

**Testimony of
Jayni Foley Hein
Executive Director
Center for Law, Energy & the Environment
UC Berkeley School of Law**

**Before the
Environmental Safety and Toxic Materials Committee
and Assembly Natural Resources Committee**

Hydraulic Fracturing in California: Water Quality Protection

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I. INTRODUCTION

Thank you to the Assembly Natural Resources Committee and the Environmental Safety and Toxic Materials Committee for hosting this important session and for inviting me to speak. I am Jayni Foley Hein, executive director of the Center for Law, Energy & the Environment at Berkeley Law. My colleague Michael Kiparsky and I co-authored a recent UC Berkeley report entitled, “Regulation of Hydraulic Fracturing in California: A Wastewater and Water Quality Perspective.” My testimony draws in part on this research.

We are witnessing a potential increase in hydraulic fracturing activity in California, driven by new fracturing techniques, demand for oil, and ample shale oil reserves in locations such as the Monterey shale. This projected increase in fracturing activity warrants increased attention to its potential environmental and human health impacts.

Dr. Kiparsky has already touched on the background, technical issues, and need for more scientific study. My own remarks will focus on: (1) increasing public notice and disclosure; (2) incentivizing the safe reuse and recycling of fracturing wastewater; (3) adequately regulating treatment of fracking wastewater; and (4) reducing illegal dumping and increasing enforcement. Throughout, I will also draw on experiences in other states that can be instructive to California policymakers and regulators.

II. Notice and Disclosure

A. Advanced Notice

To enable greater public participation and drive more accountability, the public and regulatory

agencies - including the Division of Oil, Gas & Geothermal Resources (DOGGR), the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Boards, and the Department of Public Health - require comprehensive information on where, when, and how fracking occurs and will occur in the state.

1. Current Regulations

To-date, DOGGR has not specifically tracked or monitored the practice of hydraulic fracturing. Prior to the issuance of DOGGR's "discussion draft" regulations, oil companies in California were not required to notify the agency of planned or projected hydraulic fracturing operations.

DOGGR's "discussion draft" regulations would change this scheme in some notable respects by:

- Requiring fracking operators to publicly disclose to the Frac Focus website information on a fracking operation after it has occurred;
- Requiring fracking operators to provide 10 days advanced notice to DOGGR before a fracking event, which DOGGR would make available to the public at least 3 days before a fracking event; and
- Requiring fracking operators to disclose the identity of any trade secret-protected information to emergency personnel and to DOGGR immediately in the event of an emergency.

These changes, while a step in the right direction, are inadequate to provide ample public notice and disclosure. And, these draft requirements are currently weaker than provisions in other states such as Wyoming and Colorado.

2. Recommendations: Advance Notice and Disclosure

While the applicability of the California Environmental Quality Act (CEQA)'s more thorough review and public participation process is litigated in court, we recommend near-term changes to DOGGR's regulations to improve notice and disclosure:

- First, we recommend that the State require operators to provide at least 30 days advance notice to the public and to DOGGR, the State Water Resources Control Board, and the appropriate Regional Water Quality Control Board before any fracking event takes place. This notice should include contact information, the specific location of the well, information on well construction and testing, the planned volume of water and fluid to be used, and the planned disposition of waste products. This advance notice should be followed by public post-fracturing data detailing the actual fluid composition and disposition of waste products.
- Second, we recommend 30 day advance disclosure of the chemicals that may be used in a fracturing operation to both DOGGR and the public. Wyoming and Montana require such advance notice, for example. Wyoming and Montana also require advanced notice of the concentrations of these chemicals.

- Third, we recommend mailed notice to all property owners at least 30 days in advance. Wyoming, Colorado and West Virginia currently require mailed notice to property owners, for example.
- Fourth, DOGGR should require that public notice of fracturing events is served using a reliable, comprehensive and searchable database. If data are stored and accessed via a third party, such as Frac Focus, DOGGR should securely archive the same data. We recommend that the state move towards collecting and archiving its own comprehensive data on fracking and injection events.

B. Trade Secrets

Even if the state can achieve adequate advanced notice before fracking events, the utility of this information is hindered by trade secret protections that allow companies to withhold the identity of some of the chemicals they use in fracking operations. Currently, DOGGR does not require operators to disclose the identity of trade secret-protected chemicals used in fracking fluids - even to DOGGR itself. Some of these chemicals are known carcinogens.¹

The state should require even trade secret-protected information be disclosed to DOGGR and any other responsible agency, to be made available immediately in the event of an emergency. The protection of our citizens and environment should not depend on the availability of fracking operators to disclose these chemicals if something goes wrong; the responsible state agency must have this information. For example, Wyoming currently requires disclosure of even trade secret-protected information to the Wyoming Oil and Gas Commission, and requires operators to factually substantiate claims of trade secret protection.

