

County aquifer is perfect site for Laclede gas

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Of the Post-Dispatch

Nearly 50 years ago, when Laclede Gas Co. geologists were studying land formations as they sought a place to store natural gas underground, they began drilling on a promising uplift of hills in north St. Louis County.

Soon they struck oil. The strike was a couple of miles north of Florissant, in an unincorporated area of the county, and about a half mile south of the Missouri River.

"When they drilled their first well, they hit oil," said Scott Mirly, superintendent of Laclede's Lange storage facility and a petroleum engineer. "They knew that if it holds oil, it will hold gas."

Some gas companies had been using aquifers - sandstone formations that hold underground water - as safe and secure storage areas for gas since the early 20th century.

Half a century ago, Laclede officials started looking for a way to store large volumes of gas before the high-demand winter heating season, and the St. Peter sandstone that is the heart of the Lange storage facility was it.

Today the gas company can store up to 5 billion cubic feet of gas in the underground aquifer by injecting it under pressure - between 300 and 630 pounds per square inch - into the sandstone.

Injecting the gas drives out the water. If you look at a core sample of the sandstone, you would not see how the gas can be held between the particles. It seems too dense, but looks are deceiving.

Joan Levick, a geological engineer for Laclede, explained that the sandstone is 17 percent air - and that's where the gas goes when it's forced into the aquifer under pressure.

Few signs at the surface

The gas company owns 500 acres off Sinks Road. That two-lane, ridge-running blacktop winds north of Robbins Mill Road, which runs north off Lindbergh Boulevard.

The Lange field runs north under the Missouri River to underlie about 110 acres in southeastern St. Charles County. Laclede holds underground leases on an additional adjacent 12,390 acres around its rustic stone service buildings at 14905 Sinks Road.

Rick Hargraves, a Laclede spokesman, said the company injects gas into 8,000 to 9,000 acres and leaves the rest unfilled.

Inside the main service building are six battleship-gray Ingersoll-Rand compressors - three are 660 hp, three are 880 hp - used to inject the gas into the St. Peter sandstone.

There's no danger to people living above the storage field, Mirly said, because the sandstone is capped by a layer of non-porous shaly dolomite, which lies 300 feet below the surface. The entire field, sandwiched between varying layers of sedimentary rock, lies on top of a Precambrian layer of granite formed about 2.5 billion years ago.

Today, the area is quiet. Farmers have planted soybeans, corn and wheat on the gentle slopes. You have to look closely to see evidence of Laclede's presence, such as a small sign on Sinks Road and a few company trucks.

But when Laclede began eyeing the area 50 years ago, some landowners and Florissant residents fought the gas company with all they had. Many did not want a natural gas field under their homes because they feared an explosion.

(In 1963, their fears were validated in part when gas under pressure blew a cap off a pipe at the surface. No fire started. The dangerous situation was not corrected for days, until Paul "Red" Adair, the legendary oil-and-gas-well emergency specialist, came to recap the pipe.)

The gas company went to the Missouri Legislature for a law to condemn the subsurface rights of the resistant landowners for the storage facility. The Missouri Supreme Court eventually cleared the company's right to take the aquifer.

Withdrawals date to 1957-58

Since 1955, Laclede has injected natural gas into the top 30 feet of a 100-foot thick porous sandstone layer that lies in a domed formation 1,500 feet below the surface. The Mississippi River Transmission pipeline from the Gulf Coast is the feeder line that provides gas for the Lange facility.

The utility first withdrew gas from the Lange facility in the winter of 1957-58 and has in varying amounts every winter since then.

Last winter, when the mercury plunged in November and December and spot-market gas prices shot up, Laclede used about half of its Lange facility's 5 billion cubic feet to help meet demand, Mirly said.

"It's a peak-shaving facility," said Mirly, meaning that the gas reservoir is used to supplement gas that Laclede buys on the spot market and also pipes in from a second, 23-billion-cubic-foot storage field it leases from MRT in Louisiana.

Laclede collects oil, too

Today, oil is a bonus and byproduct of this procedure. Twenty-two stripper wells are sited throughout the wooded hills and draws that are home to deer, turkey, coyotes and foxes, as well as a few isolated Homo Sapien families.

Those wells produced about 7,700 barrels of good quality crude last year, according to state figures. That is 7.2 percent of Missouri's oil production, which is strongest in the western part of the state, Mirly said.

Laclede holds the crude in tanks and sells it to a refiner, which picks it up in trucks.

At today's price of roughly \$25 a barrel, the sale of North County's oil would fetch \$192,500, less than a blip on the balance sheet of the utility, which had \$566.1 million in sales last year.

Since a refinery can produce 19.4 gallons of gasoline from a 42-gallon barrel of oil, the Lange facility's output last year would yield about 149,380 gallons of gasoline. That would fuel 7,700 midsize cars for 200 miles each.

The North County output, however, would hardly begin to move St. Louis area motorists through a rush hour. It might get us all through one intersection.

Mike Right of AAA Missouri estimates that motorists here burn 2.5 million gallons of gasoline every day. The Lange facility's oil production would meet 0.3 percent of that demand - just enough to run all of our vehicles a few seconds.

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