

Issue 1/2013

Nebraska Rural Water Association



NEBRASKA GOOD WATER NEWS

WHO IS MORE QUALIFIED?



Applicant A's Qualifications

BS Degree -
State College 1995
Class B Water Operator
Certification 1995
Operator Green Water System 1995-2010



Applicant B's Qualifications

BS Degree -
State College 1995
Class B Water Operator
Certification 1995
Operator Blue Water System 1995-2010
Utility Management Certified
Water University - 2011

YOU DECIDE!



Contact your

State Rural Water Association or online at www.wateruniversity.org

Join Tomorrow's Management Workforce. Become Certified Today!

Nebraska Good Water News

Issue 1/2013

“Keeping Our Water Safe”

Board of Directors

Table of Contents

How'd We Do & Letters From	2-4
2013 Training	5
35 th Annual Nebraska Rural Water Conference	6
NeRWA Pre-Registration	7
Annual Conference Motels	8
Employee Safety and Training	9
Annual Water Tasting Contest.....	10
Benefits of the Annual Conference.....	11
Large Meters What Do They Really Cost?	12
Training in the Dark.....	13
NeRWA Conference Agenda.....	14-16
Drought in 2013? Is Your System Prepared?.....	17
Election Information.....	18
Winter Driving Safety.....	19
Send Us Your Tower!!.....	19
2013 Scholarship Application	20
2013 Scholarship Information.....	21
Back-Siphonage and Cross Connections.....	22-26
NeRWA Contact Information.....	28

President:

Tom Goulette, National Director
444 S. Main St.
West Point, Nebraska 68788
(402) 372-2466

Vice-President:

Greg Bouc
Box 353
Valparaiso, Nebraska 68065
(402) 784-2313

Secretary/Treasurer:

Larry Wennekamp
124 E. 11th Street
Schuyler, Nebraska 68661
(402) 352-5444

Dennis Hoback
317 Hoback Road
Union, NE 68455
(402) 235-3077

Gene Schroeder
88963 541 Avenue
Bloomfield, Nebraska 68718
(402) 254-6758

Lyle Juracek
801 K St.
Neligh, Nebraska 68756
(402) 887-4735

Dale Miller
P.O. Box 195
Elmwood, NE 68349
(402) 994-2555

Staff:

Salli Kemerling, Office Manager
Carol Jasa, Secretary
Randy Hellbusch, Circuit Rider
Russell Topp, Circuit Rider
Mike Stanzel, Deputy Circuit Rider
Barney Whatley, Capacity Development Specialist
Mike Lucas, Wastewater Technician
Pat Petersen, Training Specialist

“Nebraska Good Water News” is a quarterly publication of the NEBRASKA RURAL WATER ASSOCIATION, 3390 Ponderosa, Wahoo, Nebraska 68066. Phone 1-800-842-8039 or (402) 443-5216 or FAX (402) 443-5274. Copies are mailed to all member rural and municipal water operators, Federal and State Legislators, associates and individual members.

The NEBRASKA RURAL WATER ASSOCIATION is dedicated to the improvement and assistance of all public water systems in the State of Nebraska.

NOTICE: Nebraska Rural Water Association does not endorse any particular product or company in this publication. Membership and advertising should not be taken as an endorsement.

Website: www.nerwa.org

On the cover:

The Chambers Water Tower.

“This Institution is an Equal Opportunity Provider and Employer.”

How'd We Do and Letters From...

City of Madison
211 South Lincoln Street
P.O. Box 527
Madison, Ne 687487
Office: 402-454-3412
Fax: 402-454-2262
www.madison-ne.com



City Director~ Byron J. Brogan
Mayor~ Robert Nathan
Council Members~
Lyle Jurgens
Jeff Prather
Tim Reeves
Robert Jurgens

December 21, 2012

Nebraska Rural Water Assn
3390 Ponderosa Drive
Wahoo, NE 68066

Dear Rural Water Assn,

The City of Madison, Nebraska, population 2,438, wants to show its continued appreciation of the various programs and opportunities provided by the Nebraska Rural Water Association by making a donation to your equipment fund. This cooperative effort creates access to expensive equipment a reality, for small communities like us. Thank you!

Sincerely,

Robert Nathan
Mayor Robert Nathan
Madison, NE



CITY OF FRIEND

NEBRASKA
68359

Phone (402) 947-2711

235 Maple Street

"From a friend
in Friend"



Dear NeRWA Staff,

We here at City of Friend want to take this time to thank you for all you do for operators and communities in Nebraska.

Most recently you assisted us with a sewer smoking project. If not for your equipment and expertise this process would have been a great deal harder for us to complete. Thanks Mike and Randy!!

You have also assisted us in producing some water system pressure charts by furnishing the necessary equipment to complete this task. Thanks Russ and Randy!!

And on several occasions you have provided equipment and personnel to help locate water lines and water leaks for us. Thanks again Russ and Randy!!

It is for your continued efforts throughout the state of Nebraska that we are submitting a check for \$900.00 to use toward future equipment purchases and other expenses. Keep up the good work and thanks to the entire NeRWA Staff.

Keep Smiling and Be Blessed, Sincerely

Patrick Gates
Patrick Gates, Utility Supt
City of Friend, Nebraska

*Thank you, Nebraska
Rural Water Assn.*

*for all your help
through the year!*

*Enclosed is a donation
from the Village of
Wilcox.*

*Melinda Ferris
Village Clerk
Wilcox, NE*

311 North Oak Street
PO Box 310
Gordon, NE 69343-0310
Phone: (308) 282-0837
Fax: (308) 282-1431
E-mail: gordon@gpcom.net

CITY OF GORDON

City Manager
Fred Hlava
City Clerk
Kim Buchan
Deputy Clerk
Sandra Farmer
City Council
Nancy I Russell, Mayor
Dr. Joe Shetler, Vice Mayor
Jane Morgan
Tom Evans
Tim Bounous

December 18, 2012

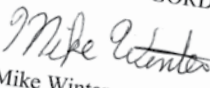
Nebraska Rural Water Association
3390 Ponderosa Drive
Wahoo, NE 68066

Dear NE Rural Water Association:

The City of Gordon would like to thank you for all of the work you have done for our city as well as the cities throughout the area. Your efforts are greatly appreciated! Please accept the enclosed donation on behalf of the City of Gordon and our utility department.

Thank you again for all of your time and effort!

THE CITY OF GORDON


Mike Winter
Utilities Superintendent

VILLAGE OF LODGEPOLE

P.O. BOX 266
LODGEPOLE, NE 69149
www.lodgepole.net
PHONE (308) 483-5353
FAX (308) 483-5354
lpclerk@daltontel.net

January 7, 2013

Nebraska Rural Water Association
3390 Ponderosa Street
Wahoo, NE 68066

RE: Rate Study for Village of Lodgepole

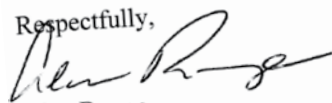
Dear NeRWA,

On behalf of the Village of Lodgepole Board of Trustees, I want to thank you for the help given to us over the past years. We would like to give a special thanks to Randy for coming out and doing the water rate study.

Please find enclosed a donation to put towards your equipment fund. Again, thank you for your support.

Happy New Year!

Respectfully,


Alan Runge
Village of Lodgepole, Chairman



Village of Shelton

219 "C" Street, Post Office Box 6, Shelton, Nebraska 68876
Telephone (308) 647-5484 • Fax (308) 647-5402

December 27, 2012

Nebraska Rural Water Association
3390 Ponderosa Street
Wahoo, Nebraska 68066

Dear Sir;

The Village of Shelton employees and Board members would like to thank you for the help and services you have provided over the past years. Especially we would like to thank you staff members Barney Whatley and Randy Hellbusch for all their time and expertise in helping us with the water meters and water rate study this past year.

Please accept this donation of \$500 to put towards your equipment fund.

Sincerely,

Bonnie Doremus
Bonnie Doremus, MMC
Administrative Clerk

VILLAGE OF DUNCAN

906 8th Street || PO Box 254 || Duncan NE 68634-0254
Village Hall 402-897-5285 || Fax 402-897-2024

Visit us at www.villageofduncan.com or Email villageofduncan@frontier.com
Betty Kropatsch, Board Chair 402-897-2765 || Sandy Bargmann, Clerk-Treasurer 402-897-5285

November 5, 2012

Nebraska Rural Water Association
3390 Ponderosa Drive
Wahoo, NE 68066

Dear NeRWA Staff,

The Village of Duncan Board of Trustees would like to thank Russ Topp for assisting our maintenance supervisor in locating some hard-to-find curb stops and manhole covers. Russ brought along his metal detector-locator and had the job done in no time at all. We would also like to thank Mike Lucas for stopping by on short notice for his assistance in identifying an algae problem in our lagoon cells. The expertise provided by your staff is an invaluable service to our community and we appreciate that you are always there when we call to offer advice and/or assistance.

We have enclosed a donation to your equipment fund as an expression of our appreciation for the services that you offer.