Second, the burden must be on fracking operators and service providers to prove a claim of trade secret exemption. Where specific chemical names still cannot be named, DOGGR should require disclosure of the chemical family name. Finally, the State should also consider establishing a process whereby the public can challenge claims of trade secret protection.

C. Emergency Response Provisions

We also recommend stronger emergency response provisions. Medical professionals must be able to obtain information on fracking fluid make-up, including trade secret-protected information, immediately from either DOGGR or the fracking operator. Physicians should not

¹ Between 2005 and 2009, oil and gas service companies used hydraulic fracturing products containing 29 chemicals that are (1) known or possible human carcinogens, (2) regulated under the Safe Drinking Water Act for their risks to human health, or (3) listed as hazardous air pollutants under the Clean Air Act. US House of Representatives, Comm. on Energy and Commerce, 112th Cong., Chemicals Used in Hydraulic Fracturing (April 2011).

be prevented from discussing specific chemicals and cases with colleagues or patients. And, the definition of medical professionals in DOGGR's proposed new regulations should be broad enough to cover medical researchers, consultants, and public health officials.

II. Recycling and Reuse of Fracturing Wastewater

California can increase the sustainability of its oil and gas production by incentivizing the safe reuse and recycling of fracking wastewater. Fracking uses large quantities of water. In the Barnett Shale in Texas, for example, an average of almost 3 million gallons of water is used per well.² Because water is an increasingly scarce and precious resource, the state should encourage practices to conserve water and reuse it where appropriate. Reusing produced water also minimizes the amount of fracking wastewater that must ultimately be transported and disposed of.

A. Lessons from Other States

Pennsylvania requires that operators develop a source reduction strategy and identify methods and procedures to maximize recycling and reuse of flowback or produced water.³ The Pennsylvania Department of Environmental Protection has issued a general permit for recycling fracking wastewater, intended to promote and monitor recycling.⁴ The permit requires weekly inspection of processing and storage areas, setbacks from residences and waterbodies, and sets numeric standards for total dissolved solids (TDS) and other constituents in processed wastewater. Indeed, new Pennsylvania regulations require that any oil and gas wastewater having TDS of less than 30,000 mg/L cannot be discharged but must be recycled.

Drought-prone Texas has increasingly incentivized the recycling of oil and gas wastewater since 1992, when it established a voluntary Oil and Gas Waste Reduction Program that provides guidance on reduction and recycling, cost effective source reduction and recycling opportunities, and assistance developing a waste reduction plan. As of 2012, new regulations clarify

² Ground Water Protection Council (GWPC) & ALL Consulting, *Modern Shale Gas Development in the United States: A Primer* (2009) at 64.

³ Pa. Dep't of Env'tl. Prot., *Permitting Strategy for High Total Dissolved Solids (TDS) Wastewater Discharges* (2009), available at http://files.dep.state.pa.us/Water/Wastewater%20Management/WastewaterPortalFiles/MarcellusShaleWastewaterPartnership/high_tds_wastewater_strategy_041109.pdf; *Wastewater Treatment Requirements*, 40 Pa. Bull. 4835 (August 21, 2010) at Annex A, § 95.10(b)(2).

⁴ Pa. Dep't of Env'tl. Prot., *WMGR121 for Processing and Beneficial Use of Gas Well Wastewater from Hydraulic Fracturing and Extraction of Natural Gas from the Marcellus Shale Geological Formation* (2012), available at http://files.dep.state.pa.us/Waste/Bureau%20of%20Waste%20Management/WasteMgtPortalFiles/SolidWaste/Residual_Waste/GP/WMGR123.pdf.

appropriate uses for partially treated or fully treated recycled wastewater.⁵ Texas also provides monetary incentives to recycle by exempting reuse and recycling equipment from sales, excise and use taxes.

B. Recommendations: Reuse and Recycling

- The State Water Resources Control Board, in collaboration with DOGGR, should clarify appropriate uses for partially treated or fully treated recycled wastewater.
- In order to streamline reuse and recycling, the State Water Resources Control Board should consider developing a general permit for recycling produced water to streamline beneficial reuse in appropriate cases.
- As implemented in Pennsylvania, DOGGR should require fracking operators to develop a source reduction strategy that identifies methods and procedures to reduce water demand and maximize recycling and reuse of produced water.

