administration Circle
Room 1015
China Lake, CA 93555-6108
- Searles Domestic Water Company 760.372.2227
13217 Main Street, Trona, CA 93562
- California Department of Water Resources
1020 9th Street, 3rd Floor, Sacramento, CA 95814
<http://www.dwr.water.ca.gov>
- Environmental Protection Agency (Region 9) 866.372.9378
75 Hawthorne Street, San Francisco, CA 94105
<http://www.epa.gov>
www.epa.gov/watersense
- Kern County Environmental Health Services Department
2700 "M" Street, Suite 30, Bakersfield, CA 93301 800.552.5376
- Additional Water Conservation links
www.bewaterwise.com
www.nwf.org