Sincerely,
The Village of Duncan
Board of Trustees and Personnel

Betty Kropatsch
Betty Kropatsch, Board Chair

Joe Boruch
Joe Boruch

Eugene Drozd
Eugene Drozd

Ron Lueschen
Ron Lueschen

Dawn Pensick
Dawn Pensick

Don Reves
Don Reves, Maintenance Supervisor

Sandy Bargmann
Sandy Bargmann, Clerk

TRAINING

Water Operator Training

January 8	West Point
January 10	Firth
April 17	Mitchell
April 18	Chappell
May 7	Newman Grove
May 8	Broken Bow
June 7	Sutton
June 20	Pawnee City
July 16	Chadron
July 17	Valentine
August 14	Spencer
August 15	Bancroft
August 21	Wahoo
October 8	McCook
October 9	Minden
November 20	Mullen
December 17	Central City

Annual Conference

March 18-20

Heartland Event Center
Grand Island, Nebraska

Fall Conference

Sept. 17-19

Gering Civic Center
Gering, Nebraska

Wastewater Training

January 8	Wahoo
February 13	Syracuse
March 13	Central City
March 21	Omaha
April 17	Sidney
May 15	Holdrege
May 16	Ord
June 19	Auburn
July 10	Hebron
August 13	Ogallala
September 11	Dakota City
October 15	Gering
October 16	Broken Bow
November 13	Valentine
December 10	Wahoo

Backflow Continuing Education Training

January 8	Alliance
January 9	Atkinson
February 19	Nebraska City
February 21	Norfolk-Nucor Steel
April 23	Hastings
April 25	Wymore
May 22	Valentine
May 23	O'Neill
September 3	York
September 5	Falls City
September 26	Ord
October 10	South Sioux City
November 19	Wahoo
December 10	Mitchell
December 11	Imperial
December 12	Cambridge
December 18	Wahoo

Grade 6 Backflow Prevention Cross-Connection Control Course - 5 Day

January 14-18	Wahoo
May 6-10	Wahoo
October 21-25	Wahoo

Wastewater Certification Course

January 22-25	Wahoo
April 9-12	Wahoo
June 11-14	Wahoo
August 27-30	Wahoo
October 29-Nov. 1	Wahoo

September 25 Trenching & Shoring Wahoo

September 26 Confined Space Entry Wahoo



35th Annual Nebraska Rural Water Conference

By Pat Petersen, Training Specialist

As a water operator for 21 years I always looked forward to the month of March. Not only because spring was just around the corner but because the Nebraska Rural Water Association would be holding their annual conference. This year's conference will be a milestone for the rural water association - this will be our 35th annual conference. For 35 years the Nebraska Rural Water Association has strived to provide the best educational tools for water operators and systems throughout the state of Nebraska. This conference, entitled "Water, the Necessity of Life," will continue that educational tradition.

The annual conference is scheduled for March 18-20, 2013, in Grand Island, Nebraska, at the Heartland Events Center. This will be our second year to hold our conference at this larger venue. The bigger venue has allowed us to provide more exhibitors with more room to showcase their products and also to have an area for hands-on classroom time. This year there will be hands-on sessions and four or five concurrent sessions for operators, so you can choose where you think you will learn the most. The format of the conference will resemble those we have held in the past but hopefully you will all find new faces not only in the presenters but the operators and exhibitors also.

The conference will start on Monday afternoon, March 18th, at 1 pm with the general session which focuses on areas that will be of interest to all people from operators to administrators and council members. State of

Nebraska Drinking Water Administrator, Jack Daniel, will address the audience with his regulatory update, followed by a regulatory update from the EPA. Several changes have been made with many drinking water rules and regulations so please try to attend this session for the updates. Other highlights of the general session will include an update of current drought conditions in Nebraska, USDA/Rural Development security grants and certain NDEQ funding options. Village board and city council members may attend this general session free, so operators, encourage your bosses to ride along on Monday. An evening meal will be served at 6 pm in the arena following the general session. Then join us back at the Midtown Holiday Inn for a night of fun and games with a chance to win great prizes.

Training sessions on Tuesday will begin at 9 am and should conclude around 5:45 pm. The day will be filled with opportunities to learn about several areas in the drinking water field. Water tanks, asset management, an update from Digger's Hotline and, of course, Barney's favorite-"The Backflow Exercise" are just a few I would like to mention. If you operate a small system, don't miss your chance to discuss issues with other small system operators at our "Small Systems Roundtable." Another round table discussion will be held for rural water systems and, new this year, a backflow roundtable discussion to talk about things you have seen or things you never want to see! At 5:45 pm there will be a social hour followed by a banquet with awards and entertainment.

Everyone will be ready to enjoy a good breakfast Wednesday morning so join us in the arena for a complimentary breakfast followed by the NeRWA annual business meeting. Training sessions will then resume at 8:30 am and conclude at 2 pm.

Blocks of rooms have been made available at the Midtown Holiday Inn, Best Western, and Super 8 Motels in Grand Island. Make your reservations now so you don't miss out on all of the learning and fun!

Municipal Automation & Control
municipalautomation.com

Design, Build, Service

WATER / WASTEWATER CONTROL SYSTEMS

Bill Simmerman - Owner
Cell: (308) 233-4729
bill.s@municipalautomation.com

211 N. Tyler
PO Box 393
Elm Creek, NE 68836
Office/Fax: (308) 856-4730

Nebraska Rural Water Association

Annual Conference Pre-Registration

March 18-20, 2013
Heartland Event Center
Grand Island, Nebraska

Name (1 person per form) _____
 Water System/Company Name _____
 Address _____
 City, State, Zip _____

Pre-Registration
 Deadline is
 March 7, 2013

License numbers MUST be on this form to receive the correct CEUs.

License #: Water: _____ **BF** _____ **WW** _____ **OSWW** _____ **WD** _____

REGISTRATION INCLUDES TRAINING MATERIALS, MEALS AND BREAKS. Registration fees on-site will increase by \$75. No registrations after March 12. Monday is free for all utility/rural water board members. Board Members can attend Tuesday and Wednesday for the price of meal tickets.

I am a Board Member attending Monday (no charge) _____

Tues _____ Wed _____ (Cost of meals only—check meals below)

I am the Voting Delegate _____

DAYS ATTENDING	Member	Member after March 7	Non-Member	Non-Member after March 7
FULL CONFERENCE (all meals)	_____ \$375.00	_____ 400.00	_____ \$475.00	_____ \$500.00
MONDAY (evening meal)	_____ \$100.00	_____ 125.00	_____ \$125.00	_____ \$150.00
TUESDAY (lunch & evening meal)	_____ \$175.00	_____ \$200.00	_____ \$200.00	_____ \$225.00
WEDNESDAY (breakfast & lunch)	_____ \$125.00	_____ \$150.00	_____ \$150.00	_____ \$175.00

All meals are included for each registration. Please indicate below if you will be staying for the evening meals. You will not be charged for them if you are registered—it's for a more accurate count. Guests need to purchase a ticket for every meal. The breakfast on Wednesday is complimentary for all registered for the conference.

Extra meal tickets available	Guest Tickets	Cost	Total	Your Meals
Mon evening		\$25	\$	
Tues lunch		\$15	\$	
Tues Banquet		\$30	\$	
Wed lunch		\$15	\$	

Registration \$ _____
 Tickets \$ _____
 Total \$ _____

NeRWA member: Bill _____ Payment enclosed _____

Non-members—Payment must accompany registration

Name of guest _____

To Register:
 Fax: 402-443-5274
 Mail: Nebraska Rural Water Association
 3390 Ponderosa Street
 Wahoo, NE 68066
 Online: www.nerwa.org
NO PHONE REGISTRATIONS

When making room reservations, mention you are with NeRWA

Midtown Holiday Inn 2503 S Locust St 308-384-1330	Best Western 2707 S Locust St 308-381-8855	Super 8 2603 S Locust St 308-384-4380
---	--	---

DATE REGISTRATION RECEIVED: _____

CANCELLATION POLICY: Cancellations after March 9 will be charged a \$25 processing fee.

