

A Directional-Drill Pipe-Coating Solution

Pipeline routes that cross highways, bodies of water or railroads can require a contractor to pull pipe through a direction-drill bore. Special coatings are needed to protect the pipe from such rough treatment.

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In the pipeline industry, a common method used to install a section of new pipe is via a directional drill. This is done when it's either impractical or impossible to dig a trench, such as under a highway, body of water, or railroad.

The directional-drilling process for pipe installation consists of drilling a pilot hole, reaming it to the appropriate size, and pulling a new section of pipe back through the bore. While the process, at first consideration, may seem straightforward, it is typically difficult in actuality.

Recently, an engineering firm added another layer of challenge to its directional-drilling and pipe-laying process. They started by reaming the bore to a diameter of 54 inches, and, instead of pulling one new pipe section through it, they pulled 10 bundled casings, totaling nearly 2,100 feet in length.

In September 2009, an engineering firm in charge of the design for this directional-drilling project contacted a technical sales representative for Corrosion Control Products Co., for assistance. Corrosion Control Products Co., a division of Farwest Corrosion Control Co. is a supplier of cathodic-protection and corrosion-related materials and services based in Gardena, California with offices nationwide.

The project consisted of 10 bundled casings, including three 14-inch, two 12-inch, two 10-inch, one 6-inch, and two 4-inch pipe casings. The client



was interested in coating options for the girth welds along the various casings. When deciding on which field-applied girth weld coating to approve for use, the engineering firm had to ensure that the field-applied coating was designed for use in a directional drilling application, was compatible with the plant applied coating and would perform similarly to the plant applied coating.

Pipelines pulled through the bore of

a directional-drill bore are subject to stresses that can very easily damage or destroy their protective coatings. Rock, shale and gravel can cut through or abrade coatings all the way to the pipe surface. Consequently, coatings used in directional-drill projects are typically sturdier and more abrasion resistant than those used in direct-bury applications. Additionally, girth-weld coatings are sometimes viewed as being the weak link in the

pipeline coating chain, adding to the importance of choosing the right product for the job.

The plant-applied coating on the casings was a three-layer polypropylene system. Corrosion control worked with the engineering firm to specify Canusa-CPS TBK-PP65 Heat-Shrinkable 3-Layer Directional Drilling Kits for the girth welds, which were previously used on directional-drill bores in the project area. They have a long history of successful use. The system is comprised of a 100%-solids epoxy, a heat-shrink sleeve with polypropylene backing and hot-melt adhesive, and a secondary heat-shrinkable sleeve which functions as a sacrificial-wear cone.

In January of this year, the pipeline contractor started work on the project. By early February, it was ready to coat the girth welds. Corrosion Control Products Co. supplied the contractor with Canusa-CPS TBK-PP65 Kits, and, along with Canusa-CPS, it provided onsite-contractor training. In order for the end result to be a high quality product, the contractor's installation personnel and the pipeline owner's quality-control representatives were trained in proper pipe-surface preparation and the directional-drill kit installation, inspection and repair.

While there were challenges, the engineering firm and the corrosion-control company worked together to find solutions to end in successful results. By early April 2010, the bore had been reamed to the specified size and the pipe pullback was completed. Today, the casings are in place and will allow the enclosed pipelines to transport oil, water, gas, electrical and instrumentation cables from their sources to their destinations via one directional bore. ■

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