

Oil and Water: Tar Sands Crude Shipping Meets the Great Lakes?



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Oil and Water: Tar Sands Crude Shipping Meets the Great Lakes?

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Photo: Lloyd DeGrane

Executive Summary

The risks posed by tar sands crude shipping on the Great Lakes are real, and proposals are in the pipeline that could make the lakes the next frontier for moving crude oil to a vast network of Midwest refineries. If granted, these proposals open the door to shipping large volumes of this unique and relatively new form of crude across the Great Lakes, and in so doing expose these waters to threats. The choice to develop tar sands crude shipping on the Great Lakes is precisely that. Any decision to move forward with this scenario must be evaluated against a backdrop of first understanding the shortfalls that exist in the current regulatory framework, meaningful and measurable improvements in spill-prevention and response capability, and whether it is possible to further develop customized spill-response protocols for tar sands crude to ensure long-term Great Lakes protection. As such, steps must be taken immediately to improve oversight and transparency about safety and spill prevention in the region.

The prospect of tar sands shipping on the Great Lakes gives rise to fundamental social and economic questions about whether moving crude oil by vessel across the world's single largest surface freshwater system is a venture this region wants to embrace, despite the known risks. As the Great Lakes are also the source of drinking water for more than 40 million people, endeavoring to understand, gird against and respond to the effects of a potential oil spill on the lakes is vitally important.

The Great Lakes have long provided critical passage for transporting goods. The shipment of petroleum products has been an important part of this history, an uneasy union that often balances economic gain against potential ecological cost. The movement of oil across water increases the risks of oil in water, a clash in which the environment is the loser. The movement of more and more oil across Great Lakes waters, as is now proposed, raises the specter of more spills and more damage. The region's cataclysmic experience in the Kalamazoo River three years ago clearly showed that when an oil spill occurs, petroleum products differ greatly in how effectively they can be removed from the environment. Indeed, the manner in which tar sands are extracted, coupled with their composition in transit, present dual risks to the environment. Tar sands crude is heavy crude oil mixed with sand, clay and other hydrocarbon mixtures. Extracting it is resource-intensive; for every barrel of tar sands oil, the extraction process removes four tons of sand and soil and three barrels of water.

Other environmental risks loom large once these tar sands are put into transit, whether via pipeline or ship. The physical makeup of tar sands crude creates a heavy substance that, during a spill, can sink to the riverbed or lakebed rather than float on the water. The resulting, disturbing characteristic of "tar

sands crude” is that it is extremely difficult, potentially even impossible, to completely remove from the water after a spill. The Kalamazoo River, a Lake Michigan tributary, still suffers the effects of a tar sands crude pipeline leak, even after three years and more than \$1 billion spent on cleanup. Much of the complexity of the Kalamazoo cleanup results directly from the heavy tar sands crude sinking to the bottom of the river. Responding to a spill of that magnitude in the deep waters of the Great Lakes would be even more difficult.

No method of transporting petroleum products can ever be completely safe, and shipping petroleum by vessel is no exception. Even the safest, best-maintained vessel faces spill risks in loading cargo and sailing on the open water. As recently as 2005, a cargo vessel owned by Egan Marine Corporation transporting clarified slurry oil in the Chicago Sanitary and Ship Canal had a large explosion that led to the discharge of 84,000 gallons of oil. Such incidents prompt concern about any sizable increase in the amount or change in the type of petroleum shipped on the Great Lakes, as neither the Great Lakes shipping fleet nor its ports were designed to ship tar sands crude over the Great Lakes.

Calumet Specialty Products Partners, L.P. has signaled its intent to begin shipping tar sands crude by vessels on the Great Lakes as early as the 2015 shipping season. Together with its dock partner, Elkhorn Industries, the two recently applied for several necessary permits from the Wisconsin Department of Natural Resources. Calumet L.P. also may plan to ship medium crude oil from western North Dakota’s Bakken fields in addition to the tar sands crude. Although far from certain, industry observers and consultants speculate this crude could travel from Wisconsin across Lake Superior to Lake Michigan, and on to refineries in Whiting, Ind., Lemont, Ill., and possibly Detroit, Mich. near Lake Erie. Other potential destinations include Sarnia, Ontario on Lake Huron, or even an East Coast refinery.

