

Utilities Section Newsletter

League of Nebraska Municipalities

May 2017

City of Kearney implements ultra-violet (UV) disinfection

*By Chris Miller,
Miller & Associates in Kearney*

The City of Kearney supplies potable water to a population of approximately 32,000. The Platte River Well Field, comprised of 15 wells, is the city's primary potable water source. The Platte River Well Field is surrounded by the Platte River and the groundwater is considered to be 'groundwater under the direct influence of surface water' (GWUDI). The groundwater is naturally filtered by the soils (sand and gravel) in the ground before it enters the wells and it is chlorinated before distribution. Due to the GWUDI designation, the Platte River Well Field is subject to regulations under the Surface Water Treatment Rule (SWTR), the Interim Enhanced Surface Water Treatment Rule (IESWTR) and the Long Term 2 Enhanced Surface Water Treatment Rule (LT2).

The city completed a study in 1995 for natural filtration credit. As a result of this testing, the city received approval for a permanent 'natural filtration' waiver granting a 2.0-log credit for Giardia removal and a 1.0-log credit for virus removal for the Platte River Well Field.

The drinking water regulation commonly referred to as "LT2" requires surface water and GWUDI treatment plants to complete source water monitoring for the

presence of Cryptosporidium. Source waters are classified into 'bins' as a result of this monitoring, which determine the required log-removal of Cryptosporidium through treatment processes. Cryptosporidium oocysts are more resistant to disinfection and smaller than Giardia cysts and therefore, often require additional treatment for removal and inactivation. The source water monitoring completed by the city categorized the Platte River into Bin 2, which requires a 4-log reduction of Cryptosporidium oocysts through a combination of treatment techniques. The monitoring also determined that there was no apparent correlation between turbidity or river flow to Giardia or Cryptosporidium levels. Therefore, a new study had to be completed in order to obtain the natural filtration credits needed for Cryptosporidium.

The natural filtration provided by the sediments in the aquifer sourcing the city's wells, demonstrated the ability to reduce pathogen levels during the 1995 Demonstration of Performance (DOP) study. Because Cryptosporidium oocysts are smaller than Giardia cysts, the analyses used in the 1995 DOP cannot directly be



UV disinfection chambers

applied to determine a credit for Cryptosporidium reduction. As such, further testing was required using more appropriate Cryptosporidium surrogates. The city proposed a DOP plan to the Nebraska Department of Health and Human Services (NDHHS) and the U.S. Environmental Protection Agency (EPA) in April 2010. The objective of this DOP was to establish, through scientific testing and analysis, the actual or expected removals of Cryptosporidium that may be attributed to the city's 'natural filtration' process. The DOP intended to determine if the Giardia credit should be increased accordingly, if results supported a higher credit.

After two years of testing and analysis, a 2.5-log 'natural filtration' credit for Cryptosporidium removal for the City of Kearney Platte River Well Field is well supported (pun intended) by the results of the DOP study completed in 2013. The four wells

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City of Kearney implements ultra-violet (UV) disinfection

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that were determined to be most 'at-risk' for surface water influence were evaluated for reduction in aerobic spores (a *Cryptosporidium* surrogate) over an 18-month study period. The average and median overall log-reduction in aerobic spores in the four most at-risk wells were 2.80 and 2.78, respectively. Well-water turbidity measurements also support the 2.5-log credit, as the wells were able to meet the turbidity requirements for conventional filtration plants. The NDHHS approved the DOP study and on June 20, 2013, approved the natural filtration credit for 2.5 log removal for both *Cryptosporidium* and *Giardia*. Conventional filtration plants automatically receive a 3-log credit for *Cryptosporidium* removal for

filtration technique. Because of the cost of a conventional treatment plant, the city wanted to evaluate more cost-effective options.