For NeRWA office use only: Payment received _____ Check # _____

Hours: Water _____ BF _____ Wastewater _____ OSWW _____ WD _____ Certificate mailed _____

**NeRWA Annual Conference
Heartland Event Center
Grand Island, Nebraska
March 18-20, 2013**

Motels:

**Midtown Holiday Inn
2503 S Locust St
308-384-1330**

**Best Western
2707 S Locust St
308-381-8855**

**Super 8
2603 S Locust St
308-384-4380**



SARGENT DRILLING COMPANY

- Loaner Motor Service
- Pump Repair
- Video Surveys
- Acidizing & Chemical Treatment
- 24-Hour Emergency Service

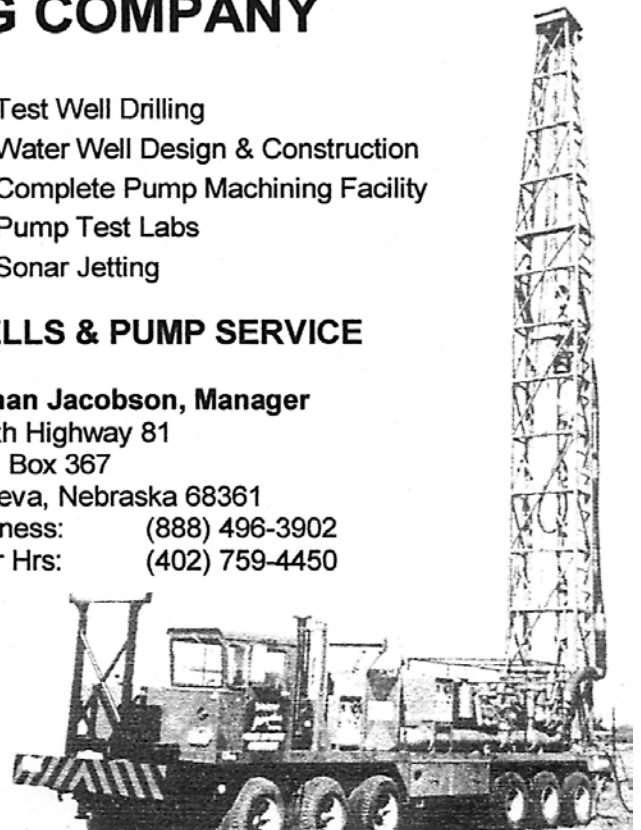
- Test Well Drilling
- Water Well Design & Construction
- Complete Pump Machining Facility
- Pump Test Labs
- Sonar Jetting

COMPLETE MUNICIPAL WATER WELLS & PUMP SERVICE

Gary McCracken, Manager
South Highway 21
P.O. Box 627
Broken Bow, Nebraska 68822
Business: (308) 872-5125
After Hrs: (308) 872-8305

Nathan Jacobson, Manager
South Highway 81
P.O. Box 367
Geneva, Nebraska 68361
Business: (888) 496-3902
After Hrs: (402) 759-4450

MUNICIPAL & INDUSTRIAL DIVISION





Employee Safety and Training

By Mike Lucas, Wastewater Technician

A couple of weeks ago I received an e-mail from Salli reminding us of the deadline for our next magazine article. At that point I started trying to decide what I could share with all of you that might be worth your time to consider. Then, while I was on the road to another appointment for camera work, I received a phone call that gave me direction and also reinforced the direction that has been taken with NeRWA's wastewater training for this year.

Many of you know that occasionally I do get on my soapbox regarding issues that I feel strongly about. This time it's about the value of employee safety and training.

I am very aware that budgets are tight and every effort is and should be made to maintain reasonable utility rates. We must remember that we are responsible to those ratepayers that own the systems that we operate. I know that you are periodically reminded of that fact. However, safety and training are not the place to make cuts. I submit that training doesn't cost, but, in fact, has a payback. Well-trained employees will save the ratepayers/voters money in the long run.

We occasionally have Board Members and Managers attend our training sessions. I always commend them for their commitment to their employees. These people are responsible to ensure training is available to you as employees.

As an employee we are responsible to our families, those that we work with, and the ratepayers who have invested in us to attend the training and then we need to apply that training in our workplace. It is also incumbent upon us as operators to inform our administration of our safety and training needs.

Certified operators are required to accumulate CEU's to maintain their license. However, I suggest that employees that are not required to be certified often times face the same hazards and have the same

needs. They need the same training, too, and at a bare minimum so they will be able to recognize dangerous conditions and situations.

Our first wastewater class for 2013 was held in Wahoo. We discussed VFD's, what they are and costs/benefits involved with them in pumping applications. We discussed potential energy dollar savings in treatment plants and lift stations. Lagoon treatment was considered. Lastly we discussed potential hazardous atmospheres in confined spaces.

The phone call that I referred to earlier was received the day after the Wahoo class. It came from an uncertified operator that had become violently ill after an extended period of time working on wastewater pumps in an enclosed space. I suspect that hydrogen sulfide was the cause. He received medical treatment and at the time of this writing is feeling well. A life may have been needlessly lost in the service to his community. He seriously felt like he was going to die for a couple of days and he expressed to me his concerns for his fellow workers. Think about it!

There are many opportunities for training provided across the state at a very reasonable cost. Please attend those that you can and take a Board Member, manager or office person along. Especially, please consider inviting a non-certified operator from another system to attend with you. You might save a life.

I hope that you all had a great Christmas holiday season and will decide today to be safe in 2013 so that you have the opportunity to enjoy the next holiday season with your loved ones.

**ANNUAL
WATER
TASTING
CONTEST
MARCH 2013**

Sponsored by
**Nebraska
Rural
Water
Association**



The water contest is to be held at the Conference in Grand Island. A panel of distinguished taste testers will judge all samples. The winner will be announced at the banquet on Tuesday, March 19. The winning system will compete against finalists from the other 49 states in the National Contest at the National Rural Water Association Water Rally in Washington DC.

Contest Rules:

1. Sample must be from a Nebraska public water supply system
2. One entry per water system
3. Water must come before any point-of-use treatment
4. Water must come from the distribution system
5. Water should be in clean, unmarked gallon container (preferably glass)
- 6. Entry form must accompany sample**

Water must be received by 3:00 pm on Monday, March 18, at the conference registration table.

Water System: _____

Submitted by: _____

If at all possible, please call out office in advance at 800-842-8039 or 402-443-5216 to let us know you are entering. Thank you.

Remember—bring this completed form with your water!!!

Benefits of the Annual Conference

Now is the time to be thinking about and weighing the benefits of attending a NeRWA annual conference. NeRWA's 35th Annual Conference will be held March 18-20, 2013 in Grand Island, so it is time to be deciding if it would benefit you.

There are many opportunities at the annual conference that are just not provided by the one-day training seminars that are put on around the state. For example, many operators really appreciate the chance to get all of their necessary continuing education hours at one time.

Depending on the location of the conference, most of the Department of Health and Human Services (DHHS) Field Representatives will be in attendance. This gives operators an excellent chance to visit one on one with their field rep and get any questions answered or any concerns taken care of. Although the field reps are in the regulatory business, their goal is public health and they want to assist all public water systems in accomplishing this. If an operator has any question relating to the information given to him by one of the field reps, he can always address the issue with their superior, Doug Woodbeck, and get an explanation from him.

Jack Daniel, the head of the drinking water section attends the conferences regularly, and he has the final say on most things that pertain to drinking water rules and regulations. Visiting with Jack is always an educational experience, and if he is unable to answer your question, he will send you to the person who can answer it. Howard Isaacs is the supervisor of all the rule managers, and he and usually all of them make every effort to attend statewide conferences. Any concerns with the requirements of the various rules that govern public water systems can be covered by the manager for that particular rule. These are the people who know the rules inside and out, and they are always willing to assist a public water system in meeting the standards necessary. They would rather assist a system in staying in compliance than assist them in getting

back into compliance.

The annual conference also includes an exhibit area, and last year there were 65 exhibitors present. These exhibitors represent most of the companies that supply engineering services, equipment, parts and technical know-how for the water and wastewater industries. Attending the conference gives the utility operator the opportunity to visit with these professionals and see firsthand what solutions are available to solve existing problems, and what innovative new products are on the market to solve or avoid future problems. The opportunity to look at and handle the newest available equipment is not available to most operators unless they attend a function where the distributors gather together. Operators also have the ability to pick up informational brochures on all the available equipment and technology to bring back and share with the governing body.

There are also many opportunities for water operators and governing body members to meet and talk with their counterparts from across the state. There is often more learned in an informal discussion with someone who has faced and overcome the obstacle you are facing than there is in a formal classroom presentation on what should be done. All of these opportunities for learning and improving skills in the water operator profession are available at the various conferences, and the improvement in the operator's ability to continue to supply safe drinking water to the customer are well worth the money spent to attend.



Chris Johnson
Jeff Hubby
Greg Wymore

Locations:

4428 South 108th Street
Omaha, NE 68137

(402) 551-7995
(402) 553-5879 Fax

4403 1st Ave SE, Suite 411D
Cedar Rapids, Iowa 52402

(319) 550-6697
(319) 550-6919 Fax



Large Meters—What Do They Really Cost?

By Russ Topp, Circuit Rider

I know large meters are expensive, but can you afford to ignore them? I just sat through one of Pat's water classes and the topic was water meters. Of course, residential meters are very important to maintain and replace. When the time comes, American Water Works Association (AWWA) recommends testing them at least every 10 years, but large meters are important, too. Large meters are much more costly and tend to be ignored for that reason. The presenter at the class gave an example of a water system that had a considerable amount of industry in their community. He said that 20 meters in that system used 80% of the water produced. This system replaces some of these large meters every month! If these meters get even 1% slow it costs the water department thousands of dollars monthly! I realize most small communities in Nebraska do not have this problem, but most do have at least a couple large meters. Most schools will have a large meter. Some other buildings may be: an apartment building, fire barn, locker, laundromat, hospital, jail, food or beverage processing plant, Co-op or agriculture spraying business, just to name a few. Typically these large meters lose the ability to register low flows over a period of time. Most meters have a leak detection device on them. It is usually a triangle or small wheel that indicates a very low flow. Simply watch the leak indicator and have someone flush a toilet or run a faucet slowly and see if it turns. If it doesn't turn you are not being compensated for any low flows into that building. This can add up to a considerable amount of money over a year's time.

