LAKE MICHIGAN FEDERATION

THE CASE AGAINST NEW GREAT LAKES OIL & GAS DRILLING: Michigan Fails to Clean Up Oil and Gas Pollution

September 2001

Summary

In February 2001 the state of Michigan announced it was planning to lift a temporary ban on new oil and gas drilling underneath the Great Lakes. Virtually all fronts acknowledge that the ecological and human health risks from drilling and associated leaks or accidents are not worth the pursuit of the small reserves believed to exist – by some estimates only enough to fuel the United States for 2 minutes.

Just this summer, President Bush, Michigan Lt. Gov. Richard Posthumus, both Democratic and Republican congressional leaders, and the public – more than 50 percent of Michigan citizens, according to recent polls – went on record as opposing new drilling. Despite this, Michigan's Governor John Engler continues to press forward with plans for new drilling.

This Lake Michigan Federation report, compiled with the help of the Michigan Environmental Council, documents another reason why new drilling under the Great Lakes is a bad idea following on other reasons released in its March report, *Lake Michigan Oil & Gas Drilling: Worth the Risk?* The state's lead agency in charge of safeguarding the Great Lakes, the Michigan Department of Environmental Quality (DEQ) is failing to clean up oil and gas pollution that has occurred throughout the state. It is legitimate to review pollution from statewide oil and gas drilling, because the impacts of directional drilling are virtually the same as those from traditional or vertical drilling.

This report discusses cleanups at oil and gas pollution sites at which the state has already used or plans to use public funds. It documents some egregious examples of the DEQ's lax oversight. Among its findings:

- Some oil and gas pollution sites have been contaminated for as long as 35 years and have not yet been cleaned up.

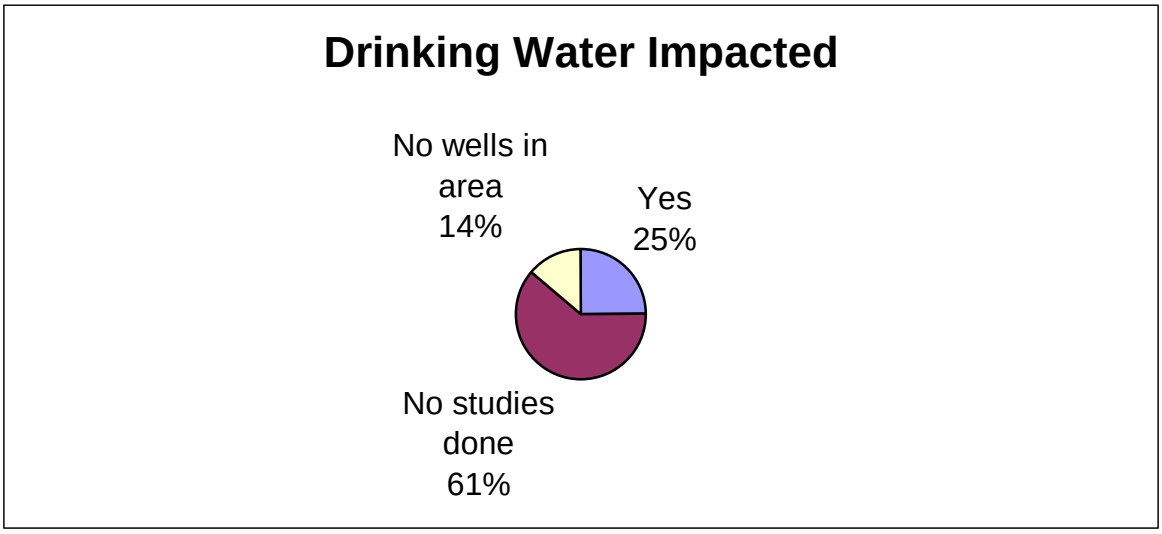
- Not one contaminated groundwater site of those reviewed has been restored to health despite widely documented instances of oil and gas leaks contaminating some of the state's precious groundwater resources.

