

Conservation Connection

Hats Off to Horsefly Irrigation District

The Mid-Pacific Region of Reclamation is honored to recognize the outstanding water conservation efforts of Horsefly Irrigation District (HID). One of the two 2006 Regional Director's Award was presented to Mr. Greg Wilkinson, on behalf of HID, at the 2007 Water Users Conference in Visalia, California. HID operates in Oregon within the U.S. Bureau of Reclamation's Klamath Project and has embarked on a pro-active program that conserves and enhances operations through system modernization.



Greg Wilkinson (left) accepts the Regional Directors Award from John Davis (right).

In a combined effort with Reclamation, HID has proven its commitment to conservation by installing pipe where excessive water loss was occurring in open canals. HID purchased the necessary equipment to accomplish this task, amounting to a cost of approximately 50% of the district's annual budget.

Piping is a top priority of the HID conservation program. Due to the underlying soils and geology of the lands HID serves, HID operates canals that lose, at a minimum, 30 percent of the conveyed water flow. HID estimates that it can save 30% in a 15 cubic feet per second canal. This translates to an 8 acre-feet per day savings, which when calculated over 120 days of pumping, results in a savings of 940 acre-feet at one pump station.

Horsefly Irrigation District is also working with Oregon Energy Trusts, in an effort to update pumps and motors, including variable speed units. HID expects to install a variable speed unit prior to the 2007 irrigation season, at a cost of approximately \$21,000. HID manager Don Russell says of this effort "Again, this is most difficult given a small budget. Stepping out of the 1940's into this century is indeed costly, but worth it."

Horsefly Irrigation District is also revamping diversion points to accommodate future water measurement, encouraging on-farm improvements, recycling tail water, and has initiated a canal de-watering program to control moss without chemicals.

Reclamation thanks HID for their outstanding work and commitment to water conservation. For more information on HID, please contact Stan Mattingly, Water Conservation Specialist in the Klamath Basin Area Office, at smattingly@mp.usbr.gov.

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Congratulations to City of Roseville!

The Mid-Pacific Region is proud to present a 2006 Regional Director's award to the City of Roseville (City) for its outstanding efforts in water conservation. The City has developed and implemented numerous water conservation programs and has made significant strides to meet all of the Best Management Practices as established by the California Urban Water Conservation Council (Council).

In addition to addressing the Council's Best Management Practices, the City offers other programs and services to assist its customers with water efficiency practices. The City serves

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Jim Gray, Mayor of Roseville (left), Derrick Whitehead, Director of Environmental Utilities, City of Roseville (middle), and Mike Finnegan, Reclamation's Central California Area Office Manager (right)

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as a model to others in California by linking its energy and water conservation efforts. Described below are some of the more innovative water conservation programs that the City provides for its customers. Many of these conservation programs were made possible with grants from Reclamation's Water Conservation Field Services Program.

- **Evapotranspiration Timer Replacement Program** – Pilot program for customers with existing automated in-ground irrigations systems.
- **Community Outreach/Public Education** – “EU Today”, the Environmental Utilities Department’s first residential newsletter. Also hosts a website and created CDs to assist customers with planting and irrigation needs.
- **Motorola Weather Station** – Installation of two computerized weather stations for different areas of the city that develop watering schedules for city owned golf courses, 53 parks, city streetscapes and landscaped areas.
- **Water Meter Retrofit Program** – Begun in 2001, a 10-year program to randomly select homes for water meter retrofit. This program helps homeowners transition to volumetric water rates by providing “mock” metered rate bills for one year and allowing customers time to adjust water use habits if needed.
- **Recycled Water** – Since 1998 distributing recycled water for golf courses, parks and streetscapes.

- **Advantageous Partnerships with Roseville Electric in the following programs:**
 - ⇒ High Efficiency Washing Machine Rebate Program
 - ⇒ Joint Energy and Water Audits – for residential and commercial customers
 - ⇒ On Line Energy and Water Audit – online audit program, utilized by over 1,600 customers
 - ⇒ Roseville Utilities Exploration Center (mini-City exhibit) – in the developmental stage, will be housed within a community center
 - ⇒ LivingWise Resource Action Program – School Outreach Program.