AWWA recommends testing 3/4 inch water meters at least every 10 years, 2 inch meters every 4 years, 3 inch meters every 3 years, 4 inch meters every 2 years and 6 inch and larger meters every year. If you have high iron and manganese they suggest testing twice as often!

Another thing to keep in mind is the installation of these large meters. It is imperative to follow the manufacturer's installation instructions when installing

large meters. I got on the web sites of a couple of manufacturers just to get an idea. Both manufacturers highly recommend using a strainer before the meter. This will reduce the amount of straight pipe required before the meter. The strainer actually straightens out the flow before the water enters the meter. It also filters out debris that may enter the meter and interfere with the accuracy. Without the strainer, 10 to 25 times the pipe diameter of straight pipe is recommended before the meter. This means a 2 inch meter would need a minimum of 20 inches of straight pipe before the meter. With the strainer, 4 to 5 times the pipe diameter of straight pipe is recommended before the meter. This means a 2 inch meter would need a minimum of 8 inches of straight pipe before the meter. 2 to 4 times the pipe diameter of straight pipe is recommended downstream of the meter.

Some other items that you may want to consider may be a bypass. Some installations, such as a hospital, may require a bypass. This will allow you to test and repair the meter without interrupting their service. Full open shut off valves should be installed for future maintenance and repair. An expansion joint will make it much easier to install and maintain the meter in the future.

The best advice I can give is to read and follow the manufacturer's recommendations concerning installation and testing for the most accurate meter possible.

**PITTSBURG
TANK & TOWER
MAINTENANCE CO., INC.**

SAVE!
**We have a crew in
YOUR AREA!**

Inspections	Repair	New & Used	Tanks
Wet	In Service Cleaning	Relocation	Elevated
Dry	Paint	Erectors	Underground
ROV	Insulation	Dismantles	Ground Storage
(Robotic)	API	Mixing System	

ROV inspections can be viewed on TV console during inspection & DVD provided. All inspections include bound reports, recommendations and cost estimates.

Hugh McGee
270-826-9000 Ext. 330
www.watertank.com



Training in the Dark

By Barney Whatley, Capacity Development Specialist

In the past couple of months, we have had a couple of occasions where power failures occurred either just prior to or during a training session. With technology the way it is, it is sometimes difficult to continue the training session as planned, since projectors and computers do not run well without electricity. That does not even take into consideration the lack of lighting in the training room. In one of these instances, the power came back on just before the scheduled starting time of the session, and in the other, the power went off just over halfway through the session. Both of these sessions were able to cover at least the majority of the material that was scheduled to be covered, so there was not any real issue. But this got me to thinking of what would happen if the power went off and stayed off during an entire scheduled training session.

If the training facility has enough ambient light to at least see, the training session could be completed the old fashioned way by going over handouts and printed material, where available. Water operators have traveled a ways and have adjusted their schedules in order to attend the training session, and I do not feel that it is fair to them to just cancel it and send them home. On the other hand, we can't just issue certificates of attendance for a session that was never held. I suggest that water operators give some thought to subjects they would like discussed and questions they might have before coming to a training session, so we can cover that information in the event that any particular presenter is unable to get to the training session. This could occur at any training session if the instructor became ill just before the session date and a substitute could not be found.

In one session, there were 40 people scheduled to attend and due to the weather, only 4 were able to get there. Of the presenters that were scheduled for the session, only 2 of the 5 were able to attend, and they had to present the material that might not have been as familiar to them as it could have been. All of the subject matter on the agenda was covered, and fortunately one of the subjects was an operator roundtable to discuss situations operators have faced and how they were resolved. This subject led to some interesting discussion even though there were only a

few operators present, and I think you might find it placed on the agenda of any training session where a presenter is unable to attend.

NeRWA will do everything we can to hold all scheduled training sessions so operators can depend on scheduled classes for their hours. We would like to ask you to come with ideas for discussion in case a natural or man-made event prevents the planned presenters from attending or makes our electronic presentations unusable. Together we can complete an impromptu training seminar that might even be more interesting and informative than the one that was planned.

We hope to see you at upcoming training seminars regardless of the weather conditions. Have a safe and happy year.

**Water Treatment
is our Business**



Hawkins Water Treatment Group has been meeting the requirements of commercial, industrial, municipal and institutional organizations since 1938.

Black Hawk, SD
605-787-6881

Roca, NE
402-420-0755

Sioux Falls, SD
605-368-5793

**NeRWA Conference Agenda
March 18-20, 2013**

Monday Sessions

		Bosselman Conference Center
1:00	2:00	Nebraska Water System Regulatory Update Jack Daniel, DHHS 1w 1wd
.50 break		
2:30	3:00	EPA Regulation Update Ken Deason, EPA Region 7 .5w
3:00	4:00	Existing Drought Conditions And What Does The Future Hold? Allen Dutcher, University of Nebraska Climatologist 1w 1wd
.50 break		
4:30	5:30	Well-Head Protection, Source Water Protection, New Federal Programs Donna Garden/ Mary Schroer, NDEQ NEWARN Update Dennis Watts, Norfolk/Rick Melcher, Aurora 1w .5ww
5:30	6:00	USDA/Rural Development Update Denise Brosius-Meeks USDA/Rural Development .5w .5ww

Conference registration opens at 10:00 am on Monday, March 18, with sessions beginning at 1:00 pm. There is no lunch provided. The evening meal is at 6:00 pm in the Arena. There is a Fun Night at the Midtown Holiday Inn at 7:30 pm.

This is a tentative agenda. Sessions and hours are subject to change.

Monday hours: 4 water, 1 wastewater, 2 well driller.

Tuesday hours: 6 water, 5 backflow, 6 wastewater, 6 well driller. There are 4 on-site wastewater sessions to choose from.

Wednesday hours: 4 water, 1 backflow, 4 wastewater, 4 well driller. There are 8 on-site wastewater sessions to choose from.

**NeRWA Conference Agenda
March 18-20, 2013**

Tuesday Sessions

	Session A - Hands on Area	Session B - Classroom 1	Session C - Classroom 2	Session D - Classroom 4	Session E - Classroom 5
9:00-10:00	Line Tapping and Stops, Mechanical and Freeze Stops Bob Hennig, Municipal Pipe Services 1w	Small System Roundtable NeRWA Staff and Board Members 1w 1ww 1wd	Rural Water System Roundtable NeRWA Staff and Board Members 1w 1wd	Backflow Roundtable Rich Koenig, NDHHS 1w 1ww 1bf 1wd	Well Grout Study and Rehab Tom Christopherson, NDHHS 1w 1wd
.50 break					
10:30-11:30	Line Tapping and Stops, Mechanical and Freeze Stops Bob Hennig, Municipal Pipe Services 1w (Repeat)	Water Tank Asset Management Jake Dugger, Utility Service 1w	Digger's Hotline Update Susan Lynch/Jill Geyer, Digger's Hotline of NE 1w 1ww 1wd 1os	Backflow Incident! Rich Koenig, NDHHS 1w 1ww 1bf 1wd	Total Coliform Groundwater Rule Sherry Wirth/Steve Drda, NDHHS 1w 1wd
1 hour lunch					
12:30-1:30	Under Pressure Valve Insertion Bob Hennig, Municipal Pipe Services 1w	Characteristics of an Outstanding Operator Rich Koenig, NDHHS 1w 1ww	Cured in Place Sewer Lining Lewis Hyatt, Midlands Contracting Inc. 1ww	Trouble Shooting Backflow Devices Bob Jedlicka, Mack McClain Associates 1w 1bf 1wd	Public Notice/CCR Becky Schuerman/Howard Isaacs, NDHHS 1w
.50 Break					
2:00-3:00	Under Pressure Valve Insertion Bob Hennig, Municipal Pipe Services 1w (Repeat)	Lagoon Irrigation Larry Wennekamp, City of Schuyler 1ww	Operator Math Refresher Mike Wentink, NDHHS 1w 1ww 1wd 1bf	Backflow Exercise Barney Whatley, NeRWA 1w 1bf 1ww	Rule Managers Q & A NDHHS 1w 1wd
.50 break					
3:30-4:30		Maintaining Water Quality in Your Distribution System Jake Dugger, Utility Service 1w 1wd	Title 124 Overview and Update Gary Buttermore, NDEQ 1os	Backflow Challenge Rich Koenig, NDHHS 1w 1bf	AMR/AMI Metering & GPS/GIS Mapping Charles Bausch Nick Martin, HD Supply 1w 1ww 1wd 1os
.25 break					
4:45-5:45	AMR/AMI Metering & GPS Mapping (hands on) Charles Bausch Nick Martin, HD Supply 1w 1ww 1wd 1os	Media Relations Between the Water and Wastewater Industry Brian Gongol, Gongol & Associates 1w 1ww	Hydrant Maintenance and Repairs Eric Leatherman, Lincoln Winwater 1w	Collector Well Siting and Construction Henry Hunt, Layne Christensen 1w 1wd	

