Golden Triangle Storage begins leaching first cavern

Construction of the Golden Triangle Storage project has reached a milestone: Leaching (or more technically, solution mining) of the first cavern has begun.

In Phase I, the project eventually will produce two underground caverns for natural gas storage in a salt dome near Beaumont, Texas. Salt caverns are ideal for storing natural gas under pressure because their walls have the structural strength of steel.

“We began leaching on February 27, after the well was successfully drilled in the naturally occurring salt dome,” says Midstream Projects Managing Director Tim Goodson. “The well was drilled and completed to the prescribed depth, and now we are injecting water under pressure to dissolve the rock salt, which is properly called halite, to create the first of two caverns.”

Drilling of the well to create the second cavern was completed last week. Leaching of that cavern is planned to begin in June.

The caverns will be shaped like liter soda bottles with a diameter of about 300 feet and a height of about 2,000 feet. The top of the cavern will be 3,300 feet below the surface of the Earth.

According to Tim, two sets of pipes are used during the leaching process: one line to send fresh water down to dissolve the walls from the rock salt and one line to pump the briny saltwater out. The water is then treated and injected into a naturally occurring salt-water aquifer. The process runs 24-hours a day.

“During the leaching, which works from the bottom up, company operations personnel use sonar, salinity tests and other measurements to ensure that the process is producing a cavern whose size and shape are as planned,” says Pivotal Development Vice President Dave Schultz.

During the solution mining process a layer of diesel fuel is injected to float on top of the briny water. This “diesel blanket” will protect the cavern roof from erosion by the water.

“The next phase of the construction -- building a compressor station and dual 24-inch pipelines -- is expected to begin Fall 2009,” says Midstream Services Vice President Jim Pitts. “Both the compression station, pipeline, and the leaching for the first cavern are expected to be completed by late Summer 2010, when they will go into gas service.”

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The project is on target to meet the scheduled in-service date for the winter of 2010-2011. The Golden Triangle Storage header pipeline will link both caverns to six interstate and intrastate pipelines.

“The great efforts of the contractors, AGL Resources project management personnel, and the Golden Triangle Storage operations personnel have resulted in a project safety record we can all be proud of,” says Jim. “We intend to keep up the strong safety focus for the remainder of the Golden Triangle Storage storage project as well as all of our other projects and operating groups.”

**Golden Triangle Storage Phase 1 by the numbers**

- Number of miles of gas piping: 16.8 arranged as dual-line header (injection and withdrawal)
- Planned compression: 15,000 horsepower
- Initial gas storage capacity (2 caverns): 12 BCF working capacity; 6.2 BCF pad gas capacity
- Current size of Cavern #1 (April 30): 520,000 barrels
- Brine disposal wells and pipeline: Four wells drilled to 7,000 feet and 2.5 miles of 16-inch pipe

**Update: Lamar student heads to Brown**

Jennet Toyjanova, who has been interning at Golden Triangle Storage, will graduate in May with a bachelor of science in civil engineering. After taking the summer off, she will pursue her doctorate in mechanics of solids and structures at Brown University.

Toyjanova, a native of Turkmenistan, came to Beaumont as an exchange student in high school. While at Lamar, she received an AGL Resources scholarship. As an intern, she assisted the chief, environmental, civil/utility and welding inspectors.

“I learned a lot not just from engineering side but also about operations of the leaching plant. I also learned the concept of drilling and leaching of the cavern,” says Toyjanova, who says her future may include law school.

“But after four years of school and the internship, I realized that I enjoy the technical side of engineering more than anything else.”

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The leaching wellhead on Storage Well No. 1 is complete. The rig in the background is drilling Storage Well No. 2.