REGULATING HYDRAULIC FRACTURING IN MICHIGAN: 
THE PROTECTION OF OUR WATERS AND OUR PEOPLE HITS ANOTHER ROADBLOCK 

AMANDA SKALSKI

Table of Contents

I. INTRODUCTION ...................................................................................278
II. BACKGROUND ...................................................................................279
   A. History of Hydraulic Fracturing ................................................279
   B. Process .................................................................280
   C. Where is Fracking Used? .................................................281
   D. Why Use Hydraulic Fracturing? ............................................281
   E. The Environmental Costs of Hydraulic Fracturing ..............282
   F. The Societal Costs of Fracking .............................................285
   G. What Problems Have Surfaced in Other States? ....................287
   H. The Federal Hydrofracking Regulatory Scheme .................288
   I. Michigan Hydraulic Fracturing Regulations .........................290
   J. MI House Bill No. 4736 and its Implications .......................292
   K. The Political Game Involving Hydrofracking .....................293
   L. Regulatory Examples From Other States ............................294
   M. The Fracking Bottom-Line .................................................298
III. ANALYSIS ........................................................................................300
   A. What Can Michigan Learn From Other States? Are States Ignoring the Societal Impacts? ....................300
   C. What Are the Possible Solutions in Michigan? .......................302
      1. Address the Societal Impacts Through Education ...............302
      2. Remove the Regulatory Shield over Oil and Gas Companies and Incentivize Ethical Behavior ..................303
      3. Address Environmental Concerns with Extra-Care Standard or Cradle-to-Grave Approach ..........................303
   D. Who is in the Best Position to Regulate Hydraulic Fracturing? ..................................................................304
   E. Proposed Solution in Michigan: A Two-Pronged Approach .....306
      1. The Environmental Issues and the Benefits of a Cradle-to-Grave Approach for Water Use ..........................306
IV. CONCLUSION ........................................................................................307
I. INTRODUCTION

Hydraulic fracturing, or “fracking,” is an intensive industrial process used to access natural gas and oil trapped underground in deep rock and shale formations.¹ Fracking has entered center stage in the energy arena for two main reasons: The first reason is efficiency; fracking allows for the extraction of otherwise inaccessible oil and natural gas. The second reason is political; fracking has the potential to lessen our country’s reliance on foreign oil.² The importance of recovering domestic energy sources and the politics behind the federal and state regulations have left hydraulic fracturing extremely under-regulated and rendered what regulations should exist stagnant.³

The Michigan legislature has expressed interest in assigning liability to companies who introduce potentially hazardous contaminants to drinking water sources during hydraulic fracturing, ³a however, the proposed bill is unlikely to have any significant impact on the growing under-regulated industry in Michigan. By relying on current regulations and statutes, both the state and federal environmental agencies have neglected to properly address hydraulic fracturing. This reliance makes it imperative to revisit the current regulations before further environmental and societal damage is done.

This Note will first explore the history and process of hydraulic fracturing. Then, it will evaluate the current federal and state regulations that govern the fracking process, including the pending Michigan legislation, which assigns liability to oil and gas companies who contaminate drinking water while fracking. Next, this Note will discuss the societal and environmental concerns related to fracking and the costs imposed by the lack of regulation. In addition, this Note will look to other states that have dealt with fracking and explore possible solutions to the problems that under-regulation and toothless statutes like the proposed Michigan liability bill pose. Finally, this Note will propose a solution to close the regulatory gap in Michigan and strengthen the proposed legislation. This solution includes implementing an in-depth state permitting and operating process and creating programs and

---

incentives to address the environmental and societal costs of hydraulic fracturing.

II. BACKGROUND

A. History of Hydraulic Fracturing

Halliburton developed and first used hydraulic fracturing in 1949.\textsuperscript{4} Fracking was used for decades in conventional oil and gas wells to help release oil and gas when the wells became dry.\textsuperscript{5} The use of fracking in unconventional types of drilling, such as coal-bed methane and shale gas, is a relatively recent development that began in the 1990s.\textsuperscript{6} The first well to reach the Marcellus Shale formation — a formation that underlies much of the Appalachian region — was drilled in 2003 in Pennsylvania.\textsuperscript{7} “Hydrofracking” generally refers to a process of gas or oil recovery that uses “hydraulic fracturing, horizontal drilling, and high-volume fluid injection.”\textsuperscript{8} For the purposes of regulation and this Note, fracking, hydrofracking, and hydraulic fracturing are synonymous.

Shale gas production has increased from 1 percent of natural gas production in 2000 to about 10 percent today, and is projected to reach as high as 56 percent by 2030.\textsuperscript{9} The geology of Michigan, coupled with the easy access to freshwater, makes Michigan prime real estate for hydraulic fracturing wells.\textsuperscript{10}

Fracturing technology has been in use for many years in the Antrim Shale in northern Michigan.\textsuperscript{11} Recently, developments in hydraulic fracturing have permitted the exploration of the deeper areas of another formation in Michigan, the Collingwood Shale formation.\textsuperscript{12} The first successful deep shale well in Michigan was developed at this formation in 2010.\textsuperscript{13} This success led to the most lucrative mineral sale in Michigan history, over $178 million at the state mineral lease auction in May 2010.\textsuperscript{14}

\textsuperscript{5} Id.
\textsuperscript{6} Powers, \textit{supra} note 1, at 919; see also, Bateman, \textit{supra} note 4, at 3.
\textsuperscript{7} Powers, \textit{supra} note 1, at 919.
\textsuperscript{8} Id.
\textsuperscript{9} Topp, \textit{supra} note 2, at 32-33.
\textsuperscript{10} See id. at 33.
\textsuperscript{11} Id.
\textsuperscript{12} Id.
\textsuperscript{13} Id.
\textsuperscript{14} Id.
B. Process

Hydrofracking is an extremely intensive industrial activity that involves drastic environmental modification and causes “significant environmental disturbance.”\(^\text{15}\) The process of hydraulic fracturing begins with acquiring and building an access road and clearing land.\(^\text{16}\) On the cleared land, a drilling rig is installed and other necessary structures are built.\(^\text{17}\) Next, wells are drilled deep into the earth and acid is injected to produce and clean the resulting tunnel or “wellbore.”\(^\text{18}\) The wellbore is fitted with a steel and concrete casing, which has holes in it to allow fluid to enter it and break up the surrounding rock formation.\(^\text{19}\) The next step requires trucking in millions of gallons of water to the “wellpad” (a name for the site of the well including the structures) where the water is mixed with chemicals, sand, and emulsifiers to create the fracking fluid.\(^\text{20}\) The fracking fluid is then blasted into the wells at high pressures and the fluid and pressure create cracks and fractures in the rock formation.\(^\text{21}\) The solid components of the fluid remain to hold open the cracks, and the liquid is brought back to the surface, at which point the gas escapes through gathering lines that carry it to larger pipelines.\(^\text{22}\) The flow-back fluid (remaining fracturing fluid) can take up to two weeks to come to the surface, with an estimated 9 to 35 percent recovery.\(^\text{23}\) The rest of the water that remains underground has the potential to move through well casings or rock and migrate into underground drinking water sources.\(^\text{24}\) What happens to the wastewater after it is brought to the surface is a controversial question that is not properly addressed in either Michigan or federal regulation.

