

Kansas Town Gets State-of-the Art Water System with DriscoPlex™ by Performance Pipe div. Chevron Phillips Chemical Company LP High-Density Polyethylene Pipe Unmatched in Flexibility and Resilience

It's not every day that an entire town gets a brand new water system. But in Maize, KS, that's exactly what happened.

The small wheat belt town, founded in 1886, is located less than two miles outside of Wichita. With a population of only 2,000, Maize is a friendly place where people know their neighbors and take pride in their community. For many residents, life there was idyllic – except for the water.

Maize was stifled in its growth potential because it lacked a public water system, said City Administrator Carol Bloodworth. "The entire town relied on private well water, which prevented a lot of businesses from moving into the area."

What's more, the well water was a health concern. "It had high nitrate levels," Bloodworth said, which can be particularly harmful to children, pregnant women and the elderly.

Compounding the problem was the fact that the city's population triples each day during the school year. The Maize school system educates approximately 6,000 students – many of whom come from nearby Wichita, a portion of which is in the Maize school district.

The City of Maize realized something had to be done not only to improve the water quality but also to modernize the entire water system. It turned to George Butler Associates, a Lenexa, KS, engineering and architecture firm, and CAS Construction, a Topeka, KS, general contractor, for help.

Numerous Challenges

According to Bill Carter, vice president at George Butler Associates, the project presented some unusual challenges. "The biggest hurdle was servicing a city that had all its utilities in place," he said.

Jesse Wright, CAS Construction project superintendent, agreed. "In most situations, you're just adding a subdivision to the water system. This project was on a much larger scale."



The project called for 97,000 feet of distribution lines, 108 fire hydrant assemblies, 804 service connections (not including schools) and more than 400 operating gate valves

Another challenge was providing the service with as little disturbance to the public as possible. "We had to work in ways that kept disruption to residents and businesses to a minimum," said Carter.

That wasn't easy, Bloodworth joked. "When you're retrofitting pipe, it's an equal opportunity project. We cut up everyone's yard."

The \$5.3 million dollar job began in January 2002. It called for 97,000 feet of distribution lines, 108 fire hydrant assemblies, 804 service connections (not including schools) and more than 400 operating gate valves as well as a 500,000-gal-

lon elevated storage tank and two deep wells.

The bulk of the work was performed using horizontal directional drilling, in which a surface-mounted drill rig with tracking and steering capabilities launches and places a drill string at a shallow angle to the surface.

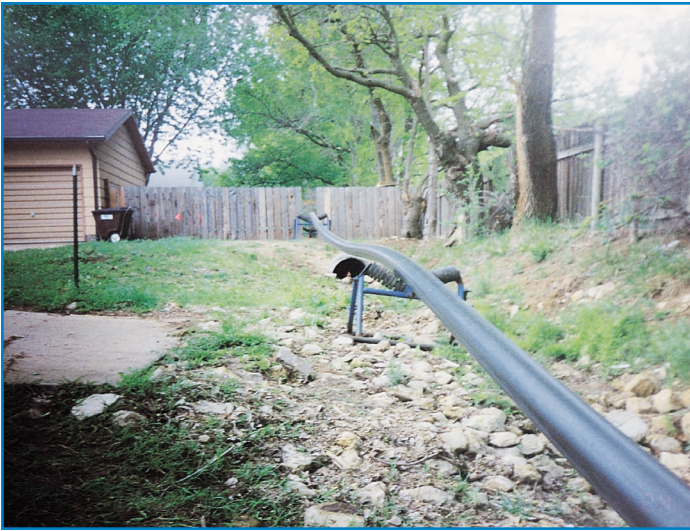
Although this drilling method is more expensive than conventional open trenching, it was the best alternative for the Maize project, said Wright. "Conventional open trenching would have destroyed property, making the cost of restoration astronomical and adding another eight or nine months to the job."

What's more, he said, ripped-up lawns, driveways and streets would have created a public relations nightmare for the city. "With directional drilling, people could continue with their daily activities without a lot of disturbance."

DriscoPlex™ Ideal for Job

However, directional drilling does limit the type of pipe that can be used on a project. "You can't use standard PVC split-joint connections," said Carter. "They aren't designed for applications like this."

Carter specified high-density polyethylene pipe (HDPE) for the job, and CAS Construction then selected DriscoPlex™ manufactured by Performance Pipe division of Chevron Phillips Chemical Company LP and supplied by Industrial Sales Company, Inc.



The pipe was delivered to the job site in 50-foot lengths. Duling Construction Company, subcontractor on the project, then fused it together and put it into place.

DriscoPlex™ has an unsurpassed record of outstanding performance in municipal water systems and is preferred for water distribution due to its long-term strength, resilience, flexibility and impact-resistance. It also requires fewer fittings. "It can be cold-bent in the field to follow contours and easements," Wright said. What's more, DriscoPlex™ can withstand corrosive chemicals and is resistant to both ultraviolet and thermal degradation. "The fuse joints are stronger than the pipe itself," said Wright.

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DriscoPlex™ also has an extremely long life expectancy, thus reducing – or eliminating – maintenance costs. And, in many instances, high-density polyethylene pipe is more cost effective than its steel casing counterparts. Wright noted a highway crossing where he used DriscoPlex™ as casing pipe to save money. "I got approval from the state to use 14-inch HDPE instead of steel casing," he explained. "We made a 780-foot bore, and to complete that using conventional steel casing would have cost a fortune. HDPE is less expensive and just as good."

Minimal Disruption to Schools

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According to Ron Duling, general superintendent, the job crew laid about 1,000 feet of pipe each week. Most bores, which were approximately 500 feet long and at least 42 inches deep, took more than a day to complete.

Duling fabricated unique custom rollers to keep the pipe off the ground in areas where it might have been damaged during pull-back. In some cases, the company even attached the rollers to front loaders and elevated the pipe high enough for a school bus to drive beneath it.

Workers tackled the majority of north-to-south installations during the school year, because bus routes run in the opposite direction. "That reduced traffic problems," said Duling. The job crew concentrated on east-to-west installations during the summer months.

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From January through July, CAS Construction held weekly neighborhood meetings in its construction office trailer to keep residents updated on water system progress. The company also hired a community relations representative to inform homeowners of the latest developments and to find out where they wanted water meters and hookups.



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That attention to detail paid off with residents. "We had good turnouts at the meetings, and homeowners felt like they had a voice in what was going on in the community," said Wright.

Big Return on Investment

In January 2003, a year after the project began, the work was completed. Within two weeks after that, the City of Maize took over water system operations.

So far, so good, said City Administrator Bloodworth. "Things are running smoothly. We have a state-of-the-art water system, and it makes a world of difference in what the town has to offer."

In years past, it was impossible for the community to recruit new business. With the new water system in place, she said, "I'm inundated with requests for information, and several companies are considering building here."

All of which is good for Maize's economic future. "Now, we can grow our tax base," said Bloodworth. "I'm expecting a big return on our investment."