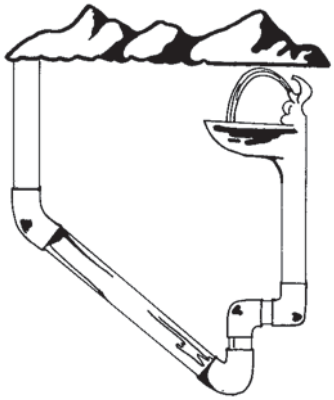
Water Lines



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

Volume 24 Spring 2007 Issue

Inside this issue....

Focus On:

Rural Nevada

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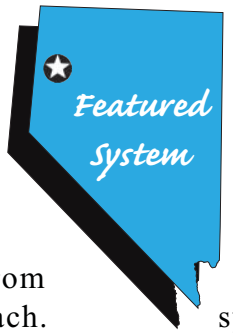
Environmental Protection

Editor, Brent Farr, P.E.

Editor, and Production, Joe Beard Jr.

Featured System: Gerlach G. I. D.

By Joe Beard Jr., Farr West Engineering



The Gerlach General Improvement District (GGID) water system is unique in several ways. First, the system is fed by springs, with collector boxes capturing the waters from two springs above Gerlach. Second, raw water is collected in a redwood tank. And third, the collected water is treated to remove uranium.

Gerlach, Nevada

The GGID was formed in 1974. Local residents formed a co-op and bought the town from the UPRR, the original developer. The water system has been in the care of the GGID since 1974. Over the past three decades, the GGID has overcome many challenges. In order to meet regulatory requirements, many creative solutions have been required.

A remote location, limited population base, and naturally occurring uranium in local creeks are just some of the unique challenges facing the GGID everyday. The Manager of the GGID, Victoria Williams, responds with community spirit, dedication, and a willingness to face new challenges.

There is a certain level of self-sufficiency required when running a water system in such an isolated location. The door of a nearby store actually reads "Nowhere, NV." The remoteness of the town results in very few bidders when construction projects are required. High mobilization costs are also a part of every project.

Having a limited population base means that annual revenues from user fees are low, and that capital costs are slow to be recovered. As a result, most capital projects are funded through loans and grants.

In addition to the regulatory requirements faced by all public water systems, Gerlach GID also has the additional challenge of removing uranium from the town's drinking water. Victoria says that the uranium gives the locals glowing personalities. In order to comply with changing State Drinking Water Regulations, a treatment system to remove the uranium from the spring water was required.

A skid-mounted package plant was installed at the site of the town's water tanks. The 150,000 gallon redwood tank holds the raw spring water, which is fed to

(Continued on page 2)

Featured System: Gerlach G. I. D.

(Continued from page 1)

Uranium Treatment works

the package plant for treatment. The treated water is then pumped into a 300,000 gallon steel tank for storage.

The treatment process relies on ion exchange for uranium removal. As water containing the uranium passes through the column of resin beads, charged ions on the resin surface are exchanged for the undesired species in the water.

The treatment plant is sized to treat 200 gpm; and is equipped with two 72 inch diameter pressure vessels, each containing 100 cubic feet of anion resin. Each pressure vessel is sized to treat 200 gpm. Nevada Administrative Code requires that a treatment plant have one completely redundant unit, so a second vessel has been incorporated into the design.

The ion exchange treatment technology was selected partly because it has low maintenance requirements and is easy to operate. The Nevada Administrative Code requires the Operator to be a Grade T-2 treatment operator.

The GGID water system Operator is also D-1 certified. Because the water system is run entirely by two people, it is important for each person to play more than one role. A third staff member deals with solid waste issues.

Victoria Williams of Gerlach G. I. D.

NDEP: Update on Disinfection Byproduct and Surface Water Treatment Rules

By Andrea Seifert P. E., NDEP

New regulations for water systems that disinfect and surface water systems are being implemented. The Stage 2 Disinfection Byproducts Rule (Stage 2 DBPR) and Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) were promulgated by EPA on January 5, 2006. The State is in the process of sending letters to and working with the affected water systems.

Stage 2 DBPR establishes a new way to determine compliance for Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5). Compliance will be based on the running annual average (RAA) at each sampling location, which is referred to as a locational running annual average (LRAA). Therefore, each monitored location in the distribution system must meet compliance.

The quantity of samples will now be based on a water system's population and not the number of treatment plants or aquifers it uses. Monitoring and compliance at the new location(s) will begin on the date listed in the following table. Until this time, compliance for TTHM and HAA5 is at the same location and time as has been established with the state.