Conventionally, hydrofracking utilizes vertical drilling with wellbores that branch out horizontally.\(^\text{25}\) While this technique reduces surface disturbances, the stability and integrity of the subsurface is questionable.\(^\text{26}\) There is growing concern that the fluid could migrate to

\(^{15}\) Powers, \textit{supra} note 1, at 919-20.
\(^{16}\) \textit{Id.} at 920.
\(^{17}\) \textit{Id.}
\(^{18}\) \textit{Id.}
\(^{19}\) \textit{Id.}
\(^{20}\) \textit{Id.}
\(^{21}\) Powers, \textit{supra} note 2, at 920.
\(^{22}\) \textit{Id.}
\(^{23}\) \textit{Id.} at 920.
\(^{24}\) \textit{Id.}
\(^{25}\) \textit{Id.} at 920-21.
\(^{26}\) \textit{Id.} at 921.
groundwater sources that provide drinking water and that this technique could cause seismic disruptions deep within the rock.  

C. Where is Fracking Used?

Since the 1990s, hydraulic fracturing has been used in western states\(^\text{28}\) including Colorado, Montana, and Wyoming.\(^\text{29}\) The process became technologically feasible on the east coast in 2003 and was first employed in Pennsylvania to tap into the Marcellus Shale formation.\(^\text{30}\) Hydraulic fracturing is used in Alabama through coal-bed methane extraction.\(^\text{31}\) Fracking has also developed in Virginia and has been used in Michigan for decades.\(^\text{32}\)

In Michigan, the newest fracking development is between 9,000 and 10,000 feet deep into the Collingwood shale formation, with a horizontal leg that is about 5,000 feet long.\(^\text{33}\) Michigan is a deep shale natural gas producing state.\(^\text{34}\)

D. Why Use Hydraulic Fracturing?

Fracking was originally used to access the remaining oil and gas in drying wells.\(^\text{35}\) It is currently used to “produce natural gas from tight, non-porous shale formations” that are deep below the land surface or from deep coal beds.\(^\text{36}\) Fracking allows recovery of energy sources that were once inaccessible.\(^\text{37}\) It has the potential to alleviate some of our nation’s dependence on foreign and off-land fuels by promoting energy independence.\(^\text{38}\) Fracking also creates employment opportunities; depressed communities often welcome the idea of fracking because the industry provides stable incomes, offers money upfront for mineral leases, and develops the infrastructure to the surrounding communities.\(^\text{39}\)

---

27. Id.
28. See Powers, supra note 2, at 919.
30. Powers, supra note 1, at 919.
32. See Topp, supra note 2, at 32-33.
33. Id. at 32.
34. Id.
35. See Topp, supra note 2.
36. Topp, supra note 2, at 32.
37. Id.
38. Id.
39. Powers, supra note 1, at 924.
The apparent benefits of hydraulic fracturing can come at very high costs.

E. The Environmental Costs of Hydraulic Fracturing

The environmental impacts of hydraulic fracturing on water can be divided into five major concerns: the migration of gas or fracturing fluid, water use, managing produced water, surface spills and general extraction activities, and the identification of the chemical additives in the fracturing fluid.

First, the migration of gas or fracking fluid is a major concern due to the possibility of drinking water contamination. Many of the chemical additives in the fracking fluid are known and regulated toxins. The potential for pollution depends on several factors: the proximity of the well to drinking water supplies, the permeability of the formations, and the chemical composition used as the fracturing and propping agents (chemicals or solids used to hold open the cracks in the rock formation). There is also a general concern that water quality could be diminished simply because of the higher concentrations of pollutants. The water cycle shows the ability of contaminants in the groundwater to reach drinking water and with the extensive use of hydraulic fracturing and horizontal wells, there is a chance for seismic disturbances that could cause earthquakes. Seismic disturbances and earthquakes could allow gas and contaminated groundwater that was once isolated in the fracking area to escape into drinking water aquifers. In January 2012, four Ohio based fluid-injection wells that would store fracking wastewater were closed indefinitely due to increased seismic activity that experts believe may be connected to the drilling of the wells.

Second, the process of hydraulic fracturing requires enormous amounts of water at every point of development. Companies need water

41. Id.
42. Id. at 3.
44. Powers, supra note 1, at 925.
45. Id. at 924-925.
46. Id. at 925.
for the initial drilling process and continuously throughout the process of recovering oil and gas. Ultimately, each shale-well requires between three and four million gallons of water. The need for large amounts of water has raised concern that in some places consumers and drillers will need to compete for water. In Michigan, water allocation is extremely important and often overlooked due to the apparent abundance of the resource. Many states use permitting systems that limit water usage, however, in Michigan, oil and natural gas producers are exempt from such water use statutes. At the very least, water scarcity and quality issues should encourage states to require a standard of extra-care in the process of fracking. This standard could begin with banning diesel in fracking fluid like Alabama did in 2007. In addition to the costs imposed by the technique itself, oil and gas companies have found ways to avoid paying damages when the water supply is impaired by their activities. Mineral leases involved in hydraulic fracturing often contain clauses that impact the landowners’ right to clean water and limit damages to the water supply.

The third major environmental concern is the management of wastewater. Wastewater is typically disposed of by underground injection, injection into another formation, deposition into a surface reservoir, stream or lake or deposition on the land. The process of hydraulic fracturing and the resulting wastewater is mostly unregulated by federal law and is exempt from important environmental statutes like the Clean Water Act (CWA). This exemption fails to create incentives for oil and gas companies to treat wastewater before releasing it into the water cycle. States, however, are generally required to meet CWA standards, so they may regulate how wastewater is disposed.

The fourth and most familiar environmental concern is the environmental damage to the surface. This encompasses both the fear of surface spills and environmental damage from general surface environmental damage.
activities. These concerns are numerous and varied: degradation of surface waterways from leaks and spills, destruction of ecologically sensitive habitat and landscape, erosion from construction and pipeline siting, noise and light pollution, storm-water runoff, and toxic air emissions from gas leaks, processing, and truck exhaust. All of these concerns are relevant in Michigan and should be weighed carefully when deciding how to regulate hydraulic fracturing.

The final issue arises from the technique of fracking itself, and is perhaps the most baffling of the environmental concerns. Federal law does not require oil and gas companies to identify the chemicals and compounds used in the fracturing fluid. States do not have the authority to require disclosure. The EPA has made an attempt to regulate diesel fuel use in hydraulic fracturing, but diesel is the only chemical additive that has been thoroughly researched in the process. Some known possible additives include benzene, toluene, ethyl benzene, and xylene. The nature of these additives makes it likely that they would have an adverse effect on the environment and public health should they enter drinking water. Additionally, the public is unaware of the chemical additives and has no way to access this information should an environmental disaster occur. In his first 2012 State of the Union Address, President Obama pledged to develop rules that would lead to responsible natural gas production and require complete chemical makeup of all materials used in hydrofracking. However, these rules are in their infancy and may take many years and face many challenges before being implemented without the help of Congress.

Despite an almost complete focus on water issues, environmental concerns associated with hydrofracking extend beyond the water cycle. The EPA is currently investigating the potential air quality impacts of fracking, including the release of volatile organic compounds and sulfur.

61. Id. at 924-26.
62. Id.
63. Topp, supra note 2, at 35.
66. Topp, supra note 2, at 34.
67. Id.
68. Powers, supra note 1, at 957.
70. See id.
dioxide. Additionally, it has held public hearings on proposed rules that require, among other things, that hydraulic fracturing wells be fitted with air pollutant trapping equipment. Experts and the EPA have started questioning the greenhouse gas impacts of natural gas produced in hydraulic fracturing. Generally, natural gas has significantly lower levels of greenhouse gases than coal and other fossil fuels, but a recent study at Cornell University concluded that any avoided emissions are more than made up by the use of methane venting during the flow-back water recovery process. The oil and gas industry already makes up 40 percent of the nation’s methane emissions; if hydraulic fracturing growth meets 2030 projections, the nation could face a more imminent climate change crisis than anyone could have anticipated. The proposed EPA rules aim to prevent this from happening by requiring that methane emissions be captured, burned off, or otherwise substantially limited.

