Volume 42 Fall 2011

Water Lines

Featured Article:

Disinfection Math

By: Stevan Palmer, RCAC

One of the topics that water treatment and distribution operators have traditionally struggled with when taking their certification tests is math, particularly calculating disinfectant doses. It's not only important for operators to know how to use formulas and perform calculations, they should understand the reasoning used in setting up problems and solving them. In this article, I hope to discuss a step-by- step approach to some typical disinfection math problems when using gas chlorine versus liquid or dry chlorine compounds. Fortunately, a formula/conversion table is supplied to Nevada operators when they take the test (available online at: www.abccert.org/pdf_docs/abcwaterfctable.pdf) but it is not always clear what formula to use for a given problem, and sometimes the formulas are not in a particularly useful form. So first, let's talk about the three main forms of Chlorine. Chlorine gas as 100% pure chlorine, liquid chlorine (also called bleach or sodium hypochlorite) is 12.5% to 15% "available chlorine" , while dry chlorine (calcium hypochlorite or high test hypochlorite) usually runs about 65% to 70% available chlorine. When working a gas chlorine problem, we only need to solve for the number of pounds of chlorine gas needed to reach the desired dose. But if we are using dry or liquid chlorine compounds, we will need to perform additional calculations to determine how many gallons of bleach or lbs of dry chlorine to use. So, for instance, if we know we need 25 lbs of theoretical chlorine for a given application, then we can use 25 lbs of chlorine gas. If we are using dry chlorine, however, we know we will need **more** than 25 lbs, because dry chlorine is not 100% pure. To calculate this, we will need to be given information about the % purity of the chemical. Also, if we are using liquid chlorine, we can expect that we will need roughly 25 **gallons** of chemical, since commercial bleach is manufactured at a certain strength, one gallon of chemical will contain about one lb of free chlorine. In order to calculate the gallons needed, we will need to be given information about the purity (or % available chlorine) of the bleach. We might also be given information

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about the specific gravity or specific density (lbs/gallon) of the chemical solution, since commercial bleach, weighing around 9.5 lbs/gallon, is significantly denser than water, at 8.34 lbs/gallon. On a grade 1 or 2 test, though, I have never heard of density being considered for liquid chlorine problems.

There are often many possible ways to reach the desired answer with a math problem. As a water operator, you have probably heard of the "Davidson pie" or the "Lbs formula". I will refer to this formula and others in this discussion, but remember that there are many possible ways to obtain the same result when calculating dosages. If you have particular methods for working math, by all means use what you are comfortable with. A good way to begin this discussion is by looking at the formulas that are provided on the ABC Formula/Conversion Table. You will find the following formula:

$$\text{Feed Rate, lbs/day} = \frac{(\text{Dosage, mg/L})(\text{Capacity, MGD})(8.34\ \text{lbs/gal})}{(\text{Purity, decimal percentage})}$$

Feed Rate = lbs/day Dosage = mg/L Capacity = MGD or MG
Purity = percentage written as a decimal – e.g. 50% = .50; 70% = .70, etc.

This formula is derived from the Davidson Pie, and will work for calculating lbs of dry chlorine needed to reach the required dose. So let's begin by deconstructing the feed rate formula… The Feed Rate shown on the formula sheet is in lbs/day, which is the correct unit to use when talking about treating moving water. But we can also use this formula with the "feed' in lbs if the problem relates to treating a storage tank or section of main that is not flowing. The dosage is the concentration of chemical we are trying to reach, and is typically expressed as Milligrams per Liter (mg/L), or sometimes as Parts per Million (PPM). These two terms mean exactly the same thing. If you look at your water quality reports from your laboratory, you will probably see the analysis expressed as mg/L. Capacity is shown as Million Gallons/Day (MGD) for flowing water or Million Gallons (MG) if the problem relates to dosing a pipe section of storage tank when the water is not moving. The term 8.34 lbs/gallon is the specific density of water, and this never changes. Lastly, the term "purity, decimal percentage" relates to the purity of the chemical. For instance, if we are given information that the dry chlorine is 70% available chlorine, or 70% pure, then to show this percentage as a decimal, we will divide it by 100. Thus 70/100 = 0.70. If the dry chlorine is 65% pure, we use the number 0.65, etc.

