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# Nevada Drinking Water and Wastewater Training Coalition

**American Water Works Association  
California/Nevada Section**  
[www.ca-nv-awwa.org](http://www.ca-nv-awwa.org)  
909/291-2101

**Indian Health Service**  
*Dominic Wolf, 775/784-5327*  
**NDEP**

<http://ndep.nv.gov/bwpc/bwpc01.htm>  
*Adele Basham, DWSRF, 775/687-9488*  
*Michelle Stamates, AB 198 Water  
Grant Program, 775/687-9331*  
*My-Linh Nguyen, Wellhead Protection,  
775/687-9422*

**Nevada Rural Water Association**  
[www.nvrwa.org](http://www.nvrwa.org)  
775/841-4222

*Bob Foerster, Executive Director*  
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*Curtis Duff*  
*Teresa Taylor*  
*Andy Andersen*  
*Dan Tarnowski*  
*David Willard*

**Public Utilities Commission of Nevada**

[www.puc.state.nv.us](http://www.puc.state.nv.us)  
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**Bureau of Safe Drinking Water**  
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*Steve Brockway, CEU approval, 687-9527*  
*Patty Lechler, 687-9529*  
*Bert Bellows, arsenic, 687-9525*

**Nevada Water Environment Association**  
[www.nvwea.org](http://www.nvwea.org)  
775/465-2045  
*Starlin Jones, 775/861-4104*  
*Eric Leveque, 702/792-3711*

**Rural Community Assistance Corporation**  
[www.rcac.org](http://www.rcac.org)  
775/323-8882  
*Stevan Palmer, 775/750-1844*

**U.S. Environmental Protection  
Agency, Region 9**  
[www.epa.gov/region09](http://www.epa.gov/region09)  
*Sara Jacobs, 415/972-3564*

**USDA Rural Development**  
[www.usda.gov/rus/water/index.htm](http://www.usda.gov/rus/water/index.htm)  
*Cheryl Couch, 775/887-1222, ext. 22*  
*Kay Vernatter, 775/887-1222 ext. 28*

**University of Nevada, Reno  
Dept. of Civil Engineering**  
*Dean Adams, 775/784-1474*

**Tigren, Inc.**  
*Crystel Montecinos, 775/240-1396*

**UNR Colleges of Natural Resources  
and Environmental Science, and  
UNR Cooperative Extension**  
[www.unce.unr.edu/swp](http://www.unce.unr.edu/swp)  
*Mark Walker, 775/784-1938*  
**NDEP Board for Financing Water Projects**  
<http://ndep.nv.gov/bffwp/index.htm>  
**Water/Wastewater Education and Training  
Consortium of Southern Nevada — WWET**  
[www.wwet.org](http://www.wwet.org)  
*Jeff Butler, 702/258-3296*  
**Farr West Engineering**  
*Brent Farr, P.E. 775/851-4788*

**2007 NTC Board Members**

**Bob Foerster, Chair**  
[nvrwa@pyramid.net](mailto:nvrwa@pyramid.net) or 841-4222

**Dean Adams**  
[vdadams@unr.nevada.edu](mailto:vdadams@unr.nevada.edu) or 784-1474

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**Farr West Engineering**  
**5442 Longley Lane, Suite B**  
**Reno, NV 89511**

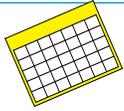
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**Nevada Drinking Water and Wastewater Training Coalition**

**Water Lines**  
**Spring 2008**



# Training Calendar for 2008

April 16/17 - Dayton - Confined Space and Trench Safety. Contact NvRWA at 775/841-4222 or [nvrwa.org](http://nvrwa.org) for more information.

April 18 - Various locations - UNR Video conference. Topic: Water Quality Analysis. Info: Crystel Montecinos at 775/240-1396.

April 23/24 - Lovelock - Confined Space and Trench Safety. Contact NvRWA at 775/841-4222 or [nvrwa.org](http://nvrwa.org) for more information.

