

Issue 3/2008

Nebraska Rural Water Association



NEBRASKA GOOD WATER NEWS

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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.

On the cover:

Water tower in Lyons was completed in June of 2007 by EAI Central of Olathe, Kansas.

How'd We Do and Letters From...

Jim -

The City of Sargent thanks you for the time you spent as well as the use of your camera
Need I say more?

equipment on our sewer lines. This donation is being made for the updating of the necessary equipment for projects like this.
Thank You City of Sargent



KEEP FREMONT BEAUTIFUL COMMITTEE

925 North Broad • Fremont, NE 68025 • (402) 727-2808

April 21, 2008

Barney Whatley
Nebraska Rural Water Association
3390 Ponderosa St.
Wahoo, NE 68066

Dear Barney,

Thank you so much for displaying information at the Eco-Fair! Keep Fremont Beautiful and the 4th grade students are quite lucky that volunteers such as yourself are willing to donate their time and expertise for this educational event.

We hope to see you next year - on Earth Day, April 22, 2009. We look forward to working with you again!

Best Regards,

Sue
Sue Reyzlik
KFB Coordinator



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Dear Nebraska Rural Water Association,

Fairbury Light & Water and its employees would like to thank you and Jim Heyen for the assistance on our sewer problem at our community building here in Fairbury. The help that you provide us and other small communities in Nebraska is extremely valuable especially in these hard economic times. Please use this donation to help fund your equipment program and keep up the good work.

Thanks Again,

Jeff Sweetser

Jeff Sweetser
Water Supervisor
Fairbury Light & Water
305 Bst
Fairbury Ne 68352

City of Bloomfield Nebraska

101 South Broadway * PO Box 157 * Bloomfield, Nebraska 68718
Phone: (402)373-4396 * Fax: (402)373-2820

June 19, 2008

Nebraska Rural Water Association
3390 Ponderosa Drive
Wahoo, NE 68066

Dear Directors and Staff:

On behalf of the Mayor, Council, and public works staff in Bloomfield, I wish to thank you for the services you provide. The technical assistance from your staff is valuable to a small community like Bloomfield. Please accept the enclosed donation as a sign of our appreciation.

Thank you for your efforts in assisting Nebraska communities.

Sincerely,

Lyndsy Jenness

Lyndsy Jenness
City Administrator

Village of Monroe
P.O. Box 103
Monroe, NE 68647

Steve Greisen, Mayor
Todd Connelly, Board Member

Virg Crumley, Board Member
Mike Sempek, Board Member

Steve Kirby, Board Member

April 21, 2008

Nebraska Rural Water Assn.
3390 Ponderosa
Wahoo, Ne 68066

Dear NeRWA

The Village of Monroe would like to thank Russ Topp for the assistance on finding our Water leak in our town. We were very impressed with the modern equipment that you Have to locate leak's and water lines. We have enclosed a donation for your equipment Fund. Thank you again for a job well done.

Sincerely,


Bill Zoucha
Utilities Superintendent

VILLAGE OF FILLEY
P.O. BOX 85
FILLEEY, NE 68357

July 8, 2008

Nebraska Rural Water Association
3390 Ponderosa Drive
Wahoo, NE 68066

To Whom It May Concern:

Please find enclosed a donation to the association for services rendered by wastewater technician Jim Heyen. Last month Mr. Heyen came to do smoke testing on our sanitary sewer lines. With his help, we discovered several locations where groundwater was seeping into the system.

We thank Mr. Heyen and your association for providing the type of services which a small municipality could not afford to do.

Sincerely,


David A. Norton
President

CITY OF LOUP CITY
"POLISH CAPITAL OF NEBRASKA"

134 SOUTH 8TH STREET
PO BOX 250
LOUP CITY, NE 68853-0250
PHONE (308) 745-0222
FAX (308) 745 0734
loupcity@cornhusker.net



January 18, 2008

Nebraska Rural Water Association
3390 Ponderosa Drive
Wahoo NE 68066

To whom it may Concern,

The City of Loup City would like to extend a big Thank You for all of your assistance through out the year. We would like to thank everyone for their great job on continuing education classes. The Conference at Columbus was very informative.

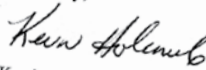
A special thanks to Jim Hegen for all his help in our wastewater department. His expertise with televising part of our sewer mains and our de-watering system has been very useful and helpful to us. He has also helped a great deal with our lagoons.

Randy Hellbusch has helped the City with Sewer and Water Rate Studies and was very accommodating with our personnel on scheduling time to come to Loup City to complete the study.

All of your personnel and equipment help small communities like ours to meet state mandates without breaking our budgets. We would not be able to complete many of these tasks without your help.

We are enclosing a check to help offset the cost of your equipment we have used.

Sincerely,


Kevin Holcomb, Utility Supt.
City of Loup City



Falls City Water Treatment Plant Tour

By Barney Whatley, Capacity Development Specialist

4/25/08

Every year, the third grade students from the Falls City area are invited to tour the water treatment plant and learn about where their drinking water comes from. When the students arrive, they are divided into two groups. One of the groups tours the plant while the other group is informed on local water issues, such as where the water comes from, the amount treated, the storage

capacity of the system, etc. As part of this session, NeRWA personnel have historically demonstrated the groundwater model, which gives a very good visual model of groundwater movement and the effects of pollution. When each of the groups has finished their sessions, they change places and participate in the other session. The children are always impressed with the movement of the red "pollution" through the ground and into the well sites.

from Ben Beaman
Thank you for letting us Come!

I like 5 parts of the plant. I did not now water from rule gas to falls city.



~~to the water treatment plant~~
to: Water Treatment Plant Thanks
Thank you for the tour and the pencils, little books and the spin wheel
Phanku

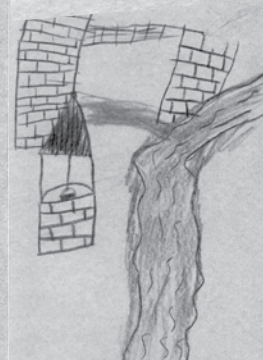
Thank You Water Treatment plant
from: Izaidh Meyer

To the water Treatment Plant Thank you for showing us the water and machines. you taught me a lot. I want to come again!
Blake James



Dear Water Treatment Plant,
Thank you for letting us visit it was fun. The computer was cool. I didn't think you had eleven wells I thought their was one big one.
Thank you, Mr. Clark Mr. Buttrick and Barney.
It was fun. Brady Letter

To: the Water Treatment Plant, Thank-You so much! It was very fun Mr. Clark, Mr. Buttrick and Barney. I like my water clean and healthy. Without you guys we would have yucky water. I loved it!
From: Sydney Brewer



Thank you Water Treatment Plant
for showing us around the Water Plant and for teaching me how the water gets to be how it is!
From: Mary Patnode



Thank you for teaching us where are water comes from, the water wheel, the activity book, the pencil, and the pencil.

