August 13, 2013

California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

Re: Hydraulic Fracturing of Oil and Gas Wells in Waters Offshore California

Dear Commissioners,

Thank you for your adding the critical issue of hydraulic fracturing, or fracking, to your August meeting agenda. Fracking and other unconventional production techniques, such as fracture acidizing, pose an urgent threat to California's coast and marine life, and we urge you to take immediate steps to protect the resources under your jurisdiction from this inherently dangerous activity. We respectfully request that you launch a full investigation of offshore fracking and other unconventional production techniques in California, both in state and federal waters. The full extent of offshore fracking is not currently known, nor are the risks fully understood. Because it is impossible to protect our coastal and marine resources without adequate information, we urge the Coastal Commission to use its authority to reject any approvals related to this practice. While we believe the only way to adequately protect the California coast is to permanently ban fracking, it is beyond dispute that the current regulatory vacuum at both the state and federal level is unacceptable, and that the Commission should institute a much needed time-out while offshore fracking is investigated. Below we briefly review information on offshore fracking in federal and state waters, as well as the Commission's authorities to halt this dangerous threat.

This letter is submitted on behalf of the Center for Biological Diversity, Surfrider Foundation, and the Environmental Defense Center. Our respective organizations represent tens of thousands of members who are dedicated to the protection of our coastal environment and concerned about the lack of information and regulatory oversight pertaining to offshore fracking.

Fracking in Federal Waters

According to federal documents obtained by journalists and Environmental Defense Center, federal regulators within the U.S. Department of the Interior at the Bureau of Ocean Energy Management ("BOEM") and Bureau of Safety and Environmental Enforcement

("BSEE") have permitted fracking in federal waters on existing leases in the Pacific Ocean at least 12 times since the late 1990s, and have recently approved a new project.[1] To our knowledge, neither BOEM nor BSEE has ever sought a consistency review of applications for permits to drill using hydraulic fracturing, as required by 16 U.S.C. § 1456(c)(3)(A). Moreover, in June, the California Coastal Commission approved a consistency determination for the general National Pollutant Discharge Elimination System (NPDES) permit CAG280000 for discharges from offshore oil and gas platforms located in federal waters off the coast of Southern California. We are gravely concerned that the Commission was unaware that companies are fracking off the California Coast at the time it approved this consistency determination, calling into question its legality, since fracking poses distinct and unstudied risks to water quality above and beyond that posed by conventional oil and gas development.

Water contamination is a particular hazard with fracking because hundreds of toxic chemicals are used in fracking fluid. While the oil and gas industry has to date successfully resisted the full disclosure of fracking and other well stimulation chemicals, what is known is cause for extreme concern.[2] A congressional report sampling incomplete industry self-reports found that "[t]he 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."[3] One peer-reviewed scientific study reviewed a list of 944 fracking fluid products containing 632 chemicals, 353 of which could be identified with Chemical Abstract Service numbers.[4] The study concluded that more than 75 percent of the chemicals could affect the skin, eyes, and other sensory organs, and the respiratory and gastrointestinal systems; approximately 40 to 50 percent could affect the brain/nervous system, immune, and cardiovascular systems, and the kidneys; 37 percent could affect the endocrine system; and 25 percent could cause cancer and mutations.[5] Another study reviewed exposures to fracking chemicals from onshore wells and noted that trimethylbenzenes are among the largest contributors to non-cancer threats for people living within a half mile of a well, while benzene is the largest contributor to cumulative cancer risk for people, regardless of the distance from the wells.[6] Another recent study has also found increased arsenic and heavy metals in groundwater near fracking sites in Texas.[7]

While the impacts to wildlife have received less study, these chemicals pose a threat to marine life. During fracking, a significant amount of the fracking fluid returns to the surface and is either discharged into the ocean or transported for onshore ground injection. At sea, these

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[1] Dearen, Jason and Alice Chang, Offshore Fracking Off California Coast Under Review, Drawing Calls For Increased Regulation (Aug. 3, 2013) http://www.huffingtonpost.com/2013/08/03/offshore-fracking_n_3700574.html

[2] *See, e.g.,*United States House of Representatives, Committee on Energy and Commerce Minority Staff, Chemicals used in hydraulic fracturing ("House Report"), April 2011; *see also* Colborn, Theo et al., *Natural Gas Operations for a Public Health Perspective*, 17 Human and Ecological Risk Assessment 1039 (2011) ("Colborn 2011"); McKenzie, Lisa et al., *Human Health Risk Assessment of Air Emissions form Development of Unconventional Natural Gas Resources*, Sci Total Environ (2012), doi:10.1016/j.scitotenv.2012.02.018 ("McKenzie 2012").

