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Newest frontier offshore: fracking

File 2009/The Santa Barbara (Calif.) News Press
A whale dives near an oil platform in the Santa Barbara Channel. In California, critics have asked regulators to ban fracking off the West Coast until more is known about its effects.

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HOUSTON — Energy companies are taking their controversial fracking operations from the land to the sea — to deep waters off the U.S., South American and African coasts.

Cracking rocks underground to allow oil and gas to flow more freely into wells has grown into one of the most lucrative industry practices of the last century. The technique is also widely condemned as a source of groundwater contamination. The question now is how that debate will play out as the equipment moves out into the deep blue. For now, caution from all sides is the operative word.

“It’s the most challenging, harshest environment that we’ll be working in,” said Ron Dusterhoft, an engineer at Halliburton Co., the world’s largest fracker. “You just can’t afford hiccups.”

While fracking is moving off the coasts of Brazil and Africa, the big play is in the Gulf of Mexico, where wells more than 100 miles from the coastline must traverse water depths of a mile or more and can cost almost $100 million to drill.

Those expensive drilling projects are a boon for oil service providers such as Halliburton, Baker Hughes and Superior Energy Services. Schlumberger Ltd., which provides offshore fracking gear for markets outside the U.S. gulf, also stands to get new work. And producers such as Chevron Corp., Royal Dutch Shell and BP may reap billions of dollars in extra revenue over time as fracking helps boost crude output.

Fracking in the Gulf of Mexico is expected to grow more than 10 percent over a two-year period ending in 2015,

said Douglas Stephens, president of pressure pumping at Baker Hughes, which operates about a third of the world's offshore fracking fleet.

That's a worthwhile investment as the industry grapples with the challenge of "how to best fracture and stimulate the rocks" bearing crude oil, said Cindy Yielding, director of appraisal at BP.

At sea, water flowing back from fracked wells is cleaned up on large platforms near the well by filtering out oil and other contaminants. The treated wastewater is dumped overboard into the Gulf of Mexico, where dilution renders it harmless, according to companies and regulators.

The treatment process is required under Environmental Protection Agency regulations. In California, where producers are fracking offshore in existing fields, critics led by the Environmental Defense Center have asked federal regulators to ban the practice off the West Coast until more is known about its effects.

Offshore fracking in the Gulf of Mexico should be subject to a detailed environmental review, said Tony Knap, director of the Geochemical and Environmental Research Group at Texas A&M University. Chemicals used in fracking fluid that's released in the gulf could harm sea life or upset the ecosystem, said Miyoko Sakashita, oceans director at the Center for Biological Diversity.

A spokesman for the Environmental Protection Agency was not aware of any studies having been done on the impact of offshore fracking as the practice has long been viewed as "a somewhat short-term discharge and often mixed with other discharges."

To frack some of the world's biggest offshore wells, roughly 7 million pounds of people and gear must be crammed onto a 300-foot-long ship called a stimulation vessel.

As demand for offshore fracking has grown, oil service companies have increased the global fleet of fracking ships by 31 percent since 2007, according to a survey by Offshore Magazine, creating a market almost as large as Russia's onshore industry. The pumping horsepower used to frack wells — a measure of supply — is expected to grow another 28 percent by the end of 2018, to 1.2 million horsepower, estimates Houston-based PacWest Consulting Partners.

The new frontier in the Gulf of Mexico for companies including Chevron and Shell is an underground zone called the Lower Tertiary, an older layer of the Earth's crust made of denser and harder-to-crack rock. It requires more water, sand and equipment to coax more oil out.

"It's getting more sophisticated," said James Wicklund, an analyst at Credit Suisse in Dallas. "The volumes needed, especially for these lower tertiary fracks, are huge."

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