May 7/8 - Winnemucca - Confined Space and Trench Safety. Contact NvRWA at 775/841-4222 or [nvrwa.org](http://nvrwa.org) for more information.

May 15/16 - Elko - Confined Space and Trench Safety. Contact NvRWA at 775/841-4222 or [nvrwa.org](http://nvrwa.org) for more information.

May 16 - Various locations - UNR Video conference. Topic: Math for Water Operators. Info: Crystel Montecinos at 775/240-1396.

June 11/12 - Gardnerville Ranchos - Confined Space and Trench Safety. Contact NvRWA at 775/841-4222 or [nvrwa.org](http://nvrwa.org) for more information.

June 13 - Various locations - UNR Video conference. Topic: Review for Drinking Water Exam. Info: Crystel Montecinos at 775/240-1396.

June 13 - Various locations - UNR Video conference. Topic: NTC Board Meeting. Info: Crystel Montecinos at 775/240-1396.

August 8 - Various locations - UNR Video conference. Topic: Fire Hydrants. Info: Crystel Montecinos at 775/240-1396.

Ongoing - On-site Training. Contact NvRWA at 775/841-4222 or [nvrwa.org](http://nvrwa.org) for more information.

This symbol designates Nevada Division of Environmental Protection pre-approved training for certification renewal contact hours. Other training may be eligible but is not yet pre-approved. Before attending any training, verify approval by contacting NDEP at 775/687-9527. For renewal contact hours, a different ratio applies to Safety training. Generally, one Continuing Education Unit (CEU) is equivalent to ten training contact hours.

## Useful Training Contacts

### University of Nevada, Reno Colleges of Agriculture, Biotechnology and Natural Resources & Cooperative Extension

UNR videoconference classes for water system operators and managers are available in most communities. To request a workshop in your area, call Crystel Montecinos at 775/240-1396 or e-mail: [xtelle@aol.com](mailto:xtelle@aol.com).

### Community College of Southern Nevada Wastewater & Water Technology Program

Info: LeAnna Risso, 702/434-6600 ext. 6418.

### WWET Training in Clark County

Training for water treatment plant and distribution system operators, wastewater treatment plant and collection system operators, and other professionals working within these fields. Info: Jeff Butler 702/258-3296; see [www.wwet.org](http://www.wwet.org) for a current training calendar.

### State of Nevada Water Certification Exams

All exams will be proctored on the date listed. Applications and fees are due to the state (Steve Brockway) 45 days before exam dates. A proctor will contact examinees to schedule testing. Contact Geoff Daforno at 775/846-1885 for information about 2008 exam dates.

Water exams are scheduled quarterly at locations throughout the state. Info: 775/687-9527 or [http://ndep.nv.gov/bsdw/cert\\_home.htm](http://ndep.nv.gov/bsdw/cert_home.htm). Additional info: 775/465-2045 or [www.nvwea.org](http://www.nvwea.org). **NOTE: No Exam in Dec.'08**

### Nevada Rural Water Association

Please send requests for training through [nvrwa.org](http://nvrwa.org), or call 775/841-4222.

## Operator: David Musselman

*(Continued from page 1)*

flexibility of the current system. In conjunction with this project, two new 500,000-gallon storage tanks will be added. The distribution system will also be upgraded. All of these changes are slated to occur within the next year.

As if all of this was not enough to keep him busy, David also likes to hunt and fish. He is active in Boy Scouts of America. He also works with a local wrestling team for kids, organized by USA Wrestling.

One wonders if there is ever a free moment?

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## Wastewater Operators Certified



These wastewater operators passed certification exams for treatment and collection grades 1, 2, 3 and 4. Congratulations to all !

