

DATE: April 15, 2009

ATTENTION: Napoleon Township Supervisor Denise Butler

Re: Update on oil and gas drilling sites in Jackson County

For your info – a copy of a letter I received from the Michigan Department of Environmental Quality with answers to the questions. Unfortunately, West Bay has nothing on their web site pertaining to any explanations.



JENNIFER M. GRANHOLM  
GOVERNOR

STATE OF MICHIGAN  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
LANSING



STEVEN E. CHESTER  
DIRECTOR

April 2, 2009

**SUBJECT: Oil and Gas Drilling Sites**

The Office of Geological Survey (OGS), of the Department of Environmental Quality (DEQ), received your correspondence dated March 26, 2009. In your correspondence you state your concern for the long-range effects and future impacts to the residents of Jackson County as a result of the increase in local filings related to oil and gas leases. You cite cases of contamination as a result of drilling activities in Colorado, New Mexico, Alabama, Ohio, and Pennsylvania. You note revisions to state regulations in Wyoming, Texas, New Mexico, and Colorado to toughen oversight of drilling operations.

I can only speak to the rules and regulations as they apply to Michigan, under the authority granted in Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. In part, the intent of Part 615 is to prevent and prohibit the unnecessary damage to or destruction of the surface; soils; animal, fish, or aquatic life; property; or environmental values from or by oil and gas operations. Below is a response to your specific questions in regard to Michigan oil and gas drilling.

**Question 1: Will there be any usage of diesel fuel, which contains benzene, in the drilling process?**

- Wells drilled in Michigan are drilled with either fresh water or brine (salt water). The drilling fluid must be capable of sealing off and protecting each oil, gas, brine, or fresh water stratum above the producing horizon and control subsurface pressures. Only fresh water shall be used in the drilling of the hole for the surface casing, which is set a minimum of 100 feet below all fresh water strata. The surface casing is cemented to surface to protect all fresh groundwater.

**Question 2: Fluoride, which can cause bone damage at high levels, has been found at almost three times the EPA's maximum limit in some drinking wells adjacent to some of the drilling sites. What chemicals are being used at the various existing and proposed sites in Jackson County?**

- Fluoride is not used in the drilling process or at existing sites in Michigan.

**Question 3: What are the risks for the possibility of this occurring here in Jackson County?**

- The risk of exposure to high levels of fluoride as a result of oil and gas operations in Michigan is remote.

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Question 4: Will the drilling rigs be on raised platforms to protect the underlying landscape?

- Drill rigs will be on raised platforms to accommodate blowout prevention (safety) equipment that affixes to the wellhead during drilling. All drill rigs and accompanying stationary drilling equipment are underlain with 20-mil virgin polyvinyl chloride liner to easily detect and prevent spills or leaks from contacting the underlying soil.

Question 5: What type of waste pits will be utilized? Will the pits be designed to prevent water contamination from unlined pits?

- Either permanent or temporary in-ground drilling mud pits or temporary steel tanks will be used during drilling operations. 1) Permanent in-ground drilling mud pits shall be designed and constructed so the bottom of the pit is not less than four feet above the groundwater level. If the pit is above the groundwater level but less than four feet above the groundwater level during encapsulation, the pit contents shall be solidified. Pits shall be lined with 20-mil virgin polyvinyl chloride liners. The bottom and sides of the pit shall be free of objects that could penetrate the liner. Only the following may be placed in a lined pit: water-based drilling muds, drilling fluids, cuttings, native soils, cementing materials, and stiffening or solidification materials. Machine oil, refuse, completion and test fluids, liquid hydrocarbons, or other materials may not be placed in a lined pit. All free liquids above the solids in the pit shall be removed to the maximum extent practical and disposed of in an approved disposal well. All drilling mud pits shall be stiffened before encapsulation. The drilling mud pit shall be totally covered with a separate piece of 20-mil virgin polyvinyl chloride cover. The drilling mud pit shall be buried not less than four feet below the original ground grade level. 2) Temporary in-ground drilling mud pits are designed and constructed as permanent in-ground pits. The temporary pit cuttings and muds are not buried but solidified and dispose of at an approved off-site location (licensed landfill). 3) If steel tanks are used, drill cuttings and muds will be solidified and disposed of at an approved off-site location.