The problems are clear: tar sands crude is a significant environmental threat on multiple fronts; shipping it over water carries an inherent risk of spills; and proposals to ship tar sands crude across the Great Lakes are about to become more prevalent. Knowing this, the region must preface its decision about whether to ship tar sands crude by vessel with proactively improving oil-spill prevention and response policies.

- **U.S. and Canadian Governments:** The U.S. and Canada must work with one another when appropriate, notifying one another of plans to allow increased tar sands crude shipments on the Great Lakes and ensuring proper coordination and oversight, in keeping with terms of the Great Lakes Water Quality Agreement.
- **U.S. Government:** Relevant federal agencies must improve regulations pertaining to the shipment of petroleum products, as well as interagency coordination and communication in dealing with large-scale spill prevention and cleanup. The U.S. Coast Guard should prepare for submerged tar sands crude spills in its “Worst-Case Discharge” scenarios for the Great Lakes.
- **U.S. Congress:** Congress should increase funding for preparedness and response programs in four priority spill categories: vessel-based, facility-based, cold-weather and pipeline spills. This would be in step with key recommendation of a 2012 report by the Great Lakes Commission’s Emergency Preparedness Task Force. A proactive stance by Congress now can ensure the U.S. is prepared to prevent and respond to spills as effectively as possible, saving scarce funds in the long run.
- **Great Lakes States:** The Great Lakes states must do their part by updating their regulatory regimes. These states can learn from other states, such as Washington, which updated its laws after the Deepwater Horizon oil spill in order to better protect that state’s coast from oil-shipping spills. Our Great Lakes states should similarly expand and enhance their laws to meet current challenges.

- **Industry:** Industry has an important role in making shipping by vessel safer as a means of protecting public resources. The success of vessel shipping on the Great Lakes depends on our region's confidence that shipping will not degrade the lakes that vessels transit. Although government can and must prescribe general safety requirements, industry is in a unique position to develop improved safety practices that are tailored to individual facilities and vessels and maintain necessary spill-response equipment. Industry must also provide financial support to private-public partnerships to make spill-response information more available to the public and better coordinate response efforts.

POLICY RECOMMENDATIONS

- **U.S.-Canada:** Notify one another of plans to allow increased tar sands crude shipments on the lakes and ensure adequate oversight, in keeping with terms of the Great Lakes Water Quality Agreement.
- **U.S.:** Improve coordination among federal agencies involved in large-scale spill prevention and response, with special emphasis on tar sands crude and other "submerged" oil spills.
- **Congress:** Increase funding for prevention, preparedness and response programs in four priority spill categories: vessel-based, facility-based, cold-weather and pipeline spills.
- **Great Lakes States:** Expand and enhance state laws to prevent and better protect their shorelines from oil shipping spills.
- **Industry/Tar Sands Crude Shippers:** Improve safety and maintain spill-prevention and response equipment, and provide financial support to efforts aimed at making spill-prevention and response information publicly available.



Background

A. Understanding Tar Sands Crude

To better appreciate the threat to the Great Lakes posed by shipping tar sands crude, it is helpful to understand its composition. Tar sands crude is a heavy crude oil found in the environment within a mix of sand, clay and bitumen. Because of its viscosity, lighter hydrocarbons (e.g. benzene) are added to the tar sands to enable it to flow through pipelines.¹ Experience has demonstrated — as is detailed in a later section — that heavier tar sands can sink to the riverbed or lakebed when spilled, making it exceptionally difficult to remove. Further, the benzene added to tar sands floats and creates toxic fumes during a spill.