To: The Water Treatment Plant
From Emma B.

To: The Water Treatment Plant,
Thank you Mr. Clark for teaching us how to work the computer, Mr. Butrick for teaching us how to work the machines that run the water. And Barney, thank you for telling us how not to pollute.

From:
Catherine Flores

Water Treatment Plant

Thanks for the tour, water wheel and the activity book! It was lots of fun! Best of wishes.

Yours,
Darcy Snetter

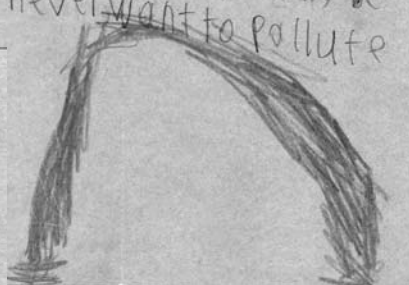
To: The water treatment plant

For the visit and pencil, wheel, and activity book! I loved the visit! Thanks again

From: Taca

Falls City Water works

To the water treatment. Thank you for the tour and every thing be careful. I never want to pollute



★ Thank you ★

To: the water Treatment plant, from: Jenny X Perwin

Thank you Mr. Clark, Mr. Butrick, Barney



Dear Mr. Clark & Mr. Butrick,
Thank you so much for our informational tour. We also like the model that shows pollution of our ground-water. So much of this morning goes along with our curriculum!

A special "Thank you" to Mr. Clark for the calm cleanup due to our sick student! You were awesome!!!

Stacy Buefeldt
+3A

thank you for letting us come there.


I loved where the water comes from.

From Dakota Runkles

To the Water Treatment plant,
MR. Clark
you did a ~~very~~ really good Job!!!
I Learned you never want to pollute

To the Water Treatment Plant, thank you to Mr. Clark and Mr. Butrick and Barney for showing us the model and what happens when you put stuff in the pool and the computer and how it works and for showing us all of the cool stuff here

from
Parker Thompson



Dear, Water Treatement Plant

I Bailey just want to thank you for showing us how we get water and how how bad pollution is to our community and that its nice to have water near us. And water to drink.

sincerely
Bailey Williamson



Paradise via Nebraska

By Jim Heyen, Wastewater Technician

ALOHA! With all the rain, I feel we should be living on a tropical island. I find myself almost longing for the traditional Nebraska dry summers of yester year. At least with all the rain, I do not have to help Deb water the numerous flower beds in our yard!

The rain is great for the farmers of our state but can cause havoc on older sewer systems. A few years back, I read an article published in one of the State Rural Water Association magazines and thought I would share it with my readers once again.

The Benefits of Smoke Testing a Collection System

Smoke testing is one of the most efficient and most cost-effective ways to locate and identify the source of an inflow or infiltration problem. It is important to find and identify these sources because they may seriously

effect the efficiency of the wastewater treatment facility and increase operating expenses. Some examples of the impact that inflow and infiltration may cause are:

- Pump station handling large volumes of unnecessary water
- Hydraulic overloads that greatly reduce system efficiency
- Increased operating expenses due to the processing of ground water and storm water that do not require treatment
- Unnecessary equipment wear
- Increased collection system maintenance and cleaning

There are a few factors to consider when deciding if implementing a smoke testing program will be beneficial to your facility. For example, what ages

continued on page 7

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John Ruckman, Project Manager

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and types of materials are used in the collection system? Many sanitary systems are 50 to 100 years old and are constructed of out-dated materials. Over time, decay and roots cause breaks in the lines that will permit excessive infiltration during wet periods.

The presence of undesired connections such as basement and yard drains, catch basins, cross connections from storm sewers, foundation drains, and roof downspouts will cause elevated flows every time it rains. The easiest way to tell if this exists in your collection system is to have a look at the plant's influent flow meter.

Smoke testing is a very quick and easy way to determine if buildings are properly connected to your system. Smoke should exit the vent stacks of the surrounding properties within the testing area. If traces of the smoke or its odor enter the building, it is an indication that gases from the sewer system may also be entering. Smoke that enters a building can cause panic and stress to an unsuspecting individual. This will require some good public relations skills and allow for an opportunity to stress the importance of correcting the problem. Remind citizens that the smoke entering their building is their friend. If smoke is entering their home or business, DANGEROUS gases could be entering as well. The smoke that is manufactured specifically for testing is not dangerous or toxic, leaves no residuals or stains, and has no effects on plants or animals. It has a distinctive, but not unpleasant, odor. The visible smoke and odor will last for only a few minutes if there is adequate ventilation. SEWER GASES ARE DANGEROUS! A few of these gases have no odor and present the most serious problem because they can enter a building undetected. These gases can cause anything from minor illness to death. Identifying and correcting the source of any smoke entering a building is urgently advised.

In the end, if the situation is handled properly, the property owner is usually grateful for the assistance and information that you provide.

Smoke testing can also be very useful in locating "lost" manholes. Although collection systems can cost millions of dollars, they are often the first thing to be neglected when there is a decrease in funding and staffing levels because they are out of sight and out of mind until a problem occurs.

POSSIBLE CAUSES FOR SMOKE ENTERING A BUILDING:

- The vents connected to the building's sewer

lateral are inadequate, defective, or improperly installed.

- The traps under sinks, tubs, basins, showers, floor drains, etc. are dry, defective, improperly installed, or missing.
- The pipes, connections, and the seals of the building's sewer system are damaged, defective, have plugs missing, or are improperly installed.

In my opinion, the biggest benefit of conducting a smoke testing program is the high visibility and learning opportunities for the staff as they go into the collection system for a few days.

The public, in general, has a preconceived notion that wastewater plant operators don't do much. Make sure to seize the opportunities that arise while conducting this testing to explain what you are doing. You will be surprised at how grateful they are! Staff will also be provided a great chance to familiarize themselves with the design, function, location, and the condition of the collection system, which they seldom get the chance to see.

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KEARNEY

THE ART OF ENGINEERING

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HOW DOES SMOKE TESTING WORK?

Smoke testing is conducted by placing a blower over a centrally-located manhole and forcing non-toxic, smoke-filled air through a sewer line. Depending on the equipment being used, the smoke will be generated by lighting a smoke bomb or utilizing liquid smoke. Using liquid will generally cut your labor costs. The smoke under pressure will fill the main line and any connections. It then follows the path of the leak to the ground surface, quickly revealing the source of inflow and infiltration. Only enough force to overcome atmospheric pressure is required.

