

ScarGuard® E Protects 56" Pipe in Saudi Arabia Microtunneling Application

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Saudi Arabia

Summary

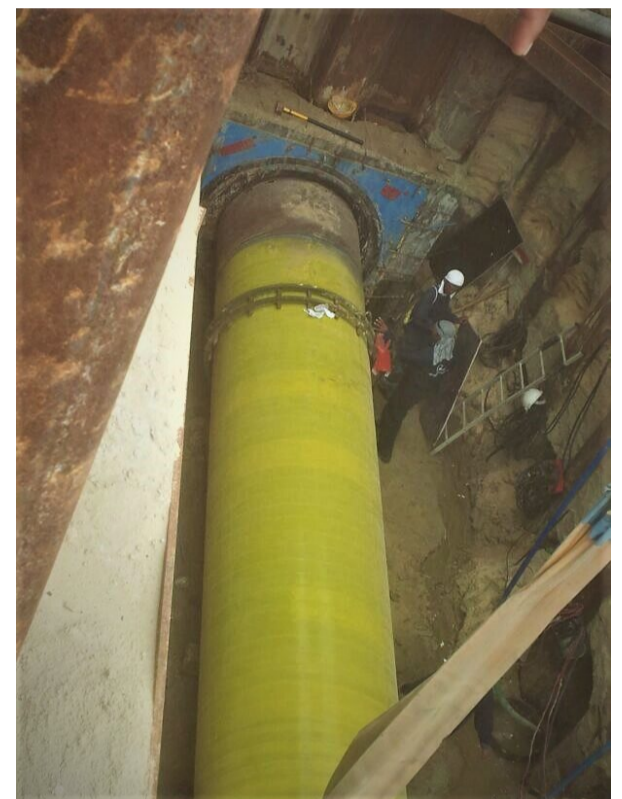
A Middle Eastern oil producer manages more than one hundred oil and gas fields in Saudi Arabia. With ongoing expansion to meet customer needs, the company employs microtunneling across some of the toughest terrain on the continent. This trenchless process can put tremendous stress on the pipe as it is laid. Protecting the pipe from the moment of installation throughout the life of the pipe helps to ensure that the pipeline operates without interruption. When planning the execution of this microtunneling operation, the pipeline owner looked for a solution that could stand up to this intense environment. A solution proposed by CSNRI employing [ScarGuard E](#) was selected to protect their pipeline investment.

Benefits

- Non-shielding
- Superior mechanical protection
- Excellent abrasion resistance
- Prevents gouging and coating damage
- Sacrificial outer laminate in rocky environments
- Ensures future pipeline integrity
- Prevents future external corrosion
- High impact resistance
- No environmental hazards
- Easily installed over field- and factory-applied coatings
- Pre-impregnated, moisture-cured polyurethane resin eliminates field mixing or saturation

Challenge

The pipeline owner is at the forefront of the age of horizontals, a trenchless drilling / geo-steering revolution that began decades ago. A large-scale microtunneling project involving hundreds of feet of new 56" carbon steel pipe during the installation process was one of many trenchless projects. Running underground from rigs in the field to the plant, the pipeline would first be tunneled through some of the most unforgiving rocky terrain on earth. The owners turned to CSNRI for a solution, incorporating ScarGuard E, to encase and protect the pipe, not only during the microtunneling process, but also in service, as well.



ScarGuard E eliminates field mixing, making field application simple and efficient.



The abrasion-resistant fiberglass composite coating protects the pipe from mechanical stresses and scarring.

Application

ScarGuard E is a composite, abrasion-resistant overcoat comprised of fiberglass cloth impregnated with a high-performance grade of resin. It is designed to protect mainline and field joint coatings from the mechanical stresses and scarring associated with thrust-boring and microtunneling of pipelines. This sacrificial outer laminate system protects pre-approved anticorrosion field joint coatings and mainline coatings such as FBE, liquid epoxies, shrink sleeves, and 3LPE/3LPP.



A jack-and-bore method was used to install the below-ground pipe, once protected with ScarGuard E.

Prior to the application of ScarGuard E, the pipe's surface was prepared by sweep-blasting to roughen the factory-applied, fusion-bonded epoxy coating. The weld joints were coated with a primer coat of ThermoPoxy. While the ThermoPoxy was still wet, the crew applied the ScarGuard E composite system. A rapid curing process was used, including an ice bath, followed by heat lamps to speed the curing process. In a matter of minutes, CSNRI's ScarGuard E was fully installed and protecting the pipe. The ScarGuard E application provides robust protection of the underlying pipeline coating.

Results

The microtunneling process was a success. On a jack-and-bore installation, some damage to the coating system is almost always expected, but on a 56" pipeline, the weight of the pipe alone is a threat to the coating system's integrity. ScarGuard E allowed this project to go off smoothly, keeping the project on schedule, protecting the pipe and the corrosion coating throughout the installation process, with continuing protection throughout the life of the pipeline