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NEWS RELEASE

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KENTUCKY UTILITY BENEFITS FROM NEW PHMSA MEGA RULE

First High-Pressure Project On Record
Wins Industry Award

HENDERSON, Ky. - **(DATE TO COME)** - A high-pressure gas pipeline completed by Henderson Municipal Gas (HMG) here used pipe made from polyamide 12 (PA 12), which is now approved for use under the new the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) Mega Rule. The pipe is rated at 200 psi, which can accommodate the pressure range HMG required.

Completed in 2019, the multi-stage project saw a total of 2,720 feet of the six-inch SDR 13.5 pipe manufactured by Teel Plastics, Inc. (Baraboo, WI) installed using trenching and horizontal directional drilling. The project won the Plastics Pipe Institute's Energy Piping Systems Division Project of the Year award for Teel. PPI is the major North American trade association representing all segments of the plastic pipe industry. The association's annual awards program recognizes projects and members for exceptional contributions to the industry. Submissions in the association's divisions are reviewed, evaluated and voted upon by the PPI members.

"This project marked the first PA 12 installation under the PHMSA Mega Rule effective January 2019, which accepts PA 12," stated Randy Knapp, Ph.D., engineering director of the Energy Piping Systems Division of PPI. "Prior to being incorporated by reference into the

federal code, PA 12 projects would require a special permit. Because an application would have to be filed for each individual project, the process was quite difficult and lengthy, requiring a coordinated effort between the pipe manufacturer, system designers, installers, state regulators and PHMSA. Naturally, this would take a lot of time and people. That is why the new PHMSA Mega Rule is significant and highly beneficial to utilities and their customers.”

PA 12 is an innovative material suited for high-pressure gas applications and has been used internationally for years. In the United States, however, PA 12 had previously been installed only via special regulatory waivers. The new Mega Rule approved the use of plastic pipe for a greater range of high-pressure applications in the US, eliminating the waiver process for PA 12 and making it available for wider use.

HMG was drawn to PA 12 primarily for its ease of installation compared to steel. Considering all budgetary criteria for the project, the total installed cost for using the pipe was less expensive than steel.

“The PA 12 fusion process was much easier and faster than welding steel would have been as well, saving HMG significant time and labor,” stated Owen Reeves, P.E. (PA) gas system director of Henderson Municipal Gas.

Located on the Ohio River, west of Louisville, Henderson has a population of nearly 30,000. Established in 1859, Henderson Municipal Gas is the fifth oldest system in the United States. It serves the natural gas need of the City of Henderson, adjacent areas and City of Corydon. It has 8,400 residential, 1,100 commercial and 50 industrial customers. Annual throughput is 3.1 billion cubic feet. In July 2020, HMG was named a winner in the American Public Gas Association for its safety record during 2019.

HMG installed the pipe through an industrialized area of the city. “The county was able to acquire a grant to widen the roadway in one of our industrial sectors,” Reeves explained. “A lot of trucks and cars go up and down that road, and it was worn out and old. The issue was that

the gas line was on the edge of the existing asphalt, and we didn't want to be underneath the new, widened road.

"The existing line was steel, epoxy-coated pipe, which has been our traditional choice in the olden days if we were going to be above 200 psi," he continued. "That is what anyone would use for sure. Our concern was that there are probably a dozen or more building entrances on one side of the road and a dozen or more on the other side of the road. The logistics were that some of these companies run three shifts, a lot of vehicles run up and down that road. The problem was how are we going to stage that steel, epoxy-pipe welding wise, get it synced up, x-rayed and get it in the ground. We didn't want to block the vehicles from the businesses.

"In this area, we were at 90 psi with the prior pipe. We wanted the ability to go up to 200 in case there's future expansion. 90 was not an option. We did look at the 250 psi using PA 12, but it was significantly more money and we really didn't need the extra pounds of pressure, so we stayed at the SDR that gave us at least 200 psi.

Reeves said that PA 12 and PA 11, had been talked about in the industry for a long time, and thought to himself, 'Boy, it sure would be nice if we could get pipe that would fuse together. This would make the whole job much easier'.