F. The Societal Costs of Fracking

Society pays a high price for hydraulic fracturing. It is easy to demonstrate the benefits of fracking; oil and gas companies have gone so far as to create commercials on the benefits of domestic energy and energy independence. These benefits, although important in today’s world, do not outweigh the basic need for clean, potable water. Nor do they outweigh the quality of life costs associated with fracking, property value destruction, and the potential for environmental injustice in communities surrounding fracking fields.

Oil and gas production is extremely profitable and the economic benefits associated with the industry are hard to resist in areas that are economically depressed. Hydraulic fracturing can bring jobs and mineral leases (with variable price-tags) to landowners and residents who may desperately need the money. Landowners who lease their mineral rights may discover in the future that their property cannot be sold and without the financial resources to move away from the area, they will be

72. Id.
73. Id.
74. Id.
75. Id.
76. Id.
77. Ordford, supra note 71.
78. Bateman, supra note 4, at 5.
79. Powers, supra note 1, at 924.
80. Id. at 924-25.
81. Id. at 927-28.
82. Id.
trapped dealing with the high costs of fracking and potentially polluted water sources.\textsuperscript{83}

Michigan faces this very problem as fracking has grown in the state. Landowners in depressed parts of Michigan are forced to decide between what may seem like large sums of money up front and the long-term societal and environmental ramifications of a heavy-industrial process, such as hydraulic fracturing. Michigan already deals with a number of environmental justice problems and fracking has the potential to multiply those problems. Landowners who need the money from the mineral leases will accept the offer, those who profit from the leases will be able to leave when the environmental and societal costs get too high, and the others (those who needed to sell early on and likely need the money the most) will be forced to stay.\textsuperscript{84}

The environmental justice concerns may seem too far into the future to halt a process that produces natural gas and oil. However, there are more immediate societal concerns, which include the decreased quality of life caused by persistent noise and vibrations from the drilling, possible competition between consumers and energy companies for water, and the problem of a sudden influx of large amounts of money in depressed areas of the state.\textsuperscript{85} This problem could have disastrous effects on a community by exacerbating socioeconomic divisions—the wealthy will leave and take their tax money with them and the poor will become worse off.\textsuperscript{86} Farmers may take fields out of production because they have made enough money in leases and sales to stop farming; in some areas, one acre of leased land can bring an oil or gas company $180,000 annually.\textsuperscript{87} Depending on the situation and the lease, a landowner could receive a windfall from the mineral royalties, which would directly contribute to an increased socio-economic gap.\textsuperscript{88} There is also the possibility of farmland destruction through water or soil contamination, which would leave some farmers without a livelihood.\textsuperscript{89} This could be catastrophic, especially in places where the landowners were paid up front.

Fortunately, Michigan has managed to side step these issues for now, but with the exponential growth of hydraulic fracturing and the promise of job growth, domestic energy production, and immediate payment

\begin{footnotesize}
\begin{enumerate}
\item Id.
\item Id. at 928.
\item Powers, supra note 1, at 924-25.
\item Id. at 927.
\item Id.
\item Id.
\item Id. at 928.
\item Id.
\end{enumerate}
\end{footnotesize}
through mineral leases, it is not unrealistic that economically depressed Michigan residents will suffer the same fate as residents of other states.

G. What Problems Have Surfaced in Other States?

Hydraulic fracturing has not been the identified source of any groundwater or surface water pollution in Michigan, but liquid from fracking has contaminated these water sources in other states.\(^90\) The EPA has identified contaminants from fracking in the drinking water in Pavillion, Wyoming.\(^91\) There is also evidence that fracking has harmed the water quality in other states including Virginia, Montana, Colorado, and Alabama.\(^92\) Residents in neighborhoods surrounding fracking fields usually complain that their water has a greasy or oily film, a strong odor, and/or increased salinity.\(^93\) Some communities have even experienced an increase of certain cancers.\(^94\) Nine families in the vicinity of a fracking field in Alabama dealt with family members developing cancers from “unknown” sources, and several residents of the same community noticed the fracking runoff seemed to harm and kill local vegetation and animals.\(^95\) The EPA found no “targeted” contaminants in the two groundwater samples they collected.\(^96\) In Virginia, residents near a coal-bed methane extraction site have filed more than one-hundred complaints, but the EPA dismissed these complaints and asserted that the damage to the water was from a different type of extraction process.\(^97\)

The EPA’s disregard for the communities affected by the environmental dangers associated with hydraulic fracturing is disheartening and shocking. Many groups, including the National Resource Defense Council, allege that the EPA’s responses were instead an effort to cover-up the environmental impacts of fracking.\(^98\) Aside from the political disarray, the biggest hurdle individuals and environmental groups encounter when challenging hydraulic fracturing activities and the resulting pollution, is identifying whether fracking is the actual source of the contamination.\(^99\)

\(^90\) Topp, supra note 2, at 34.
\(^91\) Id.
\(^92\) Cupas, supra note 29, at 622.
\(^93\) Id. at 623.
\(^94\) Id. at 623.
\(^95\) Id. at 624.
\(^96\) Id.
\(^97\) Id.
\(^98\) Cupas, supra note 29, at 624
\(^99\) Id. at 624-25.
Conversely, in Dimock, Pennsylvania, the residents, the state environmental agency, and the EPA had no problem identifying hydraulic fracturing as the source of the rampant water contamination in that town. In September 2009, 8,000 gallons of fracturing fluid was released in Dimock due to faulty hydraulic well construction. This spill flowed into a stream and caused a “fish kill of 160 species in a 30-mile zone.” The fish kill was an immediate effect of the spill, but the methane gas and metals that migrated into the groundwater and residential potable wells will affect the population for years to come.

The problems in Dimock began long before the massive fracking fluid spill. Over the span of two years, the drinking water turned brown, pets began mysteriously losing hair, and one resident’s well spontaneously combusted. Further, residents developed sores on their limbs from the corrosive water and experienced headaches and dizziness. The water wells were taken offline in 2009 because the levels of methane, iron, and aluminum were dangerously high. The property values have plummeted, residents cannot afford to move, and they must deal with water being delivered to them weekly instead of having access to running water. To add insult to injury, many residents were paid next-to-nothing for their mineral leases and were assured their land would be unharmed; people who first signed leases were paid $250 an acre compared to those who waited longer and were given a one-time payment of $2,500 an acre. The lack of federal and state regulation played a direct role in what occurred in Dimock. Dimock can serve as an example of how unregulated hydraulic fracturing has the potential to cause a catastrophe.

H. The Federal Hydrofracking Regulatory Scheme

Hydraulic fracturing is exempt from more federal environmental statutes than it is regulated under. Fracking is currently exempt under the Safe Drinking Water Act (SDWA), the Clean Water Act (CWA)

100. Bateman, supra note 4, at 1.
101. Topp, supra note 2, at 34.
102. Id.
103. Id.
104. Bateman, supra note 4, at 2.
105. Id.
106. Id.
107. Id.
108. Id.
108a. Id.
pollution standards, the Resource Conservation and Recovery Act (RCRA), and the Emergency Planning and Community Right-to-Know Act (EPCRA). These exemptions effectively leave the regulation of fracking to the states.

The exemptions were included in Section 322 of the Energy Policy Act of 2005. In this Section, fracking is exempt from SDWA underground injection regulations and CWA pollutant discharge standards. In addition to these express exemptions, the Energy Policy Act created potential exemptions under the National Environmental Policy Act (NEPA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Wastewater is given equal protection under the SDWA exemption. The Energy Policy Act removes most, if not all, fracking from the scope of the UIC program under SDWA. However, the EPA Administrator can act when it is essential to assure underground water will not be endangered by a fracking injection, so the EPA still has the opportunity to regulate fracking to some extent.

