

Oil companies frack in waters off California

August 3 2013, by Alicia Chang

Companies prospecting for oil off California's coast have used hydraulic fracturing on at least a dozen occasions to force open cracks beneath the seabed, and now regulators are investigating whether the practice should require a separate permit and be subject to stricter environmental review.

While debate has raged in the U.S. over fracking on land, prompting efforts to ban or severely restrict it, offshore fracking has occurred with little attention in sensitive [coastal waters](#) where for decades new oil leases have been prohibited.

Hundreds of pages of federal documents released by the government to The Associated Press and [advocacy groups](#) through the Freedom of Information Act show regulators have permitted fracking in the Pacific Ocean at least 12 times since the late 1990s, and have recently approved a new project.

The targets are the vast [oil fields](#) in the Santa Barbara Channel, site of a 1969 spill that spewed more than 3 million gallons of crude oil into the ocean, spoiled miles of beaches and killed thousands of birds and other wildlife. The disaster prompted a moratorium on new drill leases and inspired federal clean water laws and the modern environmental movement.

Companies are doing the offshore fracking—which involves pumping hundreds of thousands of gallons of salt water, sand and chemicals into undersea shale and sand formations—to stimulate old existing wells into

new [oil production](#).

Federal regulators thus far have exempted the chemical fluids used in offshore fracking from the nation's clean water laws, allowing companies to release fracking fluid into the sea without filing a separate environmental impact report or statement looking at the possible effects. That exemption was affirmed this year by the U.S. Environmental Protection Agency, according to the internal emails reviewed by the AP.

Fracking fluids can comprise hundreds of chemicals—some known and others that aren't since they are protected as trade secrets. Some of these chemicals are toxins to fish larvae and crustaceans, bottom dwellers most at risk from drilling activities, according to government health disclosure documents detailing some of the fluids used off California's shore.

Marine scientists, petroleum engineers and regulatory officials interviewed by the AP could point to no studies that have been performed on the effects of fracking fluids on the marine environment. Research regarding traditional offshore oil exploration has found that drilling fluids can cause reproductive harm to some marine creatures.

"This is a significant data gap, and we need to know what the impacts are before offshore fracking becomes widespread," said Samantha Joye, a marine scientist at the University of Georgia who studies the effects of oil spills in the ocean environment.

The EPA and the federal agency that oversees offshore drilling, the Bureau of Safety and Environmental Enforcement or BSEE, conduct some routine inspections during fracking projects, but any spills or leaks are largely left to the oil companies to report.

In a statement to the AP, the EPA defended its oversight of offshore fracking, saying its system ensures the practice does not pollute the

environment in a way that would endanger human health. Oil companies must obtain permits for wastewater and storm water discharges from production platforms that "ensure all fluids used in the drilling and production process will not adversely impact water quality," the statement said.

Oil companies also maintain that much of the fracking fluid is treated before being discharged into the sea. Tupper Hull, spokesman for the Western States Petroleum Association, said fracking in general is safe and has "never been associated with any risk or harm to the environment" in over six decades in California.

California coastal regulators said they were unaware until recently that offshore fracking was even occurring, and are now asking oil companies proposing new offshore drilling projects if they will be fracking.

Because the area of concern is located more than three miles (about 5 kilometers) off the state's shoreline, federal regulators have jurisdiction over these offshore exploration efforts. However, the state can reject a permit in federal waters if the work endangers water quality.

"It wasn't on our radar before, and now it is," said Alison Dettmer, a deputy director at the California Coastal Commission.

Government documents including permits and internal emails from the BSEE reveal that fracking off the shores of California is more widespread than previously known. While new oil leases are banned, companies can still drill from 23 grandfathered-in platforms in waters where endangered blue and humpback whales and other marine mammals often congregate.

In March, a privately held oil and gas company received permission from the agency to frack some 10 miles (16 kilometers) off the Ventura

County coast. The job by DCOR LLC involves using the existing wellbore of an old well to drill a new well. Three so-called "mini-fracks" will be done in an attempt to release oil locked within sand and rocks in the Upper Repetto formation.

Only a month before the application was approved, however, an official with the BSEE voiced concerns about the company's proposed frack and whether the operation would discharge chemicals into the ocean.