What if the question is how many pounds of chlorine gas to use? Using the above equation, if we assume the gas is 100% pure, then 100/100 = 1. So plugging the number 1 in the equation, we now have:

$$\text{Feed Rate, lbs/day} = \frac{(\text{Dosage, mg/L})(\text{Capacity, MGD})(8.34\ \text{lbs/gal})}{1} \quad \text{(Dry chlorine)}$$

If we divide any number by 1, that number stays the same, which means we can basically cancel out that 1, and the equation for gas chlorine now becomes:

$$\text{Feed Rate, lbs/day} = (\text{Dosage, mg/L})(\text{Capacity, MGD})(8.34\ \text{lbs/gal}) \quad \text{(Gas Chlorine)}$$

Cont' - Disinfection Math

Remember to remove the "Purity, decimal percentage" part from the Feed Rate formula, when calculating for gas chlorine.

We will have to do some additional calculations to figure the gallons of liquid chlorine for any given dose. Unfortunately, there is not a good formula on the formula sheet for liquid chlorine. You will have to memorize something. But we can still start with the gas chlorine formula above. Once you figure out how many lbs of pure (gas) chlorine would be needed, which is:

(Dosage, mg/L)(Capacity, MGD)(8.34 lbs/gal)

Then you divide that by the chemical purity (decimal percentage) times the chemical specific density (lbs/gallon)
So the liquid chlorine formula, all together, is:

$$\text{Gallons bleach} = \frac{\text{(Dosage, mg/L)(Capacity, MGD)(8.34 lbs/gal)}}{\text{(Purity, decimal percentage)(chemical, lbs/gallon)}}$$

What happens when the test question does not give you any information about the specific density or specific gravity of the chemical (bleach)? Then you would use the weight of water, or 8.34 lbs/gallon.

Are you confused yet? Let's try working through an actual problem…. Let's say we have a 400,000 gallon storage tank that we want to dose with 10 ppm chlorine. To convert gallons to MG, we can divide by 1,000,000, or just move the decimal point over 6 places to the left, so 400,000 gallons = 0.4 MG. We are going to assume that tank is completely full, unless we are given some additional information, like the tank is ½ full, or it has an overflow 1 foot from the top, etc. Starting with Gas chlorine, the formula, once again is:

$$\text{Lbs} = \text{(Dosage, mg/L)(Capacity, MG)(8.34 lbs/gal)} \quad \text{or} \quad \text{(10 ppm)(0.4 MG)(8.34 lbs/gal)} = 33.36 \text{ lbs}$$

For dry chlorine (assuming it is 65% available chlorine):

$$\text{Lbs} = \frac{\text{(Dosage, mg/L)(Capacity, MG)(8.34 lbs/gal)}}{\text{Purity , decimal percentage}} \quad \text{or} \quad \frac{\text{(10 ppm)(0.4 MG)(8.34 lbs/gal)}}{0.65} = 51.3 \text{ lbs}$$

For liquid chlorine (15% available chlorine, no specific gravity or density information given):

$$\text{Gals} = \frac{\text{Dosage, mg/L)(Capacity, MGD)(8.34 lbs/gal)}}{\text{(Purity, decimal percentage)(chemical, lbs/gallon)}} \quad \text{or} \quad \frac{\text{(10 ppm)(0.4 MG)(8.34 lbs/gal)}}{\text{(0.15)(8.34 lbs/gal)}} = 26.7 \text{ gal}$$

Last but not least, what if the test questions give some information about the specific gravity of the bleach? Say the specific gravity is 1.12? We would need to figure out how many lbs/gallon the bleach weighs. We multiply 1.12 by the lbs/gallon water, or 1.12 x 8.34 lbs/gal = 9.34 lbs/gallon (bleach). We will use that number in the formula.