After placing the blower and filling the lines with smoke, staff must perform a visual inspection of the area being tested. When using liquid smoke, you control the time you want it to run. Typically, you will let the smoke run until the crew has had ample time to do a thorough inspection. The field crew should include a minimum of two people.

Check all connected lines, including abandoned and supposedly disconnected service lines. Do not rush, because minor leaks can easily be overlooked. It is important to carefully check around houses, with close attention given to cleanouts and roof leaders. It is

not uncommon to see smoke coming out of the grass, wooded area, or cracks in the pavement. If smoke is found during the inspection, it must be carefully recorded so that it can be corrected after testing. Cameras make the job easier. A picture will help you relocate the problem after testing so that you can take corrective measures. It is also proof that the leak was found.

Blocking off a sewer line should not be necessary except when isolation is important. As long as openings exist for the smoke to follow, smoke tests are effective, regardless of the surface type, soil type and the depth of the lines.

The best results are obtained when the water tables are low and the days are dry because water is an excellent vapor barrier. Smoke testing should also be avoided on windy days because even a very light breeze can disperse a wisp of smoke before it is visible at the source of a leak.

PREPARING TO SMOKE TEST

Smoke testing may involve many hours of labor. It has the potential to effect the occupants of all buildings connected to the collection system, disrupt traffic,

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and cause people to summon Emergency Personnel; therefore, advance preparation is essential to a successful smoke testing program.

You should obtain a comprehensive map with street names, addresses, and the overall picture of the area to be tested. This map will show where the manholes are and which direction the lines flow. It will also show where there are force mains, storm drains, and any other items of importance. This is an excellent map on which to include your notes. Good notes will prevent delays on the job. Manholes to be used for blower placement should be predetermined and accessed prior to commencing the test. This will save a tremendous amount of time. When choosing the manholes to use, always try to avoid busy intersections because creating a detour or closing an intersection will upset some drivers, causing dangerous situations.

NOTIFICATION PROCEDURES

Obtain a list of all property owners in the surrounding area of the vicinity that you have chosen to test. The people who do the billing are usually very helpful. Approximately two weeks before starting the test date, you must send the property owners a notification letter that includes all information that is pertinent to



**Be aware
that it's
there.**

What you don't know could hurt you. So before you dig, contact Diggers Hotline of Nebraska and get the scoop on underground electrical, phone and cable lines, and gas pipes. It's all there, so be aware.

It's the law. And you must call, fax, or e-mail Diggers Hotline *at least* two business days prior to digging excluding weekends and holidays – even for minor additions like a new deck or shrubbery. The service is free and it could save your life – not to mention possible fines of up to \$500,000.

Diggers Hotline of Nebraska
Omaha metro: (402) 344-3565 • Statewide: (800) 331-5666
Fax: (402) 330-5626 • Web site: www.ne-diggers.com

the homeowner. This letter should be similar to the following:

Dear Resident:

The Water Pollution Control Facility (WPCF) anticipates conducting four days of leak tests in the sanitary sewer system beginning DATE. A non-toxic smoke will be blown into the system to reveal leaks that allow stormwater and other surface waters to enter. Locating and correcting these leaks will conserve expensive capacity at the treatment facility. A video record of leaks will be made.

The smoke manufactured specifically for this purpose, leaves no residuals or stains, and has no effects on plants or animals. It has a distinctive, but not unpleasant odor. The visible smoke and odor last only a few minutes if there is adequate ventilation.

The smoke should not enter your home; if this does occur, any of the following could be the cause:

- *The vents connected to your buildings sewer lateral are inadequate, defective, or improperly installed.*
- *The traps under sinks, tubs, basins, showers, floor drains, etc. are dry, defective, improperly installed or missing.*
- *The pipes, connections, and seals of the building's system are damaged, defective, have plugs missing, or are improperly installed.*

During the week prior to DATE, pour water down ALL drains in your home or building to ensure that traps are full.

If traces of the smoke or its odor enter your house or building, it is an indication that odor from the sewer system may also be entering. This can be unpleasant, dangerous, and a potential health hazard. The location, identification, and correction of the source of any smoke entering your house are urgently advised.

The WPCF can provide assistance in locating the source of smoke entering your house; however, correction of any defects in the pipes and sewer on private property is the responsibility of the owner. If smoke is observed in your home and the source is not readily identified, or if you have any questions, please call PHONE NUMBER.

*Sincerely,
Superintendent*

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A news release and smoke testing CAUTION LETTER should be sent out to the media and other officials to let them know your plans. This is usually done one week in advance. The news release should include the days and exact locations, why you are doing the test, and where they can expect to see smoke. List your phone number for questions. Remember that this is just a reminder. Your notification letter should have covered all of the necessary details. The reminder should be similar to the following example:

“SMOKE TESTING OF THE SANITARY SEWER SYSTEM”

*The Water Pollution Control Facility inspection crew will be conducting a survey of the sanitary sewer system. The survey will involve opening manholes in the streets and easements. A non-toxic smoke will be blown into the sewer mains to locate breaks and defects in the sewer system. The smoke that may be seen coming from vent stacks on buildings or holes in the ground is **non-toxic, harmless, and creates no fire hazard**. The smoke should not enter your home, unless the plumbing is defective or drain traps have dried up. If you have any seldom-used drains, pour water into the drain to fill trap.*

If smoke should enter your home or building, corrections of the defects on private property are the responsibility of the owner. A licensed plumber should be consulted to ensure the corrections are properly made. If smoke is observed, you may contact a member of the survey crew working in your area. They will be pleased to assist you in identifying the source of the smoke.

Some sewer mains and manholes may cross property line easements or other rights of way. Whenever these lines require investigation, the crew will need access to the sewer mains and manholes. Clearing of some easements to facilitate access may be performed prior to the survey.

Video records or photographs are to be made of leaks that are found. The survey should begin on DATE and require four days for fieldwork. If you have questions or observe smoke in your home, please call PHONE NUMBER.

Advance notification allows anybody with special requirements, such as health concerns, enough time to inform you of their situation so that necessary arrangements can be made. Don't forget to include any concerns with your notes.

COMMENCING THE SMOKE TESTING

Before beginning each day of the smoke testing, be sure to call Dispatch and/or Fire Department to inform them. They also need to be informed when you are finished for the day. Even with all of your preparation, you will undoubtedly get a panic call sooner or later. The emergency personnel in your area need to be aware of this so they can tell a panic call from a real emergency.

A truck that has been stocked with all the necessary equipment and materials prior to the morning of the project will once again save valuable time in the field.


CONCLUDING A SMOKE TEST

All of the notes, pictures, and findings accumulated in the field should be put into a comprehensive report summarizing the smoke testing work.

