

Dire Straits  
Pipelines and Policy Options for the Great Lakes

Submitted by  
Ken Winter, North Central Michigan College\*  
Dr. James Hill, Central Michigan University\*\*  
Ben Barker, Graduate Student, Central Michigan University  
Macey Miller, Central Michigan University  
Christopher Bonnen, Central Michigan University

For the 2014 Michigan Political Science Association

October 24, 2014

\*Former editor and publisher of The Petoskey News

\*\* Former Michigan Natural Resources Commissioner

On July 25, 2010, an oil pipeline (part of the large Lakehead Pipeline system known as Line 6B) ruptured near Marshall, Michigan, spilling approximately one million gallons of oil into the nearby Kalamazoo River. (U.S. Congress, 2010, 83) This incident drew public attention to the environmental dangers of oil pollution spills not only from tanker spills (Exxon Valdez) and Gulf of Mexico platform drilling (BP Deepwater Horizon), but now also from the 2.5 million miles of pipelines in the U.S. (PHMSA has addressed...”, 2014) This incident also presented a new challenge to a little noticed state decision made over 60 years ago- a decision to grant an oil pipeline easement across the Straits of Mackinac.

The 2010 Line 6B pipeline rupture became the largest inland oil spill in the Midwest (U.S. Congress, 2010, 6), and embroiled the world’s largest crude oil and liquid transportation system (Enbridge Inc., 2013) in not only a huge clean-up cost approaching \$1 billion dollars, but a credibility crisis as well as its corporate history of spills and broken promises were uncovered.

As serious as the Kalamazoo River (a tributary of Lake Michigan) spill was, the released oil was prevented from entering Lake Michigan through the use of oil booms and other river pollution control methods, thus minimizing even more serious harm if the oil had been allowed to enter the Great Lakes. A similar future rupture of the pipelines under the Straits of Mackinac offers no such preventative hope, as the strong currents and weather issues of the Straits present a nightmare scenario for containing a similarly sized spill like Line 6B.

So how did the twin pipelines just west of the Mackinac Bridge (known as Line 5) originate and how concerned should we be about their safety? Even more importantly, what options are available to the state to safeguard against or contain a future oil spill in the Straits in the future?

This paper will address the background leading to the current status of the Line 5 pipeline, and then it will explore some feasible policy approaches that could be taken to address the threat that these pipeline pose through the ideological lenses of a state government that has been under complete Republican control since 2010.

### **Background:**

We begin this discussion with the environmental and economic importance of the Great Lakes to both the Michigan economy and to the Great Lakes region as a whole. The Great Lakes contain approximately 20% of the world’s surface freshwater supply, provide drinking water for 30 million people, support a \$7 billion dollar fishery and a \$16 billion recreational boating economy, transport 200 million tons of cargo annually, and provide 56 billion gallons of water for agricultural, industrial, and municipal uses . ( NOAA and Alexander and Wallace, 2012)

Battles to protect the Great Lakes from new water diversions, invasive species, and pollution have been standard policy positions for state officials from both parties since the citizen participation and environmental movements of the 1960’s. Protecting the Great Lakes has always been a nonpartisan issue, and the “freshwater seas” indeed define us as the premier Great Lakes state.

However, prior to these citizen awareness and environmental activist movements, a very important decision was quietly made without much fanfare or public concern. On April 23, 1953, the Michigan Conservation Commission (now the Natural Resources Commission) granted an easement to the Lakehead Pipe Line Company to lay 2 twenty-inch pipelines on the lake bottomlands under the Straits of Mackinac in order to transport petroleum. The company paid the state the lofty sum of \$2,450. The easement set some conditions for safety purposes and an insurance, bond or surety requirement for damages. (Conservation Commission of the State of Michigan, 1953).

The Mackinac Bridge was later built and completed in 1957 to the east of the pipeline and Enbridge Energy succeeded in ownership to the Lakehead System, which includes Line 5 that stretches 645 miles from Superior, Wisconsin to Sarnia, Ontario—including a 4.6 mile crossing the Straits of Mackinac. This straits pipeline carries approximately 23 million gallons of crude oil per day under the Straits (Michigan Environmental Council, 2014).

For almost 6 decades, the easement and the twin Line 5 pipelines under the straits were under the political radar. While concerns over Exxon Valdez and the more recent BP oil spills raged, few knew about, much less were concerned about, these long-standing pipelines under the straits.