To determine new compliance monitoring sites, an Initial Distribution System Evaluation (IDSE) must be completed. This will identify the distribution system locations that represent the highest TTHM and HAA5 concentrations. To comply with the IDSE requirements, water systems must perform Standard Monitoring, prepare a System Specific Study, submit 40/30 Certification, or receive a Very Small System Waiver.

Beginning April 1, 2009, reduced monitoring for bromate will be determined in a different manner. To comply, bromate analysis must be performed by using Method 317.0 Revision 2.0, 326.0, or 321.8. To begin or remain on reduced monitoring, the RAA for bromate must be $\leq$0.0025 mg/L.

(Continued on page 3)

The Spigot Q & A: Focus on Domestic Wells

Q 1. Which of the following is true of a pitless adapter (choose all that apply):

a. Allows access to well screen
b. Connected to the well casing below the frost line
c. Allows water to be diverted horizontally
d. Mechanism used to connect different sizes of intake pipes

Q 2. The well screen is the water intake portion of the well:

a. It should be placed as deeply as possible
b. Must be replaced when water flow decreases
c. Selection and placement of the screen can determine well efficiency
d. Is always constructed of copper

Q 3. A well seal:

a. Is a layer of cement that surrounds the well casing
b. Is an identier applied by the State to mark the well
c. Protects the well casing
d. All of the above

Q 4. The water-bearing portion of an aquifer is called the:

a. Vadose zone
b. Zone of saturation
c. Drawdown zone
d. Specific yield

Q 5. After drilling, a well must be disinfected before being put into production:

a. True
b. False

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

Answers to Spigot
1.B,C; 2.C; 3.A; 4.B; 5.A

NDEP - Update on Stage 2 DBPR & LT2E SWTR

(Continued from page 2)

Stage 2 DBPR Compliance Schedule

Population [i]	≥ 100,000	50,000-99,999	10,0000-49,000	<10,000
IDSE Plan Submittal	Oct 1, 2006	Apr 1, 2007	Oct 1, 2007	Apr 1, 2008
Complete IDSE Monitoring	Sept 30, 2008	April 1, 2007	Mar 31, 2009	Mar 31, 2010
Submit IDSE Report	Jan 1, 2009	Jul 1, 2009	Jan 1, 2010	Jul 1, 2010
Compliance Monitoring Begins	Apr 1, 2012	Oct 1, 2012	Oct 1, 2013	Oct1, 2013 or Oct 1, 2014 [ii]

i: If water system is part of a combined distribution system, schedule is based on population of largest water system.
ii: Date is based on whether a system opts to do E. coli monitoring in lieu of Cryptosporidium monitoring.

LT2ESWTR requires that surface water systems determine the risk of their source water to Cryptosporidium. Therefore, source water monitoring for Cryptosporidium, turbidity and e-coli must be performed.

Based upon the results of the source water monitoring, a Bin Classification is determined. The Bin Classification specifies the required log removals for Cryptosporidium. Various treatment techniques are established to comply with Cryptosporidium removal/inactivation.

Systems that avoid filtration will have to add a second disinfection step to their treatment process. Filtered systems with a negligible risk to Cryptosporidium contamination will not need additional treatment.

LT2E SWTR Compliance Schedule

Population [i]	100,000	50,000-99,999	10,0000-49,000	<10,000
Source Monitoring Schedule	Jul 1, 2006	Jan 1, 2007	Jan 1, 2008	Jul 1, 2008
Begin Monitoring	Oct 1, 2006	April 1, 2007	Apr 1, 2008	Oct 1, 2008 or Apr 1, 2010 [ii]
Bin Classification	Apr 1, 2009	Oct 1, 2009	Oct 1, 2010	Apr 1, 2011 or Oct 1, 2012 [ii]
Treatment Compliance	Apr 1, 2012	Oct 1, 2012	Oct 1, 2013	Oct 1, 2014

i: If water system is part of a combined distribution system, schedule is based on population of largest water system.
ii: Date is based on whether a system opts to do E. coli monitoring in lieu of Cryptosporidium monitoring. Cryptosporidium monitoring is required for systems that avoid filtration.

Training Resources for Post Secondary Courses - Update

By Bob Foerster, NvRWA

Current regulations require more education for upper-level operators. The regulations (NAC 445A.617 through 445A .652) require that new treatment and distribution operators grades III and IV complete post secondary education courses. They can be proud that as water systems become increasingly complex, they will have the skills and depth of knowledge to be successful at their jobs and thereby protect public health.

Post secondary courses are defined in the regulations as "a successfully completed college level course, at least 36 hours in length that is related to the drinking water profession."