Send a letter to all property owners who need to do repair work. Be sure to cite the rule or sewer use ordinance that is being violated. Give them all the information they need to do the repairs, such as permits required, repair methods, and a phone number that they may use to obtain any further information. Be sure to set a time limit and always do a follow-up inspection.

This article has been compiled with information obtained from Hurco Technologies, Inc., Town of Simsbury WPCF, and various short articles written by State Rural Water Association Wastewater Technicians.

If your village or city is experiencing any of the problems discussed in the above article and are interested in scheduling a smoke test, please contact our office or myself to arrange an appointment at (402) 480-8524.

<p>BABUREK METAL PRESERVING CO., INC.</p> <p>PAUL BABUREK <i>President</i></p> <p><i>Babco Valves • Day or Night • 55 Years of Dependable Tank Maintenance</i></p> <p>141 S. 3RD • PLATTSMOUTH, NE 68048 PHONE: 402-296-4155 OR 1-888-293-0195 • FAX: 402-296-4082</p>	
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Fluoride Reporting

By Russ Topp, Circuit Rider

Fluoridating water supplies has been in the news lately. As many of you are probably aware, the State Legislators have passed a bill that requires public water supplies over 1,000 in population to fluoridate their water.

Over the years there have been several small water systems that have decided to fluoridate their water, most likely because of the grants made available through the Dental Health Department with the State Health Department.

I have received several calls in the last couple of months regarding reporting requirements. Andy Kahle is the manager of this rule and he has developed a reporting form for water operators to use. Water systems are required to track daily fluoride usage. Usually a day tank is used on a small balance beam type scale at the point of entry. The operator must weigh the fluoride tank every day and record each days use in the appropriate column. The amount of water treated must be recorded in its column and a simple calculation to determine in ppm the amount of fluoride that has been added to the water. For Fluorosilicic Acid the equation is (pounds of chemical added x percent purity (.23) x percent fluoride ion (.79)) ÷ (8.34 x million gallons of water treated). This form must be filled out each month and either mailed or e-mailed to Andy by the 10th of the following month. The Operator must also collect a monthly sample to be sent to the state lab for analysis. This sample usually comes with your monthly coliform sample. The optimal fluoride level is 1.0 ppm. Sample results should be between .8 ppm and 1.5 ppm. If you have samples over 2.0 ppm you could be issued a secondary violation, and if samples are over 4.0 ppm you could be subject to an MCL violation.

The best way to insure the fluoride pumps are set to the 1.0 ppm level is to perform your own fluoride test. Most of you either have, or have used a chlorine pocket colorimeter. Lab equipment companies make a fluoride tester that looks much the same as the chlorine tester. Most of these tests kits use the SPADNS reagents. If

you purchase one of these test kits and would like me to stop and show you how to operate it, just give me a call.

The other way is to calculate your fluoride levels. This is not nearly as precise as using a test kit. First you must know your natural fluoride in your ground water. Most ground water in Nebraska is between .1 ppm and .4 ppm.

Here is an example of how to calculate the dose for your chemical feed pump to inject Fluorosilicic Acid.

- Remember 1.0 ppm is the optimum level.
- The natural level in our well is .3 ppm.
- $1\text{ppm} - .3\text{ppm} = .7\text{ppm}$. This means we need to set our pump to inject .7 ppm.
- In this example our well pumps 600 gallons per minute.
- We have a 5 gallon per day feed pump.
- The equation for fluoride dosing is, million gallons per day (MGD) x Dose ÷ (percent strength x actual fluoride Ion)
- Normally Fluorosilicic Acid is 23% strength and the fluoride Ion is 79%. Be sure to check the label on your chemical tank.
- Normally the denominator will be $.23 \times .79$ or .1817
- Remember our well pumps 600 gpm so 600×1440 (minutes in a day) = 864,000 gallons.
- Move the decimal point 6 places to the left this equals .864 MGD.
- Remember the dose is .7 ppm
- $.864\text{ MGD} \times .7\text{ ppm} = .6048$
- $.6048 \div .1817 = 3.32$ gallons per day
- $3.32 \div 5\text{ GPD pump} = 66\%$
- Set the pump at 66%
- This should give you 1.0 ppm total fluoride.

After all that, the tester looks a lot simpler to use doesn't it.

Let me know if you need some help with your fluoride reporting.

Please note that NeRWA has applied for the following continuing education hours - water (W), wastewater (WW), backflow (BF).
Session times and topics are tentative.

Monday, September 15: New This Year – Pre Conference Sessions!!!

1:30 – 5:00	Golf Tournament – Scottsbluff Country Club, 5014 Avenue I
8:00 – 8:30	Pre Conference Registration
8:30 – 9:30	GPS – What Does That Mean?
	<u>W, WW</u> Charles Bausch and Clancy Dempsey, NeRWA GPS (Global Positioning System) is a satellite based navigation system that allows a user to record the exact location of points of interest. GPS can be used to record the latitude and longitude coordinates for utility infrastructure and consequently to create an accurate map of your water or wastewater system. Once the coordinates for valves, shutoffs or manholes are recorded using GPS, their exact location can always be pinpointed again, even if they are covered with ice, snow, soil, or pavement. A high quality GPS unit is like a handheld computer and can be used to store essential information about system operations, for example well pumpage, drawdown or wastewater flows. This information can then be transferred to a personal computer or remain on the GPS, depending on the need. This session will describe how GPS works and how it is useful for utilities to create accurate and reliable system maps and records. An overview of the different grades of GPS technology that are available and pricing will be provided. Applications that allow the user to create detailed systems records will be discussed.
9:30 – 9:45	Break
9:45 – 11:45	Hands On GPS – This is How It Works!
	<u>W, WW</u> Charles Bausch and Clancy Dempsey, NeRWA Attendees will be provided with hands-on instruction using GPS. Class will go outdoors to mark the location of water and wastewater infrastructure. Instruction will be given on assigning symbols to different utility features and practiced by attendees. Participants will also practice labeling infrastructure points and recording essential information for a particular feature and store the information in a GPS unit. Attendees will also use GPS to navigate back to a known location to simulate finding “missing” features such as a valve or manhole concealed by asphalt, etc.
11:45 – 12:45	Lunch (provided)
12:45 – 1:45	GIS – What are you going to do with all that Data?
	<u>W, WW</u> Charles Bausch and Clancy Dempsey GIS stands for Geographic Information System. After collecting field data using GPS, a GIS is used to create utility maps and records. Session will explain how the mapping process works and how GIS can be used as a record keeping and analysis tool. GIS can be used to track maintenance activities and create reports on system operations such as exercising of valves and hydrants. Examples of how GIS can be used to perform estimates for replacement of water/wastewater system components will be given. An overview of the available online GIS data, such as aerial imagery and other types will be presented.
1:45 – 2:00	Break
2:00 – 3:00	GPS/GIS Case Studies of Small and Medium Systems
	<u>W, WW</u> Ed Hamilton, City of Oxford and Blaine Renner, City of Scottsbluff Two GPS case studies will be presented by utility per-