However, the 2010 Line 6A oil spill in the Kalamazoo River brought their presence into the public eye because the 2010 ruptured pipeline was not only of the same age as the ones under the Straits but also owned by the same company: Canadian-based Enbridge Energy. Furthermore, the 6 foot rupture in Line 6A led to a spill of nearly one million gallons of oil. Ironically, shortly before the spill, the Vice President of Enbridge had testified before Congress that Enbridge could respond quickly to any oil pipeline leak. In the words of Enbridge Vice President for U.S. operations: “Our response time from our control center can be almost instantaneous...” (U.S. Congress, 2010, p. 2) However, it took Enbridge over 17 hours to finally control the 2010 spill.

Thus, the stage was set for a battle over whom to trust to maintain the integrity of the Great Lakes. The reality of the Line 6b rupture made a Line 5 spill scenario very real, especially after the Enbridge assurances prior to the 2010 spill turned out to be wishful thinking, and the reality set in that factors such as human error and realistic response times were not part of the Enbridge spill control plans.

#### **State politics:**

Enter the politics of this spill at the gubernatorial level, as the Congressman who represented district that included the Kalamazoo spill site was none other than the soon to be 2014 Democratic gubernatorial nominee, Mark Shauer. He did not trust Canadian corporate giant Enbridge and would write a Detroit News op-ed article on April 10, 2014 demanding Enbridge build a new pipeline. Also enter Republican Rick Snyder, who won the gubernatorial race in 2010 as a pro-business “nerd” and one who felt the state needed to become more business friendly. His administration would take a more friendly approach to business, passing massive business tax cuts and reducing business regulation as part of his plan to put Michigan on the road to recovery. Indeed, the Republicans would maintain

complete control of state government for the next four years, and negative attention to Enbridge did not fit in the Republican plan to rebuild Michigan.

Thus, for over three years, the issue of the safety of the Line 5 pipelines under the straits remained a non-issue for the Snyder Administration and its pro-business agenda. It wouldn't be until April of 2014 that two members of the Snyder Administration, Attorney General Schuette and MDEQ Director Dan Wyant, would send a letter to Enbridge seeking more information about the status of the Line 5 pipeline (personal communication, April, 29, 2014) This letter was followed by the formation of a task force led by the same two officials to study the pipeline issue more carefully, and finally a formal notice to Enbridge in July of 2014 demanding more anchors on the Line 5 pipelines per the 1953 easement requirements.

What was striking about this delayed and limited response by the Snyder Administration was its stance of stressing the need to balance the environmental risks of a pipeline spill with the economics of the pipeline. Unlike previous governors who had denounced any threats to the state's greatest natural resource, the Snyder Administration no longer saw the Great Lakes as an untouchable holy grail of the state, but rather as an interest to be balanced against the economic value of the pipeline to the Michigan economy. Indeed, Enbridge's response to the Schuette/Wyant letter of April 29, 2014 devoted a significant portion of the letter describing the economic benefits of Line 5 to Michigan (Shamla, personal communication, June 27, 2014)

The Snyder Administration had previously treated the straits pipeline regulation as a federal issue since it was an interstate pipeline, regulated by a little known federal agency entitled the Pipeline and hazardous Materials Safety Administration (PHMSA). You might recall the nation learning about another little known federal regulator after the BP oil spill: the Minerals Management Service (MMS). While expressing concern, the Snyder Administration continued to rely upon federal regulators to take the lead on this issue.

However, the Snyder Administration's approach changed to questioning the safety of Line 5 in 2014 when environmental groups drew attention to the little known 1953 easement issued by the state Conservation Commission, which permitted the construction of these Straits pipelines. Issued prior to the advent of the most significant state environmental laws and regulation, the easement created an opportunity for the state to engage in the pipeline issues without worrying about federal preemption issues

As questions surfaced over the oversight effectiveness of the PHMSA in U.S. DOT Inspector General reports in 2009 and 2010 after Congressional hearings on the Line 6B spill ("PHMSA has addressed...", 2014 and "PHMSA's state pipeline safety...", 2014), it became clear that reliance on Enbridge maintenance actions was going to have to be the key component of any oil spill prevention strategy. However, assurances by Enbridge that such leaks could be detected and stopped in an instant were rightly discounted after the Line 6B spill. Further investigations by environmental groups indicated that Enbridge pipelines have had over 1000 leaks between 1999-2013 (Michigan

Environmental Council, 2014). Now this same company is claiming not to worry about the Line 5 pipelines under the straits that were the same age as those that ruptured in Kalamazoo in Line 6A .