New applicants for treatment and distribution grade III will need to complete two post secondary courses while grade IV applicants will need to complete four such courses. **It is the total number of hours and qualification of the courses that count.**

While it is nearly impossible to develop a complete list of courses that would qualify, it is reasonably easy to find courses online using a search engine. This method of finding information has become a standard. Several courses, even degrees, are now offered entirely on-line. Use a search string like "water technology course online."

In general, providers of post secondary education include:

- Accredited academic institutions – colleges and universities.
- Organizations accredited by the International Association of Continuing Education Training (IACET).
- Authorized providers of IACET course work.

Examples of courses that will be considered:

- Regular (for-credit) semester college and university courses related to the profession. For example, courses in math, chemistry, hydrology, applied electronics, biology, microbiology, business/public administration, and others will be considered. The profession covers a lot of ground; as a career progresses, business/public management knowledge becomes more important.
- Water Program correspondence college credit courses from California State University, Sacramento (http://www.owp.csus.edu/courses.php).
- Some of the CA-NV AWWA Water College Programs (http://ca-nv-awwa.org/CA-NV/certification). The Distribution course has been offered in-state periodically under the NDEP-SRF program (an authorized provider).

In addition to the related topics, some colleges offer degree or certificate programs in water treatment technology. Some examples that showed up on a recent online search:

University of Florida TREEO Center - http://www.treeo.ufl.edu/water/

Southern Arkansas University Tech - http://www.sautech.edu/docs/es_aas.pdf

It is the applicant's responsibility to ensure the course will qualify. Do not rely on assumption. Check with the institution to make sure it is currently IACET accredited, or is an accredited institution of higher learning (if not located in Nevada).

Before paying for or investing time in any courses to fulfill the grade III – IV application requirements, check in with the NDEP, Bureau of Safe Drinking Water (BSDW) to make sure your course qualifies under the regulation (contact: Steve Brockway 775-687-9527 or sbrockway@ndep.nv.gov). Be ready to provide a written course description, from the catalog, for instance.

If you think the course work will eventually lead to a college degree, work with your target college or university to make sure what you invest in will be recognized toward that degree (as well as meeting the certification needs). You will save time and money.

When you have completed the 72 or 144 hours, and are ready to take the certification exam, send copies of all the qualifying documentation with the certification application.

Featured Professional: Norris Hendrix of Lund, Nevada

By Crystel Montecinos, Tigren Inc.

According to some web sites Lund, Nevada is a ghost town. However, Lund is anything but a ghost town to Norris Hendrix who has lived and worked in this picturesque rural Nevada community for more than 60 years.

When I called Norris to ask him about his retirement he was at work. Like so many water operators all across Nevada, Norris is a hard-worker and can't imagine sitting at home. Recently Norris retired his position at White Pine County School District as water operator, maintenance, groundskeeper, and all-around fix-it guy. After 10 ½ years on the job, Norris is ready for his real love; ranching & farming. When asked what is special about Lund, Norris has a ready answer; "There are not many people in Lund. You have the freedom to do what you want here."

Norris' previous work easily prepared him for the tasks at the school district. He has done construction-type work most of his life. Most recently he worked for several years as a crew supervisor for the Bureau of Indian Affairs in Duckwater, Nevada. While on contract there to perform home remodeling, Norris also found himself as teacher and trainer in construction techniques.

Back in 1995 when Norris started with the school district the system was simple. They had two wells and no treatment processes. The District later applied for, and received funding to replace the old system.

One may think that running a school water system in a small town might be easy, not so! This type of system is classified as a non-transient/ non-community water system (NTNCWS). These systems have the same responsibilities as large systems when it comes to public safety and clean water. Operators must learn to fix, change or maintain everything - starting with pumping the water from the well until it returns to the earth as recharge through the wastewater system.

The Lund school system consists of an elementary and a high school with a combined student count of 110 students. The water system now runs on one 170 ft well, an 8,000 gallon storage tank and pump house, and a 20,000 gallon water tank for fire fighting.

Norris Hendrix

The new modern system also has a small chlorinator to disinfect the water. Norris holds a Distribution Grade I Water Operator license. He was responsible for submitting all water samples necessary to ensure the safety of the water for the students and administration on the school property. He states that the water in Lund is wonderful and has never had any contaminant issues.

Still, there were some challenges to the water system. "I feel that our new water system was designed with larger systems in mind. There were some challenges to running it in our situation. The system is computerized so that when it broke down, we had to call in technicians from Utah, Las Vegas or Texas. It's hard to get those folks to come out to a little place like Lund."