- The DEQ has granted permits to oil and gas companies with documented violations at their other wells. For example, even though operators in the Crystal Oil Field in Montcalm County have not performed any cleanups, the DEQ continues to grant permits for new wells in the oil field. An earlier report by the Federation also documented the case of Newstar Energy, whose directional drilling applications stimulated the statewide public controversy over drilling under the Great Lakes. During the time that Newstar's permits were under consideration, the company was in serious violation of state law for violations at 23 of its permitted wells. The violations were serious, including failure to remove contaminated soils, not maintaining and painting hydrogen sulfide warnings, and leaks and freestanding oil and brine at wellheads. Even so, the DEQ publicly stated its intention to grant current and future permits to Newstar.

In short, this report discusses how DEQ missteps on oil and gas leaks at wells and production facilities continues to put the "Great Lakes State" and public health at risk. It documents why the time is right for Michigan to convert its temporary ban on oil and gas drilling into a permanent one.

Oil & Gas Pollution Sites Threaten Public Health

Many of the sites reviewed for this report have contaminated private drinking water supplies. Though the information available for each site is not consistent, 8 have documented contamination of water supplies while drinking water impacts have not been studied at 22 sites. Contaminants from oil could be chlorides or petroleum hydrocarbons, such as benzene, or both. Excess chlorides can make water undrinkable. Benzene is a known cancer causing agent and very toxic to humans. People can be exposed to benzene by drinking contaminated water, or from breathing in benzene while showering, bathing, or cooking with contaminated water. Breathing in very high levels of benzene in the air can cause death. Lower levels can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness. Exposure to benzene can damage red blood cells, suppress immune systems, strain the liver, spleen and kidneys and even interfere with the reproductive system.



Hydrogen sulfide is a highly toxic and colorless gas that is known to be present in the oil and gas reserves under Lake Michigan. It is lethal at concentrations of 50 ppm and is thought to cause other health threats, such as depression, memory loss, fatigue, and insomnia, at lower levels. At least 3 sites pose dangers from hydrogen sulfide (H2S) leaks from improperly abandoned facilities. The Marathon Otter Lake Oil Field in Genesee and Lapeer Counties is in a residential and agricultural area. According to the site summary, the greatest danger at the site is the potential release of lethal concentrations of hydrogen sulfide gas due to the deterioration of the abandoned facilities. The Pentwater Oil Field Site also notes that the oil and gas from the wells on site contain high levels of corrosive and toxic hydrogen sulfide gas. Many of the 76 wells in the Akron Oil Field, located in a residential and agricultural area in Tuscola County, also contain high concentrations of the toxic gas.

Oil & Gas Leaks Threaten Fish & Wildlife Habitat

Pollution from oil and gas production not only threatens public health, but also degrades habitat and surface water. Lake Michigan, for example, has 417 coastal wetlands. Inland wetlands are important also. Both coastal and inland wetlands provide habitat for diverse aquatic plant and animal communities, purify water, control erosion, and protect against flooding. Ninety percent of the approximately 200 fish species in the Great Lakes depend directly on wetlands for some part of their life cycle. Waterfowl, shorebirds, and other wildlife reproduce and find shelter in wetlands. Impacts from an oil leak to highly productive valuable wetlands would be severe because so many different species rely on them.

Oil pollution in surface waters and lakebottom sediments can also cause environmental problems. Laboratory toxicity tests show that fish eggs and larvae, and young fish are sensitive to oil. Oil can affect wildlife and plants by covering them and reducing their ability to function and cause internal problems. Bottom dwelling fish exposed to oil may develop liver disease and reproductive and growth problems. Oil contamination of sediments can cause problems for years. For example, sediments were still holding fresh oil after five years after a large spill in Panama in 1986.

At the TMT Petroleum Porter Oil Field in Midland County, 10 sites with 21 wells and 10 tank batteries have been identified as causing significant crude oil and brine contamination. All the sites are located near surface water or are in wetlands. There has been limited cleanup at the site, but there are no plans to investigate the extent of contamination of surface waters or restore the wetlands.

Part of the Pentwater Oil Field in Oceana County lies in a series of wetlands that drains into adjacent Bass Lake, which in turn drains into Lake Michigan. Wells have been plugged, and some limited sampling has been conducted, but there are no plans to investigate the impact of the contamination on the wetlands, Bass Lake, and Lake Michigan.

