

COMPULSORY POOLING FOR GAS/OIL EXTRACTION IN MICHIGAN IN RELATION TO HIGH VOLUME HYDRAULIC FRACTURING

The following is a discussion paper, and should not be considered to contain or be a legal opinion

Legislative History of Compulsory Pooling:

Michigan adopted its basic oil and gas conservation statutory scheme in 1929. The well spacing and compulsory pooling provisions were adopted in 1937, amended thereafter and recodified in 1994.¹ Michigan has one of the lengthier compulsory unitization statutes that was also part of its recodification efforts in 1994.²

The use of the word “pooling” in this context comes from the concept that a gas or oil reservoir is “pooled” in a geological formation underground. In order to access and drain the pool, it was determined that all surface owners above the pool would have to be formed into one drilling unit in order to a) avoid waste and the expense of sinking wells into the reservoir on each of the parcels in the drilling unit and b) insure that the pooled property owner received compensation for the mineral removed.

When all of the owners of mineral rights on the surface of a drilling unit have not agreed to lease those rights, the State invokes compulsory pooling. This is a process by which the State compels these parties to be forced pooled into the drilling unit, if the drilling operator has already obtained a majority of the mineral rights on parcels located above the pool.

High Volume Hydraulic Fracturing

Hydraulic fracturing is not new. The process has existed for many decades, using relatively small volumes of water, to stimulate gas and oil wells to increase production. What is new is the combination of high-precision, directional drilling with high volume hydraulic fracturing (HVHF or “fracking”). The process uses many times more water and chemical additives for the fracturing, often 5 million gallons or more per well. This is 50 to 100 times more fracturing fluid than used to stimulate conventional gas wells. The high-volume hydraulic fracturing combined with directional drilling has allowed the exploitation of gas resources not previously available, such as shale gas.³

While short leg horizontal fracturing (a few hundred feet) from vertical wells into Antrim formation (typically 3000 feet deep) have been in the testing phases since the 1980's, the process of deep shale horizontal hydraulic fracturing did not occur until 2010 in the Utica Collingwood formation in Michigan.⁴

Targeting Gas and Oil using HVHF

Wells that utilize HVHF are not targeting a pool or reservoir of gas or oil: they are targeting either “tight” or “shale” gas or oil. Shell Oil describes “shale” gas or oil as being locked in tiny bubble-like pockets within layered sedimentary rock such as shale. “Tight” gas or oil is described as being dispersed within low-porosity silt or sand areas that create a tight-fitting environment for the gas.⁵

Current Provisions for Compulsory Pooling

The current provisions for compulsory pooling in Michigan provide for hearing prior to being pooled, however, there is little doubt about the outcome of a petition to force pool.⁶ If forced pooled, a mineral owner will be subject to the same provisions for revenue sharing and choices for participation in costs as a developer, except that he or she will receive 1/8 of his or her revenue share as a cost free royalty: The costs of drilling and production are deducted from the remaining 7/8 percent. Compulsory pooling does not permit the developer to put a drilling unit on the surface of the pooled property, or to otherwise trespass upon the surface.⁷

Hazardous Waste

While some of the chemicals used in hydraulic fracturing are common and generally harmless, some are known carcinogens or toxic. The most common chemical used for hydraulic fracturing in the United States in 2005–2009 was methanol, while some other most widely used chemicals were isopropyl alcohol, 2-butoxyethanol, and ethylene glycol. Between 2005 and 2009, 279 products had at least one component listed as "proprietary" or "trade secret" on their Occupational Safety and Health Administration (OSHA) required Material Safety Data Sheet (MSDS). The MSDS is a list of chemical components in the products of chemical manufacturers, and according to OSHA, a manufacturer may withhold information designated as "proprietary" from this sheet. When asked to reveal the proprietary components, most companies participating in the investigation were unable to do so, leading the committee to surmise these "companies are injecting fluids containing unknown chemicals about which they may have limited understanding of the potential risks posed to human health and the environment.”⁸

A 2011 study identifies 632 chemicals used in natural gas operations. Only 353 of these are well-described in the scientific literature; and of these, more than 75% could affect skin, eyes, respiratory and gastrointestinal systems; roughly 40-50% could affect the brain and nervous, immune and cardiovascular systems and the kidneys; 37% could affect the endocrine system; and 25% are carcinogens and mutagens. The study indicates possible long-term health effects that might not appear immediately. The study recommends full disclosure of all products used, along with extensive air and water monitoring near natural gas operations; it also recommends that HVHF's exemption from regulation under the US Safe Drinking Water Act be rescinded.⁹

Up to 70% of the fluid containing these chemicals remains underground and cannot be recovered. As a result of drilling and fracturing, naturally occurring radioactive materials and heavy metals are released and mix with the fluids. The recovered portion of the fluid used in the process must be stored in a stainless steel tank and disposed of in a properly permitted injection well in accordance with Michigan Department of Environmental Quality (DEQ)¹⁰ and Federal Environmental Protection Agency (EPA) regulations for Class II Underground Injection Control (UIC) Wells.¹¹

Restoration

While Michigan DEQ regulations provide that the permittee of a well restore the site as nearly as practicable to the original land contour,¹² it is virtually impossible for the permittee to restore the substructure of the land subsequent to directional drilling or HVHF. Thus, land that has been compulsorily pooled for directional drilling or HVHF cannot be restored to its original state, sans the taking of the gas or oil, which was the original basis for the forced pooling.