If the effectiveness of federal regulator PHMSA was suspect and so was the safety record and assurances by Enbridge, the owner and operator of the Line 5 pipelines, could Michigan stand by and wait for a spill before they acted? Was Michigan really preempted by the PHMSA or did the 1953 easement offer Michigan an opportunity to become a player in the straits pipeline issue?

It was at this point that several environmental interest groups began examining the details of this old 1953 easement and began to pressure the Snyder Administration to intervene and ensure the safety of the straits pipeline. Their research resulted in a seven page letter with attachments to Governor Snyder on July 1, 2014 urging him to use his authority under the 1953 easement as well as common law public trust authority over the lake bottomlands to take more meaningful action. They were not satisfied with his previous actions of forming a task force to study the issue and issue a letter requesting more information from Enbridge. More significantly, the letter outlined violations of the easement by Enbridge, undermining the argument that the state had no remaining legal authority over the straits pipeline.

Thus, although the letter of April 29, 2014 from the Attorney General and DEQ Director seeking information and setting up a task force were likely actions intended to push the issue past the November elections, the issue refused to go away. Pressure for more action from the July 1, 2014 environmental groups joint letter to the Governor pushed him to a further action on July 24, 2014 to demand by letter from the same Attorney General and DEQ Director that Enbridge comply with at least one of the 1953 easement conditions alleged to have been violated; namely, that the straits pipeline maximum span support requirements of 75 feet be met.

However, other information also stirred environmental interest groups to demand more action on the strait pipeline, including:

1. Disclosure that in 2013 Enbridge had increased the volume of oil through the Line 5 straits pipeline by 10%,
2. Revelation that the 1953 easement only required Enbridge to maintain a million dollar liability while the cost of the Kalamazoo pipeline rupture alone was approximately \$1 billion dollars,
3. Disclosure that Enbridge pipelines have had over 1,000 leaks between 1999-2013, and
4. Publication of a very compelling visualization and tracer simulation of oil spill scenarios at the straits by the University of Michigan Water Center in the Spring of 2014.

Enbridge tried to quell this concern with television commercials indicating the Kalamazoo River was fully recovered and that they were implementing reforms to assure that any straits pipeline issue can be dealt with quickly, despite its 17 hour delay in responding to the Kalamazoo River spill in Line 6A.

Indeed, Enbridge emergency response plans optimistically projected that a worse case response time scenario might be an eight minutes for a similar spill in the Straits. Whether this is a realist prediction or not, even that time frame would still dump 1.5 million gallons of oil into the Great Lakes-half again as much as the Kalamazoo River spill.

Using an even more optimistic estimation of Enbridge's own worst case scenario response time (assuming a spill of only 1 million gallons of oil), a University of Michigan simulation predicts that Mackinac Island, the gem of Northern Michigan and the governor's summer mansion, could be impacted by a spill in as little as three hours.

The Michigan authors concluded:

"Within 20 days of a contaminant release in the Straits, material could be spread as far west as Beaver Island in Lake Michigan and as far southeast as Rogers City in Lake Huron." (Schwab, 2014)

In addition, the U.S. Coast Guard has indicated that it does not have the capability to respond to a major spill in the Straits area (Schwab, 2014), and NOAA projects that it would take as many 99 years for pollutants like oil spilled into Lake Michigan to leave the Great Lakes basin naturally.

Thus, the oil spill scenario presented a bleak outlook unless additional intervention or safety measures are taken. Indeed, Line 5 which ends at Sarnia crosses yet another body of water in the Great Lakes, **creating a second potential catastrophic oil spill opportunity as well.**

Environmentalists saw the 2010 spill as a dress rehearsal and a wake-up call for action before a more catastrophic spill occurs in the straits area. To them, it was not a question of whether a spill would occur, it was when.

#### **A matter of policy priorities:**

With the November election less than two weeks away, it is clear that this issue in terms of the role of the Governor will be left to the next Governor: either a reelected incumbent Snyder and his cautious, business-like approach to the straits pipeline, or his challenger Mark Schauer and his promise to aggressively push for quick and dramatic action on the existing pipeline. Thus, the priorities are clear for these two gubernatorial candidates.