It is possible that the federal regulatory scheme may change in the future. The Fracturing Responsibility and Awareness of Chemicals Act (FRAC) was introduced in 2009 and would require that hydraulic fracturing be regulated and defined under SDWA. It would also require any person involved in fracking to disclose the chemicals used and make such information available to the public via the Internet. FRAC died in committee, but has been re-introduced in the 113th Congress. This statute would solve many of the problems caused by the lack of federal regulation, but it is unlikely to make it to the floor again given the current political atmosphere.

109a. See id. at 940-42
111. Powers, supra note 1, at 938-939.
112. Id. at 939-40.
114. Id. at 437.
115. Id. at 437-38.
117. Id.; See also Fracturing Responsibility and Awareness of Chemicals Act (FRAC), H.R. 1921, 113th Cong. (1st Sess. 2013).
I. Michigan Hydraulic Fracturing Regulations

Michigan fracking regulations are predominately regulated by the Michigan Natural Resources and Environmental Protection Act.\textsuperscript{119} The Office of Geological Survey of the Michigan Department of Natural Resources and Environment (MDNRE) makes specific fracking regulations in administrative rules.\textsuperscript{120} MDNRE is in charge of the oversight and permitting of all gas and oil production in Michigan.\textsuperscript{121} The Michigan Department of Environmental Quality (MDEQ) enforces Michigan laws and rules regarding fracking.\textsuperscript{122} MDEQ published a policy statement in May 2011 clarifying Michigan’s position on hydraulic fracturing and attempting to calm public concern over the environmental safety of the technique.\textsuperscript{123} MDEQ addressed the main environmental concerns: migration of gas or fracture fluids, water use, managing produced water, surface spills, and the identification of chemical additives.\textsuperscript{124}

MDEQ dismissed migration of gas and fracking fluids, citing problems with the casing and well construction rather than with the technique itself.\textsuperscript{125} In Michigan, there are minor regulations in place that discuss steel pipe casing and reporting.\textsuperscript{126} Fracking is exempt from water withdrawal requirements under the Great Lakes Preservation Act.\textsuperscript{127} MDNRE expects approximately five million gallons of water will be used to fracture a Collingwood Shale well, a number that is 100 times the amount of water used in an Antrim Shale well.\textsuperscript{128} The withdrawn water will not be returnable to the ground because of the chemical additives.\textsuperscript{128a} “Despite the large volume of water withdrawal and use in the production process, the MDNRE has not adopted regulations specific to hydraulic fracturing.”\textsuperscript{129} MDEQ claims it will deny a permit if the water withdrawal will cause a “significant adverse impact to groundwater or surface water.”\textsuperscript{130} However, it remains unclear whether MDNRE plans

\begin{thebibliography}{99}
\bibitem{119} Topp, supra note 2, at 33.
\bibitem{120} Id.
\bibitem{121} Id.
\bibitem{122} MICH. DEPT. OF ENV’T. QUALITY, supra note 40, at 1.
\bibitem{123} Id. at 2.
\bibitem{124} Id.
\bibitem{125} Id.
\bibitem{126} Id.
\bibitem{127} Topp, supra note 2, at 33.
\bibitem{128} Id.
\bibitem{128a} Id.
\bibitem{129} MICH. DEPT. OF ENV’T. QUALITY, supra note 40, at 1.
\bibitem{130} Id.
\end{thebibliography}
on taking any regulatory measures to protect Michigan’s groundwater resources.\footnote{131} There are wastewater disposal rules in Michigan that require fluids to be contained in steel tanks and transported to disposal wells that are isolated from fresh water supplies.\footnote{132} Both the state and the EPA license these disposal wells.\footnote{133}

MDEQ addresses the issue of chemical identification by requiring companies to provide copies of all Material Safety Data Sheets for the additives used in fracking.\footnote{133a} However, some of these chemical compounds are exempt under federal law.\footnote{134} There is no current Michigan or federal regulation requiring the disclosure of chemical additives in fracking fluid.\footnote{135} Despite MDEQ’s assurance that hydraulic fracturing is properly regulated and as transparent as possible, there are still many secrets. Well operators can shield operations in two ways. First, if an operator receives a permit to drill under a section of the statute, the operator can then test the formation without the information’s public release.\footnote{135a} If the testing produces favorable results, the “mineral well permit” can be converted into the permit needed to complete the well.\footnote{136} Second, an operator can apply for a permit for a vertical well under another section and request that the information is kept confidential.\footnote{137} Under this section, the operators obtain the vertical well permit, and only then is an administrative action required to extend the permit to a horizontal branch of the same well.\footnote{137a} Thus, the public is once again denied a hearing or an opportunity to object to the permit.\footnote{138} The information regarding wells is also protected from the Michigan Freedom of Information Act (FOIA), so it truly is under a bureaucratic cloak.\footnote{139}

The MDEQ concludes its summary of hydrofracking regulations by stating that the MDEQ has fifty staff members enforcing state requirements and to date only two productive wells have been drilled in Michigan’s Collingwood Shale formation.\footnote{140} The policy statement

\begin{footnotes}
\footnote{131}{Topp, supra note 2, at 33.}
\footnote{132}{Mich. Dep't of Envt'l. Quality, supra note 40, at 2-3.}
\footnote{133}{Id. at 3.}
\footnote{133a}{Id.}
\footnote{134}{Id.}
\footnote{135}{Topp, supra note 2, at 34.}
\footnote{135a}{Id. at 33.}
\footnote{136}{Id.}
\footnote{137}{Id.}
\footnote{137a}{Id.}
\footnote{138}{Id.}
\footnote{139}{Topp, supra note 2, at 34.}
\footnote{140}{Mich. Dep't of Envt'l. Quality, supra note 40, at 3.}
\end{footnotes}
essentially tells the public to feel comfortable with the level of regulation in place for hydraulic fracturing in Michigan.

J. MI House Bill No. 4736 and its Implications

House Bill No. 4736 is a bill to amend Michigan’s Natural Resources and Environmental Protection Act by creating groundwater contamination liability for oil and gas companies using hydraulic fracturing. The amendment reads in part:

“If groundwater in the vicinity of a well used for hydraulic fracturing is determined to contain 1 or more hazardous substances that were injected into that well while conducting hydraulic fracturing, there is a rebuttable presumption that the person conducting the hydraulic fracturing is liable under Section 20126 for the contamination present in the groundwater.”

It is the second bill of this type to come before the Michigan legislature in the last year, but even if passed it is unlikely to have much effect on the oil and natural gas industry in Michigan.

This proposed legislation makes it clear that the Michigan legislature is concerned with groundwater contamination and understands that under current federal law, there is no way to tie oil and gas companies to the contamination should it occur. The bill would facilitate tort liability cases in Michigan and surpass the initial hurdles of proving that the groundwater contamination was a result of fracking. Nevertheless, there are still federal laws and regulations that significantly restrict the effectiveness of this liability-assigning statute. As noted, hydraulic fracturing is not subject to federal disclosure laws like EPCRA and RCRA. Without the knowledge of what chemicals are in the fracking fluid and wastewater, it is impossible for this proposed bill to function as written. Theoretically, a court could interpret that the legislature intended for the court to use evidence of what is usually in fracking fluid, and compare those components to the contaminants discovered in the groundwater. The court could then assign liability in this way, with the defending company able to rebut the contents of the fluid. However, unless Michigan plans on requiring full disclosure of the chemical

142. Id.
143. See Powers, supra note 1, at 953.
144. Id. at 940.
composition, which may not even be possible, this bill is unlikely to help plaintiffs succeed in tort cases against oil and gas companies.

At the very least, House Bill No. 4736 demonstrates the Michigan legislature’s knowledge of federal regulation limitations and the need for liability assignment to oil and gas companies that contaminate groundwater while employing hydraulic fracturing.