This unique natural filtration credit alone was not sufficient to meet the requirements of LT2 and the SWTR. In order to achieve the remaining log removals for compliance, the City of Kearney needed to continue use of chlorination and include UV disinfection for treatment. This UV disinfection treatment for municipal supply would be the first UV treatment review by the NDHHS. The city proceeded with an equipment bidding package to provide three UV units capable of each treating approximately 9 million gallons per day. Following the selection of the UV equipment, the treat-



UV disinfection piping

ment building was constructed to house the three units and provide one additional unit, if needed in the future. The completed UV disinfection facility was placed in service Sept. 28, 2015. To date, the city has been operating the UV facility and has not had any operational issues. In addition, the city's water supply continues to meet the requirements as outlined by NDHHS.

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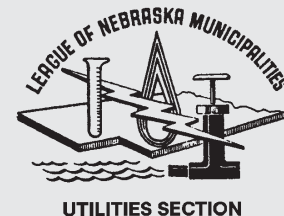
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Material handling safety tips

By Rob Pierce, LNM Field Rep./
Training Coordinator

Injuries often occur when objects are lifted, toted, stacked or set down. Many of us never properly prep our muscles for these activities, not to mention being out of shape, aging or just underestimating the load. The following are some tips to help reduce incidents when handling material, tools or equipment:

- Avoid lifting from the floor (below knees) or when seated;
- Bend knees when lifting;
- Begin lifting an object close to the body;
- Make use of lifting or moving aids (equipment);
- Get assistance from co-workers;
- Reduce the load weight/size when possible;
- Avoid lifting over obstacles;
- Ensure adequate footing, space and lighting;
- Don't bend or twist when lifting;
- Keep lifts between shoulder and knuckle height;

- Avoid sudden jerky movements;
- Modify or redesign jobs to make the move easier; and,
- Know your limitations and stay in good shape.

Strains, sprains and other related back or muscle injuries are some of the most common workplace injuries. These injuries can often linger for several weeks and also can affect our mental and physical performance at work. Injuries like these don't keep us from work for

long, but pushing the limit on an injured area often can result in a more severe injury. A common area where accidents occur are loading or unloading of vehicles and during basic housekeeping or cleaning of shops, warehouses and office areas. Take time to plan the work task, use equipment or others, if possible, and warm up your muscles before lifting. Be smart when moving material, tools or other equipment to avoid injuries or accidents.

Guide to Cybersecurity, Resilience, and Reliability for Small and Under-Resourced Utilities

The National Renewable Energy Laboratory (NREL) released a *Guide to Cybersecurity, Resilience, and Reliability for Small and Under-Resourced Utilities* in January 2017 for small utilities (defined as having fewer than 100 employees or 50,000 meters)

looking for a how-to on protecting themselves from cyber attacks. This 33-page non-technical report can be found at the following website: <https://energy.gov/epsa/downloads/guide-cybersecurity-resilience-and-reliability-small-and-under-resourced-utilities>.

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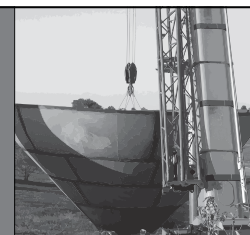
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Classifieds

Job Openings

Electric Journey Line Worker.

The City of Alliance, Nebraska (8,500), is accepting applications for the position of full-time Electric Journey Line Worker with a pay range of \$25.40-\$28.97 per hour DOQ.

This individual will perform skilled line work in the operation, construction, maintenance and repair of overhead and underground electric distribution and transmission systems.

Applications with resumes will be accepted until the position is filled. A complete job description and application is available at www.cityofalliance.net.

The City also is taking applications for **Electric Line Apprentice**. This position includes an excellent benefit package including health insurance, retirement, vacation, sick leave and paid holidays.

Assistant Manager position for Little Blue NRD. Responsibilities: water quality programs, program development, and management support, with IT and database skills required. Salary commensu-

rate with experience and qualifications. Other benefits provided.

Job Description and Application at: http://www.littlebluenrd.org/About_us/job_opportunities.html#aboutus.html. Little Blue NRD, PO Box 100, Davenport, NE 68335; (402) 364-2145.

