Clean Water Action California’s Position on Hydraulic Fracturing

Clean Water Action calls for a moratorium on all hydraulic fracturing in California. Due to uncertainties regarding the safety of the technique in our earthquake-prone, water challenged state, California should stop issuing permits to oil and gas drilling operations that use hydraulic fracturing immediately. Across the country, hydraulic fracturing has negatively impacted communities and impaired air and water quality. Problems associated with hydraulic fracturing (e.g. “fracking”) include contamination of water supplies, massive water usage, air pollution, man-made seismic activity and industrialization of small rural communities. There is a growing body of evidence regarding the dangers of fracking and California cannot afford to take these risks. Before any more fracking occurs, there must be an independent scientific review of each of the threats associated with fracking with respect to the unique geology, seismology, air quality, and water resources issues in the regions of California where hydraulic fracturing might occur. The State must examine if and how the industry can operate without compromising California’s environment, health, and communities.

What we’ve learned from other states

There have been numerous examples of problems arising from fracking in other states:

- In Pennsylvania contaminated fracking wastewater was discharged into the Monongahela River, the drinking water source for hundreds of thousands of people in and around Pittsburgh; groundwater has been contaminated with methane; and small rural towns have been overrun with heavy gas industry traffic and air pollution;
- In Pavilion, Wyoming, groundwater contamination has been linked to wastewater discharged from fracking; ii
- In Colorado, air pollution from fracking operations has resulted in increased smog (ground level ozone) from volatile organic compounds (VOC’s) and health threatening air toxics; iii
- In Ohio, a series of earthquakes near Youngstown has been linked to the underground injection of fracking wastewater. iv

California: The New Frack Frontier

According to industry, California may contain the resources to spur an all out oil rush in the coming years. The Monterey Shale, which underlies most of Kern County and large portions of the Central Coast is the largest oil shale play in the country and companies are lining up to exploit its resources. Occidental Corporation (Oxy), for example, is the largest holder of land/mineral rights to acreage in California, holding rights to drill over 1.6 million acres of land in the Monterey Shale, In a presentation to shareholders in 2010, Oxy officials stated that “in 10 years, California shale could become Oxy’s largest business unit.”

Venoco Inc. has one of the largest stakes in the Monterey Shale with rights to drill in over 300,000 acres in the Monterey Shale. In its 2011 report to shareholders, the company stated that it continues to expand its onshore Monterey acreage lease holdings across three basins: Santa Maria, Salinas Valley, and San Joaquin. Tim Marquez, Chief Executive of Venoco, said in 2011, “Not only is the Monterey shale the largest overall play, it also dwarfs all other individual U.S. oil shale plays. According to the EIA, at 15.4 billion barrels the Monterey shale represents 64% of the technically recoverable shale oil resources in the lower 48 states.” v
Concerns Specific to California’s Environment, Communities, and Regulatory Agency

- **A History of Lack of Oversight of the Oil Industry in California**
  As the fourth largest oil and gas producing state in the country, California politics are heavily influenced by the oil and gas industry. In California, thousands of oil and gas wells are drilled every year, yet there are no regulations for fracking in the State. Voluntary reporting by the industry indicates that approximately 700 wells were fracked in California in 2011. Turning a blind eye towards the industry, the Division of Oil and Gas (DOGGR) has never regulated fracking in California. Public concern over fracking is causing the state to consider regulating fracking. To facilitate permitting, Governor Jerry Brown is pressuring DOGGR to develop a limited and poorly-vetted set of regulations, despite numerous environmental concerns.

- **A Rush to Develop Regulations**
  In 2011, responding to complaints from the oil and gas industry, Governor Brown fired the heads of DOGGR and the Department of Conservation (DOC) for taking too much time considering environmental and public health concerns in reviewing drilling permit applications. These firings were a signal that the administration was prioritizing the growth of the oil and gas industry over public health and the environment. Over the last year, public scrutiny over California’s oil and gas industry has risen. DOGGR is now rushing to develop a set of regulations on fracking and to quell public concern. With clear pressure from the Governor’s office, DOGGR is moving very quickly on this process, holding a series of listening sessions around the state, culminating in Sacramento on July 25. The Division has stated that it will develop draft regulations by the end of the summer in August or September, followed by a public comment period, then final regulations by July 2013.

  This is a rushed timeline for the development of regulations and does not allow for full investigation into the numerous concerns around the safety of the practice. This timeline is being pushed hard by the Governor’s office. Governor Brown is working hard to keep the oil industry growing in California without regulatory interference.

- **Fracking Threatens California’s Water Supply**
  Hydraulic fracturing poses serious threats to California’s drinking water quality and water supply. Fracking is an extremely water intensive practice, using up to 5 million gallons to fracture a single well, enough water to supply 100 households water for a whole year. Based on the conservative estimate that about 700 wells are fracked every year (as was the case in 2011) at 3 million gallons per well, the fracking industry will use 210 million gallons of water annually. Companies like Venoco and Occidental have reported to their shareholders that they plan to significantly ramp up fracking in California and anticipate that California will be the largest source of on-shore oil production in the country in the next 10 years. In a state that is home 35 million people and the largest agricultural industry in the country, there is simply not enough water to accommodate such high levels of water usage for oil and gas drilling. Fracking has an especially high impact on water resources because most contaminated wastewater from fracking is injected into deep wells and effectively removed from the water cycle instead of regenerating groundwater and waterways.