K. The Political Game Involving Hydrofracking

The lack of federal regulation of fracking is driven by political and industrial connections and creates more local intermingling of industry leaders and local politicians. Many municipalities do not have the funding or staffing necessary to deal with the large burden hydraulic fracturing creates and as a result lawmakers often work closely with the industry. This close relationship leads to dependency through which the industry provides infrastructure in exchange for lax regulation. In addition, it is more difficult for local and state governments to implement new ordinances and regulations that interfere with property rights, even though the interference is strictly protectionist. Many municipalities are attempting to ban fracking altogether to calm public fears and avoid encountering the dilemmas posed by the technique. While the municipal moratoriums are understandable, they pose significant constitutional issues: if a company has already invested a large amount of money into mineral leases and property rights before the moratorium, the ban could give rise to claims of government taking of property and demands for just compensation.

In Michigan, the oil and gas industry is exempt from water use laws and the state environmental agencies are constantly defending this exemption and their support of hydraulic fracturing. The politics behind the agencies’ decision and the lax regulations are difficult to ignore.

If the political games are not out-of-hand at the local and state levels, they certainly are at the federal level. In 2002, the National Resource Defense Council asked Congress to define and regulate hydraulic fracturing. This request and decisions by the Eleventh Circuit requiring

145. Id. at 947-48.
146. Id. at 951.
147. Id. at 948, 951.
148. Id. at 950.
149. Orford, supra note 71, at 4 (West).
150. Id.
151. MICH. DEPT. OF ENV’T’L. QUALITY, supra note 40.
152. Cupas, supra note 29, at 629.
EPA action resulted in an industry-led EPA study that determined that fracking did not endanger public health.\textsuperscript{153} In 2005, after the determination, Congress decided that fracking could go federally unregulated and proceeded to exempt it from the SDWA in the 2005 Energy Policy Act.\textsuperscript{154} An EPA whistle-blower brought politics to the forefront when he revealed that the EPA had selected data that supported their industry-favorable conclusion.\textsuperscript{155} The EPA had in fact uncovered information that showed that fracking was potentially dangerous to public health and instead chose to ignore it.\textsuperscript{156}

In 2003, the EPA attempted to comply with demands for fracking regulation by drafting a short agreement with oil and gas companies employing the technique.\textsuperscript{157} The 2003 Memorandum of Agreement was a voluntary agreement that asked the industry to refrain from using diesel and certain other toxic substances in the fracking fluid.\textsuperscript{158} The MOA appears to have been a public relations tactic, because upon inspection, it is clear that the agreement was toothless.\textsuperscript{159} Companies only needed to provide notice to the EPA if they decided to terminate the agreement and reinstitute the use of diesel fuels and there were no penalties for termination.\textsuperscript{160}

In 2009, Congress approved funding for the EPA to reinvestigate the 2004 hydraulic fracturing study.\textsuperscript{161} Congress required that the new study be transparent, credible, and peer-reviewed.\textsuperscript{162} Meanwhile in Congress, a bill requiring the EPA to regulate hydraulic fracturing under SDWA that was introduced in 2009 \textsuperscript{163} and re-introduced in 2013, but until Congress can settle the political turmoil on Capitol Hill, it seems unlikely that the current bill will make it beyond a congressional committee.

\textbf{L. Regulatory Examples From Other States}

Many states have dealt with hydraulic fracturing regulation for decades, but only recently has the development in horizontal drilling

\begin{itemize}
\item \textsuperscript{153} \textit{Id.} at 624.
\item \textsuperscript{154} \textit{Id.} at 626.
\item \textsuperscript{155} \textit{Id.} at 624.
\item \textsuperscript{156} \textit{Id.}
\item \textsuperscript{157} \textit{Id.} at 620.
\item \textsuperscript{158} Cupas, \textit{supra} note 29, at 620-21.
\item \textsuperscript{159} \textit{Id.} at 621.
\item \textsuperscript{160} \textit{Id.}
\item \textsuperscript{161} Topp, \textit{supra} note 2, at 35.
\item \textsuperscript{162} \textit{Id.}
\item \textsuperscript{163} See Bateman, \textit{supra} note 4, at 5; See also FRAC, S. 1215, 111th Cong. (1st Sess. 2009); FRAC, H.R. 1921, 113th Cong. (1st Sess. 2013).
\end{itemize}
brought these regulatory schemes, or lack thereof, to center stage.\textsuperscript{164} State regulations span from zero regulation to fracking moratoriums.\textsuperscript{164a} States also have different focuses in their regulations.\textsuperscript{164b} Some states, mostly western, focus on water rights because they have little water to spare for water-intensive operations like hydraulic fracturing.\textsuperscript{165} Other states, especially Michigan and New York, are more concerned with protecting the quality of their abundant waters.\textsuperscript{166}

The tension caused by hydraulic fracturing between the state and federal regulators began in Alabama with \textit{Legal Environmental Assistance Foundation, Inc. (LEAF) v. EPA} in 1997.\textsuperscript{167} The first LEAF case involved LEAF requesting that the EPA rescind its approval of Alabama’s Underground Injection Program (UIC) under the SDWA.\textsuperscript{168} LEAF claimed that Alabama’s program was not a program, but a complete lack of regulation.\textsuperscript{169} In \textit{LEAF I}, the Eleventh Circuit Court of Appeals held that the EPA is required to regulate hydraulic fracturing activities used as a production enhancement technique by oil and gas industries because they constitute “underground injections.”\textsuperscript{170} The court’s holding effectively showed the EPA that it had discovered the loopholes in the EPA regulations and intended to close them.\textsuperscript{171} Before the court could enforce its holding through a writ of mandamus, Alabama changed its UIC program.\textsuperscript{172} The EPA then sought to approve the new program through a less strict section of SDWA, thereby avoiding the consequences of the holding of \textit{LEAF I}.\textsuperscript{173} This less strict section was designed for “Class II-like” well activities and placed these underground injections outside of all of the requirements for Class II UIC programs.\textsuperscript{174} This flexible section is based on the state demonstrating the program’s “alternative showing of effectiveness.”\textsuperscript{175} LEAF challenged the EPA’s interpretation, and in \textit{LEAF II}, the Eleventh Circuit once again sided with

\begin{flushleft}
\textsuperscript{164} Powers, \textit{supra} note 1, at 913-918.  \\
\textsuperscript{164a} \textit{Id.}  \\
\textsuperscript{164b} \textit{Id.}  \\
\textsuperscript{165} See Beck, \textit{supra} note 43, at 429, 449.  \\
\textsuperscript{166} See Powers, \textit{supra} note 1, at 922-927.  \\
\textsuperscript{167} Legal Environmental Assistance Foundation, Inc. \textit{v. EPA (LEAF I)}, 118 F.3d 1467 (1997).  \\
\textsuperscript{168} \textit{LEAF I}, 118 F.3d at 1471.  \\
\textsuperscript{169} \textit{Id.}  \\
\textsuperscript{170} \textit{Id.}  \\
\textsuperscript{171} Cupas, \textit{supra} note 29, at 619.  \\
\textsuperscript{172} \textit{Id.}  \\
\textsuperscript{173} \textit{Id.}  \\
\textsuperscript{174} \textit{Id.}  \\
\textsuperscript{175} \textit{Id.}  \\
\end{flushleft}
The court held that although hydraulic fracturing could be approved under the more flexible alternative programs of SDWA, the fracking wells must be classified under EPA regulations because they are clearly underground injections – they inject fluid into the ground for the purposes of enhancing the recovery of oil and natural gas.\textsuperscript{177} The EPA responded to the LEAF rulings by conducting a study, which, as mentioned, essentially found that hydraulic fracturing posed no threat to groundwater.\textsuperscript{178} Despite an EPA whistleblower stating that the EPA’s determinations were based on unsound scientific evidence, Congress responded to the study and the LEAF holdings with the 2005 Energy Policy Act, which exempted hydraulic fracturing from SDWA.\textsuperscript{179} In 2007, Alabama removed its fracking regulation program from the UIC program and created a separate state program in order to more effectively govern hydrofracking and ban diesel fuel from fracking fluid.\textsuperscript{180} The current EPA is considering taking a new approach. The EPA recently stated that using diesel fuel in a hydraulic fracturing well would require a Class II UIC permit, and has begun the long process of creating diesel fuel regulation in fracking.\textsuperscript{181}