"We called our state inspectors and said we'd like to use PA 11 and PA 12," he explained. "And because it had been used in other places, we asked them to take that into consideration because they had made special provisions for two other projects in the state. Those, however were both four-inch projects. We wanted to increase that to six-inch pipe as well as the higher pressure. They looked into it and said 'yes, we'll give you a special exemption, but it will take 18 months for you to get it'.

"So, we decided to start the process and also called around to get educated about the two different products. This included Teel and also the PA 12 resin producer, Evonik. The bottom line is that PA 11 comes from castor oil, which would be limited quantities and that was

really the only one that was being manufactured in the United States at that point in time, and they weren't even making the six inch. We felt the future would be with the PA 12 so we decided to go with the 12 and wait."

"PA 12 is a newer material in the United States," explained PPI's Knapp. "And this project serves as an example of where and how PA 12 can be a beneficial alternative to steel for future projects. It demonstrates that PA 12 is a viable option as a high-strength alternative to steel that can save customers significant time, labor, and costs during installation."

"At the 11th hour, by the grace of God, PA 12 pipe was approved by the PHMSA Mega Rule," continued Reeves. "So that's what you call perfect timing, 'cause we had been stalking this project for about two years, and were within a month of a 'go' 'no go', as far as whether or not we would be a gonna be able to do it. The new rule came in the nick of time."

"The project went ahead on the fact that you can fuse it together just like PE which we've been using for quite a while. It's a little longer in time for the PA 12, but the same type of equipment, same principle. That's what made us go that route. We had three directional bores, one which connected two 750-foot-long sections of pipe and one that went across the road. The rest was trenching by a trencher and some areas we used a backhoe to excavate. We did a total of 2,720 feet."

Teel, one of the only PA 12 gas pipe manufacturers in the United States, provided specially designed "weak link" mechanism to aid in the installation. These were used in each section of the pipe to help ensure that as it was pulled through the holes, the links would stretch or break in the event of a snag instead of stressing the pipe itself. The installation went smoothly and none of the links or pipe were damaged.

"This project demonstrates the benefits and costs savings of a new plastic pipe material that could open new opportunities to plastic pipe manufacturers as they seek to offer viable alternatives to steel," offered David Fink, president of PPI. "It serves as a feature project that can be referenced in seeking the wider acceptance and prevalence of PA 12 now that certain

legal barriers to its installation have been removed. In short, the success of Henderson’s project helps blaze a trail for an innovative plastic pipe product.”

With a 200 psi rating, PA 12 pipe benefitted HMG as a steel pipe alternative at higher pressure than HDPE. In addition, unlike steel, PA 12 does not require cathodic protection saving extra labor and materials.

“Pulling steel pipe, the bored holes would have been more difficult,” Reeves stated, “and the welding required to join steel pipe sections would have required additional manpower and prolonged time in the field. The PA 12 butt fusion process HMG used was much easier and faster, saving HMG significant time and labor.”

Reeves estimated that welding steel pipe would have taken two to three weeks during the first phase of the project, while the PA 12 butt fusion process took only about three days. Each fusion required only about an hour to complete, including alignment and placement.

“The job came in on time and under budget. We saved on the welding time that would have been done in the field and so we viewed it as a very good project. I would use PA 12 pipe in a heartbeat anywhere under conditions that are more than 125 psi, less than 250 and you don’t have very many valves in the line.” Reeves stated. “If you’re putting in a main header, and going a long ways to serve a city far from another city, I would not hesitate to use it.”

Additional information can be found at the Plastics Pipe Institute's website:

www.plasticpipe.org.

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About PPI:

The Plastics Pipe Institute, Inc. (PPI) is the major North American trade association representing all segments of the plastic pipe industry and is dedicated to promoting plastic as the materials of choice for pipe and conduit applications. PPI is the premier technical, engineering and industry knowledge resource publishing data for use in the development and design of plastic pipe and conduit systems. Additionally, PPI collaborates with industry organizations that set standards for manufacturing practices and installation methods.