

KRWA Training Focuses on Options for Fusing HDPE Pipe

Learning about high-density polyethylene (HDPE) pipe and the methods of connecting HDPE was the topic of a specialized training session sponsored by KRWA on August 8 in Manhattan. The training was held at the National Guard Armory. It was a very warm day and the area for the training was not air-conditioned. Building remodeling was taking place and the room temperature was beyond KRWA's control.

HDPE pipe is becoming extremely popular in the last few years. There are many different options for connecting HDPE pipe to itself and other types of pipe.

The time in the session was spent reviewing the options for the fusion of HDPE pipe. The presenters were Griff Hawkinson, HDPE Product Sales Manager, B&D Manufacturing, Travis Schurz, Sales Representative-Utility Division, Industrial Sales, and Kris Reeves, Equipment Services-McElroy Certified Instructor, Industrial Sales.

The day was filled with lots of good information and demonstrations. It ended with the attendees doing some hands-on working with the fusion equipment. Cutaway showed what a proper joint should look like. Attendees learned and watched the process that goes into making a successful fusion by using the process of socket



Kris Reeves, Industrial Sales Company Inc., Dave Affolter, City of Morganville, and Wayne Martin, Pottawatomie RWD 2, discuss the steps to do a proper butt fusion joint.

fusion, butt fusion, and electrofusion. When done properly, the fusion site is at least as strong as the pipe itself. The greatest challenges with any of these methods are that they all require electricity and cannot be made with water flowing in the pipe. It must be a somewhat clean

environment as dirt or debris can cause a joint to fail. Fusion techniques should be performed by a qualified operator. If you would like to become a qualified operator let a KRWA staff member find you the proper training.

Socket fusion

Socket fusion is the process of heating the inside of a fitting and the outside of the pipe by means of an electrical heating tool. The socket fusion tool used at the training was a Ritmo. The equipment needed for this process is the electric heating tool, a non-stick socket face set in the proper size (male/female), a depth gauge, and a cold ring clamp. The first step is to cut the pipe straight with a blade type cutter, then ream off a small portion of the outside of the pipe. Next is to clean both pieces with 90 percent isopropyl alcohol. Then insert the pipe into a depth gauge and clamp the cold ring clamp around the pipe directly adjacent to the bottom of the depth gauge. This step ensures that the fitting will seat at the proper depth. After attaching the socket faces to the heating tool, it is important to check if the surfaces have reached the proper temperature (a minimum of 500 degrees +/- 20 degrees F) using a pyrometer or rated temp-stik crayons. After the appropriate heating time, the pipe and fitting are removed from the heating tool. The fitting is firmly pushed onto the pipe until it is against the cold ring clamp. The pipe should not be twisted into the fitting. The fitting should be held for 30 seconds for the connection to set up. The cold ring is removed. The pipe should not be handled for 20 to 30 minutes.

Butt fusion

The butt fusion hydraulic machine that was demonstrated was a McElroy Rolling #28. First step in butt fusion is to clean the pipe



This finished butt fusion is at least as strong as the pipe itself.

with isopropyl alcohol. The mating surfaces are faced with a tool. It's important to make sure that the heating tool is at the proper temperature before inserting the pipe and fitting into the machine to then apply the proper pressure and time required to melt the mating surfaces. The heating tool is removed; the surfaces should be inspected and pressure kept on the pipes for the required time.

Electrofusion

The electrofusion machine that was demonstrated was a Central Plastics MSA 340. For its use, the inside of the female and outside of the male pipe should be cleaned with isopropyl alcohol. All the required information is scanned into the fusion equipment. The cables are connected and the tool indicates when the process is done. The tool will also log the process.

All this equipment comes with a small learning curve. Once that you have mastered the process you should have joints that will last as long as the pipe. There is a website Alliance for PE Pipe (<http://www.pepipe.org/>) that will be quite helpful.

As always if KRWA can be of assistance with any training needs contact me at 785-258-0642 or email me at bret@krwa.net or contact any KRWA staff member to be of service.



Cutaway of butt fusion

-LINE STOPPING
3/4" - 60"

-LINE TAPPING
2" - 60"

-VALVE INSERTION
4" - 16"

