



Kachemak Bay Conservation Society
3734 Ben Walters Ln, Homer, AK 99603
907 235.8214
kbayconservation@gmail.com

RECEIVED

FEB 27 2013

AOGCC

Alaska Oil and Gas Conservation Commission
333 West 7th Avenue, Suite 100,
Anchorage, Alaska 99501

February 2, 2013

aogcc.customer.svc@alaska.gov

RE: Proposed Regulation Changes/Hydraulic Fracturing

Dear Alaska Oil and Gas Conservation Commission:

Kachemak Bay Conservation Society opposes hydraulic fracturing for the following reasons:

1. **HYDRAULIC FRACTURING (HF)**-HF's detrimental environmental impacts include surface contamination from spills, and flow back, contamination of ground water, dangers to air quality from the migration of gases and HF chemicals to the surface, and the mismanagement of waste. Although there are other methods to extract these resources, such as conventional drilling or horizontal drilling, hydraulic fracturing is one of the key methods used in the United States.
2. **INJECTIONS**-The most common chemical used for HF in the United States in 2005–2009 was methanol, while some other most widely used chemicals were isopropyl alcohol, 2-butoxyethanol, and ethylene glycol. However, the injection of radioactive tracers, along with the other substances in hydraulic-fracturing fluid, is sometimes used to determine the injection profile and location of fractures created by hydraulic fracturing. These chemicals are toxic and harmful to the environment, humans, and wildlife! Gas companies do not have to disclose them (Haliburton loophole). They are saying the fracking fluids are not toxic but are proprietary.
3. **SEISMICITY**-The United States Geological Survey (USGS) reported earthquakes induced by human measures, including HF and HF waste disposal wells, in several locations. The frequency of these quakes has been increasing. In 2009, there were 50 earthquakes greater than magnitude-3.0 in the area spanning Alabama and Montana, and there were 87 quakes in 2010. In 2011 there were 134 earthquakes in the same area, a six fold increase over 20th century levels. There are concerns that quakes may damage underground gas, oil, and water lines and wells that were not designed to withstand earthquakes.
4. **AIR** -Shale gas that is produced by hydraulic fracturing causes higher well-to-burner emissions than conventional gas. This is mainly due to the gas released during completing wells as some gas returns to the surface, together with the fracturing fluids. Studies claim that methane released from shale-gas production is a 30–100% increase over conventional gas production. Methane progressively breaks down in the atmosphere, forming carbon dioxide, which adds to greenhouse gasses more than coal or oil for timescales of less than fifty years. Elevated air levels of harmful



Kachemak Bay Conservation Society

3734 Ben Walters Ln, Homer, AK 99603

907 235.8214

kbayconservation@gmail.com

substances have coincided with elevated reports of health problems among the local populations.

5. WATER-HF uses between 1.2 and 3.5 million US gallons (4.5 and 13 MI) of water per well, with large projects using up to 5 million US gallons. Additional water is used when wells are refractured; this may be done several times. An average well requires 3 to 8 million US gallons (11,000 to 30,000 m³) of water over its lifetime. In the United States hydraulic fracturing regions, at least 36 cases of groundwater contamination due to HF have been suspected and in several cases EPA has determined that hydraulic fracturing was likely the source of the contamination. Federal environmental regulators made a direct link between the controversial drilling practice known as hydraulic fracturing and groundwater contamination. The EPA found high concentrations of benzene, xylene, gasoline, and diesel fuel in shallow groundwater supplies that they linked to wastewater pits. The report also found a number of fracking chemicals in much deeper fresh water wells. While some of the chemicals used in HF are common, some are known carcinogens or toxic. The 2011 US House of Representatives investigative report on the chemicals used in hydraulic fracturing states that of the 2,500 hydraulic fracturing products, "more than 650 of these products contained chemicals that are known or possible human carcinogens, regulated under the Safe Drinking Water Act, or listed as hazardous air pollutants". Groundwater methane contamination is a concern as it has adverse impact on water quality and in extreme cases may lead to potential explosion. In 2006, over 7 million cubic feet of methane were released from a blown gas well in Clark, Wyoming and shallow groundwater was found to be contaminated and they did not measure beta or gamma radiation.
6. THE FUTURE-Ocean acidification, global warming, and climate change are a fact and the continued burning of fossil fuels is one of the major systemic causations. The State must stop the archaic practices of fossil fuel development and change to renewable energy. This, with conservation, is the only responsible solution.
7. POLITICS-KBCS has been disappointed with the State's continued attitude of "Drill Baby Drill" in the face of ocean acidification, climate change, and global warming. We were dismayed the State allowed the reopening of Drift River for the storage of oil, a rather reckless decision. Continuing to encourage drilling for oil and gas, a very dirty, toxic, and polluting process, is ignoring the realities facing the world.
8. THE WORLD-To regulate the HF industry, some governments are developing legislation and some municipalities are developing local zoning limitations. On a global note in 2011, France became the first nation to ban HF. Some other countries have placed a temporary moratorium on the practice as well. Should we in Alaska or the United States do any less?



