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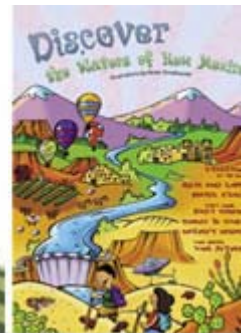
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### Innovations Conference and Exposition

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Over 100 water professionals attended this year's event about waterwise landscaping and design. [More...](#)

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The IA will offer certification at the International Irrigation Show this December. [More...](#)

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## Water Audit Case Studies: Examples from New Mexico and Around the U.S.

Managing water resources has been front and center in national news these days. Last month, Georgia Governor Sonny Perdue told reporters that Georgia has an outdated water control plan and reservoir system that wastes water. They're not alone.

As drought and other water issues surface, municipalities are initiating programs to measure, monitor, and manage water consumption. In New Mexico, several cities have water audit programs already in place and others aren't far behind.

At the N.M. Water Conservation Alliance meeting last August, Andrew Chastain-Howley, director of Water Prospecting and Resource Consulting, LLC (WPRC), presented data from water audit case studies conducted around the country, including three cities in New Mexico: Rio Rancho, Gallup, and Ruidoso.

Chastain-Howley demonstrated the basics of the Water Audit Software developed by the Water Loss Control Committee of American Water Works Association (AWWA). As a member of that committee, he has been involved in developing and implementing the software.:

#### How it Works

The Water Audit Software package consists of five worksheets in a Microsoft Excel spreadsheet. The first worksheet has instructions for using the software. The other worksheets allow users to enter standard water information, such as the volume of water supplied, customer consumption, and the amount of water losses. Because utilities may not have this data at hand, users can enter either known or estimated values. The software then calculates several performance indicators that help construct performance comparisons.

#### The Costs of Water Loss

Chastain-Howley said there are four components of managing real losses. They are:

1. Improve response time for leak repairs
2. Improve maintenance, replacement, and rehabilitation
3. Active leakage control, and
4. Pressure management



The four components of apparent losses are:

1. Unauthorized consumption (theft and illegal use)
2. Meter accuracy error
3. Analysis errors between archived data and data for billing/water balance, and
4. Transfer errors between meter readings and archived data

Since water loss variables can be attributed to different wells and pressure zones and can result in major billing discrepancies, WPRC created a baseline with which water managers can judge apparent and real losses. In some case studies, his firm found the water produced was less than what was metered, which although odd, is a common occurrence. One of the largest utilities in the country had this problem, and they were losing five million gallons of water a day due to theft from hydrants.

#### **Determining Real vs. Apparent Losses**

WPRC has conducted several studies to work out the average real loss. They considered factors such as leak size and pressure. In the Rio Rancho study, they looked at how quickly the city was fixing the leaks and the number of connections they thought were still leaking. "You try to get as much data as possible," he said. "We recommend you conduct regular testing, do thorough analysis, develop and implement comprehensive, proactive leak detection, and stop theft of service from hydrants. You also replace the oldest meters as quickly as possible to reduce the apparent losses occurring from meter inaccuracies."

Chastain-Howley suggested water managers first get their database in order to know where they stand in terms of apparent losses. In many cases, they will need to review a period of years to see if the billing system is showing any significant changes. "Scrutinize your meters," he advised. Those over 20 years in age usually have problems. Do a basic analysis of your meters and test them. Look at your production meters (Rio Rancho's looked pretty good). And do flow and meter calibrations to ensure accuracy.

#### **Be Proactive**

According to Chastain-Howley, proactive meter testing can also help with determining and reducing loss. Look at the number of connections. Every time you install a connection or pipe, you have a channel for leakage. Mains will break along the lines, but gaskets and connections can leak as well.

Data collected with the Water Audit Software has real implications for infrastructure planning, if users calculate by cities rather than counties. Philadelphia had one of the most challenging water loss problems in the country, he said, but they established a baseline and now are able to track audits, leakage, and determine what they will do over the next several years. "If you're proactive, you can get 50% of your losses back," he said.