Stopping Leaks Takes Too Long

The state has known about most of the sites reviewed for this report for an average of 13 years before the most immediate actions have been taken, such as plugging of leaking wells. Overall, of the 36 sites reviewed, only two sites with relatively minor contamination have had complete cleanups and require no further action. Twenty-one sites still require further studies or actions.

Some sites have even gone untended for up to 35 years. For example, even though a task force cited the Robert Penland site in 1991 for possible contamination of the soil and groundwater, the abandoned well and tank continues to be a source of pollution. The well is not scheduled to be plugged, nor the tank removed until 2002, more than 10 years after the situation was first noticed.

As far back as 1980, residents of the Green Ridge Subdivision in Laketon Township, Muskegon County, complained about salty tasting water that was subsequently linked to brine contamination from an adjacent oil field. Purge wells to clean up groundwater were installed by the liable party, but never operated efficiently and are currently idle.

Although the DEQ conducted sampling to link the oil field to the subdivision contamination, an agreement reached with the liable party to clean up contamination of the oil field does not require cleanup of contamination of the Green Ridge Subdivision. There was no information in the site summary explaining why the subdivision was not included in the cleanup agreement. This contamination, known about for over 20 years, could eventually discharge to Green Creek and Muskegon Lake.

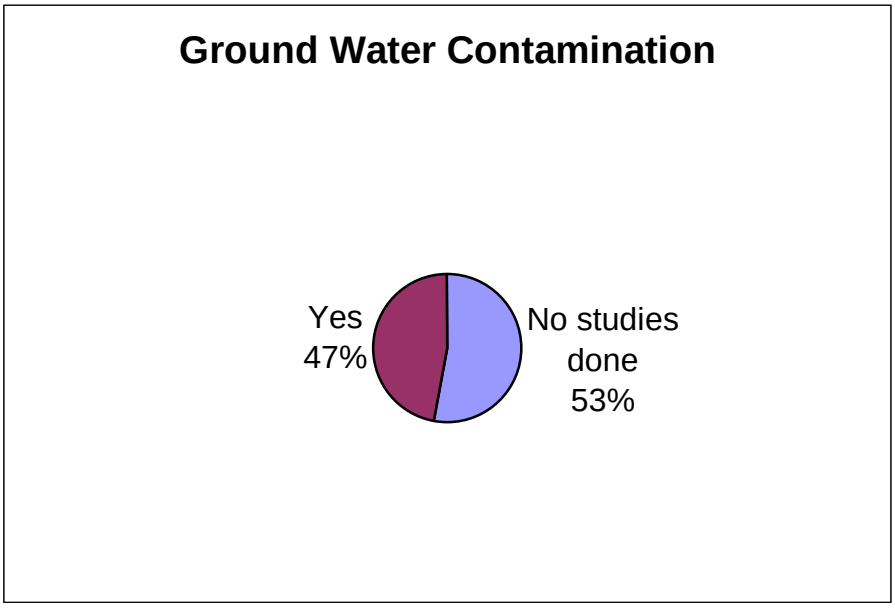
Pollution at the Crystal Oil Field in Montcalm County, with 196 oil wells, stemming from leaking wells and numerous plumes of contaminated groundwater has continued unabated for 35 years since knowledge of the situation first came to light in 1966. Further, the DEQ has permitted new wells to be drilled in the oil field, even though none of the oil field operators have performed cleanup activities.

