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California Has No Idea What's In Its Fracking Chemicals, Study Finds

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by Samantha Page
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A scientific assessment on the impacts of hydraulic fracturing in California found that, in large part, the chemicals used are not being identified or tracked, and it's nearly impossible to tell how damaging the process is to California's water supply.

The study, carried out by the California Council on Science and Technology (CCST), recommended state agencies ban the reuse of wastewater from hydraulic fracturing — or fracking — for any use that could impact human health, the environment, wildlife, and vegetation until further testing can be done.

"These are things that require diligence," CCST's Jane Long told ThinkProgress. "There are a lot of potential issues."

During fracking, chemical-laced water is pumped at high pressure into shale rock formations that hold oil and gas deposits. Figuring out what to do with the water after it's been used — and whether it is safe — has been an ongoing issue. According to the CCST assessment, the toxicity of half of the chemicals used in California fracking is not publicly available. More than half the chemicals have not been evaluated for basic tests "that are needed for understanding hazards and risks associated with chemicals."

In terms of water contamination, no California agency has conducted a systematical study of the possible impacts, the assessment said. In fact, across all of California, only one water contamination sampling study — near a fracking site in Los Angeles County — has been done. Results of contamination studies in

other regions of the country have been mixed, the report said. But since we don't know what's going into the chemical mix, or how it might react with other elements over time, these types of studies might not even be testing for the right things.

"Notably, most groundwater sampling studies do not even measure stimulation chemicals, partly because their full chemical composition and reaction products were unknown prior to this study," the report said.

The lack of data also means that treated wastewater is not necessarily getting stripped of potentially harmful elements. "Treatment of produced water destined for reuse may not detect or remove chemicals associated with hydraulic fracturing and acid stimulation," the report noted.

Water in California has always been a premium resource, and that is even more the case now, during the ongoing drought. Some oil and gas companies, such as Chevron, have been ostensibly helping out — by selling their post-fracking water to dehydrated farms.

Some tests have found high levels of acetone and methylene chloride — compounds that can be toxic to humans — in wastewater used for irrigation purposes. The tests also found the presence of oil, which is supposed to be removed from the wastewater during treatment.

Wastewater from fracking can be disposed in three ways. It can be dumped into open pits and left to "percolate" back into the ground; it can be injected into below-ground wells; or it can be reused for industrial or agricultural purposes.

The CCST assessment found that none of these options are being sufficiently monitored.

"There is no ideal way to dispose of it," said Long. "But it's also a resource — or potentially a resource."

She pointed out that we simply don't know what's been going on. "It's kind of difficult to assume there has been groundwater contamination," Long said, although she did note that water control boards in California have ordered the closing of some open pits due to contamination issues.

Long said the assessment tried to recommend that California make the best use of the produced water from fracking operations, but that there were practices in the state that "need more attention," including unregulated, unpermitted open pits and improper injection wells.

In May, environmental advocacy group EarthJustice filed a lawsuit on behalf of the Center and the Sierra Club to stop the the state from allowing oil industry wastewater to be injected into clean, drinking water sources.

Long said that injected water into legally protected aquifers was "the biggest issue right now."

The lawsuit brings up a tricky reality of fracking regulations in California: Even when they exist, regulations are often ignored or unenforced.

"In the absence of new regulations, which I'm not sure we can count on, are demands by the public to hold the agencies accountable and to study the science before they rubber stamp these activities," said Tamara Zakim, an associate attorney with EarthJustice.

In fact, the assessment was part of a state-mandated review of the California's fracking operations. Senate Bill 4, passed last year, ordered both the assessment and a new set of regulations from the Division of Oil, Gas and Geothermal Resources (DOGGR). The assessment was supposed to come out before the new regulations, but after the study was delayed, DOGGR pushed ahead with the rules, which went into effect July 1.

"Knowing that this report was coming out, knowing that it was looking into the dangers of fracking in Calfornia, the division insisted on finalizing its regulations," Clare Lakewood, a staff attorney with the Center for Biological Diversity, told ThinkProgress.

The new regulations call for much greater reporting from the oil and gas industry, but do little to curb specific activities.

"It's really evident that those regulations are completely deficient," Lakewood said. "The report is quite clear in the risk to health and safety and the environment.

The unknown dangers of fracking wastewater could threaten millions of people in California. The assessment found that 1.7 million people live within a mile of a fracking site. Moreover, three-quarters of all fracking operations in California. take place in shallow wells less than 2,000 feet underground. This makes California's fracking operations particularly dangerous to groundwater.

According to the study, 2.6 billion gallons of fresh water are used each year for fracking in California.