**NeRWA Conference Agenda
March 18-20, 2013**

Wednesday Sessions

		Session A - Hands on	Session B - Classroom	Session C - Classroom
7:30	8:30	NeRWA Board Meeting and Free Breakfast in the Arena		
8:30	9:30	Trenching and Shoring Midwest Fire Training 1w 1ww 1wd 1os	Principles of Locating Jim Grimes, Rycom 1w 1ww 1wd 1os	Using GPS in the Water and Wastewater Industry Brandon Tourtelotte, Compass Tools 1w 1ww 1wd 1os
.25 break				
9:45	10:45	Trenching and Shoring Midwest Fire Training 1w 1ww 1wd 1os (Repeat)	Digger's Hotline Update Susan Lynch, Digger's Hotline of NE 1w 1ww 1wd 1os	DHHS Field Reps Q and A 1w 1wd
.25 break				
11:00	12:00	Confined Space Hands-on Training Midwest Fire Training 1w 1ww 1wd 1os	Required Records, Reports and Retention Chapter 22 Re-Write Doug Woodbeck, NDHHS 1w 1bf 1wd	Changing Pumping Styles to Optimize Energy Chris Egger, HOA Solutions 1w 1wd 1ww
1.0 hour lunch				
1:00	2:00	Confined Space Hands-on Training Midwest Fire Training 1w 1ww 1wd 1os (Repeat)	Implementing a Drought Mitigation Plan Randy Hellbusch, NeRWA 1w 1wd	Infrastructure and Pipe Rehab Options Brian McCrary, Insituform Technologies 1w 1ww 1os


Registration on Tuesday opens at 7:30 am. Lunch will be provided today. There is a Social Hour from 5:45-6:45 pm. The meal will start at 6:45 pm with the awards and entertainment beginning at 7:45 pm. Wednesday starts with registration at 7:15 am. The complimentary breakfast is at 7:30 am with the annual business meeting at 8:00 am. Lunch will be provided.




**Water Storage
Wells & Transmission Mains
Distribution System | Water Treatment
Water Rate Studies & Flow Analysis
Water System Mapping
Water Booster Stations
Rural Water Districts**

800.723.8567
jeo.com

ENGINEERING ■ ARCHITECTURE ■ SURVEYING ■ PLANNING

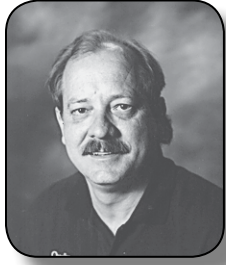


**DYK and Natgun
Generations Strong**



Sustainable Infrastructure
Prestressed Concrete Water Storage Tanks

913.681.6006 | www.dntanks.com
Dave Ornduff, Regional Manager
dave.ornduff@dntanks.com



Drought in 2013? Is Your System Prepared?

By Randy Hellbusch, Circuit Rider

I received an e-mail on an article from NET Nebraska entitled “2013: A New Year, Same old Drought.” Below is a quote from that article.

“Unfortunately (the drought is) not over and we’re definitely starting 2013 in a different status than what we entered 2012,” said Michael Hayes, director of the National Drought Mitigation Center based at the University of Nebraska-Lincoln.

I know several water systems in Nebraska were taxed last summer due to the dry conditions. Is your system ready for another possible record dry summer? Although no one can predict or control the weather, there are steps that can be taken to ensure that your water system will be able to keep up during times of peak usage. One of the best steps that can be taken is to curb that peak. The best way to accomplish this is with an appropriate conservation ordinance.

Every water system is unique and in order to develop a good conservation ordinance a water system must rely on historical data. This is where good record keeping is a must. It is important to know what the drawdown levels have been in past years in conjunction with gallons of water pumped. How many hours per day do your wells run on a normal summer day vs. an extremely hot, dry time.

With this information it is possible to decide when action is needed. Most drought plans/ordinances are implemented in stages: Water Watch, Water Warning & Water Emergency.

For example, a Water Watch may be triggered when water levels are 5’ below normal, water consumption is 20% higher than normal or wells are running 14 hours per 24 hour period. At this point the system may elect to do public education and ask that non-essential water use be limited.

A Water Warning may come into effect, for example, if water levels fall 10’ below normal, water consumption is 30% above normal or the wells are now running 18 hours per 24 hour period. At this point the system may need to inform the public that outside watering will be

limited to a certain number of hours per day and only during certain times of the day.

A Water Warning may come into effect, for example, when water levels are only 5’ above well screens, water consumption is 50% above normal or the wells are running 20+ hours per day. At this point the system may need to ban all outdoor water use and prohibit the wasting of water.

A Drought/Emergency Ordinance is one of those tools that every water system hopes they never need to implement. However, now is the time to look through records and make decisions as to at what point would it be necessary to address water usage and/or start educating the public on the need to conserve. NeRWA has sample drought ordinances and information regarding conservation measures. If we can be of any assistance, just give us a call.

EP
ELECTRIC PUMP

*Proudly Serving the Municipal/Industrial Water
and Wastewater Market in: Iowa, Illinois, Minnesota, Nebraska,
North Dakota, South Dakota and Western Wisconsin*

Des Moines, IA
515-265-2222 / 800-383-PUMP (7867)

New Prague, MN
952-758-6600 / 800-211-6432

Fargo, ND
701-293-0204

Omaha, NE
800-383-7867

www.electricpump.com

Factory authorized shop and field
service for all products offered

Process Equipment is offered by EPI Environmental.
Please see the website at www.epi-environmental.com

Bartlett & West
innovation
collaboration
stability
consistency
resources

&
YOU

At Bartlett & West, you are our priority. When your needs grow, we grow to meet that demand. By creating cost-effective design, adding new technology and providing innovative services, we become far more than your engineering firm - we become your solution.

From start to finish...
it's Bartlett & West and
you

Water Engineering Services

- Preliminary, feasibility, and design reports
- Water source, treatment, and distribution design
- Long-range strategic and financial planning
- Regulatory compliance—strategies and planning
- GIS, GPS, and specialized system modeling
- Permitting, land rights, and easement management

BARTLETT & WEST
SERVICE. THE BARTLETT & WEST WAY.

1200 SW EXECUTIVE DR ■ TOPEKA KS ■ 888.200.6464 ■ BARTWEST.COM

BOARD OF DIRECTORS

The following NeRWA board members will be running for re-election to the association Board of Directors at the annual conference in Grand Island held on March 18-20, 2013.

Tom Goulette, City of West Point
Gene Schroeder, Cedar Knox Rural Water

One position must be filled by a delegate from a municipality and the other one by a delegate from a rural water system.

Requirements for the above position:

- Must be the voting delegate or alternate delegate from system
- Must attend monthly board meetings
- Attendance at the spring conference is required
- Attendance at the fall conference is encouraged
- Occasional out-of-state travel is possible

If you are interested in running for the board, please submit a letter and resume so indicating. The deadline is March 12, 2013. If you have any questions, please do not hesitate to contact our office.



Winter Driving Safety

By Mike Stanzel, Deputy Circuit Rider

With the winter season upon us and after spending nine hours on the road driving in snowy conditions, I thought it would be appropriate to share some winter driving tips that can also be practiced year round.

Using a company or city vehicle means you have a responsibility to ensure the safety of yourself, your passengers and other drivers. Driving is a large part of our jobs. We drive in all sorts of weather conditions, so safety is a priority. Here are 10 tips to follow when driving.

- **Keep the Vehicle Safe** - One of the most common maintenance problems that can lead to a crash is improper tire pressure. Uneven tire pressure, or pressure that is too high or too low, can impact vehicle performance or lead to a blowout. It is always a good idea when approaching your vehicle to do a quick visual inspection.
- **Practice Defensive Driving** - You should ALWAYS be on the lookout for the other guy. You can be following all traffic laws and still be in an accident because of the other driver.
- **Be Aware of Your Surroundings** - Watch for other traffic and obstacles in the road. When possible, back into a parking space. If backing in is not possible, walk behind your vehicle to ensure there are no obstacles in your way.
- **Don't Follow too Close** - Safe driving guidelines advise drivers to keep a safe distance between themselves and the car ahead. Drivers need enough time to react if the car ahead makes a sudden move or stop. Use the 3 second rule.
- **Be Extra Careful in Bad Weather** - If you're driving through fog, heavy rain, snow, or on icy roads, be extra cautious. Drive below the speed limit, maintain extra space between you and other vehicles, and be especially careful around curves.
- **Wear Your Seat Belt** - It is company policy and the law.
- **Don't Drive Drowsy** - You might think a few yawns are nothing to worry about, but just being a little drowsy is enough to increase your risk of getting in an accident.
- **Avoid Distractions** - Eating, talking or texting on cell phones, fiddling with electronic devices or interacting with passengers diverts a driver's attention in potentially deadly ways. Perhaps the best advice on driving distractions came from rocker Jim Morrison: "Keep your eyes on the road, your hands on the wheel."
- **Don't Speed** - Take your time and obey posted speed limits. Speeding increases your chances of being in an accident. If you really need to get there as fast as possible—Leave Earlier!
- **Don't Drink and Drive** - Alcohol causes a number of impairments that lead to car accidents. Even at low blood alcohol levels, it reduces reaction time and coordination and lowers inhibitions. Drinking and driving is also against company policy and the law.



