

Thermal expansion – likely cause for water heater rupture

Recently KRWA received the photo of the water heater shown at right. The heater was in a residence served by a rural water district in Leavenworth County. It is likely that the rupture was caused by thermal expansion. Luckily, the rupture took place on the side of the water tank rather than out the bottom. If that had happened, the tank might have acted like a missile, possibly causing a lot of damage to the home.

Thermal expansion has been discussed several times in prior issues of *The Kansas Lifeline* by Al Hermsen of A-L-H Trainers, Topeka, Kan., and also by former KRWA staff member Fred Baumert.

When water is heated in a 40-gallon water heater it is possible that the water could expand by as much as one gallon. During no-flow periods in a system, pressure reducing valves, backflow preventers and other one-way valves eliminate a path for expanded water to flow back to the system supply. A rupture of the tank can occur if there is nowhere for the excess water to escape to.

Thermal expansion in a closed plumbing system can create potentially dangerous problems. These include leaking faucets and failing fill tank valves, intermittent discharges from the T & P relief (temperature and pressure) valve on the water heater and pressure surges. If the T & P valve becomes clogged with mineral deposits and fails to relieve excess pressure, a rupture of the tank can occur.

Plumbing codes, if existing, require that thermal expansion control be addressed. Every water system in Kansas should notify customers of the potential problems associated with thermal expansion. A bladder tank or other thermal expansion solutions are options to homeowners.

Suburban Water Company files for increase in water rates

Suburban Water, Inc. has filed an application with the Kansas Corporation Commission requesting a \$274,954 increase in rates for water service representing an annual revenue increase of approximately 37.3%. The rate increase was filed with the Kansas Corporation Commission (KCC); privately owned systems fall under KCC jurisdiction on rate setting.

Suburban Water is a privately owned water public utility serving approximately 1,370 residential and commercial customers in Leavenworth County, Kan.



In its application, Suburban Water stated the \$274,954 increase is necessary to recover the depreciation expense and interest on the recent debt Suburban Water incurred to fund the new \$1.2 million water storage tank and related facilities. Suburban Water is also seeking to recover the increase in the normal cost of service items such as operating and maintenance expenses, and payroll and employee benefit expenses which have increased since August 2003. Suburban Water's last rate increase of \$60,000 was approved in 2005, based on August 2003 costs.

The Company's present rate is \$13 for the monthly minimum with 1000 gallons of water allowed with the minimum payment. The proposed rate is \$20. Water use is presently billed at \$5.63 per thousand; the rate request would increase the rate to \$7.33 per thousand. In total the proposed rate increases would add about \$16 per month for the average use of 7000 gallons.

The average monthly minimum in nine RWDs in Leavenworth County is \$20.44. The average in the RWDs for 7,000 gallons is \$45.

Marysville eyes \$8.8 million water system improvements

The city of Marysville in Marshall County in northeastern Kansas is developing a long-range water utility improvement program estimated to cost \$8.8 million. The plan includes projects spanning the next 20 years. The engineering firm of Kirkham Michael, Omaha, Neb., made the projections and were presented recently by City Administrator Rick Shain.

The improvement project includes a new 500,000-gallon water storage tank, and replacement of control systems and water mains throughout the city. The project was broken into four phases, with the first three phases targeting the business district along U.S. Hwy 36 and taking in the Eastside and Westside areas annexed into the city.

Prescott approves rate increase

Water and wastewater rates have been increased in the city of Prescott, located in Linn County in east-central Kansas.

After reviewing rates in surrounding cities, Mayor Kevin Wood recently told council members that Prescott was in the same situation as other neighboring communities. "Costs are hitting the cities the same as they are us at home," he said, as reported recently in the Linn County News.

Mayor Wood presented several plans that should allow the city to gain additional \$5,000 revenue from the water and wastewater utilities. The city's internal analysis is that it costs the city \$8.47 per 1,000 gallons to provide the water service; the city collects \$8.30 per thousand.

The city council voted to approve a plan proposed by Mayor Wood to increase the minimum charge to \$15.20 for the first 1,000 gallons plus \$6.25 per 1,000 gallons thereafter. The city also was developing a separate rate for those customers outside the city who were obtaining water service from the city.

City of Hutchinson constructing new reverse osmosis plant

Hutchinson, Kan. is constructing a new reverse osmosis treatment plant in response to the need for cleaner drinking water and remediation of an industrial site contaminated with man-made and inorganic pollutants. Recently, the city approved installation of two waterlines – one to carry polluted water to the plant and one to carry it away.