Property Rights, General

The Michigan Court of Appeals defines a substantial property right as “the right or privilege to possess, use, and enjoy the aspects of one’s land which are of considerable value and importance. Substantial property rights include the right to use the property without loss of value, the right to access the property, restrictive covenants or building restrictions which run with the land, rights of exclusion, riparian rights, and boundaries, plats, and surveys.”¹³ Our Supreme Court has stated that the right to exclude others from one’s property is an “essential” protected property right.¹⁴

Subterranean Property Rights

The Michigan Court of Appeals held that the storage space left after the minerals had been excavated belonged to the surface owner.¹⁵ It can therefore be concluded that the space once occupied by the extracted mineral may not contain anything subsequent to the extraction that the surface owner did not consent to prior to the extraction. This would include the permanent deposit of the fluids used to force the mineral out of the formation, which contain all of the hazardous waste and toxins described above. It is impossible to recover or remove those materials from the subterranean pockets that once held the extracted mineral.

Effects on the Owners of Forced Pooled Property

It is foreseeable that the pooled property owners, as a result of directional drilling or HVHF, may suffer irreparable harm. Foreseeable consequential damages include but are not necessarily limited to:

- creating the fear of, or the actual occurrence of, contamination, earthquake, or sinkhole.
- decrease in property value.
- a duty to disclose the existence of the foregoing on a sellers disclosure statement (Michigan Sellers Disclosure statement mandates the disclosure of any known substances, materials or products which may be an environmental hazard) thereby jeopardizing a potential sale of the property.¹⁶
- an inability to obtain a mortgage or refinance (a recent decision by Quicken loans and two other national lenders declined a mortgage for homeowner in Pennsylvania for the stated reason that the property was in proximity to an HVHF well---let alone included in the drilling unit with the potential subterranean complications of HVHF).¹⁷
- a default in the terms of an existing mortgage which could result in the acceleration of the loan. The action of the State in forcing a mortgagor to default in its loan could be seen as tortuous interference with that contract.
- an exclusion from homeowners insurance coverage, or elevated premium to obtain homeowners insurance.¹⁸
- an irreversible conversion of land use from residential or agricultural use into an unpermitted hazardous waste disposal site, in violation of local zoning and special use permit laws.

Conclusions

Current statutes and regulations pre-date the advent of HVHF. The stated intent of compulsory pooling is to remove the resource in the most efficient way possible, without depriving a surface owner of a share in the proceeds.

Under the definitions of substantial property rights in Michigan, the intrusion of a horizontal or directional pipe or apparatus for mineral extraction exceeds the intent of merely removing gas or oil beneath the surface of the forced pooled property and is tantamount to subterranean trespass.

The mining process itself results in the deposit and disposal of a large volume of mining waste containing toxic hazardous chemicals known to cause cancer, endocrine disruption, and death under the surface of the compulsorily pooled property, which cannot be recovered. The property owner has not consented to the use of the space previously occupied by gas or oil for this purpose.

The compulsory pooling regulations do not contemplate or permit the intentional or consequential deposit of the toxic and hazardous waste, and the Natural Resources and Environmental Protection (NREPA) provides both criminal and civil penalties for hazardous waste disposal violations.¹⁹

This new type of gas and oil recovery has numerous additional infringements on the property rights of the forced pooled. These infringements are foreseeable and a direct and proximate result of the mining process.

¹ MCL 324.61513 (1994)

² MCL 324.61701-324.61738 (1994)

³ Statement of Robert W. Howath, PhD, Cornell University, before the Sub-Committee on Technology, Information Policy, InterGovernmental Relations, and Procurement Reform, Committee on Oversight and Government Reform, U. S. Congress May 31, 2012

⁴ www.michigan.gov/deq/utica-collingwood_activity_map3_3548...

⁵ http://www.shell.us/home/content/usa/aboutshell/shell_businesses/onshore/shale_tight/

⁶ Michigan State University Extension Bulletin E-1612

⁷ Michigan DEQ Brochure "Pooling of Properties for Gas and Oil Production"

⁸ Chemicals Used in Hydraulic Fracturing (Report). Committee on Energy and Commerce U.S. House of Representatives. April 18, 2011.

⁹ Colborn, Theo; Kwiatkowski, Carol; Schultz, Kim; Bachran, Mary (2011). "Natural Gas Operations from a Public Health Perspective"

¹⁰ R324.703; R324.705

¹¹ <http://water.epa.gov/type/groundwater/uic/class2/index.cfm>

¹² Michigan DEQ R324.1003

¹³ **Risko v Grand Haven Township Zoning Board of Appeals**, 284 Mich App 453; 773 NW2d 730 (2009), lv den 485 Mich 1011; 775 NW2d 767 (2009)

¹⁴ *Woodland v MichiganCitizens Lobby*, 423 Mich 188, 247; 378 NW2d 337 (1985), citing *Kaiser Aetna v United States*, 444 US 164, 179-180; 100 S Ct 383; 62 L Ed 2d 332 (1979).

¹⁵ *Dep't of Transp. v. Goike*, 560 N.W.2d 365, 366 (Mich. Ct. App. 1996).

¹⁶ Michigan Sellers Disclosure Statement ; MCL 565.957

¹⁷ <http://www.wtae.com/news/local/investigations/Couple-denied-mortgage-because-of-gas-drilling/-/12023024/12865512/-/item/0/-/yhxyvpz/-/index.html>

¹⁸ Nationwide statement regarding concerns about hydraulic fracturing. News release July 13, 2012

¹⁹ MCL 324.11151