  The fracking process utilizes a mixture of chemicals, many of which are toxic or are known to cause human health problems. A 2011 study by the US Congress identified over 750 different chemicals used...
in the fracking process, including 29 different chemicals that are either: 1) known or possible human carcinogens; 2) regulated under the Safe Drinking Water Act for their risk to human health; or 3) are listed as hazardous air pollutants under the Clean Air Act. Millions of gallons of dangerous chemicals, such as naphthalene, BTEX compounds (benzene, toluene, ethylbenzene, and xylene), methanol and lead are injected into the earth every year, posing serious risks to water sources and air quality. In addition to the chemicals added to fracking products, the wastewater (referred to as “produced water”) from deep within fracking wells contain harmful components such as high salt content, naturally occurring radioactive material, and heavy metals such as arsenic.

The Central Valley, where the majority of fracking is taking place is already under major pressure from contaminated drinking water sources. Nitrate contamination, for example, from agriculture is a major threat to many communities’ drinking water sources. According to a recent UC Davis report, over 2 million Californians may not have access to a reliable source of safe drinking water, as groundwater contamination is a major problem all over the state. Any increase in groundwater contamination is unacceptable. Fracking-caused contamination will compound California’s lack of safe drinking water.

Wastewater from fracking operations in California is often disposed of into underground injection wells deep beneath the surface of the earth. These wells are known as Class II injection wells under the US EPA Underground Injection Control (UIC) Program. They are often in close proximity to or pass through underground sources of water used for drinking and agriculture. EPA has criticized California’s implementation of the UIC program and monitoring of Class II wells. In particular, the report criticizes DOGGR’s one size fits all risk assessment for protection of waterways. In a seismically active region such as California, there is increased risk of well-casing failure and the possibility of wastewater transport through faults into aquifers. A recent study of injection well across the country reported an alarming integrity failure rate of one in six wells. In addition, there is a growing body of evidence to suggest that fluids injected deep into the earth can migrate over time, potentially entering underground sources of drinking water, even in the absence of well casing failures.

In addition to underground injection, frackers dispose of wastewater into open-air pits, where the dangerous chemicals can off-gas creating air quality problems, or discharge into waterways, threatening drinking water sources and habitats. Under the Clean Water Act, any discharged water into waterways must be treated, however most water treatment plants are not equipped to handle the types and volume of wastewater from fracking. Lacking regulation and disclosure about wastewater methods, the state does not know the extent to which these different methods are used and if contamination has occurred.

The Monterey Shale underlies an area of California’s Southern San Joaquin Valley and Central Coast that has also had some of the most serious earthquakes in California history. Without regulations to ensure that fracked wells are secure enough to withstand major seismological activity, Californians have no assurances that when big earthquakes occur, wells containing toxic mixtures of benzene and other carcinogens aren’t leaking into groundwater used for drinking water or to irrigate crops.

- **Fracking Threatens California’s Air Quality and Exacerbates Climate Change:**
  California’s Central Valley (home to 4 million Californians), has the highest level of particulate matter and ozone pollution in the United States and the asthma rate is three times the national average, according to the American Lung Association. Deep shale drilling is known to release significant levels of methane gases and volatile organic compounds (VOC’s) that cause smog and lead to respiratory problems, and
cancer causing air toxics such as benzene and arsenic. The oil and gas industry is the single largest producer of methane gas in the US, accountable for approximately 40% of all methane emissions. In addition to the emissions from drilling, large numbers of trucks are used to transport chemicals to each drill site and wastewater away from each drill site, causing significant increases in particulate and smog-forming pollutants. The air pollution and health problems that result from fracking are costs and impacts that Central Valley residents cannot bear.

**Conclusions and Recommendations**

Clean Water Action recommends a statewide moratorium on hydraulic fracturing in California. The development of fracking regulations by DOGGR should be put on hold and a full independent review of all the following concerns about fracking and the disposal of fracking wastewater should be conducted: increased demand on California’s water supply, risk of ground and surface water contamination, impacts on air quality and greenhouse gas emissions, seismic impacts and risk of induced seismic activity and earthquake caused well casing failure. Upon completion of an independent, scientific investigation, the state should also consider whether promoting new technologies to enhance the oil industry’s ability to extract oil in California is consistent with the state’s policies on global warming, under AB 32, and its commitment to create a clean energy economy. If the state moves forward with permitting fracking and other new technologies for onshore oil recovery, it should absolutely ensure the safety and protection of California’s environment, public health and communities.

For further information on Clean Water Action California’s work on fracking, visit: [http://cleanwateraction.org/feature/protect-california-fracking](http://cleanwateraction.org/feature/protect-california-fracking) or contact:

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National Academy of Sciences "Geochemical evidence for possible natural migration of Marcellus Formation brine to shallow aquifers in Pennsylvania" (http://www.pnas.org/content/early/2012/07/03/1121181109.full.pdf+html)

US EPA (http://www.epa.gov/airquality/oilandgas/basic.html)