[3] House Report at 8.

[4] Colborn 2011 at 1.

[5] Colborn 2011 at 1.

[6] McKenzie 2012 at 5.

[7] Fontenot, Brian E et al., *An evaluation of water quality in private drinking water wells near natural gas extraction sites in the Barnett Shale Formation*, Environmental Science & Technology (2013).

chemicals enter the marine ecosystem. And on land, underground injection of fracking fluids has the potential to contaminate groundwater.

In addition to water contamination, fracking well stimulation, and associated practices such as underground injection of produced water and frack "flowback," also increases air pollution, exacerbates climate change, and threatens to destabilize California's active faults. Fracking typically produces greater air pollution than conventional drilling. After a well is fractured, there is an initial period in which much of the fracturing fluid flows back to the surface. This fluid is mixed in with an initial surge of natural gas that is often vented or flared into the atmosphere, thus resulting in air pollution. Air pollution caused by fracking may contribute to health problems in people living near natural-gas drilling sites.[8] Oil and gas wells release methane into the atmosphere, and methane is a powerful climate change driver with 25 times the potency of carbon dioxide. In addition to the air pollution from methane and other natural gas venting and flaring, the expansion of fossil fuel development contributes to increases in greenhouse gas emissions from burning the produced oil. Fracking and associated increases in oil development are inconsistent with California's policies on climate change and efforts to reduce carbon dioxide emissions. Fracking and the disposal of fracking wastewater are also known to cause earthquakes.[9]

Fracking and other forms of well stimulation not only bring new risks but also increase the damage from oil and gas drilling because they allow the development of areas that were previously uneconomical to develop, and allow continued production from wells that might otherwise be shut in.[10] Thus, the threatened environmental damage from drilling on existing leases is far greater today than previously understood at the time the leases, exploration, and development and production plans were approved. Offshore fracking and other forms of well stimulation have received no meaningful updated environmental analysis. A federal court recently held that the Bureau of Land Management violated the National Environmental Policy Act in leasing onshore mineral rights for oil and gas development without an adequate review of the risks of fracking,[11] and we believe that offshore approvals suffer from the same legal deficiency. The scale of this threat should not be underestimated: California's Monterey Shale holds an estimated 15.4 billion barrels of shale oil, or 64 percent of the nation's total shale oil resources, according to the U.S. Energy Information Administration.[12] If nothing is done, California could experience a fracking boom, both onshore and offshore, as or even more intense than other parts of the country including North Dakota, Pennsylvania, and Texas.

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[8] McKenzie 2012.

[9] *See, e.g.*, BC Oil and Gas Commission, Investigation of Observed Seismicity in the Horn River Basin (Aug. 2012) ("BC Oil 2012"); Keranen, Katie, Potentially induced earthquakes in Oklahoma, USA: Links between wastewater injection and the 2011 MW 5.7 earthquake sequence (2013); van der Elst, Nicholas J. *et al.*, Enhanced Remote Earthquake Triggering at Fluid-Injection Sites in the Midwestern United States, 341 SCIENCE 164 (2013).

[10] *See, e.g.*, CITI, *Resurging North American Oil Production and the Death of the Peak Oil Hypothesis* at 9 (Feb. 15, 2012)
("CITI"); U.S. Energy Information Administration, *Review of Emerging Resources: U.S. Shale Gas and Shale Oil Plays* at 4 (Jul. 2011); Orszag, Peter, *Fracking Boom Could Finally Cap Myth of Peak Oil* (Jan. 31, 2011).

[11] *Center for Biological Diversity v. BLM,* 2013 U.S. Dist. LEXIS 52432, 1-2 (N.D. Cal. 2013).

[12] U.S. Energy Information Administration, *Review of Emerging Resources: U.S. Shale Gas and Shale Oil Plays* at 4 (Jul. 2011)

Even less is known about other dangerous unconventional oil and gas recovery techniques, including fracture acidizing, matrix acidizing, frac packing, enzyme enhanced recovery, and gas lifting, that are also used to target the Monterey Shale and may already be in use in federal and state waters.[13] All of the actions requested herein should extend to these techniques as well.