III. Treatment of Fracturing Wastewater

Under the Clean Water Act, point sources associated with oil and gas production are prohibited from discharging wastewater directly to water bodies. However, some fracking operators may send wastewater to treatment facilities, publicly owned treatment works (POTWs) or centralized waste treatment facilities (CWTs), which are authorized to discharge pursuant to permits. While fracking operators in the state currently report few instances of treatment at POTWs, if hydraulic fracturing accelerates, there may be a significantly larger amount of produced water that must be managed and disposed of, potentially placing more pressure on treatment facilities to accept and process such wastewater.

Currently, there are no federal pretreatment requirements specifically for oil or gas wastewater. EPA plans to develop pretreatment standards for the shale gas extraction and coal bed methane extraction industries in 2013 and 2014. These standards will require that wastewater associated with those industries be treated to set standards before being discharged into POTWs.

A. Lessons from Other States

Pennsylvania's early experience with treatment of produced water may be instructive to California regulators. As Pennsylvania experienced a shale gas boom from 2008 through 2010, TDS levels in major Pennsylvania watersheds increased significantly. The state revised its regulations to authorize new or increased discharges of shale gas wastewater only from

⁵ Proposed Tex. Admin. Code § 3.8 § 3.8(d)(7)(A)-(B) & § 3.8(d)(3); *see also* Memorandum from Christina Self to the R.R. Comm'n of Tex., available at <http://www.rrc.state.tx.us/rules/prop-amend-3-8-comm-recy-cling-Sept2012.PDF>.

centralized waste treatment facilities (CWTs) that have no direct surface water, and further requested that the industry stop sending oil and gas wastewater even to “grandfathered” existing POTWs. This led to a significant decrease in TDS levels in Pennsylvania from 2011 to 2012.

Other states, including Ohio, prohibit the treatment and discharge of oil and gas wastewater through POTWs and CWTs altogether.

B. Recommendations: Treatment

- The SWRCB should fund a scientific review of the risks to California water bodies from fracking wastewater.
- DOGGR regulations should explicitly prohibit direct discharge of flowback or produced water from oil and gas operations to POTWs, at least until EPA issues pretreatment guidelines.

IV. Surface Storage and Illegal Dumping

Improper surface storage and illegal dumping present risks to surface and groundwater, as evidenced by multiple incidents in other states.

Fracking wastewater has historically been stored in open pits in California and other states. When such pits are open to the air, they can release fumes, overflow during rain events, and pose a potential hazard to workers and surrounding areas.

DOGGR’s new proposed regulations state that “[n]on-freshwater fluids associated with hydraulic fracturing shall not be stored in unlined sumps or pits.” Best practices (derived from hazardous waste storage) go farther, incorporating closed tanks with secondary impoundments to guard against leakage.

DOGGR’s discussion draft regulations would also allow operators to wait five days before reporting the details of an unauthorized release of fracking fluid or wastewater – including spills onto land or into surface or groundwater. Such spills should be reported to the agency and to affected parties immediately.

Examples of spills in other states are prevalent. For example, in 2009, a pipeline carrying fracturing wastewater to a disposal site in Pennsylvania leaked, allowed more than 4,000 gallons to spill into Pennsylvania's Cross Creek.⁶ In Ohio, a fracking company was accused of illegally dumping fracking wastewater down a storm drain. Such incidents underscore the need for more agency personnel on the ground to conduct inspections and closely review documentation.

⁶ PADEP, Oil and Gas Management Program, Inspection Record #1802228 (Harrisburg, PA: 27 May 2009).

Recommendations:

- DOGGR should ban the use of surface impoundments or sumps to store flowback and produced water, requiring closed tanks with secondary impoundments.
- DOGGR and SWRCB should deter illegal dumping by deploying additional staff to inspect well sites and enforce penalties.
- Any spills should be reported to DOGGR immediately.

V. Conclusion

In sum, the recommendations set forth in our report are intended to shine a light on specific areas where additional studies, oversight, transparency, innovation, and enforcement can avoid potentially severe risks to our water supply and environment.

DOGGR's discussion draft regulations are an important step towards better regulating the oil and gas industry in California. Yet, the State can and should do more to proactively manage hydraulic fracking and its attendant processes in order to prevent any harm to human health and the environment.

Thank you.