The waterline project is estimated to cost \$8.1 million. It will carry contaminated groundwater from wells near the intersection of 4th and Carey streets to the reverse osmosis treatment plant being constructed at the corner of 23rd Avenue and Severance Street.

Associate News

Larkin Group, Inc. is proud to announce the promotion of Derek J. Klinkenborg, P.L.S., Survey Group Manager, and Jeff W. Heidrick, P.E., Associate Engineer, to Associates of Larkin Group. Derek has led the survey department since January of 2006. His experience ranges from minor topographical surveying for design to development of major design information involving GPS, sectional work, horizontal control, cross sections, bridge surveys and highway construction. Jeff has been with the company since February of 2004. Jeff performs hydraulic analyses as well as water main design services. Jeff's background is in Chemical Engineering and he received an MBA in Business Administration. He is a registered Professional Engineer in Kansas and Missouri.

The plant will treat 75 to 80 percent of the water and distribute that into the city's water system. The remaining water, along with the removed contaminants, will be pumped through a second pipeline to deep disposal wells southeast of the city. The plant has a daily capacity of about 6 million gallons and will be able to send approximately 2 million gallons of the concentrated waste to the city's deep disposal wells, which are about 4,800 feet deep. It is estimated that it will require 40 to 50 years to remove all the pollution from the city's groundwater, according to Public Works Director Reg Jones.

Paola-Louisburg plan joint project

The cities of Paola and Louisburg in Miami County in eastern Kansas are close to issuing bonds to construct a joint water system improvement project. The two cities are members of the Marais des Cygnes Public Utility Authority. The PUA plans to construct a water plant on the Marais des Cygnes River and two new water storage tanks. The project costs are estimated at \$32 million. The project designer is Bartlett & West Engineers, Topeka.

Water system service areas available for download through KRWA Web site

KRWA has made available (See the ad and graphic at the right) for download the service areas for most public water supply systems (PWS) in Kansas (525 municipalities, 289 rural water districts and 13 public wholesale water supply districts), and infrastructure data for rural water districts (RWDs) and public wholesale water supply districts (PWWSDs).

RWD boundaries delineate the service area (not incorporated area) of the district; municipal boundaries are generally the city limits included in the 2000 U.S. Census Bureau Tiger files, although some municipal boundaries may be the actual water distribution system service area. PWWS district boundaries are the composite boundaries of the district members. Infrastructure includes the general location of: the main pipelines in the distribution system; the source water wells and surface water intakes; facilities (storage tanks, pump stations and surface water treatment plants); and interconnections between PWS systems for wholesale water distribution. These data were collected by the Kansas Rural Water Association (2004-2006), working

directly with the public water supply systems, using printed maps of the 1992 datasets. Updates were hand-drawn on the maps and then heads-up digitized at the Data Access and Support Center.

This dataset was developed to support programs at the Kansas Water Office and the Kansas Department of Health and Environment. This data should be used for planning or general reference purposes only.

The individual PDFs of rural water districts and public wholesale water supply districts are available for download. KRWA hopes that this service will assist engineers, planners, contractors and citizens who frequently call KRWA or other agencies wishing to determine service areas of the water systems. KRWA's directory is also linked to the Web site page for the maps.

KRWA encourages anyone who notices any need for a correction on the maps or in the directory to advise the Association through the contact form on the Web site. The KRWA directory is updated at least weekly.

Kansas Rural Water Association Fund provides \$76,000 to Greensburg

Kansas Rural Water Association (KRWA) General Manager Elmer Ronnebaum presented donations totaling \$76,000 to Greensburg Mayor John Janssen at the September 17 city council meeting. In presenting the unrestricted donation to the city, Ronnebaum said, "Those who donated would hope that the city could use the funds to supplement other funding, perhaps supplementing costs of construction of the new water storage tank or equipment to restore the city's water or wastewater facilities, however, the donations were made with no restrictions and can be used by the city as you decide are appropriate." Mayor John Janssen expressed appreciation for the donations on behalf of the city.

The donation of \$76,000 came from cities and rural water districts across Kansas as well as individual employees of water systems, Association staff and board members and several donations from outside Kansas. The National Rural Water Association, the national affiliate of the KRWA, is

publishing information about the fund in their national fall magazine. "It is anticipated that with continued promotion, the fund will continue to receive donations for Greensburg," Ronnebaum added.

The Greensburg fund was established following the devastating May 4, 2007 E5 tornado that nearly destroyed the city and caused nine deaths. KRWA provided staff and coordinated the work crews from other mutual aid cities to restore the water and wastewater services in Greensburg immediately following and for a month after the storm.