The Spigot Q & A:

Focus on Groundwater Wells

1. The well screen is the water intake portion of the well;
   a. It should be placed as deeply as possible
   b. It must be replaced when water flow decreases
   c. Selection and placement of the screen can determine well efficiency
   d. It is always constructed of copper sheeting

2. A well seal:
   a. Is a layer of cement, cement grout or concrete grout that surrounds the well casing
   b. Prevents runoff or contaminants from entering the well
   c. Protects the well casing
   d. All of the above

3. The water-bearing portion of an aquifer is called the:
   a. Vadose zone b. Zone of saturation c. Drawdown zone d. Specific yield

4. After drilling a well must be disinfected before being put into production.
   a. True
   b. False

5. The component parts of a well include all of the following except:
   a. sanitary seal b. well screen c. pressure switch d. cement grout

6. Which of the following is true of a pitless adapter? *(Choose all that apply)*
   a. Allows access to the well screen for flushing of grit and sand
   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

Answers to the Spigot questions

1) C 2) D 3) B 4) A 5) C 6) Both A & C

Study Materials: ABC Practice Exams and the Operator Certification Study Guide, Fourth Edition, American Water Works Association.

******The Spigot is prepared by Crystel Montecinos, Environmental Consultant for Tigren, Inc.*
You can contact her at 775-240-1396.

The New DeMinimis Discharge Permit

By: Alex Lanza, NDEP Bureau of Water Pollution Control

NVG201000 - NPDES general permit for water discharges that pose insignificant (*DeMinimis*) threat to water quality and the environment.

The purpose of NVG201000 is to provide timely authorization for DeMinimis - clean water discharges to Waters of the U.S. pursuant to Nevada Revise Statutes NRS 445A.465; this regulation prohibits discharge of pollutants from a point source without a permit. The permit is valid throughout Nevada.

This DeMinimis general permit intends to control and reduce pollution to Waters of the U.S. from water discharges. NVG201000 requires Notice of Intent (NOI), water quality submittal, annual sampling, installation of BMPs and reporting to ensure the site is performing in a manner that minimizes water pollution and protects public health and the environment. Monitoring requirements established for this permit are intended to ensure that there is no adverse impact to the environment.

NVG201000 was developed to authorize a range of DeMinimis water discharges under one permit; it establishes Notice of Intent (NOI) requirements, water quality limitations, prohibitions and management practices for five (5) separate discharge categories. Discharges from the following activities are considered DeMinimis when they are consistent with provisions included in this permit:

Discharge Category 1 – Public Water System Emergency discharges – Permitted Public Water System Emergency discharges are situations which pose an immediate risk to health, life, property or environment.

Discharge Category 2 – Water supply systems discharges - Permitted discharges include discharges related to construction, maintenance, and testing (quantity, duration and capacity) of water supply systems (including the pipes, tanks, and reservoirs) such as:

- Disinfection and flushing activities;
- Discharges resulting from pressure releases, or overflows;
- Discharge from wells and storage reservoirs.

Discharge Category 3 – Well testing & maintenance / aquifer testing / water quality testing - Permitted water discharges include discharges of water associated with:

- Drilling of new water or geothermal wells;
- Rehabilitation or maintenance of water or geothermal wells, piezometers, and boreholes;
- Water supply quantity or quality evaluations;
- Well/aquifer test pumping and/or purging;
- Discharges from any borehole not fully developed.

Discharge Category 4 - Subsurface water discharges - Permitted water discharges include:

- Groundwater from foundation, footer drain, basement, underground structure or other dewatering, provided the discharge is not contaminated with pollutants, chemicals or co-mingled with other wastewaters;
- Water from intercepted or pumped groundwater.

Discharge Category 5 – Utility vault water discharges - Permitted water discharges include:

- Groundwater or surface water collected in vaults;
- Water from subterranean seepage;

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The Seasonal Wastewater Pond

This article first appeared in the NvRWA quarterly Water Logged, Winter 2007 issue

By: Curtis Duff – Wastewater Technician, NvRWA

Most of you have operated your wastewater ponds through several seasons and probably have a good idea of what to expect with the onslaught of winter. Some of you actually have your ponds freeze over solid for a few months. But what actually happens to the ponds ability to treat the influent wastewater that continues regardless of the season?

In fact, a ponds influent flow may even increase slightly in the winter due to most of us staying more indoors during the winter. Among other things, by wearing more clothing during the winter we naturally do more laundry. And though I don't encourage long hot showers, winter is the time they are taken. And who doesn't like an occasional hot bath to warm their bones during these frigid days of winter?