Kachemak Bay Conservation Society
3734 Ben Walters Ln, Homer, AK 99603
907 235.8214
kbayconservation@gmail.com

KBCS is recommending the banning of HF. We have the opportunity and challenge to reduce our use of fossil fuels and turn to abundant, clean, renewables available to us—tidal, wind, wave, geothermal, solar, along with much needed conservation. We can continue our archaic practices and live in denial—or we can be at the forefront of developing a comprehensive, sustainable energy plan. If we continue the “old path,” we are only putting off the inevitable. Let’s spend that approximate \$67 million on renewables, instead of giving it to the first O&G companies to drill even deeper into our precious Cook Inlet (CI). Let’s visit Iceland and closer to home—Bernie Karl at Chena Hot Springs, to learn new ways of energy production. Let’s turn our CI platforms into tidal, wind, and solar energy. The possibilities are endless, but we have to change our old ways to embrace the new. Let’s be the leaders of the 21st century for North America.

Sincerely,

Roberta Highland, President

Kachemak Bay Conservation Society
3734 Ben Walters Lane
Homer, AK 99603
907-235-8214
kbayconservation@gmail.com
www.kbayconservation.org

1. Committee on Energy and Commerce U.S. House of Representatives Report. April 18, 2011
2. Reis, John C. (1976). *Environmental Control in Petroleum Engineering*. Gulf Professional Publishers
3. "FAQs – Earthquakes Induced by Fluid Injection". USGS. 25 June 2012.
<http://www.usgs.gov/faq/index.php?sid=54684&lang=en&action=show&cat=125>. Retrieved 11-4-2012.
4. Rachel Maddow, Terrence Henry (07 August 2012) (in English). *Rachel Maddow Show: Fracking waste messes with Texas* (video). MSNBC. Event occurs at 9:24 - 10:35.
5. Soraghan, Mike (29 March 2012). "'Remarkable' spate of man-made quakes linked to drilling, USGS team says". *EnergyWire* (E&E). <http://eenews.net/public/energywire/2012/03/29/1>. Retrieved 2012-11-09
6. Henry, Terrence (6 August 2012). "How Fracking Disposal Wells Are Causing Earthquakes in Dallas-Fort Worth". *State Impact Texas*. NPR. <http://stateimpact.npr.org/texas/2012/08/06/how-fracking-disposal-wells-are-causing-earthquakes-in-dallas-fort-worth/>. Retrieved 9 November 2012
7. IEA (2011). *World Energy Outlook 2011*. OECD. pp. 91; 164
8. Howarth, Robert W.; Santoro, Renee; Ingraffea, Anthony (13 March 2011). "Methane and the greenhouse-gas footprint of natural gas from shale formations" (PDF). *Climatic Change* (Springer)
9. Skone, Timothy J. (12 May 2011). "Life Cycle Greenhouse Gas Analysis of Natural Gas Extraction & Delivery in the United States" (PDF). National Energy Technology Laboratory.
http://cce.cornell.edu/EnergyClimateChange/NaturalGasDev/Documents/PDFs/SKONE_NG_LC_GHG_Pr_ofile_Cornell_12MAY11_Final.pdf. Retrieved 4 February 2012.