The non-profit Association has more than 775 municipal and rural members and 280 industry/associate members. The Association provides training and technical assistance to water and wastewater system personnel and board/council members across the state. KRWA also supports the popular KAN STEP program through the Kansas Department of Commerce.

County RWD Maps

WATER SYSTEMS IN KANSAS

High resolution maps can now be accessed at www.krwa.net/mapovers to be used for planning or general reference purposes.

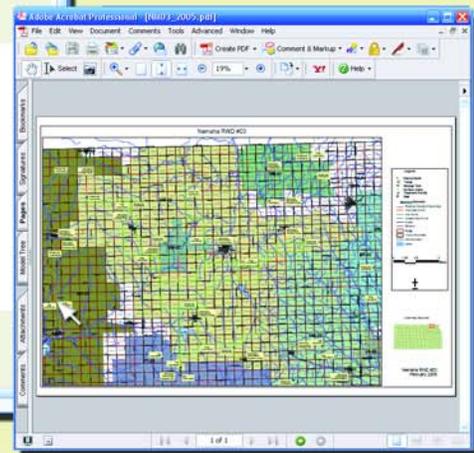
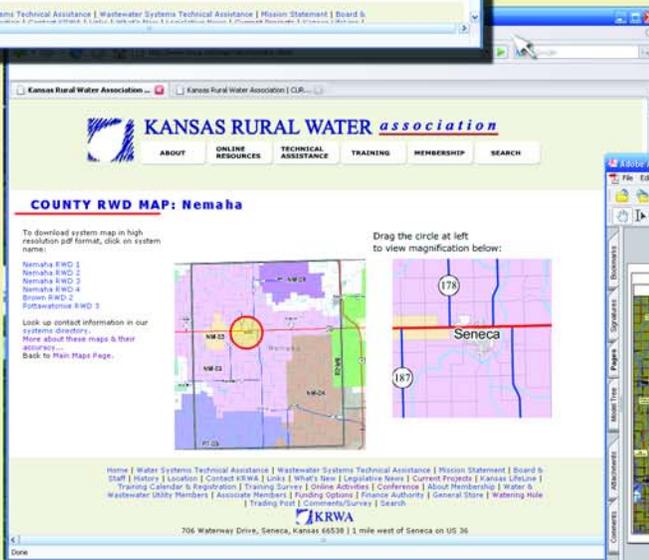
This dataset includes boundaries for most public water supply systems and infrastructure data for rural water districts and public wholesale water supply districts.

Infrastructure includes the general location of:

- the main pipelines in the distribution system
- the source water wells and surface water intakes
- facilities (storage tanks, pump stations and surface water treatment plants)
- interconnections between PWS systems for wholesale water distribution



You start by choosing a county the alphabetized list or from our Kansas map.



Then you can use a magnifying glass on a general County map to find what high resolution pdf map you desire!

Parsons, Neosho RWD 4 come to agreement on service area

The Parsons city commissioners recently agreed to a unique compensation package to Neosho Rural Water District No. 4 for service to RWD territory that the city was proposing to annex. The agreement also will satisfy an obligation that cities in Kansas have to reimburse rural water districts for taking over infrastructure, customers or potential revenue from the districts involved in annexations.

Parsons' compensation agreement is unique in that instead of paying the water district money, the city and RWD have negotiated an agreement that would be beneficial to both parties by a reduction in the cost of water purchased by the district from the city.

The agreement, which will be in effect for 10 years, calls for the RWD to purchase a minimum of 4 million gallons of water per month at a reduced rate of \$3 per thousand gallons on all water purchased in excess of 2 million gallons per month. The district presently purchases 7 to 8 million gallons per month with some water also purchased from the city of Erie. The RWD presently pays \$3.75 per thousand gallons for water from Parsons.

RWD 4 Board Chairman Tom Giefer reported to KRWA that the RWD does not believe the mission of the district is to provide service to the more intense commercial developments. "That is not the clientele that our rural water district was established to serve nor do we believe we should attempt to serve such areas," Giefer commented. "The city of Parsons was very good to work with in establishing an agreement that meets the interests of both entities," Giefer said. The RWD will continue to provide service to the RWD customers presently located in the area until such time as Parsons extends service. At that time, Parsons will also reimburse the RWD for those meters and pipeline involved.

