

Trenchless Training Enables Record Setting Directional Drilling in Paradise



The Beaufort Jasper Water and Sewer Authority (BJWSA) is the regional provider of water and sewer services in a two-county area along the beautiful southeastern coast of South Carolina. Beaufort County is famous for its historical significance and our many waterways and marshlands. Of its more than 920-sq-mile area, 40 percent is comprised of waterbodies and marshlands.

Along with being a thriving retirement community and home to several important Marine Installations, Beaufort County has become a popular tourist destination and has been experiencing rapid growth since the mid-1990s. Any local significant extension of water and sewer service involves crossing our pristine estuaries and our community demands that we protect these valuable assets during construction. Prior to 1980, the traditional cut and cover method was used for these crossings, and once the project was completed, it took several seasons for the impacted area to recover. BJWSA was introduced to horizontal directional drilling (HDD) in the 1990s and our first use of HDD occurred when we installed a 24-in. waterline across two major rivers to provide potable water to Hilton Head Island in 1999 (two segments, ~7,500 ft total HDD). BJWSA and our customers quickly discovered the benefits of using HDD and we now widely use HDD for many types of pipeline projects.

BJWSA has expanded our knowl-

edge of HDD by tapping NASTT's vast expertise in the trenchless technology field. Both our Engineering and Operations Divisions have relied on NASTT's Horizontal Directional Drilling Good Practices Guidelines publication to develop internal skills needed to properly oversee all aspects of HDD projects. BJWSA has taken advantage of NASTT's No-Dig Show Municipal & Public Utility Scholarship program to send individuals to the annual No-Dig show where they are able to network with their municipal peers to share HDD experiences and to learn the latest advances in the trenchless industry. We have also sent our construction inspectors to specialty training focused on pipe fusion, a critical component of the HDD project process.

As our workforce gained confidence in our ability to successfully manage HDD projects, we looked for opportunities to make our HDD projects more efficient, shorten project timelines and when possible, reduce project costs. A good example of this is our innovative approach to sharing risk on major HDD projects by agreeing to supply the pipe and fusion services to the drilling contractor and developing a drilling contract based on a specific project timeline. The contract allowed for a HDD daily rate in accordance with the mutually agreed upon HDD project timeline and if the drilling exceeded the timeline, a significantly reduced daily rate was established until the HDD was completed.

This innovative contracting approach was first used in June 2007 to install 5,100 ft of 10-in. fusible PVC reclaimed waterline under the Beaufort River to irrigate a famous golf course. We had a limited budget and were able to reduce costs by procuring the fusible PVC pipe and fusion services for the HDD contrac-

tor. This was BJWSA's first experience with fusible PVC pipe and we worked closely with the pipe supplier and HDD contractor to determine the maximum pulling force and establish a pullback force monitoring protocol. The project was completed under budget and on schedule and at the time, was a world record length for 10-in. fusible PVC.

BJWSA faced another difficult HDD project in December 2009. We had acquired the water and sewer infrastructure on the Parris Island Marine Corps Recruit Depot and decided to decommission the wastewater treatment plant on the base and divert flows to a regional water resources facility located miles away. The project included installing a 16-in. force main under Archers Creek. Based on our success on the Beaufort River HDD in 2007, we decided to use a similar HDD contracting approach and prequalified HDD contractors based upon their experience using fusible PVC pipe and doing HDDs greater than 3,000 lf. The Archer's Creek crossing would require a 6,400-lf HDD, and based on their qualifications and cost proposal, the same HDD contractor that completed the Beaufort River HDD was awarded the Archer's Creek HDD contract. BJWSA again supplied the fusible PVC pipe and fusion services and a similar risk sharing contract was executed with the HDD contractor. Again, the project was a great success and we set another HDD world record for 16-in. fusible PVC pipe.

In summary, none of these HDD successes (or world records) would have happened without the valuable trenchless training and resources we received from NASTT.

This article was contributed by the Beaufort Jasper Water and Sewer Authority.