



## Hydraulic Fracturing or “Fracking” in Michigan

- The Michigan Department of Environmental Quality (DEQ) is the governmental agency which is responsible for overseeing gas and oil drilling in the State of Michigan. The Michigan Zoning Enabling Act prohibits township and county regulation or control of the drilling, completion, or operation of oil or gas wells, or other wells drilled for oil and gas exploration purposes (MCL 125.3205).
- “This type of well completion operation has created some unique conditions not typical of conventionally completed wells. These include: on-site large volume water withdrawals, fresh water pits, larger volumes of chemical additives, and larger volumes of flowback water” - *Michigan DEQ’s Supervisor of Wells’ Instruction 1-2011, effective 6/22/11* (applies to high volume hydraulic fracturing well completions).
- The withdrawal of water for oil and gas operations is currently exempt from the requirements of Michigan's Water Withdrawal Statute (Part 327) - DEQ’s Instruction 1-2011. An impact study is required using Michigan’s Water Assessment Tool, per Instruction 1-2011 cited above. The results of these studies are not accumulated, however.
- The DEQ requires installation of an observation well to monitor water levels in situations where a freshwater supply well is within 1/4 mile of a proposed hydraulic fracturing withdrawal location - DEQ’s Instruction 1-2011 cited above.

### Concerns in Michigan

- **Improper well construction:** “There have been a few rare cases where gas from drilling operations has escaped into fresh water aquifers; however, that was caused by improper well construction, not hydraulic fracturing” - DEQ’s online “*Questions and Answers About Hydraulic Fracturing*” [undated]. The term ‘Hydraulic Fracturing’ can be used narrowly to refer to the act of blasting open tiny fractures in the rock, but it is commonly used to refer to the entire process of constructing and operating a well which uses large volumes of water and chemicals, horizontal drilling, and blasting.
- **Discharge of flowback water into surface waters:** “The actual process of hydraulic fracturing has not polluted rivers. However, in other states flowback water had been trucked to local wastewater plants for treatment and then discharged to surface waters. The wastewater plants were not equipped to remove naturally occurring salts from the water. This has never happened in Michigan because Michigan regulations require flowback water to be contained in steel tanks and sent to deep injection wells for

disposal. Operators are not allowed to use any other containment or disposal method” - DEQ’s “Questions and Answers About Hydraulic Fracturing” [undated].

- **Toxic gas release:** On Christmas Eve (12/24/11), hydrogen sulfide (HS<sub>2</sub>), a poisonous byproduct of natural gas production, leaked from a Beaver Creek Township well in Crawford County. According to a DEQ fact sheet, concentrations of 10 parts per million (ppm) can irritate the eyes; 50-100 ppm can irritate the throat and deaden the sense of smell; 500-700 ppm can cause unconsciousness; and exposure to higher concentrations of 1,000 ppm can kill quickly. The leak started around 2:30 a.m. when a valve failed. Bill Duley, the DEQ field geologist who responded to the incident, said on-site H<sub>2</sub>S alarms went off. The problem was that another valve failed to stop the leak, allowing it to go on for more than 4 hours. Calls reporting the smell of gas were made across Northern Michigan, including a few in Otsego County. 9-1-1 operators and even the Canadian police were alerted to the leaked gas and rotten egg smell. “It was going north, and we didn’t know how far it would go,” said Rick Henderson, Field Operations Supervisor for DEQ - *Gaylord Herald Times*, 1/6/12
- **Use of flowback water/brine for road maintenance:** DEQ officials said that in the Spring of 2013, 954 barrels (or just over 40,000 gallons) of flowback from two Kalkaska County hydrofracking wells was spread on roads by Team Services LLC Kalkaska, a private company working for Encana Corporation. The spreading occurred between May 15 and June 13. In Michigan, oil and gas waste products (drilling fluids, produced waters, and other wastes that are associated with the exploration, development, or production of crude oil and natural gas) are exempted from Hazardous Waste disposal regulation pursuant to R 299.9204(1), so flowback from the fracking process that returns to the surface (between 40 and 80% of the fracking flowback or between 1.5 million and 5.6 million gallons) is not routinely analyzed for chemical content.

Since a 1983 court decision, Michigan has allowed permitted haulers to purchase “brine” (oil and gas liquid waste) to apply on roads for dust and ice control it meets guidelines for calcium and when the 4 aromatic hydrocarbons (Benzene, Ethyl benzene, Toluene, and Xylene) are each less than 1,000 micrograms-per-liter. In spite of new toxins and chemicals added to frack fluids, waste water is **not** tested for chemicals other than calcium and the four hydrocarbons. Application of flowback to the roads at the headwaters of the North Manistee in the State Forest DID meet Michigan’s statutes and OOGM Administrative Rules promulgated under Part 615, Supervisor of Wells, Act 451 PA 1994

The DEQ said that the contractors who applied the 'produced water' as road brine actually properly followed all the steps because "for good or for bad" this is an allowable practice in Michigan. However, when it was brought to their attention, the DEQ re-reviewed it and modified the rules. Currently, it is forbidden to utilize brine/produced water from wells which have been hydraulically fractured for dust and ice control. Contractors and

governmental agencies which secure road brine have to go through an annual review process of which wells they are securing their brine from.

A member of Conway Township's Planning Commission asked GeoSouthern's representative whether salt brine produced from the drilling could be used on the roads. The representative replied that he was 'not sure' – *5/13/13 Conway Twp. Planning Commission Meeting minutes*

- **Drinking water well failure:** Fracking operations at Encana's Westerman 1-29 HD1 well in Rapid River Township (Kalkaska County) is believed to be the cause of a residential well failure. Bernard and Phyllis Senske, who live adjacent to the well site, noticed their pump kept running at night and the water took longer to come out of the faucets. "Then it turned the color of milk," Mrs. Senske said. Dr. Chris Grobbel of Grobbel Environmental & Planning Associates was retained to inspect the well and sample the water. His initial report found an 11-foot drop in the water level. Grobbel said the drop was "enormous." *Traverse City Eagle Record.com (6/13/13)* Note: apparently the water level in this well has recovered.