However, the more difficult question is what would be the most political feasible and environmentally prudent course of action after the November election in light of the conflicting legal, regulatory, economic, and environmental issues at stake for the straits pipelines. More specifically, putting aside the two extreme positions of mandating the shut down the straits pipelines altogether – a zero risk approach increasingly favored by environmentalists- or continuing to rely on the existing quilt work activity of the federal government and Enbridge with the state as an interested bystander, what other policies or options could be pursued that would efficiently and effectively create the safest pipeline scenario for the straits area?

Let us first say as a way of clarification that by setting aside the option of a governmental action to shut down the Line 5 pipeline at the straits, we do not mean to insinuate that this course of action might not be the ultimate resolution to this spill concern. However, even if candidate Shauer is elected governor, it is likely that at least one house of the state legislature will be in control of the Republicans, who have shown no desire to move against Enbridge. Despite Enbridge being a Canadian-based corporation with a workforce of only 170 employees in the state (Shamla, personal communication, June 27, 2014), the Republican controlled legislature for the last four years has done nothing to indicate a desire to take such a drastic action.

So what other options are available to the state of Michigan?

**1. New Michigan pipeline regulation for Line 5:** Recognizing the interstate nature of the Line 5 pipeline, it is unlikely that the state can develop independent state regulatory standards for the Line 5 pipeline that would not run afoul of federal regulatory authority and thus be preempted. So even if the state legislature would propose a new regulatory scheme for its wholly in-state pipelines (which by itself is a politically unlikely outcome unless the November election creates a major political shift away from the controlling Republican party), the political and legal hurdles would make such a course of action unlikely.

**2. New federal pipeline regulation for underwater pipelines:** The federal regulatory arena has proven to be undermanned and poorly supported, as indicated by past inspector general reports on the lead regulatory agency for pipelines- the PHMSA- and in light of the relatively small fines that have been imposed on past pipeline violators including Enbridge. As Secretary of Transportation Secretary Porcari testified before a House committee in 2010 after the Kalamazoo spill:

“Given the staff that we have, we rely on our State partners, in most states, and we also rely on the inspection and record-keeping that is done by the private-sector owners of the pipeline.” (U.S. Congress, 2010, p.63)

Thus, public confidence in the federal regulatory arena is questionable when it has to rely on the polluter to be forthright in reporting and inspecting. Furthermore, caps in legislation like the Oil Pollution Act of \$75 million on polluters would be meaningless in the case of a Great Lakes spill and therefore ineffective deterrents. There is also the issue of a gridlocked Congress that makes quick legislative action by Congress also unlikely.

**3. Enforce existing GLSLA regulations on Line 5:** This approach would require the state to revisit the 1953 Straits easement and pursue the violations of the easement identified in the July 1, 2014 letter to Governor Snyder. Ranging from alleged failure to disclose information and pipeline support violations to inadequate proof of sufficient liability insurance, the state could require Enbridge to comply by first requiring that it apply for a permit under the Great Lakes Submerged Lands Act (GLSLA) for the continued operation of Line 5 below the straits- a law Enbridge did not have to follow in 1953 because the law was passed two years after the easement was issued.

The GLSLA provides and Michigan courts have ruled that private uses of the bottomlands are subject to the public trust, and if the private use would adversely affect the public trust, the state can require that the proposal, or in this case the pipeline, be modified or denied altogether in order to minimize those impacts. (DEQ website: Great Lakes Bottomland Conveyances). Arguably, although authorized in the 1953 easement, putting in the required additional anchors to secure the pipeline to the lake bottom could trigger such a need for application.

To have the permit approved would require Enbridge to meet the higher environmental standards of the later enacted GLSLA. This regulatory approach would require the state and Enbridge to be diligent and cooperative after the permit was granted in preparing for a remote catastrophic incident over an indeterminable amount of time. It would require the state to have well trained staff to keep up with technological advances. It may also produce lengthy and risky litigation scenarios if Enbridge challenges the law and argues that they are grandfathered in under the old easement. There is a strong likelihood that Enbridge would resist this approach for fear their new permit would be denied and the pipeline forced to shut down altogether. And again, it is unlikely that a Republican controlled legislature would pursue a new regulatory approach.