B. Petroleum Crude Comprises a Small Fraction of Total Petroleum Products Shipped through Great Lakes Ports

The U.S. Army Corps of Engineers (USACE) provides data on the volume of different commodities carried across the Great Lakes, including breakdowns of different types of petroleum products.² All the crude petroleum (not necessarily tar sands crude, as the USACE data do not distinguish between specific types of crude petroleum) carried on the Great Lakes system in 2011 was a mere 29,709 tons carried on the Illinois River from Grafton to Lockport, Ill.³ This pales in comparison to the nearly 3.93 million tons that make up the total volume of petroleum products currently shipped by vessels on the Great Lakes system.⁴ These data show that shipping crude petroleum by vessels on the Great Lakes is currently limited.

C. Tar Sands Crude Supply and Vessel Shipping to Expand

U.S. tar sands refineries, nearly two dozen of them located in Great Lakes states, can expect to receive large volumes of additional Canadian tar sands crude in the future as companies jockey to take advantage of a current demand for this significantly cheaper source of crude oil. Canadian tar sands refineries in Sarnia, Ontario and Montreal, Quebec could also expect to receive tar sands

1 2012 Oil Shale and Tar Sands Programmatic Environmental Impact Statement (EIS) Information Center, U.S. Bureau of Land Management (available at <http://ostseis.anl.gov/guide/tarsands/>).

2 Waterborne Commerce of the United States Part 3—Waterways and Harbors: Great Lakes, 2011, Department of U.S. Army Corps of Engineers (available at <http://www.navigationdatacenter.us/wcsc/pdf/wcusg11.pdf>).

3 *Id.* at 46.

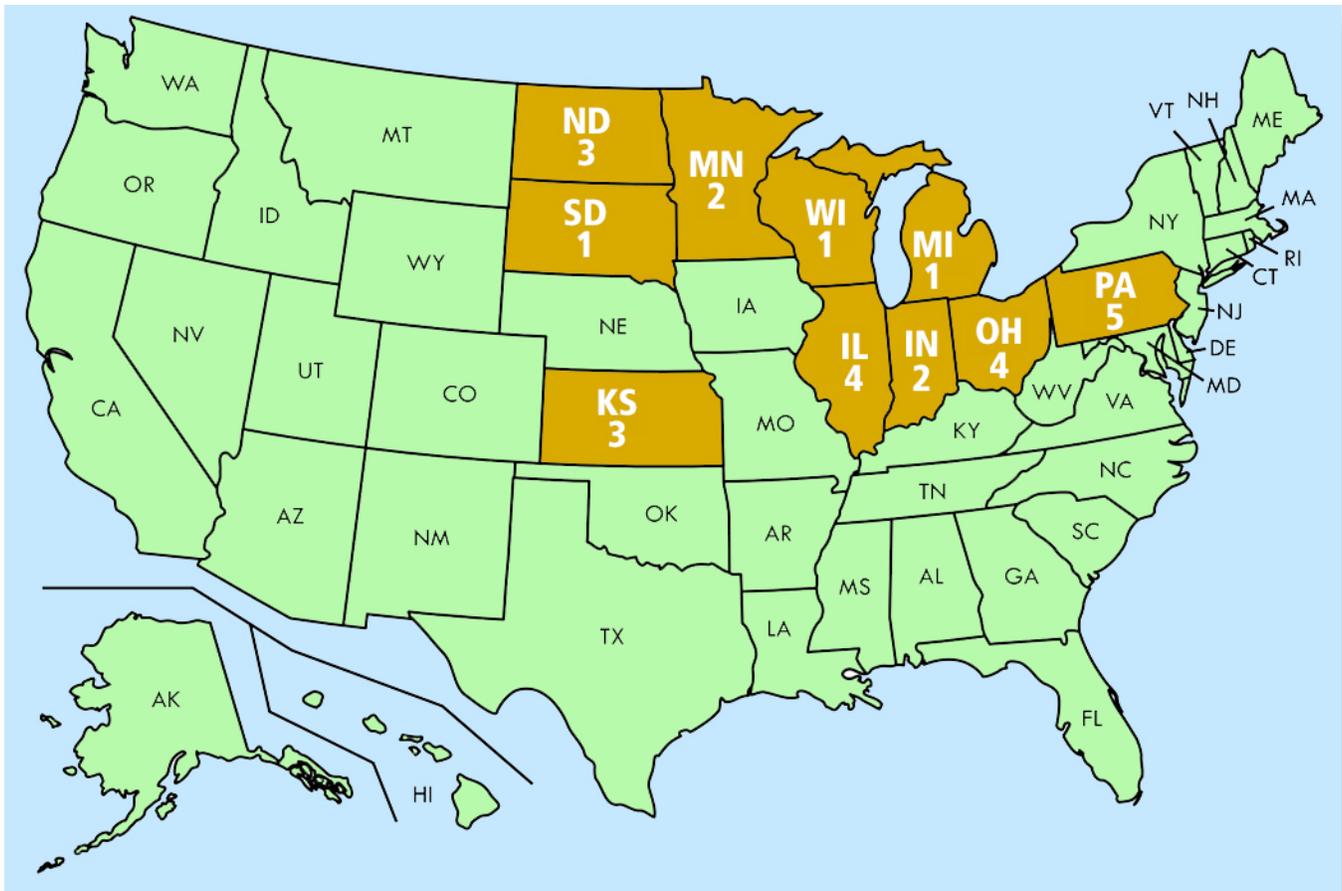
4 *Id.* at xii.