### Treatment grades 1, 2, 3 and 4

**Grade 1:** Michael Balthazor, Matthew Ducker, Robert Fry, Frank Hu, John Miers, Nicholas Pickard, Steven Priscu, Paul Ramirez, Michael Truitt, Daniel Combs, William Davies, Christian Delladio, James Hammer, Richard Kennett, Randall Klessig, Blaine Manz, James Pacheco, James Richardson, Francisco Rosales, Jeff Schauwecker, David Stanfield, Greg Turner

**Grade 2:** John Bueltel, Kevin Forgione, Eric Gibbs, Jason Dukek, William Pace

**Grade 3:** John Bueltel, Steve Rippe

**Grade 4:** John Bueltel

### Collection grades 1, 2, 3 and 4

**Grade 1:** John Casalicchio, Lawrence Cordano, Richard Kennett, Nathan Reyes, David Stanfield, Kent Vian, Ace Ariaz, Dustin Clark, Michael Clinton, Jimmy Conn, Dave Darrenogue, John Edenburn, Arnold Garcia, Chris Hansen, Tim Hendricks, Michael Johnson, Todd Kirsten, Timothy Lovett, Tom Metcalf, Tomas Pugh, Thomas Rura, Antone Sallaberry, Kevin Schmith, Mark Speicher, Andrew Stanford, Erich Strunge, Pat Walsh

**Grade 2:** Thomas McKinzey, John Casalicchio, Reid Engstrom, Otis Johnson, Nathan Reyes, Kent Vian

**Grade 3:** Lawrence Cordano, Nathan Reyes, Edward White

**Grade 4:** Dennis Longhofer

## New Water Operators Certified



These water operators passed water certification exams for distribution and treatment grades 1, 2, 3 and 4. Congratulations to all !

### Distribution grades 1, 2, 3 and 4

**D-1:** Susan Abrams, Joseph Arnold, Randen Buckles, Christopher Carter, John Dufresne, Jason Dukek, Ronald Fry, Dennis Galleron, Larry Grant, Justin Greenland, Priscilla Howell, James Imperial, Kathleen Kinkade, Shawn Lochridge, Sandra McAnelly, David McGowan, Michael Nevin, Bruno Nolte, Michael Page, Kevin Retterath, James Seward, James Sutherland, Michael Thicke, David Vick

**D-2:** Kevin Agrella, Daren Demangate, Brian Gibbs, Scott King, Dennis Longhofer, Joseph Lozano, William McCuskey, Mitchell McGlynn, Gregg McMillen, William Newman, Misty Plett, Pete Pribyl, Anthony Riley, Richard Rosa, William Teepe, Ingrid Walker, David Weller

**D-3:** Raymond Allen, James Estes, Jared Harkema, Greg Krzysiak, Wayne Low, Greg Melandow, Michael Noe, Nebraska Scott

**D-4:** Michael Ariztia, Sheryl Houlihan, Stephen Volk

### Treatment grades 1, 2, 3 and 4

**T-1:** Timothy Bauer, Eugene Bragazzi, Hebert Clore, Kenneth Howell, Scott King, Henry Lyons, Charles Monaco, Corey Rosecrans, Corey Ross, John Sheridan, Ronald Velecheck, Allen Waggoner, Peter Willenberg, Geoff Woglom

**T-2:** Charles Atkinson, Matthew Caldwell, Patricia Cannon, Gary Crumpacker, Thomas Gardner, Mark Madsen, Robert Olsen, Bradley Philpott, Richard Rosa, Thomas Vehe

**T-3:** Brett Goodnow, Steven Jerome, Brett Reed

**T-4:** Kelli Burgess, Juan Esparza, Walter Raymond, Jeffery Voeltz

## Featured System: RSWRF (Continued from page 4)

Expansion of RSWRF is being phased to meet the current 10-12% annual rate of growth in the Stead service area. The RSWRF site has been master planned to allow construction of subsequent phases of expansion with minimal interference to plant operations and maintenance.

### Water Reclamation and Reuse:

There are four sites which currently use reclaimed water from RSWRF: the Sierra Sage Golf Course (96 acres); the North Valley Regional

Sports Complex (21 acres); Dorothy McAlinden/Mayors Park (6 acres); and RSWRF landscaping (3 acres).

For extended periods of time during the summer, these four reuse sites consume nearly all of the RSWRF effluent.