New York is a natural gas rich state with great potential in the eyes of the oil and gas companies utilizing hydraulic fracturing.\textsuperscript{182} New York, after witnessing what fracking could do in the neighboring state of Pennsylvania, succumbed to public pressure to more cautiously regulate the use of the technique in the state.\textsuperscript{183} In 2011, New York Governor Andrew Cuomo issued a temporary moratorium on hydraulic fracturing to allow the state time to investigate whether the benefits of fracking outweighed the environmental and societal costs of the process.\textsuperscript{184} New York could begin approving fracking permits by the end of this year if the final environmental impact statement conducted by the state environmental regulators allows for drilling.\textsuperscript{185} However, staffing and funding problems mean that there will be a limited number of permits

\begin{flushright}
\textsuperscript{176} Legal Environmental Assistance Foundation, Inc. v. EPA (\textit{LEAF II}), 276 F.3d 1253, 1264 (2001).
\textsuperscript{177} \textit{LEAF II}, 276 F.3d at 1264.
\textsuperscript{178} Cupas, supra note 29, at 624.
\textsuperscript{179} Id. at 624-26
\textsuperscript{180} Beck, supra note 43, at 438.
\textsuperscript{181} Orford, supra note 71, at 2 (West).
\textsuperscript{182} Powers, supra note 1, at 914, 922-23.
\textsuperscript{183} Id. at 919, 923-24.
\textsuperscript{185} Id.
\end{flushright}
available, should the state decide to go ahead with hydraulic fracturing. The drawback of the public pressure and fear of fracking in New York is that the public opposition could cause underdevelopment of important gas resources. If there are too few staff members to issue permits in a timely matter, one can only imagine the enforcement problems down the road. New York has also appropriated any fracking regulatory powers away from local governments so distribution is not an available solution to the state staffing problems.

What happens in New York will greatly influence the steps other states will take in regulating hydraulic fracturing. While New York decides what to do with the technique in general, other states have started to address specific fracking concerns.

Texas has a large collection of gas and oil regulations, all of which are enforced by the Railroad Commission of Texas (RRC) rather than the Texas Commission on Environmental Quality, which focuses on natural resource protection. Other than recent legislation effective February 1, 2012 – that requires new permit applicants to disclose chemicals and water volumes used in fracking operations – Texas has no formal regulation for hydraulic fracturing. In addition, the disclosure requirement is not necessary for present operations. Notably, the “trade secret” chemicals and compositions protected by federal laws are still exempt from the disclosure rules, unless there is an emergency situation. This may be a more affirmative step towards transparency and regulation in general, but the “grandfathering-in” of old permits and the trade secret exemptions make the legislation look more like an attempt at improving public image.

The RRC requires companies to obtain permits before drilling and deepening a natural gas well; it also regulates casing and cementing wells, but does not require any special fluid permits for fracking.

186. Id.
187. Powers, supra note 1, at 914.
188. Id. at 945.
191. Id.
Texas has recently fought with the EPA over the state’s level of environmental regulation.\textsuperscript{194} Texas has challenged the EPA’s authority to regulate greenhouse gases, while the EPA has challenged Texas’ ability to cope with the problematic situations potentially caused by hydraulic fracturing.\textsuperscript{195} Without classifying hydraulic fracturing wells as Class II wells under SDWA, the EPA can do little to regulate fracking, and the cases it has brought against Texas oil and natural gas companies have been poorly investigated and generally incomplete.\textsuperscript{196} The EPA’s issues in Texas illustrate why state regulations are necessary and must supplement federal regulations until the EPA has the authority and will to regulate hydraulic fracturing uniformly.

A handful of states have passed disclosure rules similar to the rules passed in Texas, but only Colorado’s new rules require companies to disclose “the identities and concentrations of all chemical ingredients.”\textsuperscript{197} Colorado’s rules do not simply refer to the “hazardous” chemicals listed by OSHA (as Michigan’s disclosure requirements do).\textsuperscript{198} This is important because OSHA’s hazardous chemicals are only researched and classified based on the dangers they pose in occupational settings; OSHA does not take into account environmental or public health implications.\textsuperscript{199} In both Texas and Colorado, well operators do not need to make the chemicals and compositions public until after they have been injected into the wells.\textsuperscript{200} It seems peculiar that the public information in such progressive regulations is activated in retrospect.

\textit{M. The Fracking Bottom-Line}

Hydraulic fracturing is a rapidly growing segment of the oil and gas industry that allows for oil and gas exploration in rock formations that were once considered inaccessible.\textsuperscript{201} Its great potential coupled with the increasing demand for domestic energy sources, and the high

\textsuperscript{194} Id. at 26.
\textsuperscript{195} Id.
\textsuperscript{196} Id. at 25, 27.
\textsuperscript{198} Id.
\textsuperscript{200} Watson, \textit{supra} note 197.
\textsuperscript{201} Topp, \textit{supra} note 2, at 32-33.
unemployment rate in the United States make hydraulic fracturing appear to many to be the perfect solution to both problems.\textsuperscript{202} The rapid spread of technology and the limitations and exemptions created by the federal government, have left many states far behind in implementing fracking regulations.\textsuperscript{203} The political climate and influence of the oil and gas industry have impaired both the federal and state governments from passing important fracking regulations that would have the power to prevent environmental and societal disasters.\textsuperscript{204}

The proposed Michigan House bill addresses one of the most difficult issues in fracking litigation: how to hold the oil or gas company employing hydrofracking techniques liable when fracking causes water contamination.\textsuperscript{205} This is certainly a positive step towards stricter fracking regulation in Michigan, but without complete knowledge of the chemical composition of the fracturing fluid, such legislation is unlikely to have any impact in litigation against oil and gas companies.

Many states, to the extent that they have the authority to do so, have passed stricter laws regarding hydraulic fracturing requiring full chemical composition disclosure.\textsuperscript{206} For example, some states have banned specific chemicals, such as diesel from hydraulic fracturing processes, while other states have attempted to ban the technique outright because of environmental and public health concerns, including water contamination and increased seismic activity.\textsuperscript{207} The regulation possibilities are numerous allowing states to formulate regulations based on the needs and desires of their residents and their state-specific geographical concerns.\textsuperscript{208}

The component of the fracking equation most frequently ignored by both industry and policy-makers, is the communities in the areas where hydrofracking is developing or currently exists. More often than not, fracking fields are sited in economically depressed, rural communities like Dimock, Pennsylvania.\textsuperscript{209} These residents, much like their possible Michigan counterparts, were facing tough financial times when presented with mineral leases ranging anywhere from $250 to $2,500 per acre.\textsuperscript{210}

Most struggling farmers would probably consider the proposal, and many

\begin{itemize}
  \item \textsuperscript{202} \textit{Id}.
  \item \textsuperscript{203} Powers, \textit{supra} note 1, at 938, 940-41.
  \item \textsuperscript{204} \textit{Id} at 938-941.
  \item \textsuperscript{205} See Bateman, \textit{supra} note 4.
  \item \textsuperscript{206} Orford, \textit{supra} note 71, at 2-4 (West).
  \item \textsuperscript{207} \textit{Id}.; see also Powers, \textit{supra} note 1.
  \item \textsuperscript{208} Powers, \textit{supra} note 1, at 954.
  \item \textsuperscript{210} Bateman, \textit{supra} note 4, at 2.
\end{itemize}
would accept it. A farming family in New York is desperately waiting for the approval of fracking in that state so they can lease part of their dairy farm to a natural gas company: “If I were able to get natural gas drilling I think it would definitely make a less stressful life for those in the future that are on this farm...[t]hey would have something to fall back on.” Michigan could help provide this financial safety net for depressed landowners by creating strict hydraulic fracturing regulations and standards that not only protect their financial security but also their drinking water and land from potential contamination. The current Michigan regulations and the proposed House bill fall short of providing the necessary societal protection.