For Sale

Tennant 830-II Street Sweeper.

The City of South Sioux City is currently selling a 2004 Tennant 830-II street sweeper with 1,185 hours and 1,792 miles. The engine is a turbo diesel and a manual is included. Innovative dry-dust control improves ambient air quality by sucking up the dust and dirt stirred up by the brushes. This sweeper is powerful, easy to use and compact.

The sweeping ability begins with a self-adjusting center point suspended main brush that efficiently picks up sand, dirt, rocks, broken glass and bulky light debris. Main brush dust is pulled by twin, high-volume vacuum fans into a long lasting, high capacity filter to remove dust particles and exhaust clean air. One button



sweeping makes operation easy and requires less training time; an unobstructed view ensures a clear view of the sweeping area and bystander safety; four-wheel steering allows the machine to maneuver easily around obstacles, corners and heavy traffic. Productivity Enhancing Options: waterless side brush dust control for area incompatible with water. Vario sweeping brush moves in and out, up and down to reach hard to access areas on the either side of the machine. A nine-and-a-half feet high dump allows discharge into large roll off bins and dump trucks. Centrally suspended brush penetrates contours of any surface for thorough cleaning.

We are asking for \$35,000. If you have any questions or would like to know more about the street sweeper, please contact Joyce Wilson, South Sioux City Purchasing Agent, at 1615 1st Avenue, South Sioux City, NE 68776; call 402-494-7548; or email jwilson@southsiouxcity.org.

AWWA/League Safety Workshops scheduled

Safety Workshops are scheduled for June 7 – Rowe Center, Nebraska City; June 8 – City Hall, Ponca; and, July 11 – Black Power Bar and Grill in Franklin.

Topics will include safety committee requirements, hazard communication (GIS), confined space, work zone safety, trenching/shoring and a safety round-

table discussion. The workshop is approved for 5 hours water grades 1-4 and 1.5 hours grade 6. Wastewater hours have been applied for, but not yet approved for 5 hours. The workshops also should be good for credit hours for apprentice linemen, natural gas operators (OQ program) and possible engineering hours.

2017 Backflow Workshops

Four Backflow Workshops are scheduled: Aug. 23 in Beatrice; Aug. 24 in Wayne; Sept. 6 in Ogallala; and, Sept. 7 in Grand Island. Watch for brochures or visit our website at www.lonm.org.

Drinking Water Week Proclamation



On April 12, 2017, the Governor signed a “Drinking Water Week” Proclamation at the State Capitol. *From left: Rick Kubat, MUD; Rob Pierce, LNM; Dr. Bruce Dvorak, UNL; Jim Shields, MUD; Chad Roberts, Norfolk; Gov. Pete Ricketts; Howard Isaacs, DHHS; Becky Sherman, DHHS; Laurie Wieting, DHHS; Ken Halverson, NeRWA; and, Mary Poe, DHHS. Photo courtesy of Governor’s office.*

Remember

to recognize your employees’ anniversary milestones. The League provides certificates for 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 and 65.

You can request them by contacting the League office by email info@lonm.org, fax 402-476-7052 or call 402-476-2829.

Nebraska Breaktime Trivia “Just For Fun”

- Q-1. What is the state fish of Nebraska?
- Q-2. What city in Nebraska, at one time, proclaimed to be the Alfalfa Capital?
- Q-3. What city in Nebraska was once called the Golden Gate City?
- Q-4. Do you know where this statue is located?

Answers found on page 11.



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Nebraska utilities history

The Utilities Section Newsletter will continue to feature histories of both utilities and associate members. Any historical data and/or photos of your utilities, a specific facility, or articles already written are welcome, along with permission to print. If you have questions, contact Rob at 402-476-2829 or robp@lonm.org.