For these reasons, we urge the Commission to immediately exercise your authority to protect California's coastal environment by denying or suspending approvals for any projects involving fracking and other well stimulation using chemicals in the coastal zone, including in federal waters. Available approaches include, but are not limited to: (1) demanding consistency review of applications for permits to drill and/or permits to modify using hydraulic fracturing pursuant to 16 U.S.C. § 1456(c)(3)(A) and 15 CFR 930.50 et seq.; (2) objecting to hydraulic fracturing included in any exploration, development and production plans reviewed for consistency pursuant to 16 U.S.C. § 1456(c)(3)(B) and 15 C.F.R. § 930.70 et seq.; (3) for ongoing drilling operations, consider whether it is appropriate to submit a claim to the Department of Interior specifying that hydraulic fracturing fails to comply with existing development plans and that such activities are inconsistent with the coastal management plan, 15 C.F.R § 930.85; and (4) consider whether it is appropriate to submit a demand to the Environmental Protection Agency to review the general NPDES permit for offshore oil and gas exploration, development and production facilities located in federal waters offshore California (General NPDES Permit No. CAG280000), in light of new information regarding offshore fracking.

Fracking in State Waters

Research by the Center for Biological Diversity demonstrates that fracking is currently occurring in state waters as well. Enclosed is a compilation of a dozen records from the voluntary reporting site FracFocus.org for wells that have been fracked in state waters in the past several years (see Exhibit A). Because FracFocus.org contains only partial information on wells fracked since January 1, 2011, that have been voluntarily reported by operators, this compilation is virtually certain to be an underestimate of the actual number of frack jobs that have already occurred.

To date we have been unable to locate any environmental review conducted pursuant to the California Environmental Quality Act ("CEQA") or other authority for these fracking operations by the California State Lands Commission or other agencies. Thus even the most basic explanation about these operations and their environmental dangers appears unavailable. Some information is provided on the FracFocus record itself, and some additional information is available through an online well records search of the DOGGR website, but this information is clearly insufficient for the Commission, and the public, to assess the dangers of offshore fracking in state waters.

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[13] *See, e.g.,* Robert Collier, A New California Oil Boom? Drilling the Monterey Shale Part 1: Distracted by Fracking? August 2013.

Additionally, some information on the chemicals used in the fracturing fluid is available on the FracFocus form itself, but what is available only heightens our concerns. At least a portion of the information on the chemicals used was withheld under the heading "trade secret" in nearly every instance where fracking was reported offshore. Despite this non-disclosure, it is readily apparent that extremely dangerous chemicals, including 2-Butoxyethanol, methanol, and many others, are being routinely used in our marine environment.

Accordingly, the Commission must assert its jurisdiction within state waters and prohibit hydraulic fracturing for new and existing projects through its authority to regulate oil and gas development in the coastal zone.[14] Public Res. Code § 30601(2); *see also* §§ 30230-30232, 30262. While state and local agencies have apparently been delinquent in providing the Commission with notice of their receipt and approval of permits and other authorizations for fracking projects in and affecting the coastal zone, their failure to comply with the law does not relieve the Commission of its responsibilities to take all necessary action to protect the coastal zone by requiring, and as necessary, rejecting, such permits and authorizations.

Conclusion

The protection of California's marine environment is a top priority, both as a legal matter and as an issue of central importance to Californians. The biologically rich and productive California coast has tremendous ecological value. There are whales, porpoises, dolphins, pinnipeds, and sea otters; over 500 species of fish, seabirds, and protected sea turtles. Numerous protected federal and state areas are also at risk, including the Channel Islands National Marine Sanctuary, Channel Islands National Park, and the recently designated network of Marine Protected Areas. The magnificent animals found within these areas depend on a healthy marine environment that is at risk from both offshore oil and gas development more generally, and from fracking specifically. The marine environment has already experienced impacts from the offshore oil and gas developments off the coast of Southern California. There is always a significant risk of spills and contamination, and even when operations proceed as planned, drilling causes air and water pollution and destruction and disturbance of wildlife habitat. Offshore fracking increases the risks of oil development in numerous ways, including the dangerous chemicals it employs and the fact that it enables the drilling of more wells than would otherwise occur because without these new fracking methods.

Fracking in state and federal waters should be halted while the Commission investigates the full extent and risk of this dangerous activity. In light of the substantial dangers from offshore fracking, compounded by the current informational and regulatory vacuum, we urge the Commission to review all fracking permits and plans, whether in state or federal waters, and deny such approvals due to risks to the coastal environment and lack of adequate information. Ultimately, given we see no way in which fracking can be found to be consistent with the policies and purpose of the Coastal Act, we urge the Commission to exercise its authority to

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[14] The Commission acknowledges on its website, "[a]ll offshore oil and gas exploration, including any development on the federal outer continental shelf, must be reviewed by the Commission."*Permanent Responsibilities of the California Coastal Commission*, webpage at http://www.coastal.ca.gov/perresp.html

prevent risky fracking off the coast of California to protect our rich and magnificent natural resources from this extreme fossil fuel development method.

Sincerely,

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