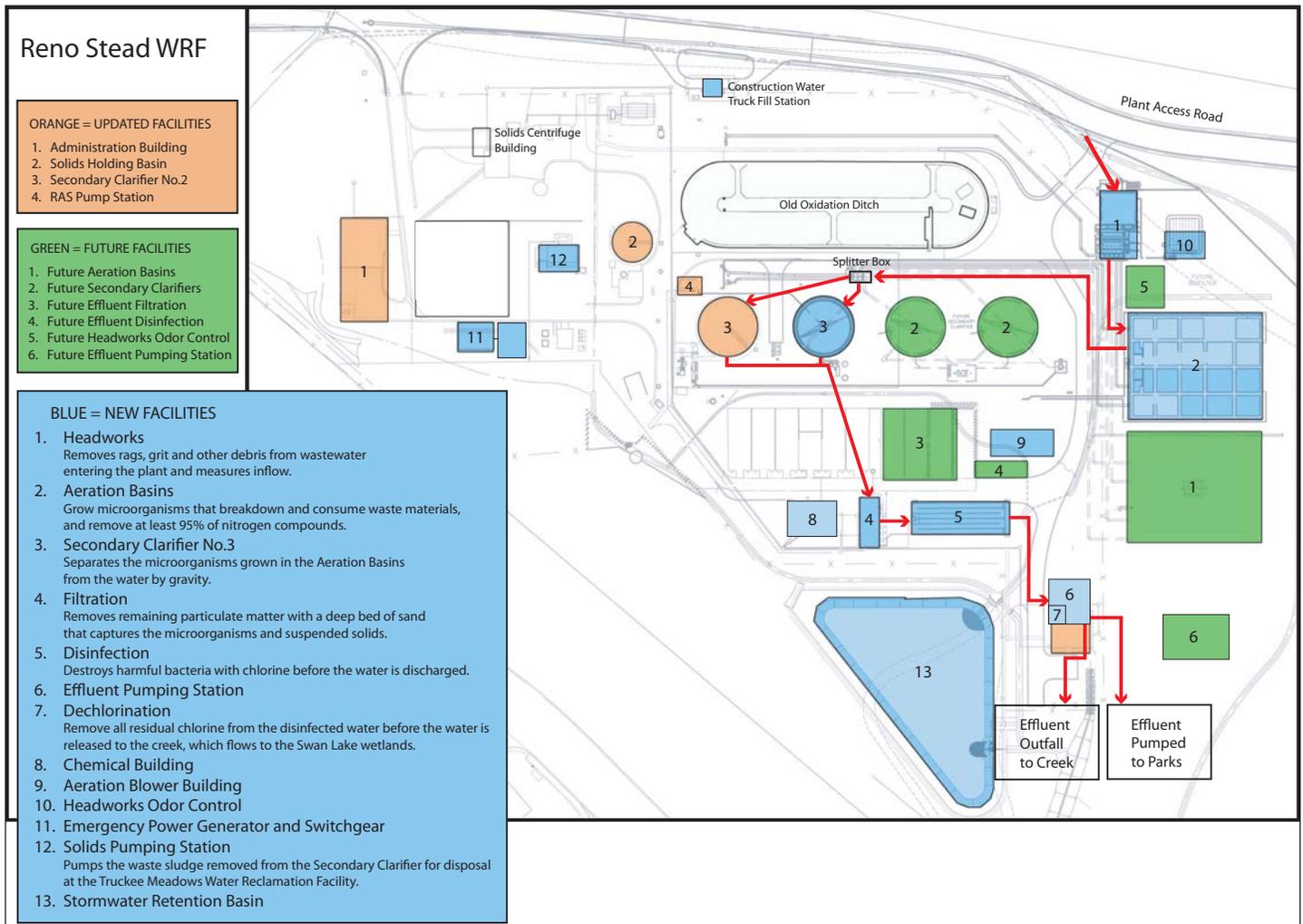
In 2005, over 165 million gallons of effluent were used for irrigation, conserving about 505 AF of potable water.