Norris enjoyed the job because he likes to challenge himself to make things better. The job gave him plenty of things he could mull over and try to make better. He believes that his greatest asset is having a "hands-on education" about life and work. He has worked in ranching, maintenance, construction, welding, drafting and even owned and operated his own butcher shop for a number of years. Now that is an enviable set of skills!

I asked Norris what words of advice he would have for young people considering a career in the water industry. Here is his answer, "It (the water industry) is something that I had never thought of before, but it is a big issue. My advice to young folks is that this industry is going to have big jobs and good paying jobs. Get a college education so you can move up. It is opening up into a bigger field all the time."

Norris' wife Joy, is the Postmaster of Lund and together they have a small cattle ranch with 100 head of cattle and 5 working horses. They also have three sons and twelve grandchildren! They are currently building a new home in Lund and hope to have it finished this summer. With their busy lives it is hard to imagine how they will find the time. Good luck Norris in your retirement !

Financial Training

By Kim Borgzinner, Farr West Engineering

The Nevada Division of Environmental Protection (NDEP) has recognized the financial challenges that many water system utilities in Nevada are currently facing. Regulations are continually evolving and challenging water purveyors to meet more stringent requirements, such as the new Arsenic Rule. As a result, many small water systems in Nevada are finding they are not able to pay for needed capital improvements, emergency repairs and rising costs for fuel and electricity.

As a result, NDEP has provided for Farr West Engineering (FWE) and Nevada Rural Water Association (NvRWA) to work together to provide financial training for various small water systems throughout the State. The focus of the training is to provide the utility personnel with the tools necessary to meet all of their operating expenses, pay for capital improvements and emergency repairs, and to set aside appropriate funds for future projects.

The most recent training was held at the Truckee Meadows Water Authority facility in Reno, last November. Brent Farr, P.E. and Kim Borgzinner presented for FWE and Bob Foerster for NvRWA. It was a great turn out and we were excited to have all five of the Kingston Town GID Board there, as well as numerous members of the Lovelock Meadows Water District, Hawthorne Utilities, Roundhill GID, Lander County, Storey County and the City of Fallon.

The financial topics presented in the training included: elements of an effective budget, planning for capital improvements, effective rate structures and identification of rate deficiencies, calculating capacity fees, asset management, and demonstration of various financial tools.

The training session has been organized to allow the utility boards, managers, operators and personnel to interact in group activities like setting rates for a mock water system. These activities promote group discussion and provide a great opportunity for each utility to share individual facility challenges and management strategies. They also provide a broader understanding of how rates should be set in order to meet the individual goals of each facility.

Funding for the training is made possible through a grant from NDEP. Through this grant, FWE also provides more personalized training opportunities for various water utility board members and managers. In addition to financial training, various other topics may include: the open meeting law, utility record keeping, water rights and land use, water conservation, water quality standards and regulations, staffing needs assessments, grant and loan requirements, operator training and other public outreach and educational programs.

This program has been very successful in helping water utilities acquire and maintain compliance with state and federal regulations. We encourage water system utilities to take advantage of the free training opportunities. Please feel free to call us for future training times and dates.

(Photo on page 7)

New Nevada Operators Certified

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

Distribution grades 1, 2, and 3

D-1: Able, Ken; Andrews, Dianna; Barlow, Darel; Cabo, Edwardo; Caldwell, Matthew; Dumas, Jeremy; Freeman, Jay; Garden, Brandon; Gray, Russell; Hamilton, Jerry; Harris, Brandt; Hendrix, Robert; Herbolsheimer, Brandon; Hess, Timothy; Jacobs, John; Jett, Barry; Klessig, Randall; Knauf, Scott; Kodweis, Gregory; Kronke, Deborah; Leavitt, Lane; Leon, Jose; Lyons, Henry; Macaluso, Dominic; McMahan, William; Noe, Michael; Raison, Michael; Salazar, Nancy; Scheppmann, Curtis; Scott, Charles; Smith, Jason; Sutton, Travis; Turner, Sylvia

D-2: Allred, John; Alvarez, Javier; Atkinson, Charles; Beers, Eric; Coffey Jr., John; Gardner, Thomas; Hauck, Bill; Jackson, Michael; Knutson, Eric; McPherson, Troy; Monaco, Robert; Payne, Troy; Popp, Darren; Rippe, Steve; Saxberg, Todd; Scharsch, Brian; Smith, Alan; Watts, Kyle

D-3: Cerbin, Mark; Concannon, Andy; Gonzales, Mark; Haberman, Steven; Klapper, James; Lovell, Dennis; Price, Werner; Stewart Jr., Charles; Stringam, Jerome; Summers, Jon

Treatment grades 1, and 2

T-1: Alexander, James; Copfer, John; Hamilton, Jerry; Marker, Pat; Scott, Charles; Smith, Jason; Stevenson, Timothy; Woodworth, Harold

T-2: Billante, Carey; Dagel, Shannon; Rosso, Bob

Training Calendar for 2007

2007

March - State Water Certification Exam. Check NDEP/BSDW Website for more information.