	sonnel from small and mid-sized systems. Presenters will explain the GPS technology that they use in their communities to record feature locations and create accurate utility maps. Session will also explain how they have used GIS to track system operations and repair history as well as to plan for system improvements over time.
3:00 – 3:15	Evaluations and Wrap Up
Tuesday, September 16	
8:30 – 12:00	Trap Shoot at Mitchell Valley Trap Club (3.25 miles south of Mitchell); Bring your shotgun and shells
10:00 – 1:00	Conference Registration
1:00 – 2:00	DHHS Regulatory Update
	<u>W</u> Jack Daniel, Administrator – DHHS Public Water Supply Program A "State of Nebraska Water Systems Report" which will detail specific challenges and highlight the progress of water systems in meeting state and federal regulatory requirements and providing the public with a safe and affordable supply of drinking water.
2:00 – 2:30	Break: Tour Exhibits and Drawings for Prizes
2:30 – 3:30	Pan Flu: Preparing for a Worst Case Scenario
	<u>W, WW</u> Bill Wineman, Director – Scotts Bluff County Health Department In the event of pandemic influenza, utilities will play a key role in protecting public health and limiting negative impact to the economy and society. Providers of key infrastructure services, such as water and wastewater, have a special responsibility to plan for continued operation in a crisis. Contingency plans that delay or reduce the impact of a pan flu event may help reduce or delay the spread of disease. This session will detail aspects of utility preparations for a pan flu event and outline the existing strategy of state and local public health officials.
3:30 – 4:00	Break: Tour Exhibits and Drawings for Prizes
4:00 – 5:00	Continuity Of Operations
	<u>W, WW</u> Randy Fischer, Training and Exercise Coordinator – DHHS Office of Public Health Emergency Response Continuity Of Operations (COOP) planning allows for the continuation of essential functions of departments, such as water and wastewater, by addressing the recovery of critical components during an incident or emergency that may disrupt normal operations. This session will provide an overview of COOP planning for water/wastewater utilities to keep day-to-day operations functioning. COOP is used to address the people, processes, systems and infrastructure elements that are needed to continue to perform essential functions during both short term situations (loss of power for example) or longer term events such as a pan flu outbreak.
5:00 – 6:00	Social in Exhibit Area
6:00 – 7:00	Banquet and Awards

Wednesday, September 17: Breakfast will be from 6:30 – 7:30 AM

7:00 – 8:30	Conference Registration
7:30 – 8:30	Capacity Development (Session A – Oregon Trail)
	Scott Sprague, DHHS <u>W, WW</u> Capacity Development (CD) integrates the technical, managerial and financial aspects of system operation. The goal of CD is to enable small systems to provide reliable services and comply with regulatory requirements.

	Session will explain important aspects of CD with a small system perspective.		
8:30 – 8:45	Break: Tour Exhibits and Drawings for Prizes		Hands On Backflow Testing <u>BF, WW</u> NeRWA Staff (Session C – Fire Hall (across from Civic Center)) Participants will troubleshoot various backflow devices including PVB, RP, and Double Check as well as use backflow test equipment.
8:45 – 9:45	Line Stopping and Tapping W (Session A – Oregon Trail) Bob Hennig, Municipal Pipe Services Session will explain how to complete distribution system repairs without shutting down the system. Topics of line stopping, tapping and valve insertion will be explained in detail by the experts. NIMS 100 W, WW Randy Fischer, DHHS (Session B – Platte/Pioneer) NIMS: National Incident Management System is a comprehensive approach to incident management, applicable across all jurisdictional levels. NIMS is the method that responders in your community use to respond to emergencies and disasters. Federal/state preparedness assistance is contingent on compliance with NIMS. By attending all of the NIMS sessions on this day, and passing the NIMS exam, you can earn NIMS certification. Cross Connection Inspections and Installations <u>BF, WW</u> Rich Koenig, DHHS (Session C – Fire Hall (across from Civic Center)) Review of proper/improper installation guidelines and regulatory requirements for backflow preventers. Tips will be shared on what to look for when conducting a cross connection site inspection.	12:15 – 1:15	Lunch
9:45 – 10:00	Break: Tour Exhibits and Drawings for Prizes	1:15 – 2:15	DHHS Lab Orientation (Session A – Oregon Trail) Mary Boden, DHHS Lab The DHHS Lead Chemist will provide an overview of the Public Environmental Health Lab including sample collection, ordering sample kits, lab procedures and how to access lab testing results. NIMS 700 <u>W, WW</u> (Session B – Platte/Pioneer) Randy Fischer, DHHS This session is not a repeat but a continuation of the previous session. You will need to attend all of the NIMS sessions to obtain NIMS certification. Hands On Backflow Testing <u>BF, WW</u> (Session C – Fire Hall (across from Civic Center)) NeRWA Staff Participants will troubleshoot various backflow devices including PVB, RP, and Double Check as well as use backflow test equipment. Backflow Reporting Using Excel <u>BF, WW</u> (Session D – Western NE Community College) Barney Whatley, NeRWA Attendees will utilize a computer based cross connection control test reports and tracking forms using Microsoft Excel. Attendees will leave the session with the information they created on a Memory Stick (provided) which will be useful for their backflow record keeping.
10:00 – 11:00	Large Meter Testing W Dave Dunning – HD Supply (Session A – Oregon Trail) A significant portion of a utility's revenue is dependent on its large meters. Unaccounted water can affect the financial health of the utility, thus testing and maintenance of large meters is necessary. Doing so will result in optimum revenue for the system. This session will explain the important aspects of large meter testing, maintenance and safety considerations for the tester. NIMS 200 W, WW (Session B – Platte/Pioneer) Randy Fischer, DHHS This session is not a repeat but a continuation of the previous session. You will need to attend all of the NIMS sessions to obtain NIMS certification. Backflow Quiz Bowl BF <u>BF, WW</u> Rich Koenig, DHHS (Session C – Fire Hall (across from Civic Center)) Compete for prizes in this challenging test of your backflow knowledge led by some of the best minds in backflow! Quiz may include questions about regulations, proper installations, and CCC program requirements.	2:15 – 2:30	Break
11:00 – 11:15	Break	2:30 – 3:30	Fall Protection Safety (Session A – Oregon Trail) <u>W, WW</u> Robert Luckey, Miller Fall Protection Session will identify and explain the use of personal safety equipment with emphasis on fall protection and retrieval systems for working on elevated surfaces and confined spaces. NIMS Test, Questions and Evaluations <u>W, WW</u> (Session B – Platte/Pioneer) Randy Fischer, DHHS This session is not a repeat but a continuation of the previous session. You will need to attend all of the NIMS sessions to obtain NIMS certification. Backflow Reporting Using Excel <u>BF, WW</u> (Session D – Western NE Community College) Barney Whatley, NeRWA This is a continuation of the previous session (not a repeat or a stand alone session). Anyone interested needs to attend the previous session.
11:15 – 12:15	Regulatory Hot Topics: Fluoride, Groundwater Rule and Total Coliform (Session A – Oregon Trail) Andy Kahle, Steve Drda and Howard Isaacs, DHHS DHHS Monitoring and Compliance experts will provide the audience with current news and updates about these important regulations and their affect on public water systems. NIMS 200 cont. <u>W, WW</u> (Session B – Platte/Pioneer) Randy Fischer, DHHS This session is not a repeat but a continuation of the previous session. You will need to attend all of the NIMS sessions to obtain NIMS certification.	3:30 – 3:45	
		3:45 – 4:45	Nebraska WARN Program (Session A – Oregon Trail) <u>W, WW</u> Randy Hellbusch, NeRWA The goal of Nebraska WARN is to establish statewide mutual aid among water utilities. Presentation will provide details about the formation of the WARN program, its value to utilities and how to become a member of NeWARN.