crude. With more tar sands crude coming to Great Lakes refineries, the pressure is mounting to find economical ways to move it out. Shipping it across the Great Lakes is emerging as a strong possibility, with one company already seeking permits to build a loading dock that would facilitate tar sands crude shipments on the lakes.⁵

Even today, there is more tar sands crude being extracted from Alberta, Canada than current transportation channels can bring to market.⁶ About 70 percent of these extracted tar sands are sent to refineries in the American Midwest and approximately 99 percent stay in the U.S.⁷ Alberta tar sands crude is much cheaper in the U.S. than other sources of crude oil, in part because Alberta lacks sufficient infrastructure for producers there to ship their product outside the U.S., thereby weakening the companies' pricing power for their product.⁸

Much of this crude is destined for the American Midwest, where there are currently 26 tar sands crude refineries, 19 of them in Great Lakes states (see Figure 1 below for breakdown).⁹

Figure 1: TAR SANDS CRUDE REFINERIES IN U.S. MIDWEST



5 See Calumet L.P. Press Release, January 25, 2013 (available at <http://calumetspecialty.investorroom.com/2013-01-25-Calumet-Specialty-Products-Partners-L-P-Announces-Feasibility-Study-for-Crude-Oil-Shipping>). See also Elkhorn Industries Permit Applications, Wisconsin Department of Natural Resources shipping (available at e.g. <https://permits.dnr.wi.gov/water/SitePages/DocSetView.aspx?DocSet=WP-IP-NO-2013-16-00193>).

6 Dan Kraker, *Enbridge files application to run pipeline across northern Minnesota; opponents gird for fight*, Minnesota Public Radio, October 28, 2013 (Enbridge plans to file its Sandpiper pipeline permits as of October 28, which indicate that 200,000 barrels per day of Bakken oil could be shipped to Superior) (available at <http://minnesota.publicradio.org/display/web/2013/10/28/environment/enbridge>).

7 *Canada Energy Report*, U.S. Energy Information Administration, December 10, 2012 (available at <http://www.eia.gov/countries/analysisbriefs/Canada/canada.pdf>).

8 Frik Els, *Fire Sale: Oil sands players now get \$45 a barrel vs. global price of \$109*, Mining.com, December 14, 2012 (available at <http://www.mining.com/oil-sands-players-now-get-only-45-a-barrel-vs-global-price-of-109-54211/>).

9 See *Tar Sand Refineries: Communities at Risk*, ForestEthics, 2012 (available at <http://forestethics.org/tar-sands>); see also Refinery Database, Environmental Integrity, 2008 (available at http://www.environmentalintegrity.org/news_reports/documents/RefineryDatabaseWEB-010810.pdf).