Whether the water loss occurs due to customer waste or leaks in the lines, it's important that the utility take care of the problem as quickly as possible. As an example, Chastain-Howley said many water utilities in the United Kingdom have a basic program where the utility repairs a customer-side leak the first time it occurs to ensure it gets done in a timely manner. The next time, the customer pays for it.

#### **Active Leak Control Techniques**

Chastain-Howley suggested managing leaks by using ground surveys, leak noise loggers, correlators and correlating loggers, zone flow analysis, pressure management, and component analysis.

As for calculating real loss estimates, the easiest way, he said, is to look at how many main line and service leaks you have. Multiply your main leaks by 35 gallons per minute times 30 days. For a service line, multiply 6 gallons per minute times 30 days. But he cautioned: You can repair the line leaks but still lose water, depending on the condition of the soil and the pipe, so always review the leak area again after the initial problem has been fixed.

#### **Water Audit First, Leak Detection Second**

So, should water managers begin their audit with the software and or conduct an in-house audit first?

"The first thing is to get a handle on your system," he said. "Initiate a proactive leak detection program and a basic water audit. If you are already running normally, then you have some comfort in that data. In my opinion, you need to put some costs to it and work within those costs unless there's a regulatory or management issue."

As for best management practices, he said California has a rudimentary program. Delaware is just getting their board to approve this kind of structure. Texas is working on it and New Mexico isn't far behind.

### New Mexico Audits and Reports

You can view the audits and summary reports for Gallup, Ruidoso, and Las Vegas [here](#). Although their audits were conducted in a previous version of the software, AWWA recently released Version 3.0. The software is free and can be downloaded [here](#). Please note: You need Microsoft Excel to install and use this software.

*WPRC is an international water resource consultancy with worldwide experience in the assessment and management of water resources. Based in Fort Worth, Texas, with affiliated offices in Australia and the United Kingdom, WPRC provides affordable technical solutions for solving complex water supply and water resource problems.*

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## Ruben Archuleta Receives the Alice Darilek Water Conservation Award for 2007

Every year, one outstanding water-conservation professional is recognized for his or her exceptional performance and commitment to water conservation in the Rocky Mountain Section of the American Water Works Association (Colorado, New Mexico and Wyoming). The award is given in honor of Alice Darilek, whose dedicated work in New Mexico helped water conservation efforts throughout the region.

This year's winner, Ruben Archuleta, was recognized at the October meeting of the Rio Rancho Governing Body in Rio Rancho, N.M. Because of Archuleta's work, water usage per person has decreased about 19% over the last three years.

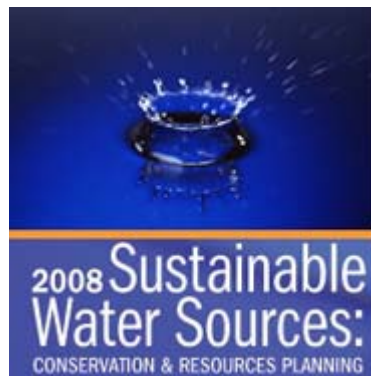


Archuleta has worked with the City of Rio Rancho's Utilities Division for 3½ years in the Water Conservation Office. Among his accomplishments, he has developed and presented a training program for irrigators and landscape contractors about the city's conservation ordinance and enforcement—a program that demonstrates just one of several ways he has nurtured exceptional working relationships with commercial landscape irrigators. He has also participated in the local Children's Water Festivals and other Rio Rancho events, such as the Earth Festival and the Great American Clean-up.

Archuleta is a past recipient of the Mayor of Rio Rancho Appreciation Award for assisting a local homeowners association with an irrigation audit and for encouraging their reduced use of potable water.

Congratulations, Ruben Archuleta!

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## 2008 Sustainable Water Sources Conservation and Resources Planning Conference and Exposition

This coming February, the American Water Works Association (AWWA) invites you to join your professional colleagues from around the world to discuss conservation and water resource issues at the AWWA 2008 Sustainable Water Sources Planning Conference and Exposition in Reno, Nevada, February 10-13.

This year's program will focus on the impacts of climate change on

sustainable water sources. Register for the conference at [www.awwa.org/](http://www.awwa.org/) and join your colleagues as we all continue to seek sustainable solutions and integrate resource management into long-term planning.