Nebraska Rural Water Association REGISTRATION FORM

Western Nebraska Fall Conference
September 16 & 17, 2008
Gering Civic Center
1050 "M" Street
Gering, Nebraska

Name (One (1) person per form) _____

Certificate numbers: Water # _____ Grade _____ Backflow # _____ Wastewater # _____

System/Company Name _____

Address _____

City, State, Zip _____

REGISTRATION	MEMBER	NON-MEMBER
PRECONFERENCE—September 15	_____ \$30.00	_____ \$30.00
FULL CONFERENCE (includes all meal tickets)	_____ \$100.00	_____ \$125.00
TUESDAY ONLY—includes Banquet	_____ \$60.00	_____ \$85.00
WEDNESDAY ONLY—includes breakfast buffet and lunch	_____ \$60.00	_____ \$85.00
GUEST BANQUET TICKETS— \$15 x _____	TOTAL \$ _____	Total \$ _____
GUEST LUNCH TICKETS—\$10 x _____	TOTAL \$ _____	Total \$ _____
GOLF TOURNAMENT ON MONDAY AFTERNOON (do not include payment)	_____ YES	_____ YES
TRAP SHOOT ON TUESDAY MORNING	_____ YES	_____ YES

TOTAL AMOUNT DUE \$ _____

Registrations received after September 8 and at the conference will be \$150.00

Check if eligible for DHHS reimbursement (Do not send payment) _____ If eligible include PWS ID# _____

BILL ME _____ CHECK ENCLOSED # _____ PO # if applicable _____

Non-members—check must accompany registration form.

REGISTRATION DEADLINE IS SEPTEMBER 11.
AFTER THIS DATE, YOU WILL HAVE TO REGISTER AT THE CONFERENCE.

To Register:
 Call: 800-842-8039 or 402-443-5216
 Fax: 402-443-5274
 Mail: Nebraska Rural Water Association
 3390 Ponderosa Street
 Wahoo, NE 68066

Online at nerwa.org

When making room reservations, mention you are with NeRWA
 Microtel Inn, 1130 "M" Street (across from Civic Center)
 Reservation center: 800-276-7415 Direct: 308-436-1950

 DATE REGISTRATION RECEIVED: _____
 CANCELLATION POLICY: Full refund before September 8, 2008.

For NeRWA office use only: Hours: Water _____ BF _____ Wastewater _____
 Payment received _____ Check # _____ Certificate mailed _____

ATTENTION

If you are a certified water operator of a community or non-transient non-community Public Water System in Nebraska serving a population of 3,300 or fewer, no submittal of payment for the NeRWA Fall Conference registration fee is necessary.

The Nebraska Rural Water Association and the Nebraska DHHS Office of Drinking Water and Environmental Health have arranged, on a trial basis, to make a direct payment of the Conference registration fees through use of the Water Operator Expense Reimbursement Grant.

To be eligible for this “no registration fee submittal” event, you must:

- Be a certified (Grades 1 – 4 or 6) water operator of a community or non-transient non-community Public Water System in Nebraska serving a population of 3,300 or less.

- Obtain continuing education hours by verified attendance at training sessions during the Fall Conference applicable to the water operator grade level(s) for which you are certified.

Note – Reimbursement for reasonable mileage to and from the Conference is also a reimbursable cost. Since these amounts will vary and additional information (odometer readings and license plate #) is necessary, request for reimbursement for mileage must be applied for separately by the individual(s) directly to DHHS. Application forms for reimbursement of mileage will be available at the Fall Conference.

Your assistance and cooperation during this trial basis will be appreciated. If successful, similar arrangements for future conferences and seminars will likely be possible.

2008 TRAINING

Water Operator Training

August 12 Greeley
 August 14 Hallam
 August 21 Gordon (NIMS)

September 24 Papillion

October 21 Stapleton
 October 23 Kimball

November 13 Oshkosh
 November 19 Fairbury

December 9 Wakefield (NIMS)
 December 10 Waterloo
 December 11 Syracuse

NIMS Training will also be available at the Fall Conference.

Backflow Re-Certification Training

September 23 Atkinson

November 18 Seward
 November 20 Tecumseh
 November 25 Wahoo

December 16 Mitchell
 December 17 Ogallala
 December 18 Wahoo

Wastewater Training

October 21 Wahoo

November 5 Ewing

Basic Excel for Recordkeeping

August 28 Norfolk

Trenching & Excavation

October 15 Wahoo

Confined Space Entry

October 16 Wahoo

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

October 27-31 Wahoo

Rule Manager Workshops:

August 26—Gibbon
 August 27—Ord
 September 9—Wayne

CONFERENCE

September 16-17
 Gering, Nebraska

NeRWA UTILITY EXPO

October 1
 Fremont, Nebraska



Good Directions for Mapping Utilities

By Charles Bausch, Groundwater Specialist

How many of you would leave for a trip taking your 1960's Atlas with you or even a 1970's or 80's Atlas? Most of us, when we travel have a newer map in decent condition, unlike the older version that is tattered after all the years of use. So, why should that map of your utilities system be different than the map for a trip? I have seen it many times in this line of work, an old tattered map of a water system that is not even in color. The old map has so many scribble marks on it you can't tell if what you see is a water main, a crease made from the folds in the map, or what someone had for breakfast. In some extreme cases a system doesn't even have a utility map of their system. What happens if there is a late night utility emergency? You go to the office to find the closest shutoff valve or manhole, return to the place where the map shows the feature is at and finally, you find it an hour or so later across the street. You would not use a road map that had missing or slightly inaccurate roads so why should you use a utility map that is that way. Well, those days of hours of searching for utility features are coming to an end.