III. Analysis

A. What Can Michigan Learn From Other States? Are States Ignoring the Societal Impacts?

After *LEAF II* and Alabama’s actions in 2007, Michigan must act through a program of its own creation to effectively regulate hydraulic fracturing. The reason for this is simple: federal programs have created limitations on the state’s authority to properly regulate unless or until Congress and the EPA decide to regulate fracking under SDWA. Michigan could learn from what is occurring in New York by taking the initiative to educate the public on the costs and benefits of hydraulic fracturing. This information could ease the public tension and fear while leading to a balance of public and energy interests. A disclosure law similar to Colorado’s law could also help educate the public on the issue. While these rules are not perfect, they would certainly be a positive step and would undoubtedly make the Michigan proposed House Bill more effective should it become law.

Countless hydraulic fracturing debates have gone on amongst state regulators, but very few states seem to focus on the potential societal impacts. Michigan has the opportunity to be the leader in this area of fracturing policy. Although New York has shown that it is interested in the public’s opinion on the matter, there is very little evidence to show that the state regulators are thinking much more about the societal impacts than the usual, and very loud, NIMBY (Not In My Backyard) arguments. In Michigan, as in many other states, those hardest hit will be the communities that cannot afford to say “no” and when problems arise,

212. See *LEAF II*, 276 F.3d at 1264.
213. See Watson, *supra* note 197.
cannot afford to leave. Michigan regulators need to encourage the oil and gas companies they permit to act ethically and site their wells responsibly, with a focus on community building and equality.

B. What Federal Solutions Have Been Attempted?
What Could the Federal Government Do?

Recently, the federal government has taken very little action in regulating hydraulic fracturing, which is unfortunate considering the importance and prevalence of the issue. The most recent attempt was the Fracturing Responsibility and Awareness of Chemicals Act (FRAC), presented in the Senate in 2009 and later re-introduced in 2013. FRAC would remove the fracking exemption in the Safe Drinking Water Act by amending the act and including hydraulic fracturing in the definition of underground injection. FRAC would also require the disclosure of chemicals used by any person employing hydraulic fracturing, and this disclosure would be available to the public online and even immediately in case of emergencies relating to the fluid. However, FRAC has stayed on the back burner in the Senate committees since its presentation.

FRAC could address the problems the federal regulators and states face in implementing and enforcing hydraulic fracturing regulation. It would be up to the EPA to really put FRAC into action and make sure it has a positive impact.

The EPA is currently conducting a case study that investigates the environmental and health impacts of hydraulic fracturing. The results of the study could lead to new legislation or new EPA rules within the EPA’s limited authority. In the meantime, the EPA could exercise its regulatory authority in present statutes, such as the Safe Drinking Water Act. Agencies can often find the power to regulate when there is a crucial need or political pressure to do so. Under SDWA, the EPA Administrator can act when it is essential to assure underground water will not be endangered by a fracking injection.

The EPA could also focus on the environmental injustices involved in fracturing. The first EPA Administrator appointed by President Obama, Lisa Jackson, placed environmental justice high on her list of


215. Id.

216. Id.

217. The Halliburton Loophole, supra note 3.


219. Id.
priorities but she, and her successor, may not realize the impact fracking could (and does) have on communities both in Michigan and nationwide. In response, the EPA could implement new rules based on limiting environmental injustices in fracking siting and wastewater disposal.

The EPA and Congress will need to consider what happens when and if the federal government does begin to regulate fracking. For instance, there may be pre-emption issues with state regulations already in place, and tough federalism issues that need to be worked out. In promulgating rules, the EPA could allow states, as it does in many other circumstances, to set higher environmental standards. The EPA or Congress could allow states that already have stricter standards to continue regulating fracking under their present rules by including that condition in new rules or legislation. This ability already occurs under the UIC program, which would be the first place the EPA should turn to if hydraulic fracturing opens to federal regulation under SDWA. In this situation, there are no losers; states will not go under-regulated and society will not have to pay the high costs of under-regulated fracking processes and siting. Further, oil and gas companies will have to internalize more of their costs, and rightfully so.

C. What Are the Possible Solutions in Michigan?

1. Address the Societal Impacts Through Education

The Michigan legislature and regulatory agencies could address the societal impacts of hydraulic fracturing in a variety of ways. The legislature or MDEQ could simply educate the public through unbiased ad campaigns and provide news outlets with a way to give their viewers and readers more information on the topic. This education could provide constituents with the information necessary to properly balance the costs and benefits of fracking and help them to make more educated decisions for them personally and in their community. It could also ensure that politicians are held politically accountable for their decisions regarding fracking regulation, or the lack thereof. Michigan regulators could also heavily regulate the siting of hydraulic fracturing wells by dispersing them widely, concentrating them in very low-populated areas, or banned them altogether.

2. Remove the Regulatory Shield over Oil and Gas Companies and Incentivize Ethical Behavior

MDEQ and the legislature need to part with the regulatory shields that protect oil and gas companies from public hearings on well placement and the permitting process. Michigan regulators need to require gas and oil companies to fully disclose their plans and the potential risks of operating the wells to the public. Regulators could provide incentives for companies that act ethically and choose locations that are not jeopardizing the poorest communities. Currently, these communities often consent to fracking and mineral leases only because they cannot afford to say “no.” The legislature could also require oil and gas companies to conduct a certain amount of infrastructure or community building in order to create more benefits for the communities that experience the reality of hydrofracking activities. Legislators need to decide which competing “public good” is in the best interest of the potential fracking communities and the state as a whole. Over the past century, the policy focus has been on promoting oil and gas exploration as a public good, but today legislators need to think about the implications of continuing that policy at the expense of human and environmental health, public trust, and unjust societal disturbances.

When it comes to regulating for the benefit of society, the Michigan government must weigh the benefits of allowing fracking against the potential costs of unnecessarily depleting our freshwater supply, replacing it with contaminated waste and groundwater, and imposing externalized costs on poor Michigan communities.

3. Address Environmental Concerns with Extra-Care Standard or Cradle-to-Grave Approach

The Michigan regulators should also address the environmental issues. They could do so rather simply and easily within their authority. In general, they could employ a standard of extra-care by banning diesel and other known and harmful contaminants like Alabama did in 2007. To deal with the water usage problems, the legislature could make water use no longer exempt under the Michigan water withdrawal statute and limit the amount of water used by a permitting process specifically

---

221. See Topp, supra note 2, at 33-34.
223. Id.
224. See id.
designed for fracking. This permitting process could implement a cradle-to-grave approach with the water used for fracking. It should regulate and document: how much water is withdrawn and from where, its use for injection, where it is disposed of, what the wastewater contains, how it is treated, and whether it meets quality standards, and whether it can be recycled and reenter the water supply. In this process, the regulators would require companies to be more responsible with wastewater by requiring a paper trail of where the water used in fracking has come from, where it has been, what it has been exposed to, and where it will be disposed of, stored, or treated.