In addition to its exemplary programs and services, the City has taken a leadership role in working with other water suppliers to encourage regional planning and resource conservation.

Thank you to the City of Roseville for all of its hard work and diligence in preserving our natural resources through conservation.

For more information on the City’s water conservation program, please visit http://www.roseville.ca.us/eu/water_utility/water_conservation/default.asp

Win a \$40,000 “Water Smart” Garden

The Regional Water Authority and partners are hosting a contest for a free front yard makeover, valued up to \$40,000. The Ultimate “Water Smart” Garden, designed by Christy Tveit, winner of HGTV’s “Landscape’s Challenge”, is the grand prize. Second prize is a professional custom water wise landscape plan designed by Joseph Pattin of Garden Retreats, and third prize is two 24 inch box trees chosen by the winner’s location. To be eligible for the grand prize, homeowners need to participate in a free residential water audit by their local water provider.

For more information on entering the “Water Smart” Garden Contest, eligibility and water audits, please visit <http://www.rwah2o.org/rwa/educated/#UltimateWaterSmart>.

Conservation Connection is now available electronically. Please email Sheri at slooper@mp.usbr.gov if you wish to receive this Newsletter via email.







Reclamation Publishes a Technical Review on “Smart” Controllers to Assist Water Professionals

By Mark Spears*



Water agencies throughout the country recognize “smart” irrigation system control as an emerging tool to achieve landscape water savings and reduce non-point source pollution. Many have begun offering rebates and other incentives to their customers to purchase smart irrigation devices.

In August 2006, Reclamation’s Lower Colorado Region’s Southern California Area Office (SCAO) published the *Weather and Soil Moisture Based Landscape Irrigation Scheduling* Technical Review Report. The report is an update of their May 2004 *Weather Based Technologies for Residential Irrigation Scheduling* Technical Review Report. The reports were prepared, with the assistance of Reclamation’s Technical Service Center, in an effort to assist water agency staff and landscape professionals to understand this new technology and learn of the products available.

In the late 1990’s, SCAO staff became aware of smart controllers through studies conducted by the Irvine Ranch Water District, Municipal Water District of Orange County and Metropolitan Water District of Southern California. This technology removes the need to make regular scheduling adjustments because the controller adjusts the schedule automatically as the local weather changes. The studies reported average single-family home water savings of 37 and 42 gallons per day and a reduction in runoff ranging from 64 to 71 percent (irwd.com, 2001 and irwd.com, 2004).

Although soil moisture sensors have been used in agricultural and research applications for many years, this technology has only recently been applied successfully in the landscape irrigation field. Initial attempts to use soil moisture sensors to control landscape irrigation were unsuccessful due to the state of the technology, maintenance requirements and cost. Within the past ten years, soil moisture sensor technology has advanced significantly with accurate and maintenance free systems being offered by several companies at competitive prices. Recent study findings indicate water savings resulting from soil moisture based smart systems are similar to those discussed above for weather based systems (Allen, 1997; Cardenas-Lailhacar et al., 2005; DeOreo et al.; Mecham).

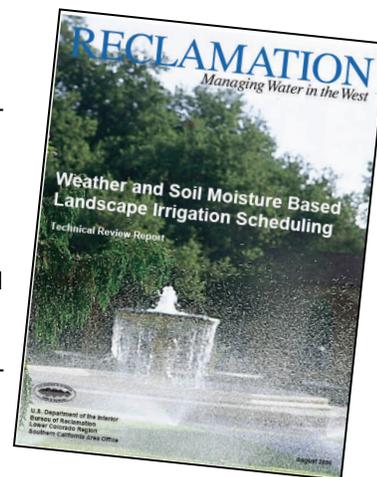
In 2003, the Municipal Water District of Orange County approached SCAO and requested an objective evaluation of weather based residential irrigation controller technologies available to consumers. An evaluation was performed to document the overall status

of weather based residential technologies and provide general descriptions of these products. Since 2004, Reclamation has monitored the status of the products reviewed in the original report, and researched residential and commercial weather based irrigation control products by 12 additional companies for the report update. In addition, soil moisture sensor control systems by 7 companies were researched. In total, the latest report documents the research of smart irrigation control products by 26 companies that were available as of June 2006.