At least nine of the Midwestern refineries are located on or near the Great Lakes.¹⁰ In addition, another eight Canadian refineries are located along the Great Lakes or St. Lawrence Seaway.¹¹ Another three Canadian refineries are located on the Gulf of St. Lawrence and easily accessible by boat.¹² Two refineries located on Lake Huron are already refining tar sands crude,¹³ as is Canada's largest

refinery, located on the Bay of Fundy.¹⁴ Refineries in Sarnia, Ontario are run by Imperial Oil and Suncor.¹⁵

These refineries can expect to receive more tar sands crude in the future as companies attempt to take advantage of the current demand. Enbridge, the owner of pipelines to several of these refineries, plans to increase the flow of tar sands crude through its Line 67 as soon as 2014.¹⁶ As seen on the map below, Line 67 ends in Superior, Wis., on the shore of Lake Superior. Even without the expansion of existing flows through Line 67, Enbridge can already bring 50,000 more barrels a day into Superior than it can send out.¹⁷ Increasing flow through Line 67 will only add to the current bottleneck. Enbridge also plans to expand capacity of Line 61 — the pipeline expected to take the majority of this increased flow out of Superior — with a goal of completing this expansion project in mid-2014, the same time it expects to increase the flow through Line 67.¹⁸ There is no guarantee, however, that the Line 61 project will be completed at the same time (see Figure 2, p.5).

Even if Enbridge could complete the Line 61 expansion on time, shipping tar sands crude out of Superior across the Great Lakes by ship rather than through pipelines may seem a cheaper option. After the expansion of both Lines 61 and 67, the latter will still pump 10,000 more barrels per day (bpd) to Superior than Line 61 will be able to pump out.¹⁹ Line 67 will go from 450,000 bpd to 570,000 bpd; and Line 61 from 400,000 bpd to 560,000 bpd.²⁰ While rail transportation could potentially ease this problem, it increasingly makes more financial sense to ship tar sands crude by ship rather than by rail. Currently, some estimate that the cost of shipping oil by Great Lakes vessel is about one-third the cost of moving oil by rail car.²¹ This economic reality encourages shipping out of Superior by vessel all the tar sands crude that cannot squeeze into Line 61.

The pending ability to pump more tar sands crude to Superior is serving as the catalyst for the prospect of shipping large volumes of tar sands crude across the Great Lakes. Plans for this are already

10 *Id.*

11 See *Petroleum Refineries in Canada*, Canadian Association of Petroleum Producers, 2011 (available at <http://membernet.capp.ca/SHB/Sheet.asp?SectionID=7&SheetID=263>); see also *Refining Sites and Capacity Map*, Canadian Fuels Association, 2012 (available at http://canadianfuels.ca/index_e.php?p=65).

12 *Id.*

13 Joyce Nelson, *Line 9 - Shipping Tar Sands Crude East*, *Watershed Sentinel*, November/December 2012 (available at <http://www.watershedsentinel.ca/content/line-9-shipping-tar-sands-crude-east>).

14 Rebecca Penty, *Irving Refinery Said to Get 90,000 Barrels a Day by Rail*, *Bloomberg News*, December 26, 2012 (available at <http://www.businessweek.com/news/2012-12-26/irving-refinery-said-to-get-90-000-barrels-a-day-by-rail>). There have been proposals to upgrade other Canadian refineries to refine tar sands crude and even to build new refineries. See e.g., *Should Canada refine its own oil sands bitumen?* *The Canadian Press*, August 2012 (available at <http://www.cbc.ca/news/politics/should-canada-refine-its-own-oilsands-bitumen-1.1248009>).

15 Nelson, *supra* note 13.

16 Application for a Certificate of Need for a Crude Oil Pipeline, Enbridge Energy, before the Minnesota Public Utilities Commission, Docket No. PL-9/CN-12-590, Application Summary p.1., October 2012 (available at <http://www.ienearth.org/docs/Enbridge-Energy-Certificate-Of-Need-Line-67-201210-79329-10.pdf>).