*By Rob Pierce, LNM Field Rep./
Training Coordinator*

Broadwater, located in Morrill County, was once a part of the four Smith brothers' ranch. They had given and sold some land for a town site. One resource noted that the land was very poor, swampy and not good for anything else. The first store built was an 18- x 20-foot grocery store, followed by a hardware store and a railroad depot. About 1900, a masonry building was built, which later became the first village hall building. An amendment to the Homestead Act was introduced in 1904 by Moses Kinkaid, Nebraska's 6th congressional district representative. This was signed into law by President Theodore Roosevelt April 28, 1904, and went into effect June 28 that year. It applied specifically to 37 counties in northwest Nebraska in the general area of the Nebraska Sandhills. One source says Broadwater was founded April 22, 1909. It is unclear if this means

surveyed, platted, filed or that the incorporation was approved.

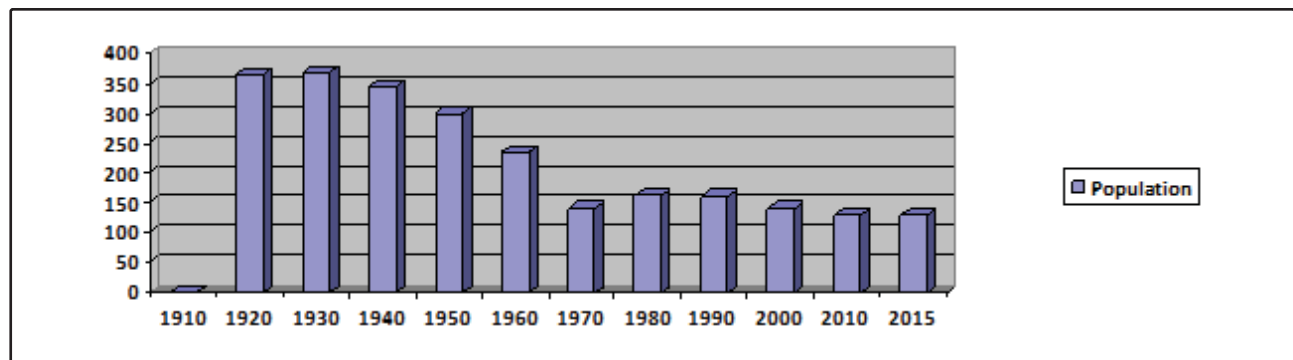
On May 25, 1909, a post office and the Rose Hill Cemetery, located on the hill north of the settlement, was established. A school was discussed and stores were built. The population was about 200 and the town had a lumber business, a barber, a furniture/dance hall store, a jeweler and a *Broadwater News* newspaper in circulation. A small white frame schoolhouse was built on the southwest corner where the school grounds are now located. By 1911, a bank was built, a two-story frame Metropolitan Hotel Building and a grocery/mercantile shop were operating. By 1912, a hardware and a general store were opened. A beet dump in 1913 and a Metropolitan Hotel in 1914 were started. A new school building was dedicated June 24, 1915. The Farmers Elevator and a two-story beer/pool hall building, with a dance hall on second floor, were built in 1916. On May 16, 1916, the Broadwater Electric Light and



Broadwater water tower. 2014 Photo.

Power Company was incorporated and the first light plant was installed. In 1917, the Browning Brothers built a brick Hardware/Harness Shop building and the Iris Theater was constructed. By 1918, the Broadwater Lumber Company was built and the high school added the 12th grade.