#### **Who Should Attend**

This conference is for professionals involved in all aspects of water resources and conservation, such as:

- o Water planners and engineers
- o Conservation professionals
- o Municipal water and wastewater utilities
- o Industry consultants and educators
- o Water utility managers and investors
- o Equipment and supplies distributors
- o Private industrial system professionals
- o Agricultural professionals
- o Research labs
- o Water quality specialists
- o Public affairs managers
- o Special interests, such as golf courses, aquifer storage, and recovery

#### **The Program**

The conference program consists of two tracks: Water Conservation and Water Resources. All the workshops, presentations, and networking events center around these two tracks and span the three days of activities. Examples of presentations are:

Water conservation:

- o Conservation 101: Orientation for New Conservation Professionals
- o Cost-benefit Analysis for Water Conservation Programs
- o Royal Flush: Toilets and Indoor Water Use Efficiency
- o Surviving a Dry Hand: Drought and Outdoor Demand

Water resources:

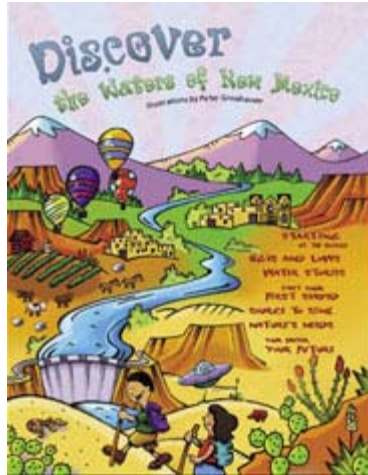
- o Balancing Water Quantity and Quality: A Changing Paradigm
- o Water Resource Sustainability: Concepts and Case Studies
- o Tools for Water Sustainability Planning
- o Principles of Integrated Water Resources Planning

In addition, the conference agenda includes a Water Sources Product Information Forum where you can get in-depth information about new conservation products and services, the latest advances in technology, innovative ideas, and timesaving tips—all from the manufacturers themselves.

Evening events include a trip to the National Automobile Museum, meet-and-great receptions, and new member programs.

Professional Development Hours (PDHs) are available to attendees. See the [conference Web site for more information](#).

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## Discover the Waters of New Mexico through the *Kids in Discovery* Booklet

The NM Office of the State Engineer (NMOSE) is pleased to announce the *Discover the Waters of New Mexico: Kids in Discovery Series* (KIDS) booklet. The booklet, aimed at students 8 to 12 years old, is now available, at no cost, through our financial partners.

NMOSE hired Project WET, a national non-profit specializing in water education, to produce the booklet. Project WET worked with a leadership team comprised of NMOSE, teachers, utilities, and other state agencies. The team developed activities, pilot tested the booklet in 12 classrooms, and secured drawings and photographs. A review committee checked facts and provided comments. It was a true statewide, multi-tiered approach.

The goal of the booklet is to provide a complete picture of New Mexico's water. There are sections on water uses, water availability, water law, the history and culture of water in NM, water distribution and treatment, nature's need for water, and water conservation.

The approaches to each section are varied to account for different learning styles and multiple subject matters. For example, maps and graphing contribute to the logic and math skill sets; water stories present history and social issues; and various games address inter- or intrapersonal skills, depending on teachers' needs. The final layout of the booklet expands on the knowledge gained and sets the students on a path of action through water conservation.

The booklet can be used in the classroom or sent home with the students to share with their families.

Financial partners include Albuquerque Bernalillo County Water Utility Authority, the County of Los Alamos, the cities of Santa Fe, Rio Rancho and Gallup, and New Mexico State University's Water Resources and Research Institute.

To order free copies, please contact your local sponsor or the Office of the State Engineer. The NMOSE orders can be placed through 1-800-WATERNM or e-mail [waternm@state.nm.us](mailto:waternm@state.nm.us). Please include your name, mailing address, phone number and number of booklets needed.

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## A Stellar Year for Children's Water Festivals and Outreach Program

As 2007 comes to a close, it seems fitting to highlight the year's Children's Water Festivals and Outreach Program events and give you a peek into 2008.