17 John Myers, *Superior refinery owner delves into details of shipping oil on Great Lakes*, *Superior Telegram* (February 24, 2013), available at http://www.superiortelegram.com/event/article/id/259640/publisher_ID/36/.

18 Enbridge, *supra* note 16.

19 *Enbridge Energy Partners Announces Major Expansions of its Lakehead System*, Enbridge Energy, May 16, 2012, (available at <http://www.enbridgepartners.com/WorkArea/downloadasset/15662/2012-05-EEP%20News-Release-Lakehead-Expansions.aspx>).

20 *Id.*

21 Myers, *supra* note 17.

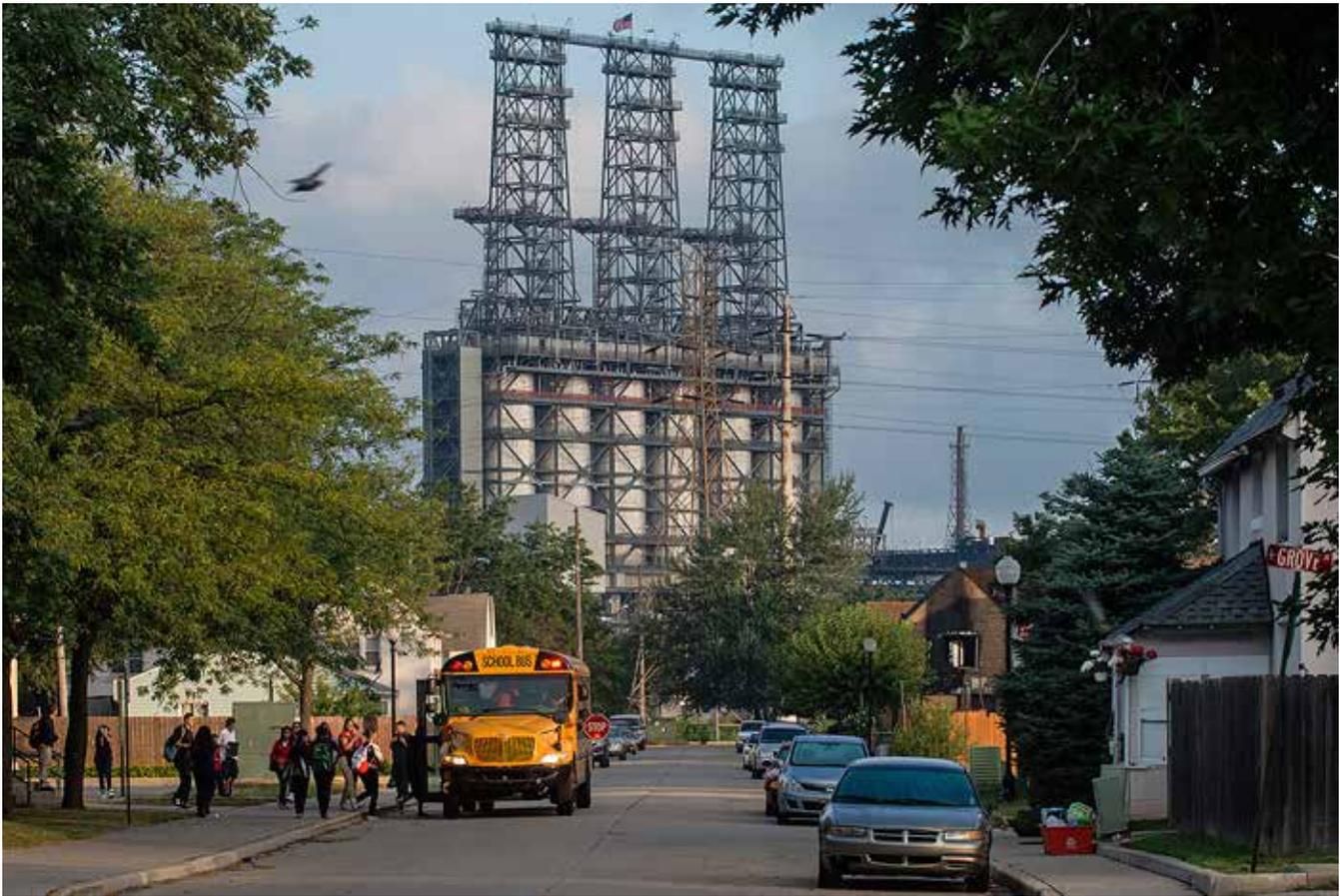


Photo: Lloyd DeGrane

being discussed and industry consultants have located a profitable route for tar sands barges to travel.²² Calumet L.P. has designed and applied for permits to construct a \$25 million loading dock in Superior, Wis. to ship tar sands crude across the lakes.²³ At least half the tar sands crude Calumet L.P. hopes to ship will come from Line 67.²⁴ The Calumet L.P. project being studied now could ship by vessel 35,000 barrels per day of tar sands crude out of Superior,²⁵ meaning the proposed dock would dramatically increase the volume of crude oil shipped on the Great Lakes. It should be noted that Calumet has indicated it may delay the project in light of concerns about its financial partners and East Coast refining capability, but it is nevertheless going forward seeking permit approvals from the Wisconsin Department of Natural Resources.²⁶

22 Bridget Hunsucker, *New Frontiers: The Great Lakes option for getting Canadian oil to market*, Platt, February 4, 2013 (available at <http://blogs.platts.com/2013/02/04/new-frontiers-the-great-lakes-option-for-getting-canadian-oil-to-market>).

23 Myers, *supra* note 17.

24 *Id.* Calumet L.P. currently receives tar sands crude for its refinery from the adjacent Enbridge Energy Terminal, where Line 67 ends. Calumet plans to load barges at its port with the tar sands crude from the same source. About half of the crude oil Calumet L.P. plans to load will be “heavy” crude oil. While Line 67 is only one of about five Enbridge pipelines traveling from the Canadian border