Cleanups Fall Short

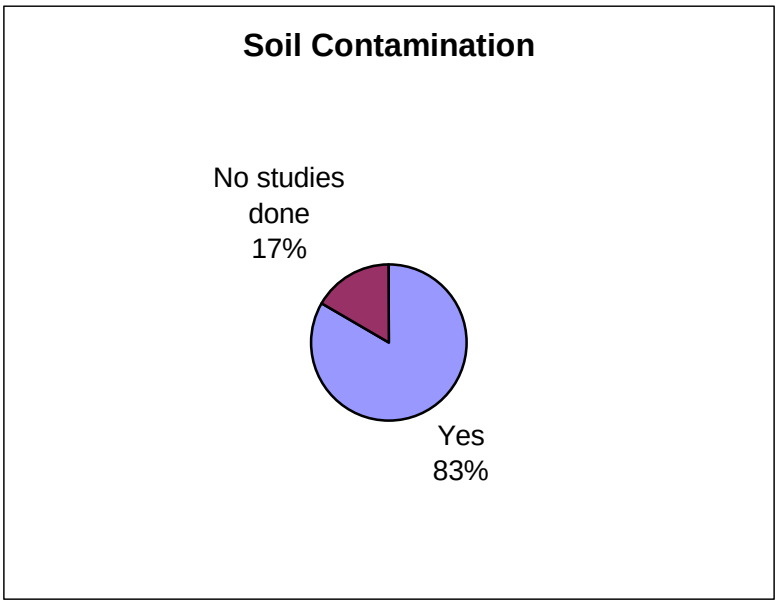
One of the most disturbing findings is that information on the extent of pollution at most of the sites has been limited to visual examinations or limited sampling of soil and groundwater. There have been few comprehensive studies of pollution at the sites to completely define the extent of soil, groundwater, and potential surface water contamination. Subsequently, there is very little information for the majority of sites on the risks to habitat, fish and wildlife, and public health.

Incredibly, there has not been one cleanup of groundwater contaminated from oil and gas activities at these sites, though the majority has extensive, documented contamination of the groundwater. The State Blue Lake 1-4 Site is located on state-owned recreational land in Kalkaska County. Nearly one foot of condensate containing high concentrations of benzene, toluene, ethylbenzene, and xylenes, was discovered to be in groundwater in 1992. The condensate is similar in composition to gasoline with respect to its fate in the environment. The condensate was removed, but no further investigation has been performed to determine the extent of the groundwater contamination.

In Bay County, the Amyotte-Kurzeja-Drako #1 Site is located in a residential area. It has been known since 1993 that crude oil is in the groundwater at the wellhead, but no action has been taken to date to properly plug the well or define the extent of the groundwater contamination.



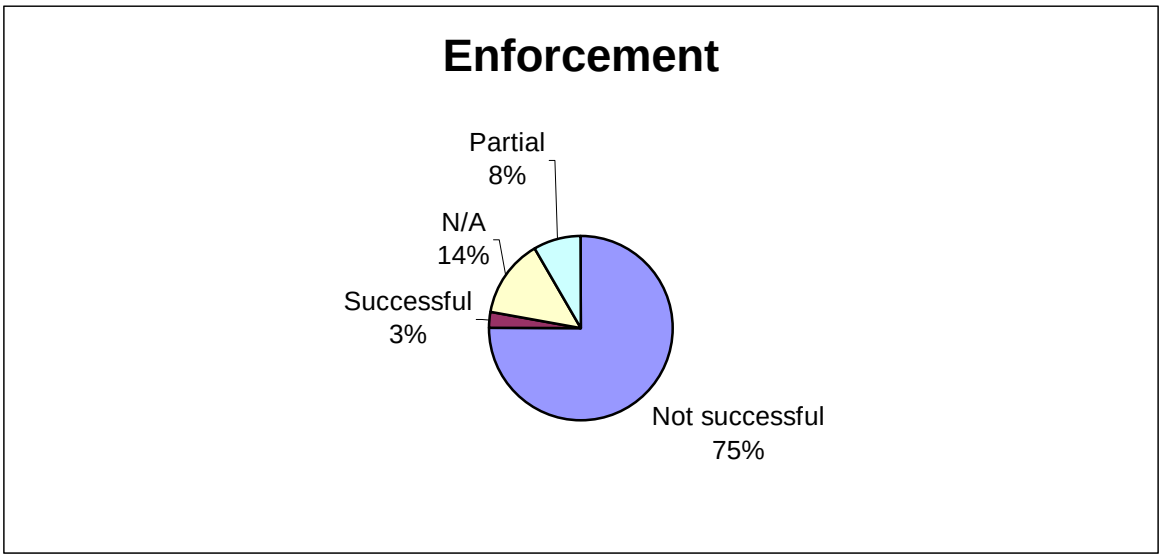
Not only is information on the sites incomplete, cleanups of the polluted sites fall short. No actions have been taken at 10 of the sites. While plugging leaks takes too long, even then, approximately only half of wells at the sites have been plugged. Visibly contaminated soils were excavated and removed at 16 of the 36 sites, but contamination may continue to exist out of sight. At only 3 sites has an actual cleanup of soils been initiated. One is at the Stony Lake Oil Field in Oceana County. This is because of the active pushing of local landowners and the former supervisor of Claybanks Township, Joel Mikkelson. Even so, despite extensive contamination of the groundwater and sediments in a lake in oil field, there are no plans to clean up the pollution. These statistics exemplify the point that though there has been some effort on the part of the DEQ, there have been no comprehensive cleanup actions taken at most of the sites. At the sites where limited studies and cleanup has taken place, it has been minimal – plugging of wells, removal of equipment, and some soil removal.



