

Pipeline to New Markets

Spray Foam Supports Pipeline with Trench Breakers—Faster, Safer, and Easier



The use of Spray Polyurethane Foam in geotechnical applications for the oil and gas industry has proven to have a number of advantages and has grown in popularity in recent years.

DCP Midstream, headquartered in Denver, Colorado, is the second-largest natural gas gatherer and the largest natural gas liquids producer in the United States. DCP is a joint venture between Spectra Energy and Phillips 66.

In order to transport natural gas liquid (NGL), DCP made plans to convert the recently purchased and renamed Southern Hills Pipeline to NGL service. The pipeline would have a capacity of approximately 150,000 barrels per day of NGLs and according to Bill Waldheim, president of DCP Midstream's northern business unit, "Southern Hills is a game changer for Midcontinent NGL values and DCP. We are excited to have a stake in opening up major, new NGL transportation capacity to premium markets."

The Southern Hills Pipeline covers a total of 250 miles. Because of rocky and steep terrain, a 150 mile section

of the pipeline, from Liberal, KS south to Shawnee, OK, required the addition of trench breakers to control erosion in the trench. DCP contracted with Kool Foam to install Quik-Shield 205 Ditch Break geotechnical foam for the trench breakers instead of sand bags because of its ease of application.

Kool Foam has been installing urethane foam for six years serving Oklahoma and Southern Kansas. According to Cory Boehs, owner of Kool Foam, they were chosen for the project because they could install roughly 15 trench breaks in the time one sandbag trench break can be installed.

DCP Midstream LLC, the pipeline owner and general contractor worked alongside Kool Foam on the project.

Cory said his crews installed trench breaks in steep, rocky, and sometimes sandy locations in approximately a month. The slopes along the pipeline where trench breaks were needed averaged between 15 percent and 28 percent grade. Depending on the terrain slope, crews installed the trench

breaks at intervals of 15 feet apart up to 150 feet apart.

The four-man crew worked 12 to 14 hour days installing 685 trench breakers along the pipeline in about 20 working days. They used Quik-Shield 205 Ditch Break Foam manufactured by SWD Urethane for the trench breakers. They chose Quik-Shield 205 because of the many benefits, including technical support from SWD Urethane, lower installation time and cost, vertical



installation stability, high compressive strength, excellent adhesion, and because it is engineered for low exothermic reaction.

“It’s the best in the industry for ease of use and spray quality. It provides the best finished product, sets up fast, and stays in the form we apply it,” said Cory. “Plus, the foam is low exothermic and never gets too hot. Trench can be backfilled about 15 minutes after the foam application.”

The project went well considering the steep hills, according to Cory, using up to 5000 pounds of foam a day. “Completing this project smoothly felt like a great accomplishment,” he said. Because of the steepness of the terrain, the crew had to be innovative in order to do their job safely and efficiently and complete the job without injuries.

The most difficult challenges on the project came in working on the steep terrain and spraying foam from the edge of the deep trench. Logistics were also a challenge. Cory said they used the foam so quickly that they had to keep reloading the trucks to bring in more product and filled trucks after dark getting ready for the next day.

Kool Foam’s installation teams sprayed ditch breaks in the pipeline trench with one man hauling the urethane product in a truck and a second man spraying foam into the pipeline. Quik-Shield 205 was able to be applied five to ten feet deep in the trench efficiently and safely.

On the steeper grades, a dozer was hooked to the foam truck to pull it uphill. In rocky sections Kool Foam installed foam pillows with Quik-Shield 205 in the trench bottom prior to pipe being laid in the trench.

The company worked out a plan to safely execute the work carefully following standard precautions. The crews wore standard PPE (Personal Protection Equipment) equipment: hard hats, safety vests, steel toed boots, and gloves, and respirators. Foam applicators also wore a protection harness to eliminate the possibility of falling into the trench.

With the pipeline in place, DCP will initially transport about 80,000 barrels of finished natural gas liquid per day to end users and has begun searching for new NGL sources from refineries to increase the volume of NGL being transported in the pipeline.

DCP was pleased with the results and impressed with Kool Foam’s timeliness and attention to detail. “We gave them a very tight deadline in the most difficult terrain on the project. They found a solution to each challenge that arose and were very knowledgeable

about their profession and their product,” said James Jackson, a DCP representative.

Kool Foam

(www.koolfoamllc.com)

Located in Northwest Oklahoma, Kool Foam is a market leader in geotechnical applications of spray applied foam.

SWD Urethane

(www.swdurethane.com)

Quik-Shield brand is owned and operated by SWD Urethane and represents 40 years of spray foam experience in the construction industry. SWD Urethane is one of the most innovative system houses in the spray polyurethane/polyurea marketplace and is committed to developing meaningful solutions.