Neosho RWD 4 also has a commitment to purchase 7 million gallons per month from the proposed Public Wholesale Water District (PWWSO) No. 23. If PWWSO 23 constructs facilities, RWD 4's commitment to Parsons will reduce to 1 million gallons per month at \$3.35 per thousand gallons. If the RWD purchases more than 2 million gallons in a month, the price to be paid to the city will be \$3 per thousand gallons, resulting in a price that would be less than the proposed cost of water from the proposed PWWSO 23.

Parsons has a new treatment facility with the capacity to provide wholesale water. The RWD also could perhaps end up purchasing more water than the minimum. PWWSO 23 has not yet been funded but is continuing to develop a project. PWWSO 23 was organized with 19 entities. The proposal is for the

PWWSO to utilize the city of Fredonia treatment plant to process water. Recent flooding in southeast Kansas however necessitates a rehabilitation of the plant.

Eudora City Council Approves utility rate hikes

Measures were approved by Eudora's city council on October 11, 2007, that would increase fees for four city utilities the first of the year. Starting Jan. 1, 2008, and at the beginning of each year after, the city's electricity, wastewater, water, and stormwater utility rates will be increased by 3 percent.

Eudora City Administrator Cheryl Beatty said, "We talked about doing smart business and ways of keeping up with utilities rather than consistently raising rates in an up-and-down rollercoaster type way. It's recommended by a utility rate manager you do it consistently as a cost-of-living raise."

Zebra mussels found at Perry Lake

On Tuesday, October 9 2007, Kansas Department of Wildlife and Parks Nuisance Species Specialist Jason Goeckler announced the confirmation of zebra mussels being found in Perry Lake, north of Lawrence. Biologists predict that the mussel will eventually pass through the Perry dam and get into the Kansas River and reach down river locations including the Kansas City Riverfront.

The invasive zebra mussels were found both in their adult and larval forms, confirming reproduction. Biologists explained that they can only monitor the zebra mussels and as the microscopic larval form will likely float with currents.

"Last week a member of the public contacted me about a single zebra mussel adult attached to his boat haul. The mussel he provided for investigation was crushed making identification difficult. Subsequently, today (10/9/07), the Kansas Department of Wildlife and Parks sent a diver to investigate the reservoir for confirmation of the presence of zebra mussels," Goeckler explained. "At 10 feet of depth, three adult zebra mussels were discovered. Plankton samples collected last week were analyzed for evidence of reproduction. Zebra mussel veligers (five individuals) were present in the plankton samples indicating that the population is increasing, but currently at a low level."

"We'll probably start seeing more adult zebra mussels early next summer," Goeckler said in an Associated Press interview. "There probably won't be large numbers for two years."

In a single growing season, a female zebra mussel can produce more than a million young, and those microscopic larvae drift until they can attach to a hard surface where they begin to grow.

Wildlife and Parks officials are sure the mussels are being flushed out through the dam spillway and the expectation is that the mussels will cause problems downstream.

Zebra mussels have caused billions of dollars in damage to beaches, docks and utilities, since coming



into the Americas through the Great Lakes from Eurasia in the 1980s.

The razor-edged invasive pests have been found in Kansas lakes at Cheney Reservoir and El Dorado Lake in 2003. Last year, the mussel was discovered in Lake of the Ozarks, Lake Taneycomo and Bull Shoals Lake in Missouri.

Problems occur when the mussels form dense infestations on hard surfaced objects such as metal pipes. Their numbers also kill native mussels by robbing them of the plankton they need to survive. The mussels also use nutrients needed by native fishes.

"This got our attention. We really didn't want to have to deal with these guys," said John Reddy, plant manager for the Kansas City Water Department in an AP interview. "We're going to be checking closer for them in the next few weeks."

The mussels move to new waters attached to boat trailers, ship ballasts and recreational craft by staying alive out-of-water long enough to take a dip in the next body of water an unsuspecting recreational boater visits.

Wildlife and Parks officials urge boaters to inspect and clean boats inside and out before visiting another lake.

The next steps for Kansas lakes

"Education is still our best tool to prevent the further spread of this species. With Perry's close proximity to many other Kansas reservoirs, it is imperative that we work together to prevent this species from spreading to other lakes," Goeckler explained. "We will post signs around the reservoir and river to inform all users that zebra mussels are present, that it is illegal to possess or transport as well as provide literature for distribution. If anyone would like zebra mussel literature or signs, please contact me." Jason Goeckler may be contacted at:

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For more information regarding the zebra mussel, visit the Kansas Department of Wildlife and Parks Web site: http://www.kdwp.state.ks.us/news/fishing/aquatic_nuisance_species/aquatic_nuisance_species_list/zebra_



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