Question 6: Will rubber pools be used to catch spilled fluids before they seep into the soil?

- All drill rigs and accompanying stationary drilling equipment are underlain with 20-mil polyvinyl chloride liner to easily detect and prevent spills or leaks from contacting the underlying soil.

Question 7: Will waste be stored in enclosed steel tanks rather than open pits?

- Refer to answer #5.

Question 8: What precautions are taken to assure there is no leaking equipment on trucks that haul waste and water to and from the drill sites?

- OGS has authority to prevent spillage at the drill site, but has no authority beyond the drill site.

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I hope the above answers to your questions are satisfactory. I have attached a summary of the general process taken in Michigan oil and gas development. Additional information on Michigan oil and gas development can be found at our web site, [www.michigan.gov/deqogs](http://www.michigan.gov/deqogs).

Sincerely,

A handwritten signature in cursive script that reads "Tom Godbold".

Thomas Godbold, Supervisor  
Field Operations Section  
517-241-1545

cc: Mr. Walter Danyluk, DEQ

## **BRIEFING PAPER**

### **Oil and Gas Development – Calhoun County, Michigan**

The first phase of oil and gas development is to locate a drilling prospect where geologic conditions are conducive to trap and accumulate hydrocarbons. This is accomplished by running seismic surveys. Once a prospect is identified, mineral rights have to be leased to form a drilling unit.

In Michigan, required drilling units vary in size depending on the target rock formation. In Calhoun County, and depending on the location within the county, one must form a 40 or 80 acre drilling unit to permit and drill a well into the Niagara Formation—the predominant target in the county.

Once all the minerals are leased to form a drilling unit, a company can prepare and submit an application to drill a well to the Office of Geological Survey (OGS) of the Michigan Department of Environmental Quality (MDEQ). The application must describe in detail the drilling, steel casing, and cementing program. The casing program must ensure that all fresh water zones are cased and cemented off, have additional casing to preclude subsurface blowouts; and if the well is productive, a cemented casing through the producing zone. The application must also include a survey record of the well location by a registered surveyor, an environmental impact assessment, a directional survey if the well bore is to be deviated, and a hydrogen sulfide contingency plan if sour gas is anticipated. Finally, the application packet must include a permit fee and a bond—the amount of the bond is dependent on the depth of the well.

Once an application is received by OGS, the Permits & Bonding Unit (P&BU) reviews it to make sure it is complete and accurate. Field staff then conducts a field review to evaluate the environmental impacts of drilling and production, determine the adequacy of the casing program, ensure that all set-back requirements are met, that all required notifications are made, and see if alternate locations may be more suitable. The P&BU and field staff work with the applicant to correct any deficiencies and determine if additional permit conditions are necessary. If the application is not acceptable, it is sent back to the applicant. Issued permits are valid for two years.

With commencement of drilling, inspections are conducted by field staff on a regular basis to ensure that all permit requirements and conditions are being fulfilled and that all applicable oil and gas drilling regulations are being complied with. Emphasis is placed on the casing and cementing process, the conducting of required pressure tests, proper clean up of any spills, required equipment is in place and functional, and that the reserve pit is properly constructed, lined, and maintained.

If the well is dry, plugging instructions are issued by field staff to properly plug and abandon the well with cement, the site is inspected to make sure the reserve pit is properly dewatered and encapsulated, and the location is properly restored; if so then the bond is released.

If the well is productive, the company must submit secondary containment plans for the facility. An Environmental Impact Assessment for a Facility must also be submitted if the facility is more than 300 feet from the well. The OGS must then review the plan, request revisions if necessary, and approve the plan before production of the well commences. Field inspections are conducted during the life of the well to make sure all state oil and gas regulations are being complied with. OGS works with companies to correct violations. If violations are not corrected in a timely matter, then the OGS follows established compliance procedures to achieve compliance.

Prepared by: Walter Danyluk, Supervisor  
Lansing District Office  
Office of Geological Survey, MDEQ  
March 31, 2009