"We have an operator proposing to use 'hydraulic stimulation' (which has not been done very often here) and I'm trying to run through the list of potential concerns," Kenneth Seeley, the BSEE's regional environmental officer for the Pacific, wrote in a Feb. 12 email to colleagues. "The operator says their produced water is Superclean! but the way they responded to my questions kind of made me think this was worth following up on."

BSEE officials approved DCOR's application on March 7. The agency told the AP that DCOR's job would use far less fracking fluid than an onshore operation.

"For comparison, well stimulation offshore typically uses 2 percent of the liquids and 7 percent of the sand that is used routinely for onshore [hydraulic fracturing](#)," the BSEE said in a statement.

Oil industry estimates show that at least half of the chemical-laced water used in fracking remains in the environment after an operation. Environmental groups say as much as 80 percent of the fluids can be left behind. The rest gets pumped back up to the oil platform, and is piped or barged back to shore for treatment. Companies can also pump the fluids into an old well reservoir to discard it.

DCOR, which did not respond to requests for comment, is not the first

company to try to tap more oil from California's offshore reserves, nor is the project the most extensive offshore frack here in recent years.

In January 2010, oil and gas company Venoco Inc. set out to improve the production of one of its old wells with what federal drilling records show was the largest offshore fracking operation attempted in federal waters off California's coast. The target: the Monterey Shale, a vast formation that extends from California's Central Valley farmlands to offshore and could ultimately comprise two-thirds of the nation's shale oil reserves.

Six different fracks were completed during the project, during which engineers funneled a mix of about 300,000 pounds of fracking fluids, sand and seawater 4,500 feet beneath the [seabed](#), according to BSEE documents.

Venoco's attempt only mildly increased production, according to the documents. Venoco declined to comment.

Despite greenlighting offshore fracking projects for years, federal and state regulators now are trying to learn more about the extent of fracking in the Pacific even as officials and marine scientists scramble to weigh the environmental effects.

In January, Jaron Ming, the Pacific regional director of the BSEE, told employees in an email that there had been heightened interest in offshore fracking from within the agency and the public.

"For that reason, I am asking you to pay close attention to any (drilling applications) that we receive and let me know if you believe any of them would be considered a 'frac job.'"

That same month, BSEE estimated in internal emails that only two such jobs had occurred off California in the past two decades. But weeks

later, as the agency worked to respond to public requests about fracking offshore, emails show it had found 12 such instances of offshore fracking.

BSEE said it cannot be sure just how often fracking has been allowed without going through every single well file.

Brian Segee, a staff attorney at the Environmental Defense Center, said the uncertainty makes him skeptical about the actual number of offshore fracks. The Santa Barbara-based environmental law firm, which formed in the wake of the 1969 oil spill, is calling for a moratorium on future fracking in the Pacific until the potential environmental effects are studied.

Most fracking efforts off California have yielded mixed results. The first time Venoco fracked offshore in the 1990s, it had limited success. Chevron's one try failed. Out of Nuevo Energy's nine attempts, only one was considered very successful, according to company and BSEE records.

The practice has been more fruitful in the North Sea and the Gulf of Mexico, where it's more common and the porous nature of the geologic formation makes it easier to extract oil, according to regulators and oil industry experts. Still, oil companies surveyed by federal regulators said they haven't ruled out fracking projects in the Pacific in the future.

As fracking technology evolves and companies seek to wring production from old offshore wells, drilling experts caution that strict safety precautions and planning are needed.

Working in the open ocean, "you have to be a lot more careful to avoid any spillage," said Mukul Sharma, a professor of petroleum engineering at The University of Texas at Austin.

David Pritchard, a Texas petroleum engineer who has been working in offshore drilling for 45 years, said offshore fracking "no doubt adds complexity and risk."

One concern is that the high pressure fracking mixture in some jobs might break the rock seal around an old well bore, allowing [oil](#) to escape, added another expert, Tulane University petroleum engineering professor Eric Smith.

"I'd say it (offshore fracking) is safe," Smith said, "but nothing's a sure thing in this world."

© 2013 The Associated Press. All rights reserved.

Citation: Oil companies frack in waters off California (2013, August 3) retrieved 27 April 2024 from <https://phys.org/news/2013-08-oil-companies-frack-california.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.