ATTENTION...

We are running low on pictures of water towers. Send us your tower!!!

We are putting the water towers of Nebraska on our cover and are featuring a different tower on each issue. We have only used up a fraction of the towers in the state.

Let us add your name to our list and see how long it gets. Either send a photo to our office or email a picture for our website.

**NEBRASKA RURAL WATER ASSOCIATION
SCHOLARSHIP APPLICATION 2013
(Please type or print)**

Personal Data

NAME _____
Last First Middle
ADDRESS _____ CITY _____ STATE _____ ZIP _____

Eligible System Employee Data

NAME _____ TITLE _____
ADDRESS _____ CITY _____ STATE _____ ZIP _____
MEMBER SYSTEM _____ TELEPHONE _____
RELATIONSHIP TO APPLICANT _____ EMAIL _____

High School Data

SCHOOL NAME _____ GRADUATION DATE _____
ADDRESS _____ CITY _____ STATE _____ ZIP _____
YOUR CLASS RANK _____ NUMBER OF STUDENTS IN CLASS _____ YOUR GRADE POINT AVERAGE _____
(Transcript must be submitted with application)

LIST BELOW ANY ACADEMIC AWARDS, MEMBERSHIPS OR OTHER SPECIAL RECOGNITION YOU HAVE RECEIVED DATING BACK TO YOUR SOPHOMORE YEAR.

College/University Data

IS THIS YOUR FIRST YEAR OF HIGHER EDUCATION? YES _____ NO _____ IF NO, CREDIT HOURS COMPLETED _____
NUMBER OF CREDIT HOURS REQUIRED TO GRADUATE _____ COLLEGE GRADE POINT AVERAGE _____
SCHOOL NAME _____
ADDRESS _____ CITY _____ STATE _____ ZIP _____

PLEASE INDICATE: _____ 4-YEAR COLLEGE/UNIVERSITY
_____ 2-YEAR COMMUNITY/JUNIOR COLLEGE
_____ VOCATIONAL TECHNICAL SCHOOL

MAJOR COURSE OF STUDY _____
Priority will be given but not limited to water related studies.

Essay

ON A SEPARATE PAGE IN 250 WORDS OR LESS, WRITE A BRIEF MESSAGE ON YOUR GOALS AS THEY RELATE TO YOUR EDUCATION, CAREER AND FUTURE PLANS

Certification

IN SUBMITTING THIS APPLICATION, WE CERTIFY THAT THE INFORMATION PROVIDED IS COMPLETE AND ACCURATE TO THE BEST OF OUR KNOWLEDGE. FALSE INFORMATION WILL RESULT IN THE REVOCATION OF ANY SCHOLARSHIP GRANTED.

Applicant's Signature _____ Date _____

Parent Signature _____ Date _____

NeRWA SCHOLARSHIP APPLICATION

The Nebraska Rural Water Association is pleased to announce it will be presenting two \$500 scholarships for higher education purposes for the school year 2013-2014 fall and spring semesters. The scholarship is available to children and stepchildren of member public water system employees. Employees of the Nebraska Rural Water Association Board of Directors and staff are not eligible. Interested persons should complete and submit the application in this mailing. Applications are due March 5, 2013. Please type or print – printing must be legible. Winners of the Scholarships will be announced at the Columbus Conference in March. Send all information to the address on the front of this mailing.

Official Rules

This grant of Five Hundred Dollars (\$500) will be made to a student to defray the cost of tuition, books, or room and board at an accredited institution of higher learning approved by the Nebraska Rural Water Association (NeRWA). Disbursement of the money will be made upon presentation of winner’s college or university invoice as proof of full-time enrollment. The scholarship money will be paid directly to the student, two hundred fifty dollars (\$250) per semester. The scholarship will be awarded to children or stepchildren of member utility system employees. In order to be eligible for scholarship, applicants must complete the application form in its entirety by filling in all blanks. If item is not applicable please place a N/A in the blank. Upon completion return it to the NeRWA Scholarship Committee by the entry deadline, March 5, 2013. All applications will be first screened on the basis of leadership responsibilities in community and school activities as well as grade point average. Applicants will be evaluated on a comparative basis at the sole discretion of the committee. Decisions will be final. Application material and decisions of the committee shall be confidential. Acceptance of scholarship constitutes permission to use recipient’s name and/or likeness for purpose of promotion.



The Nebraska Rural Water Association is pleased to announce they will be presenting two \$500 scholarships for higher education purposes for the school year 2013-2014 fall and spring semesters.

The scholarship is available to children and stepchildren of member public water system employees. Employees of the Nebraska Rural Water Association Board of Directors and staff are not eligible. Interested persons should complete and submit the application inserted in this quarterly.

Applications are due March 5, 2013. Please type or print – printing must be legible. Winners of the Scholarships will be announced at the Columbus Conference in March. Send all information to:

**NeRWA
3390 Ponderosa Street
Wahoo NE 68066.**

If you have any questions, please give our office a call – 800.842.8039 or 402.443.5216.

The following article is from "*Questions & Answers for Water Work Men, Vol I*". These questions and answers represent the joint work of 22 of the nation's leading water works engineers. Copyright 1946.

This article is "*Back-Siphonage and Cross Connections*". You can compare it with today's standards and see what changes have been made over the years.

BACK-SIPHONAGE AND CROSS CONNECTIONS

What constitutes a cross-connection?

There has been some tendency to use the words cross-connection to describe any connection or equipment which may permit pollution of a safe water supply. Thus a cross-connection has been defined by some as "any physical connection or arrangement of pipes between two piping systems whereby water may flow from the system containing unsafe water to the one containing the safe supply." This definition is too broad; the American Standard for "Air Gaps and Back-flow Preventers," (ASA-A40.4) defines the above-quoted definition as a "back-flow connection or condition."

A cross-connection should be restricted to the definition set up by the Cross-connection Committee of the A.W.W.A.; namely, "Any physical connection by means of which water may flow between a public or private potable supply and a nonpotable supply, or an unapproved supply." It is the intent that the term cross-connection be used only for describing so-called direct, physical connections between potable and unsafe supplies, and to exclude pollution hazards due to "inter-connections" with plumbing fixtures, submerged inlets, and other connections which are more or less a part of the plumbing or process piping system.

What are the regulations relating to cross-connections, and who sets them up?

It undoubtedly can be stated that all sanitary and waterworks engineers oppose cross-connections; however, there is a considerable lack of uniformity in the manner in which this opposition is expressed in practice. All states have some sort of regulations relating to cross-connections; however, in about half of the states the control is under a very general law, and definite rules and regulations are lacking. In about half of the states, all types of cross-connections, whether protected or not, are prohibited. However, because of lack of enforcement, or owing to special conditions, a certain number of cross-connections do get put in, some unlawfully, others with special permission.

Boards of health, state and local, have, of course, police power to enforce regulations regarding cross-connections. However, the fact should not be overlooked that water departments can do much in helping to eliminate cross-connections. Water service can be refused if the presence of cross-connections on consumer's premises would cause pollution of the public supply.

An example of a specific regulation against cross-connections is that of the District of Columbia Health Department, which states: "No water supply pipe connected with the public main shall be cross-connected in any manner to any pipe supplied with water from . . . any other source than the public main." A Duluth, Minnesota, ordinance reads as follows: "Should any connection be found to exist on any premises between the City's waterworks system and water from any other source . . . the water supply shall forthwith be shut off until compliance with the notification (to eliminate cross-connection) shall have been accomplished."

Are cross-connections between a potable and an unsafe supply ever permitted; if so, when and where?

The principal demand for the establishment of cross-connections comes from fire-insurance companies and from property owners who desire two rather than one source of water supply in order that there may be additional protection of life and property. About half of the states permit, more or less, cross-connections for fire-protection purposes if protected with double check-valves, usually of the all-bronze, "Factory-Mutual" type. Some, however, permit them only on existing installations. The older, industrial states are more lenient with respect to permitting protected cross-connections.

In most places the establishment of any new direct cross-connection is prohibited as a matter of general policy. Where conditions are such that immediate elimination of existing cross-connections would involve undue fire risk to life and property, they are permitted provided double check-valves of ap-

proved type, so designed as to facilitate inspecting and testing, are installed. In other words, care must be taken to avoid displacing one potential hazard with another.

What has been the experience with the use of double check-valves?

In general, periodic inspections of installations of all-bronze, rubber-seated, double check-valves of the "Factory-Mutual" types has indicated that leakage, even of one of the valves, is quite rare. In other words, insofar as periodic inspections can give any indication, properly installed and supervised double check valves have given a favorable performance record. However, it must be kept in mind that the lodging of rust and sediment on the valve seats can occur at any time, and the fact that leakages are not discovered at inspection times does not mean that they would never occur. A leakage is, more or less, a matter of chance.

