# **Oil producers plan costly groundwater-protection measures in western Kern**

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**Body**

April 20-- Apr. 20--Regulatory efforts to protect groundwater quality in western ***Kern*** are forcing two of the county's largest ***oil*** producers to spend many millions of dollars over the next several years moving or reworking dozens of disposal wells and other critical ***oil***-field infrastructure.

The work Aera Energy LLC and California Resources Corp. are planning in coordination with state regulators likely foretells similar tasks other local ***oil*** producers will have to undertake to bring the industry's Central Valley wastewater management operations into compliance with the federal Safe Drinking Water Act.

"It's basically all up and down the valley, and we're looking at areas not only on the west side but also on the east side," said Clay Rodgers, assistant executive officer at the Central Valley Regional Water Quality Control Board. The agency is addressing injection compliance matters in consultation with the State Water Resources Control Board; California's Division of ***Oil***, Gas and Geothermal Resources; and the U.S. Environmental Protection Agency.

GROWING CONCERN

The discussions are underscored by new U.S. Geological Survey studies linking tainted groundwater to ***oil*** companies' disposal of so-called produced water -- the salty fluid that comes up from the ground with ***oil*** -- even as it remains unclear exactly what processes led to the contamination.

Scientists looking into the contamination have found no indication drinking water has been fouled by industry practices in western ***Kern***, home to several of California's most prolific ***oil*** fields, where groundwater is naturally very salty and generally of limited use.

But there is some concern the quality of groundwater used for nearby irrigation could be threatened by produced-water injections, historical seepage from surface pond disposal or both.

Bakersfield-based Aera reuses much of its produced water in enhanced ***oil*** recovery techniques such as reservoir-pressurizing waterfloods in western ***Kern***'s South Belridge ***Oil*** Field. Chatsworth-based CRC also recycles much of its produced water for steam injections in the Elk Hills ***Oil*** Field. The companies' efforts to recycle even more produced water in those areas will lessen the volume, and therefore the potential groundwater impacts, of their injection operations.

Aera and CRC emphasized they have no reason to believe their injection disposal work has contaminated any protected aquifers.

Even so, state water regulators are worried produced-water injections as shallow as 1,000 feet or less, often at high pressure, have created underground pathways for the wastewater to migrate unintentionally into federally protected aquifers.

AQUIFER EXEMPTION PROCESS

The current regulatory focus has taken place within the framework of a yearslong process of bringing California ***oil*** production into compliance with the Safe Drinking Water Act, which bans wastewater injections into underground aquifers where the groundwater is of high enough quality to be protected as a potential source of future drinking water.

California regulators for decades allowed ***oil*** producers including Aera and CRC to inject produced water into aquifers never properly exempted from the federal water act. Starting in about 2015, the U.S. EPA has taken a firm stance against injecting into such aquifers, forcing numerous ***oil***-field operations to close and prompting California ***oil*** companies to file a wave of aquifer exemption requests.

Aera's application for an exemption for the aquifer it injects into at South Belridge was denied after state water regulators declined to support the request. They voiced concern that produced-water injections there could contaminate protected aquifers nearby.

But the state does back the company's pending request for an aquifer exemption that would allow the company to inject produced water further west into what officials believe is a geologically isolated aquifer.

CRC faces a similar scenario after the aquifer it injects into at Elk Hills was found to be off limits and its exemption request was subsequently denied. Although the company hopes to greatly reduce its reliance on injections as it continues to transition to greater use of recycled produced water, state regulators say CRC will have to relocate its injector wells farther west.

FLEXIBILITY AND COSTS

It's possible neither company will have to drill new injector wells, as it may be possible to drill their existing wells deeper into new disposal zones. State regulators say they want to give the companies flexibility on whether they relocate the wells or deepen them, so long as they come into compliance.

Either way, state officials say the work is expected to cost in the millions of dollars and take about three years, assuming regulatory reviews proceed as expected. Depending on how the projects are designed, they could involve drilling many new wells and laying miles of new pipelines.

"This relocation will no doubt be very expensive, but the ultimate priority of the regulatory partners is the protection of public health and safety, water resources and the environment," DOGGR stated in an email after declining to grant a phone interview on the topic.

Aera spokeswoman Cindy Pollard said the company was already planning to relocate its injector wells, which now number about 60 in the South Belridge area. It is not clear whether that many will have to be replaced.

"It had always been our intention to shift the field but combined with this regulatory uncertainty around the aquifer exemptions, we decided that the timing was right to move the injectors," she said by email. The company declined to estimate the cost of the work ahead.

CRC, without confirming or denying it is in talks with state agencies to move its injection operations at Elk Hills, said by email it expects to need fewer disposal wells as it ramps up its produced-water recycling efforts.

"This ongoing process," it stated, "requires additional state approvals and is a key next step in our Elk Hills development plan to continue supplying affordable and reliable energy for California by Californians."

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