### 2007 Highlights:

- o Rio Rancho now has its own water festival, the Rio Rancho Children's Water Festival.
- o The Albuquerque/ Bernalillo County Children's Water Festival has completed it's ninth festival.



- o Pre- and post-festival student surveys were developed to measure presenter effectiveness.
- o Nine new organizations signed on as presenters.
- o The winner of a t-shirt art competition among Rio Rancho 4th graders is featured on this year's festival t-shirt.

#### What's planned for 2008?

- o A bigger space for the festivals so more teachers and classes can attend.
- o More presenters.
- o Launch of Project WET, a nationally developed K-12 environmental education training that uses water as its theme. This free training will be offered to teachers.
- o RiverXchange Project, a pilot project that will link students in Albuquerque to those in Godfrey, Illinois to learn about their respective large rivers and share what they learn via teleconferencing sessions.

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## *Saving Every Drop Landscaper Training is Huge Success*



The New Mexico Water Conservation Alliance hosted the Saving Every Drop: New Mexico Landscaper Training on November 5-7, 2008. The event held at Central New Mexico Community College in Albuquerque was a big success.

On Monday, November 5, approximately 125 attendees got to choose from three tracks of presentations, visit our exhibit hall, and enjoy a delicious barbecue lunch. Doug Bennett from the Southern Nevada Water Authority was the keynote speaker. He addressed the national water supply challenges caused by drought, population growth, and infrastructure inadequacies and the role the irrigation industry can play in solving the problems. The three break-out sessions that followed addressed irrigation principles, waterwise landscaping and waterwise design. Both regional and national presenters covered a wide range of topics including barriers to efficient irrigation, soil amendments, understanding ET, water harvesting, and irrigation budgets.

The exhibit hall was packed with good information and give-a-ways from our vendors. Many thanks to our exhibitors Just Sprinklers, American Leak Detection, Forever Lawn, Organic Technologies, Irritrol/Toro, Rainbird, Santa Fe Greenhouse, and Soilutions.

On October 6 and 7, instructors from the Irrigation Association (IA) taught a range of topics in half day and day-and-a-half formats. Classes were filled with participants eager to learn the latest information, and attendees will receive continuing education credits and certificates of participation from IA. Some attendees took the test to become a Certified Landscape

Irrigation Auditor. If you missed the testing deadline, please check the [IA website](#) for coming dates and to register.

In addition to the Alliance, the landscaper training was sponsored by the New Mexico Office of the State Engineer, the Albuquerque Bernalillo County Water Utility Authority, the City of Santa Fe, Bernalillo County, Intel, U.S. Bureau of Reclamation, Smart Use, WRRRI on the New Mexico



State University campus, and The Firebird.

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## NM Alliance Becomes Charter Member of the Alliance for Water Efficiency

The Alliance for Water Efficiency is a new broad-based, non-profit organization centered in Chicago and dedicated to the efficient and sustainable use of water to ensure a safe and secure water future that maximizes this precious resource.

The Alliance was established in 2007 through a start-up grant from the U.S. Environmental Protection Agency. Additional funding will come through Charter Memberships (until December 31, 2007) and after that through regular

memberships beginning in January 2008. The NM Alliance has been accepted as a Charter Member at the \$1,000 level.

The Alliance for Water Efficiency has taken on seven initial tasks:

1. Stand as a clear and authoritative voice for water efficiency.
2. Provide comprehensive information about water efficiency.
3. Represent the interest of water efficiency in the development of codes and standards.
4. Transform the market for fixtures and appliances.
5. Coordinate with green building initiatives to institutionalize water efficiency.
6. Train water conservation professionals.
7. Educate water users.

For more information about the Alliance for Water Efficiency and how to become a member, go to their web site at [www.allianceforwaterefficiency.org](http://www.allianceforwaterefficiency.org), e-mail [info@a4we.org](mailto:info@a4we.org) or call 866-730-A4WE.