Continued on page 7



Nebraska utilities history

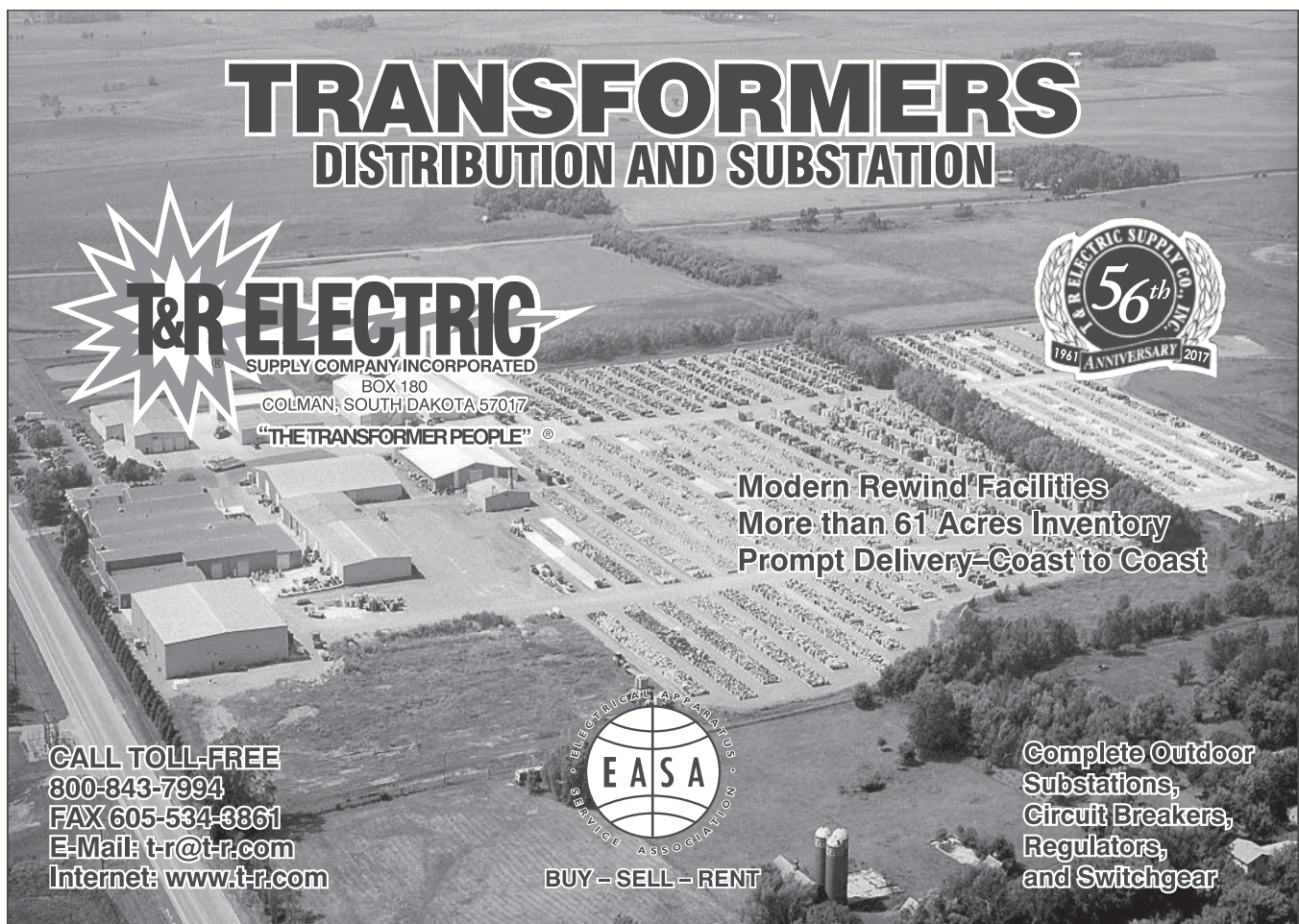
Continued from page 6

The population by 1920 was 364 and the Martindale addition was annexed by Ordinance #38. On March 10, the board approved ordinance #36 for \$12,500 in water bonds and \$6,200 in electric bonds. On April 20, an ordinance was passed to purchase 50 artie water meters from the Pittsburgh Meter Company and a well to be drilled by W. J. Croil of Oshkosh for \$500. Henningson Engineering Company of Omaha was the water project engineer. By August, a