-VALVE TURNING

-PIPE REPAIR



FOR ALL YOUR POTABLE AND WASTE WATER NEEDS

WWW.MUNICIPALPIPESERVICES.COM

MUNICIPAL PIPE SERVICES

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

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



Training on Testing Large Meters Met by Enthusiastic Attendees

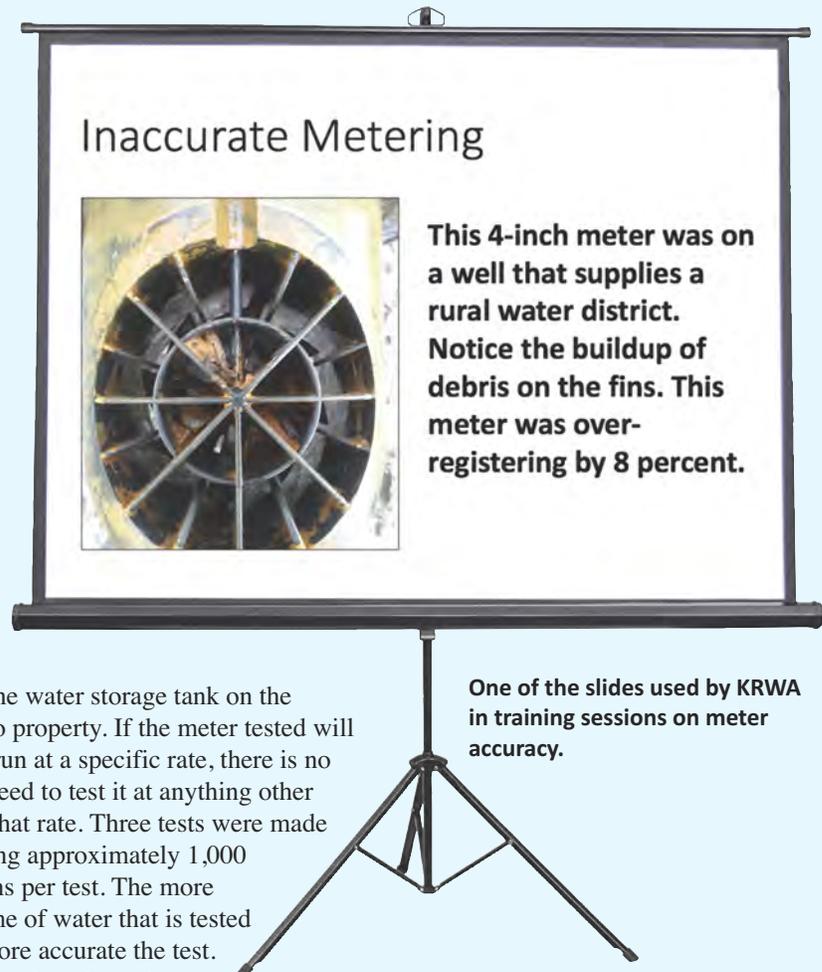
In all my years of working as a utility superintendent, I had never attended or even knew of a training that focused on the testing of large water meters. That changed this past August. KRWA sponsored such training on August 21 at the Prairie Band Conference Center at Mayetta and on August 22 at Great Bend at the Brit Spaugh Zoo.

These two training sessions covered the different types of meters and the options for capturing the readings. There was also a hands-on demonstration session on how to test large meters. The trainers were Preston Hodges, AMR/AMI Product Specialist, of Core and Main, and Bill Saunders, Senior Manager Technical Solutions, with Sensus, a Xylem Company. Another topic of the training addressed water storage tank maintenance. For the purpose of this article I will cover only meter testing.

The part that I and the other attendees found most interesting was that we actually had the opportunity to watch a large meter being tested. At Mayetta, a test was conducted on the 2-inch meter that supplies the conference center. Jackson RWD 3 supplies the water to the conference center. The rural water district meter

fills the water storage tank on the casino property. If the meter tested will only run at a specific rate, there is no real need to test it at anything other than that rate. Three tests were made running approximately 1,000 gallons per test. The more volume of water that is tested the more accurate the test. Always do at least three tests. The formula used to check the accuracy was meter volume divided by test meter volume times the per cent of the accuracy curve of the test meter. Both of the meters tested within AWWA standards. In Great Bend the 3-inch large meter tester owned by

Mechanical meters gradually experience wear and lose accuracy with time, preventing a supplier from realizing full revenue potential.



One of the slides used by KRWA in training sessions on meter accuracy.

KRWA was tested from a nearby fire hydrant. Both were tested at 70 GPM.

The attendance at the Mayetta training totaled 47 persons representing 32 public water systems. There were 29 attendees at the session in Great Bend, representing 20 public water systems.

Mechanical meters gradually experience wear and lose accuracy with time, preventing a supplier from realizing full revenue potential. Sometimes inaccuracy can be due to debris in the vanes of the meter as noted in one of the photos. Typically, large meters in commercial and industrial services often represent 40 to 60 percent of a system's total revenue, so maintaining their performance is crucial to a utility's operation. Large meters should be tested every one to



Bill Saunders, Senior Manager Technical Solutions, with Sensus, a Xylem Company, explained the procedures for properly testing large water meters.

two years depending on the amount of water used and the quality of water traveling through the meter. Unless a meter is tested regularly, operators are only guessing as to its accuracy.

The test meter used at this training was a Sensus Omni V2. This meter is the newest technology from Sensus. It will test flow accuracies across low, medium, and high flow ranges from .5 to 500 GPM. Any test meter should

have a certificate of accuracy showing the meter's test date. The meter used keeps track of total gallons, test gallons, and gallons per minute.

Many of the class participants told me that they were excited to get out of the class room and see the process of testing a large meter. Everyone seemed to enjoy the experience as they were genuinely engaged in the test procedure. I know I am a visual



This photo shows the Sensus Omni V2 large meter tester.

If any municipal or rural water district member has interest in particular training topics, please let someone on KRWA's staff know.

learner. So if I can see the procedure with my own eyes, the better I process the experience.

KRWA – at your service . . .

KRWA owns several large test meters and provides large meter testing without charge, mainly as a benefit of the contract administered through the Kansas Water Office and which is funded through the Clean Drinking Water Fee. KRWA also owns a non-obtrusive meter that can be attached to the outside of pipeline and will read the flow inside the pipe in cubic feet per second and then the meter will convert the reading to gallons per minute.

Interested in other training?

If any municipal or rural water district member has interest in particular training topics, please let someone on KRWA's staff know. KRWA will do its best to provide the training that systems want and need. The nice thing about asking for training is that KRWA will try to hold the class as close to your community as possible.

Bret Beye joined the KRWA staff in March 2017. He previously worked for 30 years at the city of Herington where he was Water Distribution and Sewer Collection Foreman. A Class III water operator and



certified as a backflow device technician, Bret also served on the USD 487 Board of Education from 2003 to April 2017 where he was board president and vice-president.