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## SNWA Seeks Abstracts for Inaugural WaterSmart Innovations





## Conference and Exposition

The Southern Nevada Water Authority (SNWA) is accepting abstracts for the inaugural WaterSmart Innovations Conference and Exposition, slated for Oct. 8-10, 2008, in Las Vegas.

The deadline for submitting abstracts is Jan. 11, 2008. Professionals, scientists, experts, government employees, organizations, public and private institutions, policy makers, students and all others working in an industry dealing with water conservation are invited to submit an abstract for an oral presentation, panel discussion or workshop.

WaterSmart Innovations will be the largest and most comprehensive conservation-specific conference of its kind in the world. This groundbreaking event will serve to broaden the knowledge of innovations in water conservation including products, programs and outreach. All topics related to innovations in water conservation will be considered. Potential topics include:

- o Water Efficiency for Sustainable Building & Development
- o Conservation Policy, Enforcement and Administration
- o Community Outreach Programming
- o Water Efficient Technologies, Appliances and Fixtures
- o Alternative Water Supplies for Buildings & Communities (Reclaim/Recycle, Condensate and rainwater harvesting, Desalination)
- o Water Efficient Landscaping
- o Drought and Shortage Management

Candidates chosen as presenters will be notified by e-mail and postal mail no later than Feb. 29, 2008. A complete list of topics and submittal guidelines is [available here](#).

The SNWA is presenting the inaugural WaterSmart Innovations Conference and Exposition in partnership with the U.S. Environmental Protection Agency's WaterSense Program and other forward-thinking organizations. Visit [www.watersmartinnovations.com](http://www.watersmartinnovations.com) for more information.

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## Irrigation Association Launches a New Certification

The Irrigation Association (IA) Certified Water Conservation Manager – Landscape (CWCM-L) was offered for the first time at the International Irrigation Show, December 9-11, 2007, in San Diego. Certified Water Conservation Managers primarily evaluate, operate, manage, and improve irrigation systems so that they achieve the highest level of water conservation possible. A CWCM-L certified manager discusses system use with end-users, particularly as it relates to scheduling, maintenance concerns and water conservation.

CWCM-L managers should be able to assess specific site needs, water availability and use, identify and implement system upgrades and modifications, and manage the control system to provide the most efficient irrigation system possible. They should have working knowledge of general irrigation theory, including hydraulics, soil-plant-water relationships, plant water requirements and the principles of electricity.

IA certification as a CWCM-L indicates the successful manager has:

- o A minimum of three years of irrigation-related experience or two years of irrigation-related

- experience plus one year of irrigation-related education.
- o Obtained Certified Landscape Irrigation Auditor or Certified Golf Irrigation Auditor certification and remains in good standing.
- o Passed a written examination covering general irrigation subjects and specialty areas.
- o Agreed to follow the Code of Ethics established by the Certification Board.

The NM Water Conservation Alliance has submitted a membership application to become an affiliate to IA. As an affiliate member, there are many behind-the-scenes benefits. The association advocates effective, modern irrigation products and practices. Their efforts at federal and state government levels have resulted in increased funds for a campaign for government-funded turf research and beneficial legislation and actions to hinder negative legislation. Together IA members work to improve standards promoting fair competition and product acceptance in the marketplace.

The IA continues to grow a nationally recognized certification program. Certification raises the profile and standards of our profession. Four IA certifications were the first industry certifications to earn the EPA WaterSense label, including Certified Irrigation Contractor, Certified Irrigation Designer, Certified Landscape Irrigation Auditor, and Certified Golf Irrigation Auditor. Additionally, the irrigation-specific education courses, developed and delivered by irrigation pros, help professionals working in the industry to increase their knowledge and become more successful. These classes are discounted for members.

If you would like to receive affiliate member benefits, such as discounts on IA-instructed classes, certification program fees, and the International Irrigation Show, join the Water Conservation Alliance now. The annual membership fee is \$25 for individuals and \$250 for corporations (up to 10 members). You can find more information on the Alliance's web site, including what you need to know about the next certification exam at <http://wrri.nmsu.edu/wrdis/nmwca/alliance.html> or [www.irrigation.org/certification/](http://www.irrigation.org/certification/).

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A Newsletter Published by the New Mexico Water Conservation Alliance