100-foot water storage tower was constructed by Structural Steel Works of Omaha. The village was wired for electricity in May and the tile power plant was constructed. The plant also consisted of two rooms for offices and a reinforced roof. Once the concrete floor was laid, T. F. Black installed a Primm engine and the alternating current (AC) plant was to be up and running within 30 days. The village dumping grounds (1920) were located about 300 feet south of the ball field and by 1921, the


waterworks were completed. In 1922, the electric system was supplied by the Western Public Service Company. A bridge was constructed across the Platte River in 1924 and opened in 1925. From 1925-1932, electric transmission lines were constructed from Scottsbluff to Ogallala, tying in small towns along the way. School enrollment (K-12) in 1927 was 211 and the sports teams were known as the (orange/black) Gorillas. In 1928, the power plant

Continued on page 8




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Nebraska utilities history

Continued from page 7

was municipally owned with rates of \$0.20 per kilowatt hour (kWh). The water plant and distribution lines were publicly owned with rates of \$0.15 per 1,000 gallons and a minimum of \$1.50 for over 5,000 gallons. In the late 1920s, the Broadwater Bank went broke and closed.

In 1930, the population was 367 and bonds were voted on for the construction of a new school. By 1931, a new modern (30 x 80 feet) brick school building was com-

pleted, which included a gymnasium. Natural gas lines were installed in 1931 and in 1935, the first sewer disposal facility was installed. A WPA project included the former hotel to be torn down and the material was used to build a community hall. By 1936, the electric power plant had internal a combustion power generation with a capacity 30 kilowatts.

The population decreased to 344 by and by January 1942, Consumers Public Power District acquired all Nebraska properties from

Western Public Service Company. The street lighting cost was \$618 per year and the Union State Bank was sold to a Bridgeport bank. A second grain elevator was built in 1948.

The population decreased to 300 by 1950 and in 1958, the *Broadwater News* newspaper merged with the *Bridgeport Blade* newspaper. In 1960, the population was 235, a sewer disposal plant project was underway in 1962 and the natural gas system was operated

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Nebraska utilities history

Continued from page 8
by the North Central Gas Company. Water rates were a flat fee of \$4 for eight months and \$3 for four winter months. The fire department had 20 volunteer firemen and in 1962, the school had its last high school graduates.

By 1970, the population decreased to 140 and by 1974, the electric system was owned by the village and supplied by Nebraska Public Power District.

From 1980-1990, the population remained at 160 and a wastewater project was underway in 1980. By 1982, the natural gas system was operated by the Kansas-Nebraska Natural Gas Company and the water system installed new fire hydrants. By 1999, the village operated a facultative retention lagoon system designed for 0.027 million gallons per day (mgd).

In 2000, the water system had one active municipal well, an elevated water storage tower, water mains, fire hydrants, valves and no residential water meters. In 2005, \$920,000 was requested to rehab the elevated water storage tank, install mains and for treatment for arsenic and uranium. In 2007, the

village received a 19-year \$79,000 loan (4.125%) and a \$171,000 grant for water improvements, which included tower renovation and meter installation. By 2009, the village had two active wells serving about 140 customers.

By 2010, water rates were based on meter size: **¾ inch or less meter** = \$32.75 plus \$3 per 1,000 gallons used; **¾ inch or less w/ garden lot** (billed six-months of year) = \$37 plus \$4.50 per 1,000 gallons; and over 15,000 gallons for **commercial usage** = \$4 per 1,000 gallons used. A **1-inch meter** = \$47.75 plus \$3 per 1,000 gallons used; and a **2-inch meter** = \$57.75 plus \$3 per 1000 gallons used. Sewer rates were a flat rate of \$7 for residential and \$10 for commercial with a deposit and reconnect fees.

Today, Broadwater has a population of 128, is a League of Nebraska Municipalities member and a Utilities Section member. The village maintains the streets, cemetery, park and the water and wastewater systems. The electric distribution system is municipally owned and supplied by Nebraska Public Power District.

The natural gas system is served by Black Hills Energy. Solid waste collection is provided by Waste Connections.