Recently, another type of backflow-prevention arrangement has been placed on the market which in operation is considerably different from the standard double check-valve unit. This new arrangement consists of two check valves of the globe type which are closed by hydraulic pressure whenever the pressure on the unsafe-water side rises above that on the safe-water side. The unit is so arranged that the pressure in the chamber between the two checks drops to atmospheric whenever the unsafe-water pressure rises above that on the safe-water side. In addition, a vacuum-relief valve is installed on the safewater side of the unit. Though this unit is appreciably more complicated than the ordinary double check-valve arrangement, it does appear to have considerable merit, and bears watching, since in many respects, it is the first definite improvement in the prevention of backflow since the introduction of the all-bronze, rubber-seated, double check-valve unit.

Have there been recent instances of water pollution traceable to cross-connections?

We have, of course, records of a great many water-borne disease outbreaks in the past due to cross-connections. These have been reported in papers and reports of the journals of A.W.W.A and American Public Health Association. Recently several instances of serious water pollution and outbreaks of gastro-enteritis in shipyards and harbor areas have been traced to cross-connections being made between the public supply and ship's fire-protection systems which are supplied

with harbor water by ship pumps. Such connections are made by hose connections to "pier-head" nozzles. One such instance which occurred in an Oregon shipyard is quite completely described in the April, 1944, issue of the A.W.W.A. Journal.

This whole problem has become so serious that the National Research Council has appointed a special committee to study it and submit recommendations.

What should be the regulations in regard to cross-connections?

Many individuals have given considerable thought to exactly what long-time policy a health or water department should adopt in regard to cross-connections. Committees of the A.W.W.A. and the N.E.W.W.A. have gathered considerable data, and have made their suggestions and recommendations. The consensus of opinion seems to be as follows:

1. Prevent all new cross-connections.
2. Eliminate existing cross-connections as quickly as possible, and permit existing cross-connections only when the fire hazard would become too great without them.
3. Require all existing cross-connections to be made with all-bronze, double check-valves which are properly installed, tested, and inspected periodically by qualified individuals. (The new type of back-flow unit described under question 4 should be included.)
4. Fire protection-programs should not include the making of temporary cross-connections between polluted water sources and the safe public supply.

What should be the attitude of the water utility in supplying water to premises having an unpotable water-piping distribution system?

This is a problem which many individuals believe merits most serious consideration by waterworks engineers; however, to date there are probably very few places where any policy has been formulated in regard to this particular item. Because of the human element involved, the dual water system, especially in an industrial plant, is potentially bad from a cross-connection standpoint. The temptation to make cross-connections at times is very great, and those made are many times very difficult to find even where periodic inspections are conducted. Because of this, it has been repeatedly suggested that all public services to such premises be protected by the double check-valve arrangement, in order that any possible pollution of water on the consumer's premises could not get back

into the public supply. There is undoubtedly considerable merit to this idea, and it certainly should be carried out where a consumer has been lax in keeping his two supplies separate at all times.

What about pollution from faulty plumbing fixtures and connections due to back-siphonage?

Most waterworks engineers feel that possible pollution from plumbing fixtures and other so-called indirect cross-connections is a matter for the plumbing-inspection department to handle. This may be the case insofar as the legalistic angle is concerned; however, there can be no question but what any water utility is more or less obligated, or certainly wishes, to provide a safe water to the point of consumer's use. Also, it should be remembered that it is entirely possible for polluted water on the consumer's premises to get back into the street main, even when no vacuum exists therein. All that is required to cause such pollution, is for someone on the line, even at a distance from the polluted system, to suddenly draw off a particularly large amount of water.

In consideration of the above, it is obvious that the water department is, and should be, very much interested in what kind of fixtures and connections are made on the user's premises to the water piping connected to the department's mains. In fact, in several localities the water department has been given the jurisdiction to inspect and approve the water-piping and fixtures of a plumbing system before it supplies water to that system. In any case, any water department, whether it has the authority to inspect plumbing water-piping systems or not, should concern itself with the possibilities of water pollution from faulty plumbing connections, and should cooperate closely with the department that does have such authority. The enforcement of back-siphonage-prevention measures is many times much easier if the consumer is threatened with shut off of his water supply.

What are the approved methods of protecting against back-siphonage?

In the last decade or so tremendous progress has been made in the development of back-siphonage protective methods, and even more progress in the setting up of regulations in codes. There is no reason why any plumbing code should not have a complete and workable set of regulations relating to back-siphonage prevention. After several years of work by a representative Committee,

the American Standards Association, 29 West 39th Street, New York 18, N. Y., has now published the American Standard for "Air Gaps and Back-Flow Preventers" (A40.4 and A40.6). These standards can be referred to, or incorporated, into, any plumbing code, thus assuring that that code has up-to-date, complete regulations relating to back-flow prevention from plumbing fixtures.

These Standards recognize that a proper air gap is the safest way to prevent backflow. However, we should also realize that such protection is not always possible; hence, we find a need for so-called back-flow preventers or vacuum-breakers. The safe air gaps for various common-type plumbing fixtures, as well as for other types of water inlets, are very completely specified in these Standards.

The Standards list two types of vacuum-breakers: those whose performance in preventing backflow depend on the automatic, mechanical operation of one or more solid moving parts, and those whose functioning does not in any way depend on the operation of movable parts. The general design, place of installation, and testing of back-flow preventers is thoroughly specified. The general specification for the location of vacuum-breakers states that they must be installed where—over long periods of time—they will be subject to pressure. In other words, they must be installed on the discharge side of the last control valve to a fixture. An acceptable vacuum-breaker for use under more or less constant pressure is as yet to be developed.

Where have there been recent instances of public water supply pollution through cross connection?

During the war years, the number of cases of pollution of the public water supply by cross connections have increased considerably. The majority of instances of backflow of polluted water have occurred in harbor areas, where fire pumps aboard ships have pumped harbor water into the public supply mains through pierhead connections which were made for fire protection or for domestic use of water aboard ship.

There have also been instances of backflow, due to cross connections between the drinking water system and an auxiliary process water system in industrial plants. Because of wartime censorship, the details regarding many of these cases of pollution have not been revealed. Suffice it to say, there have been thousands of cases of various gastrointestinal disturbances.

What actions might have been taken, that would have prevented the above instances of water supply pollution?

In all cases, the cross connections made were definitely in violation of local ordinances, but because of war conditions, proper inspection and enforcement of the regulations were not attained. It is, of course, foolish to discuss the general principle that if someone had, or had not, done something, the backflow would not have occurred. No dependence can be placed on human actions for prevention of backflow through cross connections.

No cross connection between a safe and an unsafe supply should, of course, ever be made or allowed to exist unless such a connection is vital to fire protection. In that case, a double check valve arrangement, or one of the newly developed backflow preventors, should be used. In cases where it becomes doubtful that all pollutional hazards on a user's premises will be eliminated and remain eliminated, the water department should require the installation of a backflow preventor or double check valve arrangement on the service line entering the premises, in order that the public mains be protected.

What actual cases occurred of the pollution of a public supply due to back-siphonage from faulty plumbing?

In several barracks buildings taken over by the U. S. Army for training purposes, overloading of the water supply system caused vacuum formation in the pipes and backflow from toilet fixtures. Sickness occurred, but data as to numbers and types of sickness is not available.

An extensive water-borne disease epidemic caused by faulty plumbing was reported in the September 1944 issue of the *American Journal of Public Health*. This epidemic occurred in Newton, Kansas, and investigation by sanitary engineers revealed that the cause was due to frost-proof hydrants and toilets. Evidence indicated that sewage entered the temporarily shutoff water supply mains through the drain openings in the frost-proof hydrants and toilets. There were some 3,000 cases of dysentery and several fatalities.

What changes in water piping would have been necessary to prevent this back-siphonage of pollution into the water supply piping?

In so far as toilet fixtures in buildings are concerned, the necessary changes for preventing back-siphonage are two-fold: Increase the size of the

main supply piping to and in the buildings, and install vacuum-breakers on the faulty fixtures. With regard to the frost-proof plumbing, the solution of the problem is far from simple. It is extremely difficult to prevent submergence of the drain openings from the valves to this type of fixture, since these openings are always located underground or in pits. We have come to the conclusion that it is best to avoid the use of this type of plumbing fixture.

To what extent have war conditions increased the danger of pollution of potable waters by cross connections and back-siphonage?

Instances of water pollution have increased in number during the war because of several factors: Cross connections in harbor areas and war industry plants have increased, primarily due to the fact that those in charge of the water supply facilities were unaware of, or refused to recognize, the dangers of cross connections, and in many instances local authorities were told they had no jurisdiction in the matter. Overloading and overcrowding of buildings, without increasing the water supply piping has caused frequent vacuum formations, especially in areas where large water demand made it impossible for water departments to maintain adequate pressures.

Has the question of wartime conditions increasing the likelihood of pollution of public water supplies been specially investigated?

Yes; about two years ago the Division of Medical Sciences, National Research Council, appointed a subcommittee of engineers, who were acquainted with the problem of cross connections and back siphonage, to investigate the entire problem and submit a report. Recently this subcommittee completed its final report and it was published in its entirety in the March 1945 issue of the *Journal of the New England Water Works Association*; a summary appeared in the March 7, 1945, issue of *WATER WORKS ENGINEERING*.

What did this special investigation disclose?