In the world of wastewater ponds, sunlight is an all -important factor in their proper operation, for as we all know the algae cannot grow without it. The shortened days of winter naturally affect the overall amount of sunlight the pond receives in a typical day. Additionally, because many of the days of winter are overcast, this can make algae growth almost stop entirely.

With the ponds water temperature at its lowest point of the year, the work of the bacteria slows and the amount of BOD in the pond begins to slowly increase. Therefore, you should increase the detention time in your pond in an effort to allow enough time for the organic matter to decompose. This is accomplished by some systems whose ponds are designed to operate at greater depths in the winter than they do in the summer, so that the wastewater is under treatment longer. Pond systems that must continuously discharge will naturally have a poorer effluent in the winter.

For those whose ponds actually freeze over with a layer of ice and snow, the amount of oxygen in the pond is greatly reduced due to the lack of wave action and algae growth. Ponds that are under snow and ice cover for a few months also have the anaerobic sludge digestion process slow down and untreated solids begin to slowly build up.

Anaerobic digestion does continue to take place under ice cover but at an extremely slow and reduced rate due to the very low temperatures of the sludge in the wastewater. As a result, a deeper sludge layer will slowly form made up of undigested solids.

As many of you may know, this untreated anaerobic sludge layer can cause problems when the season again begins to change and the warmer temperatures of spring cause what is known as a "pond turnover" or "spring turnover". This happens as the ponds ice cover begins to thaw in the spring and the top layer of wastewater will reach a temperature of 4° C (39.2^{o} F). Four degrees Celsius is the temperature at which water will become the heaviest. This heavier cold surface layer begins to sink to the bottom of the pond. At the same time, the warmer bottom layer of water begins to rise.

As we have seen, the bottom layer of the wastewater pond now contains both treated and untreated settled solids. In the spring there are more untreated solids at the bottom of the pond than at any other time of the year. As the warmer bottom layer of water rises, it mixes and brings these untreated solids and smelly gases to the surface. Fortunately, these odors associated with this turnover only last about a week.

Another issue we need to be aware of the sudden increase in the demand for oxygen at this time of turnover. This sudden increase in food supply causes the bacteria to feed and reproduce very rapidly. This rapid bacterial activity results in the available dissolved oxygen being quickly used up. Therefore, if you have mechanical aerators in your pond, this would be a good time to use them.

Enough cannot be said about having a couple of

Cont' on next page

Cont' - The New DeMinimis Discharge Permit

- Snow melt, stormwater, or water present as a result of inclement weather.

If you are proposing a discharge in any of the activities described above, you may do so under general permit NVG201000 coverage. The Nevada DeMinimis permitting program was designed for electronic NOI submissions. Anyone seeking coverage under general NPDES permit NVG201000 shall apply electronically - unless a waiver is requested and granted in writing by the Division.

Qualifying dischargers shall not begin to discharge until the Division has received and approved the original complete and signed NOI, applicable fees, and associated acceptable results of the water quality samples taken in accordance with Section A of the permit. Existing dischargers who are covered under a current NDEP permit may continue to discharge until valid permit expires. Discharges who are not granted coverage under this general NPDES permit because the nature, quality and quantity of the proposed discharge, may apply for an individual NPDES permit.

For more information about the State of Nevada DeMinimis discharge permitting program, please contact:

Alexi Lanza, P.E.

(775)687-9468

alanza@ndep.nv.gov

NDEP - Bureau of Water Pollution Control

DeMinimis Program:

http://ndep.nv.gov/bwpc/index.htm

Online NOI/Application:

http://ndep.nv.gov/bwpc/DeNOI

DeMinimis Permit:

http://ndep.nv.gov/bwpc/docs/nvg201000_permit.pdf

Cont' - The Seasonal Wastewater Pond

key instruments in your wastewater diagnostic arsenal. A portable D.O. (dissolved oxygen) meter is vital in tracking fluctuations in oxygen demand. Prices range from $500 to $1000 for a suitable unit. Of course you could pay a lot more than this, but it would be unnecessary for the needs of most pond operations.