The Nebraska Rural Water Association has just started a new program called GIS/GPS mapping of utility systems. We now have the capability to come to your system, take data of points (valves, manholes, hydrants etc.) in your system, then take those points back with us and draw you a new geographically correct map. There are a few catches. First, you have to know where your points are along with any other features you want mapped. Second, this service comes with a price. However, we can give you a free estimate on how much it will cost to do your system by figuring the cost on the number of points in your system. Our plan at Nebraska Rural Water is to show that now even small systems can have up-to-date utility maps that are geographically correct.

What makes this GIS/GPS program possible? About a month or so ago Nebraska Rural Water was able to purchase a hand-held unit with GPS capability. This is not your run of the mill unit you can buy at a sporting goods store. This GPS unit will give you accuracy that is sub foot (within 4-6 inches in most cases). After

your system is mapped by the Nebraska Rural Water Association no longer will there be a frantic search for valves that may or may not be there. With a map from the Nebraska Rural Water Association if a valve is on your map then it has to be there since we only mark features that we find. Even if a mapped feature such as a valve is lost in the future the GPS unit can be used to locate that feature. That means once a feature is marked it will virtually always be located. You will no longer be looking for those valves that may have been covered with silt or cement with a shovel and metal detector. If you are interested in seeing what we can do, please give me a call or e-mail and I can show you what types of maps we can make for you. I can also give you a cost estimate for mapping your utility system. In the next article I will talk about how GIS can also be used to track information in your system.

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The Elusive Dollar

By Barney Whatley, Capacity Development Specialist

More water systems are discovering that funding for improvement projects is becoming harder and harder to find. In Nebraska, there are four main sources available for water systems to finance improvement projects. They are Community Development Block Grant (CDBG) funding, United States Department of Agriculture Rural Development (USDA-RD) funding, Nebraska State Revolving loan Funds (SRF) and private bonding companies. There are distinct advantages and disadvantages to each of these funding mechanisms that might determine which one, or which combination of more than one might be chosen for any particular system.

CDBG grants are the most attractive of the funding options because they are grants that do not need to be

repaid. One of the limitations of these grants is that the maximum allowed for any one system is \$250,000. In this day and age, that will not complete most major system improvement projects, when you consider that a municipal well is estimated to cost around \$250,000 and a water storage tank can exceed that amount, depending on the capacity needed. A roadblock to receiving CDBG funding for many systems is the income guidelines the system needs to meet to be eligible for the funding. CDBG required that a community have more than 51% low to moderate income (LMI) persons in the target area to be eligible for the funding. For a system-wide project, the most recent census data is usually used. If a system is targeting only a portion of their customers, an income survey may need to be completed. Under new CDBG guidelines, any

continued on page 19

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survey not returned is counted as exceeding the LMI limits. This makes it extremely difficult for a system to successfully complete an income survey.

USDA-RD funding is one of the most used sources for funding water system improvements. This is partially due to the relatively large amount of funds available and the reasonable interest rates charged for loans. Although funding is available to any system that qualifies, interest rates and the availability of grant funds are directly tied to the median household income of the system. Grant funds are further limited in that they do not become available until the average monthly water bills for the system reach a predetermined amount, which at this time is approximately \$36. USDA also requires systems to pass a test of credit, which basically means that commercial lenders are not willing to loan the system the needed money due to bonded indebtedness or other reasons. Also, USDA reviews systems with outstanding loans, and when it is determined that the system would be able to pay off USDA with a commercial loan, the system will be required to find an alternate source of funds to pay off the USDA loan.

SRF funds are also available to most systems, but like USDA funding, the interest rate is tied to the income levels of the citizens of the system. SRF funding does have a provision for loan forgiveness, but this is dependent on the project being completed to address a health issue, such as an Administrative Order for nitrate, arsenic, etc. SRF interest rates are generally more favorable than commercial rates, but there is a limit on the length of the loan of 20 years. The system is expected to set water rates at a level that will guarantee repayment of the loan, and often this can be higher than the USDA required average monthly bill.

Commercial borrowing is another method available for funding system improvement projects. If the system is financially sound and is not burdened with extensive bonded indebtedness, this can be a good option. Most communities have worked with bonding agencies in the past, so the history of the system and the ability to repay the bonds is familiar to the company. This can make the process faster than it might be when using federal or state funding agencies. As the financial markets fluctuate, bonds often look good to potential investors, and the interest rates can be very competitive. The biggest disadvantage with commercial bonding is that they do not contain any grant funds, and often

the system is ineligible for grants from other sources when commercial lending is the chosen funding mechanism.

Whatever funding mechanism a system decides to pursue, it must be kept in mind that grant funds seem to diminish every year and are becoming harder to get for systems, unless there is a real health hazard or the system customers have very low incomes. The days of “free” government money are gone forever, and systems will be expected to pick up the burden of financing their own improvements. Budgeting for the future and setting up an asset management plan are two ways that systems can begin planning for the future and working their way towards self sufficiency.



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Just a Reminder . . .

NeRWA Utility EXPO
October 1, 2008
Christensen Field
16 & Ridge Road
Fremont, Nebraska

Mark your calendar and join us for our fourth Expo!
It is more than an exhibit hall with standing displays.
It will be indoors and outdoors with credit hours available, training,
hands-on activities, demos and lunch.

**Here are some of the topics
and demos from previous Expos:**

- Trench Safety**
- Line Pigging**
- Boring**
- Valve Insertion**
- GPS for Utilities**
- Valve Exercising**
- Leak Detection**
- Hydrant Repair**
- Sampling Requirements**
- Emergency Response**
- Backup Power**
- Utility Location Theory**
- Meter Accuracy/Testing**



Watch for complete details soon!!

GOLF TOURNAMENT

Scottsbluff Country Club
5014 Avenue I
Scottsbluff

Monday, September 15
2:00-6:00 pm



TRAP SHOOT



Mitchell Gun Club

Tuesday, September 16
8:30 am - 12:00 noon

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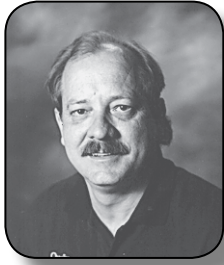
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Leak Detection

By Randy Hellbusch, Circuit Rider

Some of the Nebraska Rural Water Association staff, myself included recently attended the annual In-service that is provided by the National Rural Water Association as part of our program contracts. It is always interesting to learn that the major problems we face as small water systems in Nebraska are the same issues facing water systems all over the nation. The two main topics of discussion are usually water rates and leak detection.