In the alternative, the legislature could create a monetary incentive for companies to be more responsible with wastewater. They could provide tax breaks for oil and gas companies that conduct transparent fracking operations by disclosing the composition of chemicals used in the fracking fluid and responsibly dispose of wastewater.

D. Who is in the Best Position to Regulate Hydraulic Fracturing?

The dilemma of state versus federal jurisdiction over large-scale issues like hydraulic fracturing has existed since the founding of the nation. In the case of fracking, the State might be in the best position to regulate.

Although the federal regulations may create greater stability in the industry and allows for layers of accountability, the federal government has so far failed to create the stability that protects the interests of society as a whole and has paved the way for gas and oil companies to enter states with a regulatory cloak of protection from the federal government. Federal regulations are designed to protect commonly held resources like the environment, but in this case the federal regulations have become a roadblock for states interested in protecting these same commonly held resources. In theory, federal regulators are insulated from the immediate risks and direct benefits of regulations so they should be in a better position to enforce standards that prevent certain states and cities from accepting levels of risk that are unacceptably high and dangerous. This is not the case in fracking: the federal regulations and statutes have acted to prevent states from requiring full disclosure of chemicals and additives, thereby limiting states’ ability to enact effective legislation.

There are also issues with leaving regulation to the states. It would be difficult for industry to adjust to regulations because they would need

226. Id. at 968.
to keep track of every state’s specific requirements, which may lead to increased costs. The backlash to this may be that companies will start to push for federal regulation to ensure uniformity, an option that may appeal to both industry leaders and environmentalists, should the federal regulators require higher standards from the companies.\textsuperscript{227} States, as the principal regulators, may lead to state governments depending on voluntary industry action with little compliance and resulting, unintended harms to both society and the environment. Allowing the states to regulate fracking may cause some states to miss baseline EPA standards under federal environmental statutes like the Clean Water Act and the Clean Air Act.\textsuperscript{228} Although fracking is exempt from many federal environmental laws, states must still meet the general standards set by those laws for drinking and navigable water quality and safety. The Ninth Circuit held in \textit{NPRC v. Fidelity}, that a state cannot exempt a natural gas company from obtaining a NPDES permit under the Clean Water Act even when the wastewater contains no added chemicals, and that the EPA also does not have the authority to create exemptions that violate the CWA.\textsuperscript{229} There may be unintended, negative consequences of state regulations but in practice these consequences may lead to states requiring higher environmental standards of companies employing hydrofracking in order to stay in compliance with federal regulations. It is also important to note that state regulation could lead to increased political accountability within the state. Theoretically, politicians that do not respond to constituent pressure for regulation and increased environmental quality will be replaced in the political process.

Hydraulic fracturing is a complex issue; every well may have a different chemical composition, each state has different societal and geological situations, and states can have vastly different options when it comes to water use and wastewater disposal.\textsuperscript{230} Federal regulations may not be able to address these particular needs appropriately.

Currently, it would be best for Michigan to take hydraulic fracturing into its hands and regulate it to the uppermost limit of its authority.

\textsuperscript{227} Id.
\textsuperscript{228} Id. at 955.
\textsuperscript{229} Northern Plains Resource Council v. Fidelity Exploration & Development Co., 325 F.3d 1155, 1157, 1164 (9th Cir. 2003) (explaining the National Pollution Discharge Elimination System (NPDES) permitting process under CWA as the process of obtaining a permit to discharge pollutants into a navigable body of water).
\textsuperscript{230} Powers, \textit{supra} note 1, at 954.
E. Proposed Solution in Michigan: A Two-Pronged Approach

While the proposed legislation is a step in the right direction, the Michigan legislature needs to address the serious loopholes in the current hydraulic fracturing regulation. The best way to solve this problem is by taking the two-prong approach already discussed: addressing the environmental issues and separately addressing the societal concerns.

1. The Environmental Issues and the Benefits of a Cradle-to-Grave Approach for Water Use

Adopting the cradle-to-grave permitting and regulating process outlined above would drastically alter the regulation of hydraulic fracturing. This process could begin when the oil or gas company applies for a permit; they would be required to estimate how much water they will need to withdraw, disclose where they are taking the water from, how they will be transporting it, and document why they chose the particular body of water and particular drilling site. MDNRE would then decide whether or not the permit should be granted based on a cost-benefit analysis and the necessary public hearings. This part of the process is essentially the same as the permitting process is currently. If approved, the fracking company would then withdraw the water and document its removal: the actual amount removed and the specific location. The transporter of the water would then sign off on receipt of it, and the drillers would accept the water on site. On site, another person, most likely a supervisor of the well, would disclose the chemicals and compounds added to the water. After flow-back and removal, the supervisor would then document the amount removed, its contents, and sign it over to a transporter for either treatment or disposal. The supervisor would also document how much natural gas or oil was extracted with the amount of water used. At the final destination, yet another person would document the receipt of the water at the water treatment plant or storage facility. Companies may have to reapply for permits periodically and if after comparing the amount of oil and gas removed to the water used and water lost MDNRE decides that the costs are not worth reissuing the permit, MDNRE may refuse to do so. In addition to strict guidelines for pipe and well construction, the cradle-to-grave approach would demonstrate to the public that the health of the people and the environment, and the longevity of Michigan waters are the dominant “public goods.” This approach would also allow for much greater transparency and it would make the proposed legislation effective by ensuring that when groundwater contamination is discovered, it can be more easily traced back to the responsible party. It would further
allow for a higher chance of wastewater recovery so the water expended and disposed of in the process would be significantly and safely reduced.

Funding would be a major concern for a comprehensive state regulatory system. One solution would be a specific tax on natural gas and oil produced through hydraulic fracturing coupled with high permit application fees and annual operation fees. Oil and gas companies that use more toxic chemicals in their fracturing fluid may have to pay more than those that choose safer chemicals and compounds.

B. Mitigating Societal Impacts through Public Education and Fracking Transparency

As for the societal impacts, educating the public and providing incentives to companies to site and behave ethically and responsibly would greatly increase the confidence of the public in the regulators’ ability to deal with such an important and controversial topic. It would also lessen the impact of environmental injustices on those communities faced with the dilemma of hydraulic fracturing. The legislature needs to consider that the industry views the communities it enters as potential plaintiffs in an environmental litigation rather than economically depressed communities made up of people in need of jobs. This mindset may be difficult to change, but transparency, dependence on public trust, and mandated community and company integration may help mitigate hydraulic fracturing’s potential societal harms.

Regardless of the best possible solution in Michigan, the legislature must come to terms with the fact that certain options and luxuries for oil and gas companies are no longer viable. The oil and gas companies must no longer be exempt from the water withdrawal statute and the bureaucratic cloak must be removed so that the public has the option of a hearing at every step of the permitting process. Without a voice a community can do nothing but sell its interests to the companies and hope they never have to confront the situations other cities, like Dimock, have unfortunately encountered.

IV. Conclusion

The proposed House bill demonstrates that the Michigan legislature is interested in protecting the rights and health of the public when dealing with hydraulic fracturing, but the bill would not address existing regulatory gaps or societal impacts imposed by the oil and gas industry. The Michigan legislature and regulatory agencies need to step up and regulate fracking to the extent of their authority in order to soften the

231. EARL L. HAGSTROM & MATTHEW D. FRANCOIS, HYDRAULIC FRACTURING IN THE MARCELLUS SHALE: STRATEGIES FOR LEGAL & REGULATORY COMPLIANCE, ASPATORE SPECIAL REP. 5, 5-7 (West 2011).
blow the technique will have on the state. The state government is in the best position to address the issues posed by fracturing because the process is complex and varies on a state-by-state basis. Michigan residents who will have to deal with the costs of hydraulic fracturing can also hold state politicians directly accountable.