**4. Private litigation:** If the state refuses to take additional steps, assuming that the additional supports are in place, the issue could be litigated in court by environmental groups, who might sue the state for violation of the public trust for not taking sufficient steps to protect the state' bottomlands. Even if these suits are successful and the groups are able to overcome any state sovereign immunity defenses, the state may be a reluctant and poor trustee with limited staff and technical oversight expertise. Besides, litigation might further delay other and more fruitful avenues of reform, during which time the unthinkable spill might become a reality.

**5. Raise liability insurance requirements to cover the likely high cost of a spill:** Require Enbridge to purchase liability insurance or otherwise present a surety bond sufficient to cover the total costs of a spill at the straits, perhaps in the range of \$10-20 billion. The 1953 easement requires:

“A comprehensive Bodily Injury and Property Damage Liability policy, bond, or surety, in form and substance acceptable to the Grantor in the sum of at least One Million Dollars ....”

Though a 1970 subsequent memo would indicate the problem with getting pollution insurance (Re: Lack of transparency...”, personal communication, July 1, 2014 letter), this additional financial assurance or insurance requirement does not necessarily violate the original terms of the easement. While this approach would not prevent the spill, it would assure a sufficient source of funds to pay for the damages the spill would likely incur. The problem with this insurance proposal (if the insurance can be acquired) in the case of Enbridge is that it relieves them of the concern for the financial well-being of the corporation in case of a spill, knowing that insurance will cover the cost. And with a corporation whose profits exceed \$2 billion annually, the cost of the insurance is not likely to be an incentive to take any extraordinary steps to reduce the risk of a spill.

**A new, market-based negotiated approach to a catastrophic spill:**

What we propose is to adopt a modification of a model developed by Professors Viscusi of Vanderbilt and Zeckhauser of Harvard to find a way to put the burden of responsibility as well as the incentive to protect the straits pipeline on Enbridge itself. In their 2011 working paper at the JFK School of Government at Harvard entitled "Deterring and Compensating Oil Spill Catastrophes: The Need for Strict and Two-Tier Liability", they propose a two tiered liability system: acceptance of a greatly expanded level of liability for the polluter coupled with a tax to cover risks beyond the liability capabilities of the polluter.

We feel this more legal and market based approach, with modifications which we will set forth later, would (short of shutting down the pipeline altogether) be the most effective economic and political way to control unknown risks. As Viscusi and Zeckhauser argue, setting up such a system prior to a spill minimizes the politics that otherwise would occur after a spill occurs. It also provides a long term incentive to maintaining pipeline safety without the need for a large scale state regulatory presence.

Viscusi and Zeckhauser argue that the minimum requirements for such a system must include acceptance that there is only one responsible party if a catastrophic accident occurs. In the straits case, such a system would hold Enbridge fully responsible without issue of fault for all harms from a catastrophic spill. This avoids Enbridge passing the liability buck and also puts safety responsibility clearly in the hands of one party, in this case Enbridge. Enbridge would be a vigilant overseer of all other subcontractors or partners under this system since they would bear the total cost of the spill.

Thus, Enbridge would be held strictly liable for all losses due to the spill. This step also avoids litigation over who was at fault and what the adequate level of care should be. A ruptured pipeline in the straits area would create an ultra hazardous activity that justifies subjecting Enbridge to such a strict standard.

Next, Enbridge must show it has adequate financial resources or insurance to cover the cost of a catastrophic spill as simulated by the University of Michigan study. This calculation may be difficult to determine in case the 8 minute response scenario for the straits area turns out to be closer to the 17 hour response time at Kalamazoo. Nonetheless, a gross estimate would ensure that Enbridge not only has the resources to meet this potential threat, but also recognizes how significant the cost this spill could be, giving Enbridge a powerful economic incentive to prevent its occurrence. It would also ensure that the state is not saddled with a large clean-up bill.

The Harvard study also suggests that a tax for expected damages beyond their financial capacity be paid annually and kept in a fund in case of a catastrophic event. However, on this point the estimation of this tax and its prevention effectiveness is questionable. (Abraham). We have a different suggestion for this tax proposal.

Viscusi and Zeckhauser make the key point in the value of their proposal: "Establishing greater corporate responsibility for liability will provide incentives for the oil drilling company ... in making their safety decisions." We would also add that it would deter Enbridge from taking excessive risks like

increasing the volume, content, or pressure in the straits pipeline and encourage constant safety and technological improvements or even replacement of the old pipeline.