Taxpayers Pay for Enforcement Shortcomings

The DEQ can place oil and gas pollution sites on the Environmental Response Division (Part 201 of NREPA) Michigan Sites of Contamination list. Of the state's current list of 2,842 contaminated sites, 187 of them are due to oil and gas extraction and drilling. Sites on the list can then be recommended by DEQ for public funding. Currently the DEQ has spent and plans to spend public funds on 36 of these sites, those under review for this report.

Although the DEQ appears to have made efforts to identify liable parties for the pollution sites and require them to conduct cleanups, they have been largely unsuccessful. The companies identified were never fined or penalized for the pollution. In only one case, was a complete settlement made by a liable company. At two other sites, the DEQ received a partial settlement to pay for cleanup activities. A $2 million dollar penalty is accruing for pollution at the Stony Lake Oil Field, but not likely to be collected, as the responsible company has filed for bankruptcy. Because of this, the state has spent over $19 million in taxpayer money at these sites, with several million proposed for future activities.



Conclusion

There is simply too little information on pollution from the large number (over 50,000 wells have been drilled) of oil and gas wells in Michigan to understand the extent of the problem of oil and gas pollution. The Geological Survey Division (GSD) of the Michigan Department of Environmental Quality is responsible for oversight of oil and gas activities, including oversight of oil and gas contamination site cleanups. At one time there was a statewide database of oil and gas contamination sites – the Site Assessment Program (SAP). That program was discontinued in 1995 when the Department of Natural Resources (DNR) was split into two agencies – the DNR and the Department of Environmental Quality (DEQ).

Currently, there is no overall state list of oil and gas contamination sites. The GSD utilizes a database that contains field notes or field inspection reports that can be queried for information on spills and leaks. Statewide information on all oil and gas pollution sites can now only be obtained by reading the notes of the individual wells.

In an earlier report, the Federation cited the DEQ for inadequate oversight of the oil and gas industry, listing as problems, irregular inspections of oil and gas wells, lax tracking of violations, inconsistent inspections of wells, and limited followup of administrative consent agreements. The report also quoted a former DEQ official who said that except for a few years when oil and gas activities were specifically targeted for enforcement, little cleanup activity has taken place. According to the official, in the early 1990s, there was an effort to force cleanups at all the old operating sites and clean up and/or shut down of contaminated production sites. Although that effort found a large number of

sites that had unreported spills, no required signage, failure to plug wells, and other violations, the official suspects that very few actions were taken to close wells that failed to comply with state regulations.

Our review of publicly funded oil and gas cleanup sites confirms that suspicion. Cleanup of pollution from oil and gas pollution is a serious environmental problem that has not been addressed satisfactorily in Michigan. Pollution from the sites threatens public health, and fish and wildlife habitat, and continues unabated for far too long. Cleanup actions, when they are taken, fall short and limited data on the sites limits the effectiveness of the cleanups. Finally, because enforcement is largely unsuccessful, taxpayers foot the bill for too many oil and gas cleanups. It is not responsible to permit an increase of oil and gas drilling operations on the coastlines of the Great Lakes when it is apparent that drilling operations have caused significant pollution that remains a serious environmental challenge for Michigan.