March 7, 8 - Fallon / Carson City- Water Operation Certification Review given by RCAC. Info: Stevan Palmer at 775/323-8882.

March 9 - NvRWA Training Symposium to develop the 2007-08 training schedule. If unable to attend, please send training topic requests to Attn: Andy Andersen at NvRWA.

March 13 - Advisory Board on Certification of Operators, Quarterly Meeting at the NvRWA Conference.

March 13-16 - Reno- NvRWA NvRWA Annual Training and Technical Converence. SRF Scholarships are available. See www.nvrwa.org for information.

March 15 - Nevada Training Coalition Meeting at the NvRWA Conference.

March 30 - UNR Videoconference. Info: Crystel Montecinos at 775/240-1396.

April 20 - UNR Videoconference. Info: Crystel Montecinos at 775/240-1396.

April 26 - Ely- Training on CIP / Board Responsibilities given by RCAC. Info: Stevan Palmer at 775/323-8882.

May 22, 23 - Reno- Wastewater Operation Certification Review given by RCAC. Info: Stevan Palmer at 775/323-8882.

May 23 - Reno/Sparks - Wastewater Certification Exam Review for Grades 1, 2, and 3. See www.nvrwa.org for information.

June 14 - Elko- How To Prepare ERP, VA, and CCR Documents given by RCAC. Info: Stevan Palmer at 775/323-8882.

July 24-26 - Reno/Sparks - NvRWA Training, Wastewater A to Z. See www.nvrwa.org for information.

August 7 - Pahrump- Wastewater Management Opportunities given by RCAC. Info: Stevan Palmer at 775/323-8882.

November 27, 28 - Tonopah- Water Operation Certification Review given by RCAC. Info: Stevan Palmer at 775/323-8882.

This symbol designates Nevada Division of Environmental Protection pre-approved training for contact hours. Other training may be eligible for contact hours but is not yet pre-approved. Before attending any training, contact NDEP at 775/687-9527 for approval. Ten hours of approved training equals 1 CEU. A different ratio applies for safety training.

University of Nevada, Reno
Colleges of Agriculture, Biotechnology and Natural Resources & Cooperative Extension
2005 Videoconference Training Calendar: *www.unce.unr.edu/swp.wkshps.htm*

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.

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* 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 2007 exam dates.

Nevada Rural Water Association
Training at your site can be added upon request. Please send requests through nvrwa.org, or contact Andy Andersen at 775-781-2469.

Wastewater Certification Board Testing

Wastewater certification exams are given in quarterly.

Info: 775/465-2045 or *www.nvwea.org.*

Financial Training

(Continued from page 6)

Trainers in action at a recent event

Nevada Drinking Water and Wastewater Training Coalition

American Water Works Association California/Nevada Section
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
Nevan Kane, Wellhead Protection, 775/687-9426
Nevada Rural Water Association
www.nvrwa.org
775/841-4222
Bob Foerster, Executive Director
John Allred
Curtis Duff
Teresa Taylor
Jonn Scovil
Andy Andersen
David Willard
Public Utilities Commission of Nevada
www.puc.state.nv.us
Mark Clarkson, P.E., Water Engineer, 775/684-6132
Leslie Tench, Senior Engineering Analyst, 775/684-6140

Bureau of Safe Drinking Water
http://ndep.nv.gov/bsdw/index.htm
775/687-9520
Jim Balderson, SWAP, 687-9517
Steve Brockway, CEU approval, 687-9527
Dana Pennington, 687-9516
Bert Bellows, arsenic, 687-9525
Nevada Water Environment Association
www.nvwea.org
775/465-2045
Starlin Jones, 775/861-4104
Eric Leveque, 702/792-3711
Rural Community Assistance Corporation
www.rcac.org
775/323-8882
Stevan Palmer, 775/750-1844
U.S. Environmental Protection Agency, Region 9
www.epa.gov/region09
Marvin Young, 415/972-3561
USDA Rural Development
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 Natural Resources and Environmental Science and Cooperative Extension
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
Jeff Butler, 702/258-3296
Farr West Engineering

Farr West Engineering

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Reno, NV 89511

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