A construction water truck fill station was commissioned in 2004 to provide effluent water

in place of potable water for dust control use at the numerous construction sites in the area.

In 2005, nearly 30 million gallons of RSWRF effluent were used for construction purposes, which saved over 90 AF of potable water.

The City has a commitment to provide 490 acre feet per year to the Swan Lake wetlands, and fulfills that by discharging to the creek during the non-irrigation season.



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## Featured System: Reno-Stead Water Reclamation Facility

*By Stephen Long, City of Reno*

The City of Reno acquired the 46 acre Water Reclamation Facility site from the United States in 1967.

In 1975, the City replaced the old trickling filter plant which the U.S. Army Corps of Engineers had built in the 1940's and 1950's to treat sewage from the Stead Air Force training base and military housing.

The 1975 plant consisted of a headworks, an oxidation ditch, a small clarifier, a chlorine system for disinfection and an outfall to the creek which flows to the Swan Lake playa.

In 1988, a larger clarifier and chlorine contact basin were added, and the Administration Building was constructed.

In 1995, a sludge centrifuge and truck loading station were constructed to replace the old sludge drying beds.

The plant was upgraded to a tertiary treatment plant and renamed the Reno Stead Water Reclamation Facility (RSWRF) in 2000, for the purpose of producing high quality effluent to meet state standards for unrestricted irrigation of the Sierra Sage Golf Course and the North Valleys Sports Complex.

The 2000 upgrades included: effluent sand filters; a new liquid chemical system that eliminated use of chlorine gas; a new chlorine contact basin

for disinfection; an effluent pumping station, distribution piping and offsite storage ponds for effluent reuse at the golf course and sports complex; a dechlorination system for the effluent that is discharged to the Swan Lake wetlands; and a system for process monitoring and control using instrumentation and computer programming.

### **The Reno-Stead Water Reclamation Facility Expansion Project:**

The Reno-Stead Water Reclamation Facility has been transformed into a state of the art wastewater treatment and water reclamation facility, using the latest design criteria, instrumentation and process control technology, and energy and manpower efficiency to treat higher flow rates in compliance with stringent public health and water quality discharge standards.

The RSWRF Expansion Project, officially completed June 9, 2006, provides treatment capacity to serve the current and short term growth occurring in the Stead residential and commercial areas.

The RSWRF now has a permitted capacity of 2.35 mgd, replacing the old capacity of 1.5 mgd. The RSWRF produces reclaimed water that meets all current public health and environmental standards

which allow unrestricted reuse of the water for irrigation of parks, ball fields, golf courses, school yards and landscape irrigation.

Additionally, the RSWRF Expansion Project provides new process units to replace original units that had been in service for over 30 years.

The old headworks has been replaced, the oxidation ditch has been replaced with aeration basins, the mechanical surface aerators have been replaced with a fine-bubble diffused aeration system, the old clarifier has been rehabilitated and a new clarifier has been added, and the effluent filtration and disinfection facilities have been modified for additional capacity.

The process monitoring and control system has been expanded to handle the expanded plant, and has been upgraded for easier operator interface and data management. The new electrical power feed to the plant supplies 24 kV power for higher efficiency and lower costs, and the new generator provides full emergency back-up power.

The new sludge pumping system transfers waste sludge to the Truckee Meadows Water Reclamation Facility and eliminates the previous on-site sludge dewatering and truck hauling operation.

# The Spigot Q & A: Focus on Storage Tanks



**Q 1.** Hydropneumatic tanks are:

- a. Solely for wastewater uses
- b. Resistant to bacteria
- c. Pressurized by a pump and/or air compressor

**Q 2.** Which of these is *not* a function of water storage reservoirs:

- a. Provide flow during peak demand times
- b. Prevent backflow situations
- c. Provide or increase detention time

**Q 3.** The outlet is typically located a few inches above the floor of the tank to:

- a. Prevent complete emptying
- b. Prevent silt from entering distribution system
- c. Discourage entry of rodents

**Q 4.** Wooden storage tanks are still used in many rural areas of the US:

- a. True
- b. False

**Q 5.** Confined space entry permits are required to enter water storage reservoirs:

- a. True
- b. False

## Answers to Spigot

1. c, 2. b, 3. b, 4. a, 5. a

Crystel Montecinos, Consultant, Tigren Inc., prepares The Spigot.