Still, several-hundred dollars may seem like a lot to pay for such a tool, especially considering the smaller utilities tighter budgets. But this is an investment that can truly pay for itself in a very short time. By monitoring your ponds dissolved oxygen level a few times a week, you may find there are times when you can decrease the run time of your aerators and save on electrical power consumption. Of even greater importance is being able to realize when your dissolved oxygen levels are too low and thus possibly preventing discharge violations by increasing your aerator run times.

Another important tool for the pond operator is the pH test kit. These test kits are much less costly than D.O. meters and are helpful in determining upsets as well as detecting toxic substances that may be dumped into your system. A pH test kit is especially important if you allow septic haulers to dump into your system as you should never accept a load without first sampling the pH.

Old-Man Winter can be especially hard on Northern Nevada's wastewater systems. In truth, there's not a lot we can do to counter his harsh effects, but understanding how he works can help. Keeping one-step ahead by knowing what to look for (i.e., anticipating the need to increase aeration) might shorten the duration of some of the problems winter presents to our wastewater system.

I'll see you in the field!

Wastewater Operators Certified

The following wastewater professionals passed their Wastewater Treatment, Laboratory, Collection, Industrial Waste Inspector, and Nevada Plant Maintenance exams in June 2011.

WASTEWATER TREATMENT GRADES

Grade 1: Michael Boney, Shanon Daines, Clarence Howard, Kevin Olsen, Jung Shin

Grade 2: Lenny Kimm, Samuel Shamblin

Grade 3: Kevin Forgione, Jason Scoble

NEVADA COLLECTION

Grade 1: John Coffey Jr., Daniel Fischer, Travis Hall, Auston Kinser, Antonio Zavala

NEVADA INDUSTRIAL WASTE INSPECTOR

Grade 1: Carl Josephson

NEVADA PLANT MAINTENANCE

Grade 1: Frazier Speaks Jr.

Wastewater Exam dates for 2011:

Exam date: 12/15/11
Deadline - 11/15/11

Water Operators Certified

The following water professionals passed their Water Treatment and Water Distribution exams in June 2011.

Water Distribution Grades:

Grade 1: Daniel Park, Elizabeth Andrew, Jason Pengelly, David Rudolph, William Sampson, Joseph Groves, David Levine, Galen Benn, William Campbell, Bruce Gordon, Don Roahrig, Kyle Ruf, Patrick Carey, Alan Smith, Justin Kistner, Daniel Peterson, Jerry Baker, Annette Herrington, Daniel Williams

Grade 2: Louis Ball, Tom Sherman, Shane Mortensen, Angela Worrad, Tanner Humphrey, Samuel Shamblin, Joseph Westerlund, Peter Baratti, Jeffrey Donahue, Mathew Martensen, Kevin Olsen

Water Treatment Grades:

Grade 1: Ryan Pharr, Joseph Groves, Shannon Gutierrez, Carl Strohschein, Mica Leatham, Mason Stratton, Kelly Joe Reyna, David Wright, David Northum, Christopher Skvarna

Grade 2: Jason Dukek, Michael Nevin, Daniel Peterson, Dennis Galleron

Grade 3: Samantha Stoughtenger

TRAINING CALENDAR FOR 2011

Sept 13 2011 - Operator Certification Review / Fall Event

Water Distribution Review, Water Treatment Review, Water Treatment & Distribution Math, Wastewater Treatment Review, and Arsenic Treatment - Layne