References: Nebraska Directory of Municipal Officials, 1962-64, 1969-75, 1977-87, 1990-95, 1997-2017; Nebraska Municipal Review Magazine, 1928, 1989, 2007; Water Resources of Nebraska, December 1936; Nebraska Place-Names, 1925, 1960; Nebraska Our Towns...The Panhandle, 1988; Bridgeport News-Blade, 2009; Maps Tell a Story, 1991; NEDED Website, 2005; NHHS Website, 2000; Water and Sewer Rate Comparison Study 2010-2011, (NeRWA), 2011; Nebraska Blue Book, 1928, 1946; Nebraska Historic Buildings Survey, Reconnaissance Survey, Morrill County, March 1990; the "Broadwater News" newspaper, 1920-25; and the History of Western Nebraska and its People, Shumway, 1921.

National Public Works Week May 21-27, 2017

Does your public works department have an event planned for this week? More information on "National Public Works Week" and how others have participated in educational and informational outreach programs can be found at the American Public Works Association (APWA) website at http://www.apwa.net/MYAPWA/Events/National_Public_Works_Week/MyApwa/Apwa_Public/Education_and_Events/NPWW/National_Public_Works_Week.aspx?hkey=5f71de83-830e-46f8-81ee-474b2edef522.

New additions to lending library

These following DVDs are free from the Chlorine Institute and can be a training source for those using and storing chlorine (especially tank cars or multiple tanks/drums) and local fire departments.

- **Chlorine Emergencies for First Responders Instructional Video**, January 2015 Video Edition 2 (75 min.)
- **The Chlorine Safety Tour:**

A Training Guide for Chlorine Emergency Response (3+ hours)

- **Preventing Non-Accident Releases by Properly Securing Hydrochloric Acid Railcars** (22 minutes)
- **Preventing Non-Accident Releases by Properly Securing Caustic Tank Cars** (33 minutes)

Safety awards reminder

The AWWA and NWEA has safety award applications to recognize water and wastewater departments/facilities for their safety program.

Checkout the League's Facebook page at www.facebook.com/leaguene. Be sure to "Like" us.

If you wish to recognize your facility for its safety program and activities, a water safety award application can be found on Nebraska Section AWWA's website at <http://awwaneb.org/>.

For wastewater safety award applications, go to NWEA's website at <http://nebwea.org/awards/2016-2017-nwea-safety-award> or contact Todd Sukup at wastewater@cityofsidney.org

If you have any questions on either award, please email Rob at rob@lonm.org.

Waste/Recycling Associations merge

Two Nebraska nonprofit organizations, the Nebraska State Recycling Association (NSRA) and WasteCap Nebraska merged March 31, 2017. The NSRA was formed in 1980 and Wastecap Nebraska was formed in 1992. The new entity will be called the Nebraska Recycling Council (NRC) and will be located at 610 J Street, Suite 300, Lincoln, NE 68508. More information on NRC and its programs can be found on its website – www.nrcne.org.

Crow Line: A line of positive communication that all can share

2017 Nebraska Municipal Clerks Association "Outstanding Clerks" – Congratulations to **Cindy Dickinson** of Scottsbluff (City of First Class), **Sherry Heskett** of Auburn (City of Second Class) and **Becky S. Erdkamp** of Exeter (Village) for being recognized as outstanding clerks by the Nebraska Municipal Clerks Association in Kearney. Congratulations Cindy, Sherry and Becky!

Do you, your department or

facility have something to crow about? Received an award, had an article written highlighting an event or person? Have a project worthy of acknowledgement in the *Utilities Section Newsletter*?

If so, please send your information to any of the League/Utilities staff so we can share your excitement or pride of an award, noted article or project with other members. Too often we read about negative news in our local news-



paper, but the positive should be celebrated, embraced and shared. Optimism can be contagious and others may find positive ways to use your success to enhance a project or event in their municipality, department or facility.

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More information on upcoming seminars and workshops can be found on the League website at www.lonm.org.