## Regulatory Feature: Nevada WARN

*By Steve Brockway, NDEP*

WARN; no this is not a winch for your pick up. NvWARN stands for The Nevada Water/Wastewater Agency Response Network. WARN programs are forming across the country and have been identified by the Homeland Security Presidential Directive as critical to the nation's infrastructure.

What does this mean to you and your water and waste water system? WARN is designed to facilitate rapid emergency response among NvWARN member utilities. Emergencies may include natural disasters, fire, flood, storm, earthquake, civil disturbance, or other condition which is likely to be beyond the control of the services, personnel, equipment, and facilities of a utility to handle by itself.

Managed through the NvWARN web site - NvWARN.org - NvWARN provides immediate assistance for member utilities during an emergency. NvWARN allows water and wastewater utilities to request equipment and personnel to assist during natural or man-made events that impact water and wastewater systems.

**Background:** California disasters in 1994; Hurricanes Katrina and Rita in 2005, and severe flooding in New England and the Midwest in 2007 have shown the need for water and wastewater systems to share resources. NvWARN is encouraging all water and wastewater agencies in Nevada

to mutual aid. NvWARN is supported by the Nevada Division of Environmental Protection.

Nearly all 50 states are either WARN states, have agreements pending, a steering committee, or a leadership team. About 17 states now have operational WARN programs; Nevada is among them. The advantages of being a WARN member include increased planning and coordination, enhanced access to specialized resources, expedited arrival of aid, and reduced administrative conflict. At this time nine water systems in Nevada are members. Seven are in Clark County, and two are outside of Clark County.

Most water systems in Nevada are rural, and separated by their neighbors by many miles. By joining NvWARN you have a pre-approved agreement with other members. When disaster strikes, pick up the phone and call your fellow members for the needed manpower and resources.

There is no cost to join and no obligation to respond to another agency's emergency unless your agency chooses to do so. If resources are needed, charges for labor and equipment would be prearranged. Joining makes finding help in an emergency easy. Log on to the website NvWARN.org to find contacts, a membership application and a list of current members, who can be partners in an emergency.

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# Safety Zone: Disaster Preparedness and Emergency Response Plan

By Stevan Palmer, RCAC

A one-ton chlorine gas cylinder at your water system has just burst, and a dense green cloud has surrounded the treatment plant, and is slowly drifting toward a nearby elementary school. [What do you do?](#)

An earthquake has broken the drain line at the bottom of your storage tank and the resulting stream of water is not only threatening to wash away the well controls, but is undercutting the edge of a heavily traveled roadway nearby. The well pump is running, since the SCADA tells it that the tank is empty. [What do you do first?](#)

In complex situations, water operators need to make important on-the-spot decisions while balancing several objectives at once. In an emergency, an operator may need to take steps to minimize damage to the infrastructure and public or personal property, while also protecting the public against health hazards and loss of life, and at the same time pay attention to his own health and safety.

One tool that is available to an operator to assist them in protecting their personal safety under stressful and non-routine situations is an Emergency Response Plan (ERP).

The Nevada Bureau of Safe Drinking Water requires every public water system to have an up to date ERP.

An ERP is, simply stated, a document that gives guidance to a utility when responding to an emergency. That emergency may be naturally caused, such as from an earthquake or wildfire, or be man made, as from an accident or act of terrorism.

An ERP will help answer the following questions:

- How do you determine when an emergency exists?
- How do you analyze the severity of the situation?
- What outside agencies should be contacted (including up-to-date information)?
- What roles will key utility staff play?
- What safety precautions need to be followed?
- What equipment and resources are available for emergency response?
- What assistance will be provided to save lives?
- What steps will be taken to reduce injury or property damage?
- How do you prioritize emergency responses and repairs?
- How do you return the system to normal operations?