Sept 14 2011 - Operator Certification Review / Fall Event

Water Distribution Review, Water Treatment, Wastewater Treatment Review

Contact: Bob Foerster at 775-841-4222

frontdesk@nvrwa.org or visit http:www.nvrwa.org/ and click on training

Sept 14 - 15, 2011 -

Distribution Op Cert Test Prep - Grades 1 & 2

N. Tahoe Events Center, Kings Beach, CA

Contact: Stevan Palmer 775/750-1884 or spalmer@rcac.org

September 23, 2011 - Backflow & Cross Connection Prevention Devices

by: Sean Perry, Apollo Valves

Contact: Crystel Montecinos 775-240-1396

September 28 - 29, 2011 -

Wastewater Operator Certification Test Prep

N. Tahoe Events Center, Kings Beach, CA

contact: Stevan Palmer 775/750-1884 or spalmer@rcac.org

Oct 21, 2011 - General Water Chemistry

by: Max Shen - TMWA

Contact: Crystel Montecinos 775-240-1396

November 2, 2011 - Fundamentals of Wastewater Collection & Treatment

N. Tahoe Events Center, Kings Beach, CA

Contact: Stevan Palmer 775/750-1884 or spalmer@rcac.org

November 18, 2011 - Distribution Topics: Basic Water Works Products

by: Pak Hughes & Steve Staudy

Contact: Crystel Montecinos 775-240-1396

December 9, 2011 - Regulations Update

by: R. Cooper & L. Edrosa

Contact: Crystel Montecinos 775-240-1396

December 15, 2011 - O & M III - Wells, Valves, Water Mains, Hydrants and Meters

N. Tahoe Events Center, Kings Beach, CA

Contact: Stevan Palmer 775/750-1884 or spalmer@rcac.org

***Attendees can register for RCAC's Kings Beach Training online at:**

http://www.rcac.org/doc.aspx?730

Online Training - by: RCAC

Contact: http://www.rcac.org

Ongoing On Site - Various Management, Board, Wastewater and Water Topics, at your request - NvRWA

Contact: Bob Foerster at 775-841-4222

Upon Request: Instructor-Lead CSUSac Courses: Distribution or Treatment, 6 - 8 weekly trngs. Contact NvRWA for details and to schedule. Gain the approved post-secondary training while preparing for your exams Contact:

Bob Foerster at 775-841-4222

*send us your email address to get on the announcement list.

Updates and Announcements

National Certification Program in Utility Management Plus: On-Line Training

Today, the water and wastewater industry is more complex than ever before. Economics, increased complexity in regulatory requirements and a changing society are crafting the water and wastewater systems of tomorrow. As our industry changes, there is a strong need to recognize the individuals who provide leadership to the industry and create a standard for the future.
Water University certification programs are designed to recognize the professional educational achievements of individuals and to market their achievements and skills to increase the value of today's water professionals.

Water University highly-recommends the use of study material before taking Water U certification examinations, including the purchase of study guides and attendance of Water U preparation courses. Examinations cover a wide array of topics in great technical detail. A preview of the study guide is available online. Invest in your future, gain Utility Management certification through Water U. To purchase study guides, visit the Water U Bookstore. Please contact NvRWA with any questions.

In addition to the WU, watch for a variety on-line courses approved for training hours at the NvRWA website.

Remembering Donald Edward Allen

Donald Edward Allen, passed away on Thursday, Aug. 18, 2011 in Arlington, Texas. A Texas native, Don started his career there before moving to Nevada in the early 1980s. Don was active in the industry, supported education and training and was a member of the Certified Operators Forum. In 1994-95, he served as the as the Secretary-Treasurer of the Nevada Rural Water Association Board of Directors. Throughout his lifelong career in the industry, Don earned the respect of employees and colleagues. Don was currently serving as the Superintendent of Silver Springs Municipal Water Company, as well as providing operator services to a number of small and isolated water systems. In recognition of service to his community, in 2010 he was named Manager of the Year at the Nevada Rural Water Association annual conference. He also received the EPA 2010 Project award for the state of Nevada for the successful implementation of a facility to improve water quality at Silver Springs. Through his hard work, the project reached out to two small mobile home parks nearby, so including some of the poorest neighbors. His dedication to justice in the industry is reflected in his successful efforts to put customer-owned water companies on a level playing field for state grant funding. Don will be remembered and missed by all of his colleagues.