Smart irrigation control systems typically include either a stand alone controller or an add-on device which interfaces with a conventional clock-type controller. The weather or soil moisture based technologies incorporated into these devices allow them to function similar to a thermostat. Like a thermostat, the devices permit irrigation to occur when needed rather than on a preset schedule. Regardless of the specific method or technology, the concept is for the appropriate irrigation quantity to be applied at the appropriate time.

Most of these systems are available in a variety of sizes suited for small residential to large commercial applications. Likewise, the various products offer a broad selection of features and accessories. The report presents this information in a relatively easy-to-understand format, as well as discussing criteria which should be considered in comparing the products. Other than the inclusion of certain testing results, no attempt has been made to rate the products relative to each other. It is left to the reader to research further and determine which products may suit various applications most appropriately, with the comparison criteria discussions as a spring-board.

SCAO plans to continue updating the report to keep up with the evolution of smart irrigation technology. An electronic copy of the current report is maintained at Reclamation’s Water Conservation Field Services Program publications web page and may be downloaded from <http://www.usbr.gov/waterconservation/docs/Controller2006.pdf>. Hard copies and CD copies are available from SCAO (27708 Jefferson Ave., Ste. 202 Temecula, CA 92590).



*Reclamation’s Denver Technical Service Center



Urban BMP 11 - Conservation Pricing Under Revision

Currently some California residents pay a flat rate for water regardless of how much water is used in their home. In these cases, the water bill does not generally reflect the true cost of water, especially when considering its economic, societal and environmental value. Basing part of the water bill on the amount used can signal the true value of water and encourage greater consideration of the resource's value.

A major challenge to improving urban water use efficiency in California is the variability in local conditions such as weather, water quality and population. Because of these differences, customer's water use is measured, priced and billed differently by their local water suppliers.

When local water sources are not adequate to supply local communities, water is imported, and one must consider the disparity in delivery costs for conveyance and storage. Importing is expensive and adds to the cost of water. Importing water also has a hidden cost to the people who live where the water is being exported. The costs may be subtle or dramatic and can range from environmental degradation, reduced local opportunity for development, or reduced water quality.

As a result of the dramatic differences in the cost of water from city to city, there are mixed perceptions of water's value. Some customers perceive water as an extremely valuable resource that should never be wasted. Others may view water as just another utility bill, without giving much thought to the water's source, treatment or delivery. Studies and water supplier experience have shown that the combination of consumer education regarding the environmental and resource value of water with water conservation pricing to reward efficiency is effective in improving consumer water use behavior.

Conservation Pricing (BMP 11) is one of the California Urban Water Conservation Council's (Council) original BMPs. However, as we live in a dynamic world in which all things change, so does BMP 11. The AB 2717 Landscape Task Force (LTF), assembled in February 2005, recommended that the Council revise BMP 11 because the LTF found that rates for municipal water service in California frequently understate the incremental cost of providing water service. This may undermine efficient water use, including, or perhaps especially, landscape water use. Revising BMP 11 could allow water suppliers to recover the maximum amount of water sales revenue from volumetric rates consistent with utility costs, financial stability, revenue sufficiency, and customer

equity.