This investigation disclosed that cross connections and back-siphonage hazards were extremely prevalent. In one large city, the records showed the existence in some 300 plants and military establishments of about 5,000 cross connections with sewers, non-potable supplies, process water, and pierhead connections; there were also some 10,000 back-siphon-

age connections. Returns from a questionnaire sent out by the subcommittee indicated the recent occurrence of twenty disease outbreaks and that some 100,000 people were exposed to disease hazards due to water pollution.

The subcommittee report states that many cases of serious pollution through pierhead connections were not reported by the military to civilian agencies. The report lists five methods for preventing backflow into potable water systems.

Under what conditions should a water works superintendent endeavor to make a survey to determine whether cross connections exist in the water supply system under his jurisdiction?

Such a survey should be undertaken whenever it is suspected that cross connections are being maintained with piping connected to the public water supply system. It should not be delayed until cases of water pollution appear. Whether the water department conducts the survey itself or with various degrees of cooperation with the health or building inspection is immaterial.

In any case, the water supply superintendent should realize that cross connections on private premises can pollute not only the water in those premises but also the water in the adjacent mains. It is, therefore, his moral and legal right and duty to be cognizant of any possibilities of water pollution.

A very excellent example of what a water department did in regard to cross connection control is demonstrated by the program inaugurated by the Water Board of Los Angeles, Calif. During the last several years this city has spent some \$3,000,000 on this program, which has resulted in the elimination of some 50,000 cross connections. A report on this work was given in the April 18, 1945 issue of WATER WORKS ENGINEERING.

Should such a survey include the piping on private premises?

Yes, very definitely. That is where most of the cross connections are to be found. Polluted water, once it enters a piping system will not restrict its movements so as to remain on private premises. Water works superintendents would do well, in thinking about the possibilities of pollution in their water, to consider the entire piping system, from the source to consumer's tap. Let there be no quibbling about "legal" responsibilities.

Ordinarily, is the water department or the health department responsible for the water pipe layout on private premises from the viewpoint of water supply protection?

In most instances the health or building department has charge of the inspection of the interior water supply piping. Unfortunately, there are many localities where the plumbing code regulations do not cover water supply piping, but only the drainage system. In other words, the supply piping is not even inspected.

Also, certain water piping in industrial establishments is not considered as "plumbing" and is beyond the jurisdiction of the plumbing inspector, even though it is connected to the public supply. The water department must interest itself in, and be vitally concerned with, the water supply piping on private premises. If it does not do the actual inspectional work, it should nonetheless cooperate with and impress on the department which is charged with that responsibility the importance of water piping system inspection.

Water departments in several localities have assumed direct responsibility for piping inspection on private premises. In addition to the Los Angeles, Calif., example cited previously, the water department of New Bedford, Mass., has its own "Inspector of Inside Water Piping Installations."

Who should conduct a back-siphonage and cross connection survey?

In most instances, the health department or the building and safety department, using their own plumbing inspectors, have conducted surveys on cross connection and back-siphonage hazards. In some cases, the surveys have been instigated by the water department. In any case, close cooperation between the health and water departments is very necessary, especially in handling recalcitrant individuals who refuse to cooperate in cross connection elimination.

In connection with the Los Angeles survey, it was found that considerable training was necessary before a man was qualified for cross connection inspection work. Thus; it was found that ordinary plumbing inspectors needed from six to twelve months training before they could do the job satisfactorily. It is far from being a simple job, and engineering training is very desirable.

DON'T REPLACE IT. PRESERVE IT.

Maximize the life of your water storage tank and avoid expensive repairs with Caldwell Tanks' exclusive Tank Asset Preservation® (TAP) program.

American-owned Caldwell Tanks, Inc. is the oldest and largest full-service tank company in the world. Supported by Caldwell's 36 in-house engineers and 15 NACE certified coating inspectors, our trained Preservation Teams draw on over 125 years of tank expertise and experience to ensure your tank stays safe, sanitary, secure and looking its best.

TAP full-service maintenance contracts cover every facet of tank repair and maintenance, including:

- Annual Inspections
- Interior Clean Outs
- Exterior Repainting
- Repairs & Replacement of Parts
- Graffiti Removal
- Interior Relining
- TAP-APP Mixing System

Don't get stuck in the expensive cycle of paying for emergency repairs and repainting.

Call Caldwell Tanks today or visit us online at CaldwellTap.com.

502.964.3361 • Fax: 502.966-8732 • Sales@CaldwellTanks.com
www.CaldwellTanks.com



DO YOU COMPLY?

On January 4, 2014, waterworks brass will change forever.

The No-Lead Law affects you. The Ford Meter Box Company is ready for 2014 and can help you make the transition to no-lead brass.

FORD www.fordmeterbox.com

MUNICIPAL PIPE SERVICES

- LINE STOPPING 3/4" - 60"
- LINE TAPPING 2" - 60"
- VALVE INSERTION 4" - 16"
- VALVE TURNING
- PIPE REPAIR



For all your POTABLE and WASTE WATER needs

BOB HENNIG
 SALES MANAGER
 1615 WEST "J" STREET
 HASTINGS, NE 68902

1-800-395-7473
 CELL: 402-469-1886
 FAX: 402-462-4408
 E-MAIL: BOB@MUNICIPALPIPESERVICES.COM



WWW.MUNICIPALPIPESERVICES.COM

Nebraska Good Water News

Nebraska Rural Water Association - 3390 Ponderosa Drive - Wahoo, NE 68066
 Home | Office | Membership Info | Training | Annual Conference | Fall Conference | EXPO

Contact NeRWA... ▼

NeRWA Staff

Training Specialist
Water Circuit Rider I
Water Circuit Rider II
Water Circuit Rider III
Wastewater Tech.
GIS/GPS Mapping Specialist
Deputy Circuit Rider
Capacity Development Specialist
Office Manager
Secretary
Board of Directors



News & Downloads Page NEW

Register on Line for Training
 Available Equipment



BARTLET
 SERVICE. THE BARTL



Informational Links

National Rural Water
USDA Rural Development
NE Public Water Supply
HHS License Information
Check your tests Results
EPA Wastewater
EPA Drinking Water
Nebraska DEQ
League of Municipalities
Nebraska Section, AWWA
AWWA Library Reference Listings
NeRWA Associate Members
Archived "Good Water News" Articles

NeRWA Contact Information:

Nebraska Rural Water Association
 3390 Ponderosa Street
 Wahoo, NE 68066

Office phone numbers:

800-842-8039
 402-443-5216
 Fax: 402-443-5274
 Website: www.nerwa.org
 Email: office@nerwa.org



Cell

Email

Randy Hellbusch
 Mike Lucas
 Pat Petersen
 Mike Stanzel
 Russ Topp
 Barney Whatley
 Salli Kemerling
 Carol Jasa

402-443-8535
 402-443-6157
 402-277-6699
 402-672-9084
 402-480-4196
 402-480-4297
 402-277-0839

randy@nerwa.org
lucas@nerwa.org
pat@nerwa.org
mike@nerwa.org
russ@nerwa.org
barney@nerwa.org
Salli@nerwa.org
Carol@nerwa.org



America's Tank Maintenance Company!™



Utility Service is the premier provider of professional water tank services:

- Maintains thousands of potable water tanks under full service asset management programs
- Delivers true sustainable solutions and peace of mind
- Provides site management services for antennas on existing and new tanks



A water quality management tool...WaterMix™
The Right Mix for Cleaner Water

- Minimize organics
- Stabilize disinfectant residuals
- Eliminate thermal water stratification
- Maximize filter media efficiency

utilityservice.com

Call your local Utility Service Representative today...

Kent Kuehl • 402 689.6708
kkuehl@utilityservice.com • Omaha, NE

Jake Dugger • 402 651.6450
jdugger@utilityservice.com • Omaha, NE

From the Ground Up!

Building and maintaining great tanks, that's what Maguire Iron has been doing since 1915. We are now in 30 states so let us do it for you too from the ground up!



We **designed** it. We **fabricated** it. We **erected** it. We **painted** it. We **maintain** it.



P.O. Box 1446 Sioux Falls, SD 57101 605 334-9749
www.MaguireIron.com

Nebraska Rural Water Association

3390 Ponderosa
Wahoo, NE 68066

PRSR STD
U.S. POSTAGE
PAID
MAIL U.S.A.



“Local Service, Nationwide”

**10707 S. 149th Street
Omaha, Nebraska**

Sensus Meters & AMR Equipment
Smith-Blair Clamps & Couplings
Ford Meter Box Company
Febco Backflow Devices
Tyler Fittings & Valve Boxes
Griffin Ductile Iron Pipe
AY McDonald Curb Boxes
Uni-Flange Adapter Flanges
Megalug Mechanical Joint Restraint
Star Pipe Products
McElroy Equipment Rental

American Darling Valve & Hydrants
JM Manufacturing PVC Pipe
PVC Round Meter Boxes
Hymax Couplings & EZ-Max Repair Clamps
Contech Construction Products
Cherne Testing Equipment
Live Tapping Services
Northern Pipe Products
Mueller Gas Distribution Products
ADS HDPE Corrugated Pipe
GPK Products

Phone (800) 247-6811

FAX (402) 896-6379