But what about the environmental costs that are not likely to be compensated- the lost wildlife or the inability to restore some aesthetic aspects of the straits environment? Arguably the tax that this two tiered model proposes could instead become an annual payment to the State's natural resources trust fund to compensate for the potential natural resources losses that could not be remediated from the spill and that would provide the public with payment for the potential loss of their bottomlands held in the public trust. What this sum could be would have to be negotiated, but it would represent a recognition that the pipelines pose a threat to the bottomlands and a payment for the state for continuing to permit this threat through the continued use of the pipeline. The funds would accumulate in the trust fund and be used in the case of an oil spill or for such other uses that both the state and Enbridge agree upon.

While this model is not a strictly preventative approach subject to the same scrutiny as a GLSLA application approach, it does use the market to guide Enbridge safety decisions and would likely be more acceptable to Enbridge since it allows them to decide the future fate of the pipeline and not the state alone. The risk for Enbridge would be too great for them to not be perpetually vigilant. It is also more likely to garner Republican support due to its market based features, its less regulatory approach, and the reduced need for state oversight resources.

#### **Conclusion:**

We believe that this modified two-tiered pre-catastrophe approach to the straits pipeline issue has great potential, as it puts responsibility-both technologically and financially- on the party that has created a possible spill disaster- Enbridge Energy. Rather than creating a new government agency to monitor this situation or issue new regulations or tangle with federal regulators over interstate pipeline issues, we would argue that the state should negotiate a private agreement with Enbridge to accept the previously described modified two tier model changes as consistent with the terms of the 1953 easement that the state approved.

So why would Enbridge agree to this two tiered model? Likely they will not without strong pressure from the Governor and the legislature. However, if Enbridge is indeed confident that it has "fixed" the issues it faced in the 2010 spill and that it does indeed stand by its commitment to a no accident policy in the straits, then this proposal only makes concrete their oral expectations in case of a spill. To agree to these terms would mean that they also could forestall the political forces and public pressure that might take more drastic measures against all of its pipeline empire in the wake of a genuine spill.

Does the state have the authority to impose such a model? Since the 1953 easement requires that Enbridge maintain insurance or a surety in the sum of AT LEAST one million dollars, it could be argued that the model's financial requirements are consistent with this provision. It could be further argued that Enbridge has violated other provisions of the easement and thus the state has the ability to terminate the easement for noncompliance if Enbridge does not agree to this model approach. As to

federal preemption arguments, it could be argued that this is not state regulation of an interstate pipeline but merely a renegotiation of an old easement.

And why would Republican legislators support such an approach? Consider that this is a Canadian-based corporation with little employment impact on the state, this is not more regulation but actually letting the market determine whether or not this pipeline is economically feasible, and that it removes the pressure on the state to act or employ more resources to monitor this situation or be forced to pay for any unforeseen special costs that may arise. These points might make this a politically feasible approach, especially if there are other Enbridge spills and public pressure for action continue beyond the actions already taken by the Snyder Administration. It is clear that environmental groups will continue to press for more action even after the November election.

The bottom line might very well be that, after incorporating the cost of a possible catastrophic event at the straits, Enbridge may decide to re-route much of the oil now travelling through Line 5, create a new pipeline across the straits to reduce the risk of a spill, or even close the pipeline altogether for economic rather than political reasons. The economic assessment aspect of this model approach would work much like an EIS under NEPA, requiring Enbridge to examine alternatives that the company might not otherwise consider, including terminating the pipeline altogether.

That result might please everyone in the long-term.