Kachemak Bay Conservation Society

3734 Ben Walters Ln, Homer, AK 99603

907 235.8214

kbayconservation@gmail.com

10. Jiang, Mohan; Griffin, W Michael; Hendrickson, Chris; Jaramillo, Paulina; VanBriesen, Jeanne; Venkatesh, Aranya (2011). "[Life cycle greenhouse gas emissions of Marcellus shale gas](#)" (PDF).
11. *Environmental Research Letters* (IOP Publishing) 6 (3). Bibcode 2011ERL.....6c4014J. doi:10.1088/1748-9326/6/3/034014. http://iopscience.iop.org/1748-9326/6/3/034014/pdf/1748-9326_6_3_034014.pdf. Retrieved 4 February 2012.
12. Hultman, Nathan; Rebois, Dylan; Scholten, Michael; Ramig, Christopher (2011). "[The greenhouse impact of unconventional gas for electricity generation](#)" (PDF). *Environmental Research Letters* (IOP Publishing) 6 (4). Bibcode 2011ERL.....6d4008H. doi:10.1088/1748-9326/6/4/044008. [http://iopscience.iop.org/1748-9326_6_4_044008.pdf](http://iopscience.iop.org/1748-9326/6/4/044008/pdf/1748-9326_6_4_044008.pdf). Retrieved 4 February 2012.
13. Lashof, Dan (12 April 2011). "[Natural Gas Needs Tighter Production Practices to Reduce Global Warming Pollution](#)". Natural Resources Defense Council. http://switchboard.nrdc.org/blogs/dlashof/natural_gas_needs_tighter_prod.html
14. Biello, David (30 March 2010). "[Natural gas cracked out of shale deposits may mean the U.S. has a stable supply for a century – but at what cost to the environment and human health?](#)". *Scientific American*. <http://www.scientificamerican.com/article.cfm?id=shale-gas-and-hydraulic-fracturing>. Retrieved 23 March 2012.
15. Ground Water Protection Council; ALL Consulting (April 2009) (PDF). [Modern Shale Gas Development in the United States: A Primer](#) (Report). DOE Office of Fossil Energy and National Energy Technology Laboratory. pp. 56–66 Arthur, J. Daniel; Uretsky, Mike; Wilson, Preston (May 5–6, 2010)
16. "[Water Resources and Use for Hydraulic Fracturing in the Marcellus Shale Region](#)" (PDF). Meeting of the American Institute of Professional Geologists. Pittsburgh: ALL Consulting. p. 3. http://fracfocus.org/sites/default/files/publications/water_resources_and_use_for_hydraulic_fracturing_in_the_marcellus_shale_region.pdf. Retrieved 2012-05-09.
17. Abdalla, Charles W.; Drohan, Joy R. (2010) (PDF). [Water Withdrawals for Development of Marcellus Shale Gas in Pennsylvania. Introduction to Pennsylvania's Water Resources](#) (Report). The Pennsylvania State University. <http://pubs.cas.psu.edu/FreePubs/pdfs/ua460.pdf>. Retrieved 16 September 2012.
18. Urbina, Ian (3 August 2011). "[A Tainted Water Well, and Concern There May be More](#)". *The New York Times*. <http://www.nytimes.com/2011/08/04/us/04natgas.html>. Retrieved 22 February 2012 Mall, Amy (19 December 2011). "[Incidents where hydraulic fracturing is a suspected cause of drinking water contamination](#)". *Switchboard: NRDC Staff Blog*. Natural Resources Defense Council. http://switchboard.nrdc.org/blogs/amall/incidents_where_hydraulic_frac.html. Retrieved 23 February 2012.
19. Lustgarten, Abrahm (November 2008). "[Incidents where hydraulic fracturing is a suspected cause of drinking water contamination](#)". ProPublica. <http://www.propublica.org/article/buried-secrets-is-natural-gas-drilling-endangering-us-water-supplies-1113>. Retrieved 20 March 2012.
20. Phillips, Susan (8 December 2011). "[EPA Blames Fracking for Wyoming Groundwater Contamination](#)". *StateImpact Pennsylvania*. NPR. <http://stateimpact.npr.org/pennsylvania/2011/12/08/epa-blames-fracking-for-wyoming-groundwater-contamination/>. Retrieved 6 February 2012
21. Fetzer, Richard M. (19 January 2012). [Action Memorandum - Request for funding for a Removal Action at the Dimock Residential Groundwater Site](#) (Report). <http://www.epaosc.org/sites/7555/files/dimock-action-memo-01-19-12%5B1%5D.pdf>. Retrieved 27 May 2012.
22. DiGiulio, Dominic C.; Wilkin, Richard T.; Miller, Carlyle; Oberley, Gregory (December 2011) (PDF). [Investigation of Ground Water Contamination near Pavillion, Wyoming. Draft](#) (Report). EPA. http://www.epa.gov/region8/superfund/wy/pavillion/EPA_ReportOnPavillion_Dec-8-2011.pdf. Retrieved 23 March 2012.



Kachemak Bay Conservation Society

3734 Ben Walters Ln, Homer, AK 99603

907 235.8214

kbayconservation@gmail.com

23. Kris Fitz Patrick (November 17, 2011). "[Ensuring Safe Drinking Water in the Age of Hydraulic Fracturing](http://sites.duke.edu/sjpp/2011/ensuring-safe-drinking-water-in-the-age-of-hydraulic-fracturing/)". <http://sites.duke.edu/sjpp/2011/ensuring-safe-drinking-water-in-the-age-of-hydraulic-fracturing/>.
24. [Chemicals Used in Hydraulic Fracturing](#) (Report). Committee on Energy and Commerce U.S. House of Representatives. April 18, 2011
25. [Blowout brings scrutiny to energy company](#) *The New York Times* has reported radium in wastewater from natural gas wells, ^[10]White, Jeremy; Park, Haeyoun; Urbina, Ian; Palmer, Griff (26 February 2011). "[Toxic Contamination From Natural Gas Wells](http://www.nytimes.com/interactive/2011/02/27/us/natural-gas-map.html)". *The New York Times*. <http://www.nytimes.com/interactive/2011/02/27/us/natural-gas-map.html>