An ERP should be developed with input from the entire utility staff in an open discussion about what types of emergencies are likely to happen, what system components might be affected, and what equipment and resources are available to respond to an emergency.

A good ERP should contain general guidelines for dealing with a variety of disasters, but still be flexible enough to allow for the unforeseen.

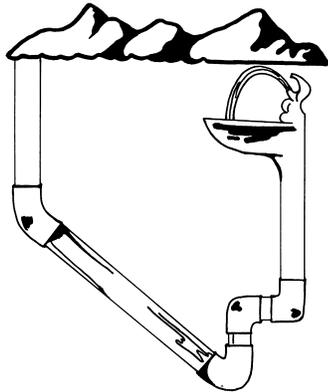
It should be re-evaluated periodically, and updated whenever new information is available, or when system design or conditions change.

One advantage of emergency response planning is that it helps to identify system vulnerabilities that might be fixed.

It helps to assure that needed safety and personal protective equipment is on hand in the event of an emergency. It identifies staff training needs.

Most importantly, it lets operators know what their role will be in responding to an emergency, and what steps they can take to protect themselves in the process. Make it your business to see that your water system's ERP is adequate, and up-to-date.

# Water Lines



**Water Lines** is the resource newsletter and calendar of the Nevada Drinking Water and Wastewater Training Coalition.

Volume 28 Spring 2008 Issue

## Inside this issue....

<b>Safety Zone.....</b>	<b>2</b>
<b>Spigot Q &amp; A: .....</b>	<b>3</b>
<b>Regulatory Feature.....</b>	<b>3</b>
<b>Featured System: RSWRF.....</b>	<b>4</b>
<b>Newly Certified Operators.....</b>	<b>6</b>
<b>Training Calendar for 2008.....</b>	<b>7</b>

## In this Issue: Focus on Waste Water

Water Lines is funded by  
the Nevada Division of  
Environmental Protection

Editor, Brent Farr, P.E.

Editor, and Production, Joe Beard Jr.

## Featured Operator: David Musselman

By Joe Beard Jr., Farr West Engineering

David Musselman is currently the Supervisor of Water Treatment Processes for Day & Zimmermann Hawthorne Corporation (DZHC). He oversees a potable water treatment process, as well as an industrial water treatment process at the Hawthorne Army Depot.

David's professional development started at the Montana College of Mineral Science and Technology in Butte, Montana. Here he received a Bachelor of Science Degree in Geologic Engineering. After graduation, he put his skills to work for the Montana Bureau of Mines for a short time.

He then found work in Candelaria, Nevada, where he worked as a Mining Engineer for four years. It was after this that David began working for DZHC, where he was introduced to the water industry. He has worked for DZHC as a Civil Engineer for the past nine years.

David has varied responsibilities at DZHC. He is in charge of an industrial water process, which uses groundwater as a source. He also oversees a potable water treatment process, which uses surface water as a source. He is also working to develop a new potable water treatment process, which will use groundwater as a source.

Ordinance recovery, processing, and decommissioning activities at



the Army Depot generate waste water that must be treated. The industrial water treatment process involves the removal of trace amounts of explosives from process water. Treatment begins with alum contact, after which the process water is weighted with bentonite. Clarification, filtration, and pass-through carbon columns complete the removal process. Treated water is returned to the beginning of the process for further utilization.

Drinking water is provided to the Army Depot after collection and treatment. Run off from Mt. Grant is collected at three different collection basins. Surface water is then treated by a US Filter Micro-Floc process. The process consists of clarification with alum contact, polymer-induced flocculation, and multi-media filtration. Treated water is then disinfected and passed through a clear-well before distribution.

The Hawthorne Army Depot has approximately five hundred employees and eighty families regularly stationed. Additionally, the base serves as a training facility, regularly hosting an additional fifteen to five hundred troops.

In order to better serve this population, a ground water treatment plant is being brought online. The addition of a groundwater treatment process will increase the capacity and

*(Continued on page 7)*