Electric Underground Workshop held

The eastern Electric Underground School was held April 26-27, 2017, in Norfolk at the NECC Campus. About 37 linemen attended with 21 from Nebraska Rural Electric systems (NREA) and 15 from municipalities. Linemen from four different municipalities participated, including Grand Island, Neligh, North Platte and Wayne.

Registration was followed by vendor introductions and brief discussions on their various equipment and material, some of

which were used in the hands-on sessions. The participants were then divided into work groups or stations. The stations consisted of trench safety, equipotential grounding procedures, primary fault locates and a secondary locate station.

Ditch Witch had a trencher/backhoe available for participants' use on the first day. Participants received welcome packets with coupons, a map and current events from the Norfolk Visitors Bureau.

We would like to thank the

participating vendors/instructors at this year's Norfolk Electric Underground School, listed alphabetically by company: Kent Haddon of Aquatronics; Marshall Adams and Tim Powell of Ditch Witch; Bill Larson of Energy Solutions (ESI); Jon Delsman of Hubbell Power Systems; Garry Poutre of Moehn Electrical Sales; Jim Stephens of 3M Corp.; Bob Hessler of Safety Consultants Inc.; Travis Beran of Subsurface Solutions; and Jim Meyer of WESCO.

"Just For Fun" Answers

- A-1. Channel Catfish
- A-2. Cozad References:
Wikipedia and www.fact-index.com
- A-3. Sidney (was a popular outfitting place for Black Hills gold prospectors)
Reference: Lincoln Journal Star, Feb. 26, 2017
- A-4. Sidney (outside Cabela's)

Notice: Electric Departments!

The American Public Power Association (APPA) released the 16th Edition Safety Manual. The APPA Safety Manual is updated every four-to-five years to reflect industry changes. The 16th Edition Safety Manual was released March 2017 and can be pur-

chased in a printed format. Recent amendments to federal regulations 29 CFR 1910.137 and 29 CFR 1910.269 are incorporated. Ordering information can be found at the APPA website – <http://publicpower.org/Topics/Landing.cfm?ItemNumber=38512>.




May is National Safety Month and
Hand Tool Safety Month.



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Training calendar

June

June 7 Safety “Refresher” WorkshopRowe Memorial Public Safety Complex, Nebraska City
June 8 Safety “Refresher” WorkshopCity Hall, Ponca
June 20-23 Rubber Gloving WorkshopNortheast Community College, Norfolk
(rescheduled from May 2-4)

July

July 11 Safety “Refresher” WorkshopBlack Powder Bar & Grill, Franklin
July 13 Water Operator Training WorkshopFire Hall, Ogallala

August

Aug. 3 Wastewater WorkshopCity Hall, Auburn
Aug. 15 Water Operator Training WorkshopCity Hall, McCook
Aug. 16 Water Operator Training WorkshopJohnson Center, Alma
Aug. 17 Water Operator Training WorkshopCity Hall, Fairbury
Aug. 23 Backflow WorkshopRisky’s Sports Bar & Grill, Beatrice
Aug. 24 Backflow WorkshopFire Hall, Wayne

September

Sept. 6 Backflow WorkshopFire Hall, Ogallala
Sept. 7 Backflow WorkshopBoarders Inn & Suites, Grand Island
Sept. 12-14 ... Rubber Gloving WorkshopWheatbelt Training Field, Sidney
Sept. 20-22 ... League Annual ConferenceCornhusker Marriott Hotel, Lincoln
Sept. 26 Water Operator Training WorkshopLibrary, Valentine
Sept. 27 Water Operator Training WorkshopVillage Auditorium, Stuart
Sept. 28 Water Operator Training WorkshopCommunity Center, Sargent

October

Oct. 26 Water Operator Training WorkshopAuburn

November

Nov. 16 Water Operator Training WorkshopNorth Platte

December

Dec. 6 Water Operator Training WorkshopFremont
Dec. 7 Water Operator Training WorkshopLincoln



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