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Ethylene caverns address supply worries, says Caliche

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Caliche Development Partners (Houston, Texas) has evolved since commissioning its first ethylene storage cavern in late 2018, says Dave Marchese, CEO. Originally conceived along lines borrowed from the natural gas sector, the company has adjusted its offering to meet the ethylene market's greater need for physical risk mitigation.

"We've found that the balance between the ethane crackers and the PE [polyethylene] plants is so critical to the operations at both that each wants a service that does more than just manage price," Marchese explains. "What they really want is a service that manages the physical risk. So we came in thinking we'd do things one way, and what we've ended up with is, we've seen much more variation in how and when [clients] use [storage] than we expected. We've been able to meet that need and help our customers exceed their goals."

A related surprise has been the preference for exclusive storage. "We thought from a cost-efficiency standpoint, people would be looking to commingle their product with someone else's more than they have been," says Marchese. "But customers tend to be more interested in having their own caverns, rather than sharing caverns with others."

There are two reasons for the difference, says Marchese. First, PE production is much more sensitive to feed-stock variation than generating energy from natural gas. "These PE plants are specialized, and quality is very important," he notes. However, there is no Gulf Coast-wide specification for ethylene. "They overcome that challenge when they need to, but they don't like it," he adds. Second is the issue of system balancing--customers want immediate, on-demand access to their ethylene to manage pressures and flows on their proprietary pipelines, says Marchese.

Formed in 2016, Caliche acquired its Coastal facility atop the Spindletop salt dome in Beaumont, Texas, in mid-2017. The site came with one completed storage cavern and permits to build eight more, a number that has since been increased to 11 caverns totaling 59 million barrels (MMbbl).

Caliche configured the existing cavern to store up to 5 MMbbl (270,000 metric tons) of ethylene, and brought it online in late 2018. A second, 3 MMbbl cavern was recently completed, and a third, 5 MMbbl cavern will be completed by the end of 2021, both of them capable of storing ethane, y-grade, NGLs or other liquid hydrocarbon products.

Multiple customers share the first cavern, says Marchese, but a new prospect is negotiating with Caliche for private use of the 3 MMbbl cavern.

Meanwhile Caliche has received a surge in inquiries driven by the current oil glut. Producers are looking at all viable storage options, including underground caverns at Caliche and elsewhere, says Marchese, and the company stands ready to help customers avoid volatility across hydrocarbons through long-term storage contracts.