



CASE STUDY



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MURDO, SD

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LOCATION:

Murdo, SD

PROJECT SCOPE:

Phase XII of the Rosebud Sioux Rural Water System – The Mni Wiconi Rural Water Project is the world’s largest rural water pipeline.

APPLICATION:

The siphon line consists of 2,600 feet of 42-inch PE pipe

PROJECT DATES:

Project authorized in 1988 – Completion in 2008

KEY CONTACT:

Mark Morris, project manager and prime contractor for Phase XII



SUMMARY

The Mni Wiconi Rural Water Project is the world’s largest rural water pipeline and will supply water to the Lower Brule, Pine Ridge, and Rosebud Reservations as well as the West River/Lyman-Jones Rural Water System. West River/Lyman-Jones serves the people located in nine counties outside of the reservations.

The development of this massive water supply project was based on a needs assessment and final engineering report carried out under the supervision of the Federal Government. It was authorized by Congress in 1988 and expanded in 1994 to include the Rosebud and Lower Brule Sioux Tribes. Because of the size and cost of the project (near \$400 million), construction is being completed in phases.

Phase XII of the Rosebud Sioux Rural Water System involves significant quantities of high-density polyethylene (HDPE) pipe. Polyethylene is playing a vital role in two river crossings on Phase XII and was also the key factor in the massive Missouri River intake system located in Pierre, SD.

“During the last several years polyethylene has really helped us develop a niche in being able to perform almost any kind of pipeline work,” said engineer Mark Morris, Project Manager and prime contractor for Phase XII.

Morris’ specialty is highway heavy utility construction, and his roots are in agricultural irrigation systems. He’s been involved with the installation of several large irrigation intake systems on the Missouri River utilizing PE pipe, including the design of the Mni Wiconi intake line using PE pipe and a siphon concept.

The siphon line consists of 2,600 feet of 42-inch PE pipe and can handle an estimated 10 million gallons per day. The trench for the pipe was excavated by using an excavator on a barge and the pipe was anchored to the river bottom with anchors that were drilled into the riverbed spaced every fifteen feet.

The original intake design called for ductile iron pipe, along with several large air/vacuum stations, to be installed down the middle of a causeway leading out to a peninsula referred to as “Echo Point.” Rather than excavate through the causeway and risk losing portions of the causeway due to hydraulic pressure, and to keep the environmental impact to an absolute minimum, Morris submitted the siphon system as a value-engineering proposal. Ultimately, the proposal was accepted and not only allowed for more water, but also saved the owner approximately \$200,000.

“Once PE is in the riverbed it’s there for good, you don’t ever have to worry about it,” said Morris. “With PE, there is no rusting, no leaks at joints and the pipe won’t freeze and burst.”

Morris points out that the installation is also a big advantage. “All we had to do was excavate the ditch, float the pipe out and sink it. You can’t do that with other kinds of pipe.”

Source: PPI Article “Water Pipeline Supplies Vast Areas of South Dakota

*Please do not hesitate to contact the Alliance with any questions or comments.
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