To: Robin, George[Robin.George@epa.gov]
From: Albright, David
Sent: Tue 1/20/2015 7:21:46 PM
Subject: RE: (Bakfd. Californian) State identifies 108 Kern oil field injection wells on the line

Thanks George. I had not seen this article.

From: Robin, George
Sent: Tuesday, January 20, 2015 11:06 AM
To: R9-Deep
Cc: Robin, George
Subject: (Bakfd. Californian) State identifies 108 Kern oil field injection wells on the line

http://www.bakersfieldcalifornian.com/business/kern-gusher/x1593017261/State-identifies-108-Kern-oil-field-injection-wells-on-the-line

Saturday, Jan 17 2015 03:00 PM

State identifies 108 Kern oil field injection wells on the line

BY JOHN COX The Bakersfield Californian jcox@bakersfield.com

State regulators are scrutinizing more than 100 Kern County injection wells that if closed, as federal officials warn may be warranted, could force local oil companies to decide between cutting production and finding a new destination for several billion gallons of wastewater per year.

A few of the wells inject steam to aid in oil production, but the large majority dispose of "produced water" -- the salty fluid that comes up from the ground along with crude oil -- into aquifers whose historical exemptions from federal Safe Drinking Water Act protections were recently called into question by the U.S. Environmental Protection Agency.

The scrutiny is part of a wider crackdown on injection work in the state. It reflects EPA concerns California has not done enough to protect possible future sources of drinking water from potential contamination.

While local injection work has been under regulatory inspection since at least 2011, it was unclear how much oil field activity was on the line until the state turned over to The Californian last week a list of the wells that could be forced to close.

A decision is expected by the end of next year on whether to halt injections into as many as 11 California aquifers, eight of which are in Kern. Last month the EPA ordered state officials to test

the aquifers' water quality then determine whether to halt injections. The agency emphasized it will review any final decisions by the state.

State data show 108 Class II Underground Injection Control wells are permitted to inject into the eight local aquifers. Sixteen of these, or 15 percent, are classified as "idle," while an additional seven wells are "new," with no associated injection history. Some wells listed as "active" have not operated in recent years.

In all, the wells accounted for about 142 million barrels of produced water disposal in 2013, the most recent year for which complete data are available. That translates to about 6 billion gallons.

The injection facilities are located in busy oil fields such as Kern River, Kern Front and Round Mountain. Many were converted from wells that produced crude for decades.

Some of the wells are operated by large companies such as Chevron USA Inc. and Vintage Production California LLC, a subsidiary of California Resources Corp., recently spun off from Houston-based Occidental Petroleum Corp.

But the oil producer with by far the largest stake in any regulatory outcome is Macpherson Oil Co., an independent based in Santa Monica. State records show 32 of its wells injected more than 4 billion gallons of produced water into aquifers under scrutiny below the Round Mountain Oil Field northeast of Bakersfield in 2013.

Macpherson was circumspect about its thoughts on the regulatory reviews. It said by email it is working with industry groups to "continue producing energy in a responsible way."

"Our team is working to comply with the regulations and the regulators as we have over the past decades of our operations," it wrote.

It is difficult, if not impossible, to gauge how much oil production is associated with wells injecting into the aquifers in question, according to the state's primary oil regulatory agency, the Division of Oil, Gas and Geothermal Resources, which is working with the State Water Resources Control Board to review possible risks associated with local injection work.

The division confirmed Friday afternoon that oil production volumes could be affected, as a result of the ongoing review, and that changes to injection practices may be required. It said the state has been working with companies "whose disposal options need to change to identify alternatives."

DOGGR also said the two agencies have determined injections may have to be halted if such activity occurs in a shallow area near to and in the same aquifer as a water supply well.

The water board declined to comment, referring questions to DOGGR.

RECENT REGULATORY HISTORY

Produced water disposal has quickly become one of the biggest challenges facing Kern's oil industry.

While environmental activists have focused in recent years on risks associated with well stimulation techniques like fracking, and a roughly 50 percent decline in oil prices since June has brought large-scale layoffs, uncertainty related to produced water presents a long-term challenge that could force production cuts or large investments in water treatment facilities.

The regulatory focus on injection wells can be traced to a 2011 federal audit that found numerous problems with California's oversight.

Last summer, DOGGR shut down about a dozen Kern injection wells found to be injecting into aquifers never exempted from the Safe Drinking Water Act. DOGGR said the wells had to stop operating to avoid the risk of contaminating protected groundwater.

Meanwhile, local oil companies have complained of a recent slowdown in the state's review of injection well permit applications. The industry has persuaded Kern politicians to make the case in Sacramento and Washington, D.C., that such delays threaten local jobs and property tax revenues.

Last month the EPA set a Feb. 6 deadline for the state to present a comprehensive plan for bringing California's injection well program into full compliance by Feb. 15, 2017.

The agency's Dec. 22 letter to state oil and water officials also raised the prospect that the federal government could move to rescind a 1982 agreement in which the EPA gave California authority over Class II injection wells in the state.

The same letter called attention to the 11 aquifers it said had been "historically treated as exempt" from the drinking water act but which the EPA said did not produce petroleum and, at least in the 1980s, contained high-quality water.

HANDLING PRODUCED WATER

Produced water disposal has always been part of Kern County oil production. Some water comes up with every barrel of oil, but exactly how much varies. A commonly cited ratio is about 10 barrels of produced water for every one barrel of oil.

The main concern with this fluid is its saltiness, though depending on where it originates, it may also contain small concentrations of harmful materials.

Injecting it underground is the most cost-effective and efficient way to dispose of produced water. Other options exist, however, such as letting it evaporate and percolate in unlined sumps, a practice that also faces closer regulatory scrutiny lately.

Chevron has successfully diverted large quantities of treated produced water for irrigation in local agriculture. The industry hopes to expand this kind of work by blending high-quality produced water with freshwater for use by farmers. There is also talk of pooling money to build desalination plants that would clean produced water.

INDUSTRY RESPONSE

Chevron issued a statement that it has valid permits for all its injection wells and that it is working with regulators regarding continued operation of those wells. The company said it will

"continue to take all necessary actions to protect water sources" and that, if it were ordered to halt injections, it has plans to address associated impacts to production.

The Occidental spinoff, CRC, said it looks forward to working with DOGGR to address any questions in the agency's review. The company noted it is increasing the recycling and reuse of produced water in Kern, and that it is confident its injection work is fully approved and "does not affect groundwater quality."

Oil industry trade groups point out that regulators have turned up no evidence of injection work contaminating protected groundwater in California.

Rock Zierman, CEO of the California Independent Petroleum Association, said concerns about injection activity's impacts on groundwater appear to have originated with inexperienced petroleum regulators. As a result, "I don't anticipate massive orders being issued to shut down injection and its corresponding (oil) production," he wrote in a email.

Another trade group, the Western States Petroleum Association, said it takes concerns about groundwater quality very seriously, but added that no link has been established between local oil field injections and environmental hazards, contamination or health risks.

"WSPA encourages DOGGR and the EPA to develop a streamlined and clear permitting review process to ensure continued strong safeguards for the protection of groundwater resources," the group said by email.