The BMP 11 revision may also set minimum thresholds of the percent of total rates based on revenue derived from volumetric billing versus fixed consumption rates. The significant revisions to BMP 11 recommended by the LTF include:

- Quantifiable performance measures
 - * Defines a minimum percentage of water sales revenue from volumetric rates
- Retail services only
 - * Wholesale rates may move to BMP 10
- Reporting on the implementation of a conservation rate
- Phased compliance requirements

The proposed revision of BMP 11 outlines uniform, seasonal, increasing block and budgeted rate structures. It would also prohibit the decrease of block and flat rates (no volume charge). Section 4.5 (exemptions) of the Council's MOU would still apply. It is important to note that before adoption of the revised BMP 11, it must first go through the Council's BMP revision process, which includes a 60-day notice to the Plenary. Once the Planning Action Committee (PAC) adopts a revision proposal, informational presentations are given to the Steering Committee and to the Plenary. In order to modify the BMP, a two-thirds vote from each voting block is required. Additionally, meetings with regional groups may be arranged upon request.

However, the BMP revision process does not end there. Within five years of the adoption of BMP 11 revision, the Council will reconvene the BMP 11 PAC to review the revision's success and further refine if necessary.

For the latest status/update on BMP 11's revision, please visit the Council's website at: www.cuwcc.org.

9 Years of Urban Water Conservation Funding

By David Woolley

Reclamation's South Central California Area Office (SCCAO) has funded several different types of urban water conservation projects since the beginning of the Field Services program in 1997. The following summarizes some of those projects.

1. Ultra Low-Flow Toilet Rebate for Cities.

Widely accepted and a cost-effective way to conserve on in-home water use.

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2. **Demonstration Garden.** Water-wise plant exhibits to showcase low water-use plant options for home and industrial locations.
 3. **Landscape Irrigation.** Installing irrigation sensors that shut-off watering schedules during rain-fall events.
 4. **Drought Planning Handbook.** Drought planning for cities. A pro-active handbook designed for urban planning for the next drought event in California.
 5. **Green Gardner Program.** City-wide program that educates landscape industry employees on proper and effective landscape maintenance.
 6. **Water Audits.** Residential water audits that identify water waste/leaks for the homeowner and industrial users.
- Water Education.** Brochures, calendars, field days, school displays, water posters, etc. for city outreach programs on water conservation. Primarily geared towards schools and homeowners.

These are just a few of the funding opportunities available through the Field Services Program. For more information on the Field Services Program or for a complete listing of past grant projects, please contact David Woolley, Water Conservation Specialist in the SCC Area Office, at dwoolley@mp.usbr.gov.

Calendar of Events

International Water Technology Conference
International Center for Water Technology
CSU, Fresno
April 2-4, 2007

Improving Energy Efficiency in Drip Irrigation
Sponsored by So. California Edison
AgTAC Center: Tulare, CA
April 12, 2007

ACWA Spring Conference
Association of California Water Agencies
Sacramento, California
May 8-11, 2007

Irrigation System Evaluation
Sponsored by DWR
ITRC, CalPoly
June 18-20, 2007 (Class 1)
June 20-22, 2007 (Class 2)

Urban Home Water Conservation Audit Help Available

By Dennis Perkins



Larry Farwell, Water Use Strategist, performs an indoor water audit.

Urban Water Districts are required to perform urban water conservation audits on a percentage of their customers' homes every year. The audits serve several purposes that satisfy planning requirements and offer good public relations with customers. These audits provide water conservation advice and monthly savings tips, while reducing per-person water use in the water district.

Urban water audits provide opportunities for the district to establish working relationships and positive customer relations. The City of Redding's utilities office has trained their electrical inspectors to include water conservation checks with their electrical connection inspection, thus accomplishing two purposes with one inspection.

The water audits review in-house flow devices, including kitchen faucets, bathroom faucets, showers, toilets, and garage utilities. Inspectors also do outdoor water audits to inspect hose bibs, irrigation systems, water meters, and water pressure.

The audits include simple leak checks and conform to known water standards and leak checks. These audits complement the Ultra Low Flush Toilet replacement and the conservation kit programs. It is also a great opportunity to provide handouts on water and power efficiency tips.

If interested, Reclamation will provide a representative to train your inspectors on how to perform urban water audits. For more information, please call your local Reclamation Water Conservation Specialist, listed on page 6.



Farwell audits the outdoor irrigation systems



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