## References

- Abraham, ,K. (2011). *Catastrophic Oil Spills and the Problem of Insurance*. Vanderbilt Law Review, 64:6:1769.
- Alexander, J., & Wallace, B. (2012). *Sunken hazard: Aging oil pipelines beneath the Straits of Mackinac an ever-present threat to the Great Lakes*. National Wildlife Federation - Great Lakes Regional Center.
- Conservation Commission of the State of Michigan. (1953, April 23). *Straits of Mackinac Pipeline Easement: Conservation Commission of the State of Michigan to Lakehead Pipeline Company*.
- Enbridge Inc. (2013). *Enbridge Corporate Social Responsibility CSR Report*.
- Matheny, K. (2014, September 11). Coast Guard: We can't adequately respond to Great Lakes heavy oil spill. *Detroit Free Press*.
- Michigan Environmental Council. (2014, October 2). *Oil and water don't mix: Keep oil out of the Great Lakes* [Press Release].
- National Oceanic and Atmospheric Administration. (2014, October 9). In *NOAA Great Lakes Environmental Research Laboratory*. Retrieved October 10, 2014, from <http://glerl.noaa.gov/>
- National Wildlife Federation. (2012). *Importing disaster: The anatomy of Enbridge's once and future oil spills*.
- PHMSA has addressed most weaknesses we identified in its special permit and approval processes. (2014, July 17). *States News Service*. Retrieved from [http://0-go.galegroup.com.catalog.lib.cmich.edu/ps/i.do?id=GALE%7CA375552845&v=2.1&u=lom\\_cmichu&it=r&p=AONE&sw=w&asid=8eba36add0cde7d96c305244db051691](http://0-go.galegroup.com.catalog.lib.cmich.edu/ps/i.do?id=GALE%7CA375552845&v=2.1&u=lom_cmichu&it=r&p=AONE&sw=w&asid=8eba36add0cde7d96c305244db051691)

PHMSA's state pipeline safety program lacks effective management and oversight. (2014, May

7). *States News Service*. Retrieved from [http://0-](http://0-go.galegroup.com.catalog.lib.cmich.edu/ps/i.do?id=GALE%7CA367555285&v=2.1&u=lom_cmichu&it=r&p=AONE&sw=w&asid=f5f140d107086f0f0e8993cef8212e35)

[go.galegroup.com.catalog.lib.cmich.edu/ps/i.do?id=GALE%7CA367555285&v=2.1&u=l](http://0-go.galegroup.com.catalog.lib.cmich.edu/ps/i.do?id=GALE%7CA367555285&v=2.1&u=lom_cmichu&it=r&p=AONE&sw=w&asid=f5f140d107086f0f0e8993cef8212e35)

[om\\_cmichu&it=r&p=AONE&sw=w&asid=f5f140d107086f0f0e8993cef8212e35](http://0-go.galegroup.com.catalog.lib.cmich.edu/ps/i.do?id=GALE%7CA367555285&v=2.1&u=lom_cmichu&it=r&p=AONE&sw=w&asid=f5f140d107086f0f0e8993cef8212e35)

Protecting the Great Lakes Schuette and Wyant put Enbridge on notice: Reinforce pipeline

beneath the Straits of Mackinac. (2014, July 24). *States News Service*. Retrieved from

[http://0-](http://0-go.galegroup.com.catalog.lib.cmich.edu/ps/i.do?id=GALE%7CA375976678&v=2.1&u=lom_cmichu&it=r&p=STND&sw=w&asid=a824a9cbb7ec84fee81868f910d9b81f)

[go.galegroup.com.catalog.lib.cmich.edu/ps/i.do?id=GALE%7CA375976678&v=2.1&u=l](http://0-go.galegroup.com.catalog.lib.cmich.edu/ps/i.do?id=GALE%7CA375976678&v=2.1&u=lom_cmichu&it=r&p=STND&sw=w&asid=a824a9cbb7ec84fee81868f910d9b81f)

[om\\_cmichu&it=r&p=STND&sw=w&asid=a824a9cbb7ec84fee81868f910d9b81f](http://0-go.galegroup.com.catalog.lib.cmich.edu/ps/i.do?id=GALE%7CA375976678&v=2.1&u=lom_cmichu&it=r&p=STND&sw=w&asid=a824a9cbb7ec84fee81868f910d9b81f)

*Re: Lack of transparency and compliance concerning terms and conditions of Enbridge's 1953*

*Line 5 pipeline easement & the state's perpetual public trust authority to protect these*

*Great Lakes waters*. (2014, July 1). Retrieved from

<http://www.mlui.org/userfiles/filemanager/3232/>

Viscusi, W., & Zeckhauser, R. (2011). Deterring and Compensating Oil-Spill Catastrophes: The

Need for Strict and Two-Tier Liability. Working paper for the KS Faculty Research

Working Paper, July, 2011.

U.S. Congress, Committee on Transportation and Infrastructure. (2010, September 15). *Hearing*

*on Enbridge pipeline spill in Marshall, Michigan*. Washington, DC: Government Printing

Office.