Change of Mailing Address Requested

Operator Certification Administrators have noted that a number of certificates are being returned to the State, because Operators have not updated their mailing addresses after moving. Operators are asked to promptly notify the State when they have changed addresses. Please contact Nan Paulson at 775-687-9447 or npaulson@ndep.nv.gov

TRAINING CONTACTS

2011 Nevada Water and Wastewater Operator's Forum Members:

Harvey Johnson, Chair 775-745-7087
hej@ivgid.org

John Hulett, Vice Chair 775-954-4612
jhulett@washoecounty.us

Bob Foerster 775-841-4222
nvrwa@pyramid.net

Cameron McKay, 775-588-3548
cam@kgid.org

Dale Johnson 775-738-6816
djohnson@elkocountynv.net

Dave Johnson 702-567-2051
dave.johnson@lvvwd.com

Dean Adams 775-784-1474
vdadams@unr.nevada.edu

Lynn Forsberg 775-738-6816 X 211
Forsberg.const@gmail.com

Mark Walker 775-784-1938
mwalker@unr.nevada.edu

Tom Georgi 702-822-8026
Thomas.georgi@lvvwd.com

Vacant

University of Nevada, Reno
CABNR & 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 email at: xtelle@aol.com

Community College of Southern Nevada Wastewater Water Technology Program
www.cleanwaterteam.com

LeAnna Risso at 702-668-8487
LRiso@cleanwaterteam.com

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. Contact Jeff Butler 702-258-3296. For the current training calendar see *www.wwet.org.*

State of Nevada Water Certification Exams

All exams will be proctored on the date listed. Applications and fees are due to the State Bureau of Safe Drinking Water 45 days before exam dates. A proctor will contact examinees to schedule testing. Contact: Ron Penrose at 775-834-8017 for information about the exam dates.

Water exams are scheduled in the first three calendar quarters of each year at locations throughout the state. For additional information on

Drinking water call: 775-687-9527 or go to
http://ndep.nv.gov/bsdw/cert_home.htm
Wastewater call: 775-465-2045 or go to
www.nvwea.org

Nevada Water Environment Association

Jennifer McMartin
(775)465-2045
jenniferm@nvwea.org
www.nvwea.org

Nevada Rural Water Association

Please send requests for training to www.nvrwa.org or contact staff directly at 775-841-4222.

3189
STATE OF NEVADA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF FINANCIAL ASSISTANCE
901 SOUTH STEWART STREET SUITE 4001
CARSON CITY NV 89701
RETURN SERVICE REQUESTED

Water Lines

Fall 2011

Nevada Drinking Water and Wastewater Training Coalition

American Water Works Association
California / Nevada Section
***www.ca-nv-awwa.org or* 909-291-2100**

Nevada Water Environment Assoc.
***www.nvwea.org or* 775-465-2045**
***Starlin Jones* 775-861-4104**
***Eric Leveque* 702-792-3711**

USDA Rural Development
www.usda.gov/rus/water/index.htm
***Cheryl Couch* 775-887-1222 ext. 22**
***Kay Vernatter* 775-887-1222 ext. 28**

UNR Dept. of Civil Engineering
***Dean Adams* 775-784-1474**

Rural Community Assistance Corporation
***www.rcac.org or* 775-323-8882**
Stevan Palmer and Preston Kinne

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

U.S. Environmental Protection Agency, Region 9
www.epa.gov/region9
***Jason Gambatese*, 415-972-3571**

Bureau of Safe Drinking Water
http://ndep.nv.gov/bsdw/index.htm
CEU approval:
***Kelly McGowan*, 775-687-9527**
***Jim Balderson, SWAP* 775-687-9517**
***Patty Lechler* 775-687-9529**
***Bert Bellows, arsenic* 775-687-9525**

Nevada Rural Water Association
***www.nvrwa.org* or 775-841-4222**
Bob Foerster, Executive Director
Andy Anderson
Curtis Duff
Lizzy Andrew
Paul Strasdin
Dan Tarnowski
Teresa Taylor
Jim Weeks
Tatiana Zehl

Indian Health Services
***Dominic Wolf* 775-784-5327**

UNR Colleges of 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

NDEP
http://ndep.nv.gov/index.htm
***Daralyn Dobson, DWSRF* 775-687-9489**
My-Lihn Nguyen, Wellhead Protection
775-687-9422

Water/Wastewater Education and Training Consortium of Southern Nevada—WWET
www.wwet.org
***Jeff Butler*, 702-258-3296**

Public Utilities Commission
www.puc.state.nv.us
Janelle K. Thomas, P.E., Water Engineer
775-684-6146