One session that I attended was presented by staff of the Virginia Rural Water Association. The session primarily focused on the importance of leak detection and the cost of unaccounted for water.

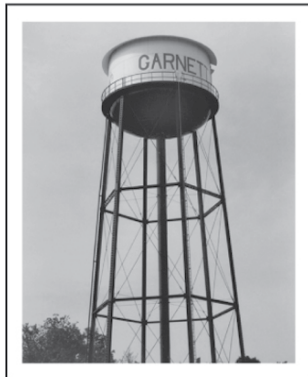
We have always claimed that if a system has 15% or

more of unaccounted for water, the system should do some investigating as to where the water is going. It may be due to old meters, system leaks, firefighting, or even water theft. One of the interesting points brought out at this session was that using a percent to figure water loss does not always tell a true story. To really know how much your lost water is costing, you must first determine your cost of production.

Let's say that system #1 is producing 500,000 gals. per day and they have 20% unaccounted for water. That means they are losing 100,000 gals. per day. Let's say their production cost is \$.50/1,000. That equates to \$50.00 per day in lost water.

continued on page 24

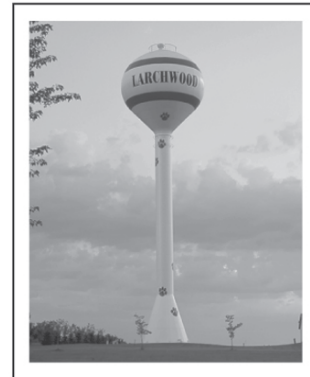
SUSTAINABILITY



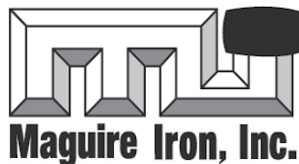
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Let's say that system #2 is also producing 500,000 gals. per day and they only have 10% unaccounted for water. That means they are only losing 50,000 gals. per day. Assume this system has more expensive treatment or is buying their water and their production cost is \$1.50/1,000. That equates to \$75.00 in lost water.

Although it appears that system #2 is a tight system and can account for 90% of their water, their daily loss is more than system #1. Production costs vary from system to system. It is often something that decision makers aren't made aware of. Because most of our systems have their own source and distribution systems, production costs often remain (hidden) and are just part of the yearly total budget.

To truly know what your system production costs are, budget line items need to be broken down into fixed and variable cost. Variable costs are those costs that change with the amount of water you pump, treat, or purchase. These costs divided by the amount of water sold will give you the cost of production per unit of water.

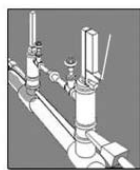
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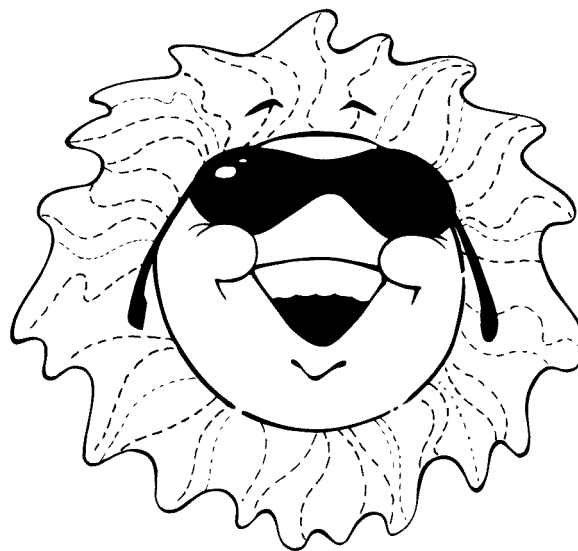



**SEND US YOUR
PICTURES!!!**

We would like to put the water towers of Nebraska on our cover. We want to feature a different tower on each issue.

So far we have had Cass County RWD 1, Louisville, Bloomfield, Litchfield, Columbus, Logan East RW, Papio-MO Dakota County, Wahoo, O'Neill, Dunbar and Amherst.

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 to our website.




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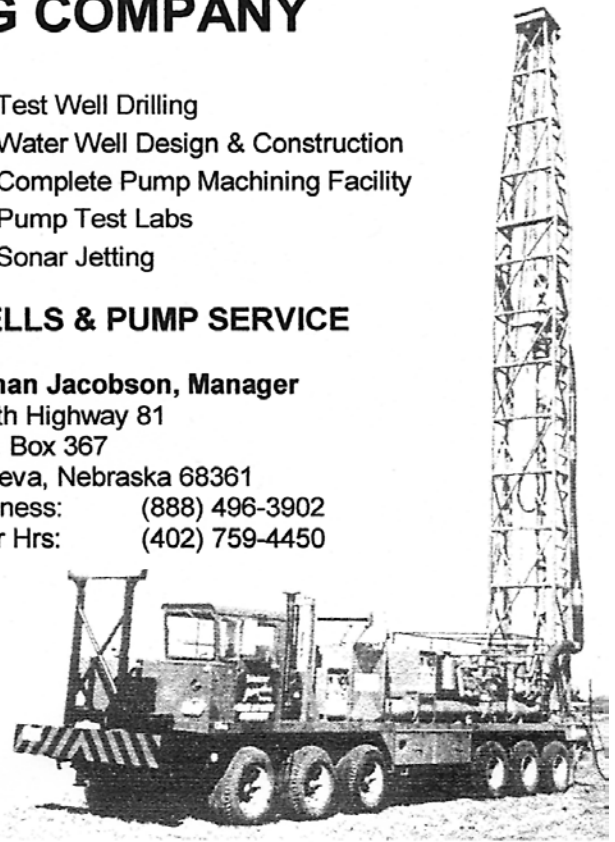
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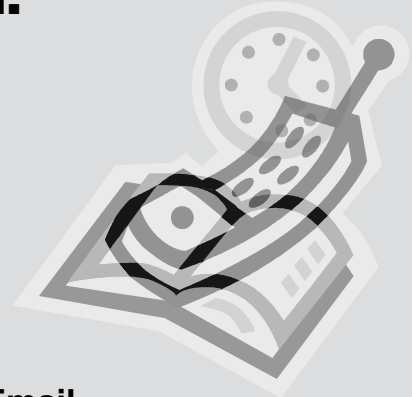
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