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HDD AND HDPE SOLVE RECURRING WATER MAIN LINE FAILURES

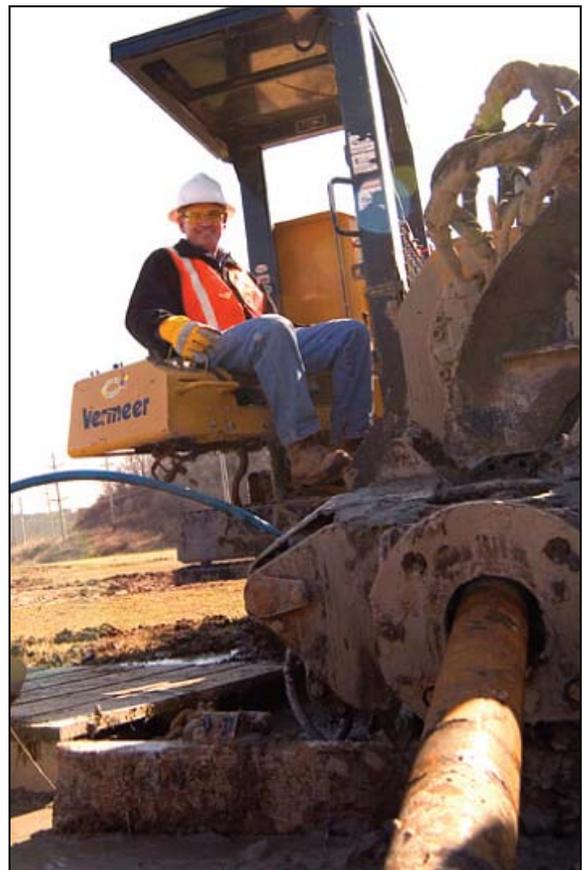
The city of Jenks, Oklahoma uses HDPE water pipes to eliminate water main breaks due to unstable soils and to reduce ongoing maintenance costs.

Jenks, Oklahoma -- Vance Giblet has been drilling high-density polyethylene (HDPE) pipe under roads and rivers since the late 1970's. So when he heard that the City of Jenks had a water line that had been washed out by Polecat Creek, he knew exactly what to do.

Jenks is a suburb of Tulsa, Oklahoma, and is the second fastest growing city in the state. The city has a busy schedule keeping up with its rapid growth, so when one of its main lines that crosses a creek was washed out and fractured for the fourth time in 18 years, they decided to research a better fix. That is when they added HDPE and horizontal directional drilling (HDD) to the bid specification. "I was glad to see HDPE on the bid," said Giblet who won the contract and owns Advanced Horizontal Directional Drilling based in Rocky, Okla. "I usually do HDD work in other parts of the country or for rural water districts in Oklahoma, so I was happy to see a municipality in the Tulsa area that was finally ready to do a pilot project for water with HDPE."

HDPE is rapidly gaining acceptance in the water industry and becoming a key tool for

municipal engineers who are tackling the daunting task of rehabilitating worn out infrastructure with very little funding. Indeed, the EPA says the funding gap between what is needed for U.S. infrastructure and what is available to be approximately \$535 billion over the next 20 years. The leak-free benefits of HDPE are appealing to municipalities but the long-life expectancy of the pipe, along with low anticipated maintenance costs, is what led the City of Jenks to use the material for its problem main line.





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“Each time we repaired the creek crossing, the price was double the amount of the previous repair,” said Loyd Bell, engineering technician for the City of Jenks. “The cost of using HDD and poly pipe is comparable to traditional materials and conventional methods, but it will save us a lot of money over time by not having to repair the line every four or five years.”

Polecat Creek is a storm drainage runoff creek for several counties near Tulsa. The creek drains into the Arkansas River and the pipeline crossing is at one of the widest portions of the creek. The soil is sandy, so when large amounts of stormwater pass through the creek, the banks take quite a beating. Huge sections of the bank sometimes fall into the creek and these occurrences are what caused the last four pipeline fractures.

“HDPE has an ability to withstand tremendous force,” said Bell. “It is the best pipe to withstand the unstable soil conditions anticipated in this area.” HDPE has demonstrated its ability to withstand force associated with earthquakes, such as one that occurred at Kobe, Japan in 1995. HDPE was the only piping material in Kobe that survived the earthquake unscathed. It is also the reason that the pipe is rapidly being adopted in areas of high seismic activity like Washington, Oregon and California.

By using HDD, the pipeline can be placed at a safe level 10 feet below the flow line of the creek bed. The city also chose to make the connections much further back from the banks of the creek. The total length of the 10-inch HDPE DR 11 pipeline was 800 feet. A McElroy

TracStar 412 was used to fuse the pipe together. The TracStar is mounted on a rubber track system that allows the fusion machine to be mobile on the job site, as well as make fine adjustments in lining up the pipe ends for the fusion procedure.



McElroy Manufacturing's TracStar fusion machine makes it easy to access hard to reach locations.

HDPE has many benefits that are attractive to water managers but perhaps the strongest benefit of the pipe is its marriage with trenchless technologies like HDD. What is most important to contractors is PE's ability to withstand the tremendous load that may be placed on it during pullback. With more trenchless rehabilitation taking place in the nation's aging water and sewer infrastructure, many in the industry feel that PE's market share will grow as well.

“HDPE has piggybacked its way into the water industry on the back of directional drilling,” said

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Giblet. “Once municipalities see how tough the pipe is, it opens the door for it to be used in the rest of their system.”

“Although the gas industry’s use of polyethylene pipe has always been our bread and butter, it is a mature market, growing at a steady pace and very important to us,” said Dave Dutton, vice president of business development for McElroy. “But we feel the water market easily has the potential to increase its usage of HDPE by 50 percent each year for the next several years and we’re prepared to serve it.”

Water infrastructure rehabilitation is rapidly becoming a hot topic for municipal engineers and water managers. They are handicapped by being under-funded, but are still taking the fast track to learn about trenchless technology and HDPE. The piping material is forging its way into the water market and many cities like Jenks are learning the long list of benefits the pipe has to offer.

Giblet continues his role of helping cities understand PE and how it is drilled under roads, creeks and rivers. “It’s not rocket science,” he says. “It is simply the best piping technology on the market and the water and sewer managers are starting to understand this.” One thing is for sure, Giblet knows from experience that PE pipe sells itself and once Jenks has first-hand experience with it, they will come to realize what many other cities are finding out — that PE pipe is an excellent alternative to traditional materials and offers advantages that simply cannot be denied.

The Plastics Pipe Institute, Inc. (PPI) is a Texas-based, non-profit organization, founded in 1950, that is the major trade association representing all segments of the plastic piping industry. PPI is dedicated to expanding awareness about plastic pipe systems and promoting plastics as the material of choice for pipe applications. It is the premier technical, engineering and industry knowledge resource that publishes data for use in development and design of plastic pipe systems. Additionally, PPI collaborates with industry organizations that set standards for manufacturing practices and installation methods. For more information about PPI and available information, go to: www.plasticpipe.org.