to the Enbridge Energy Terminal, Line 67 is the only one that carries “heavy” crude oil. This means at least half the crude barged through Calumet will come from Line 67; See also Calumet, Marine Terminal: Barge Loading of Crude Oil Construction Permit Application to Wisconsin Department of Natural Resources, November 14, 2012.

25 Email from Todd Borgmann, Vice President of Business Development at Calumet L.P., August 30, 2013.

26 *Superior Calumet Refinery delays plans to ship oil through Great Lakes*, WTAQ, September 23, 2013, (available at <http://wtaq.com/news/articles/2013/sep/23/superior-calumet-refinery-delays-plans-to-ship-oil-through-great-lakes/>); see also Mike Simonson, *Superior Oil Terminal Project Put on Hold*, Wisconsin Public Radio, September 20, 2013 (available at <http://www.wpr.org/superior-oil-terminal-project-put-hold>).

Figure 2: PROPOSED MIDWEST PIPELINE NETWORK



Existing pipeline infrastructure in the Midwest is already quite expansive, in terms of both geographic footprint and volume of petroleum. If Enbridge succeeds in completing its proposed pipeline expansions, the movement of petroleum in the Midwest would increase dramatically. Graphic: National Wildlife Federation (<https://www.nwf.org/What-We-Do/Energy-and-Climates/Drilling-and-Mining/Tar-Sands/Michigan-Oil-Spill.aspx>)



Risks of Spills from Vessels

A. Limited Information Reported Regarding Existing Vessel Operations and Spills

The Great Lakes Basin encompasses 295,200 square miles of watershed, 10,000 miles of coastline and 94,000 square miles of open freshwater.²⁷ More than 130 cargo vessels ply these waters today, 27



Photo: Ken Heaton

of them oil and finished petroleum products transport vessels — 10 domestic and 17 foreign.²⁸ Despite the importance of this vast and unparalleled resource, limited resources are available to learn about the risks of oil spills by vessels and vessel oil-spill management in this region. Most information about spills is outdated or discontinued. For instance, in 2006 the Great Lakes Commission developed the Freshwater Spills Information Clearinghouse (FSIC) in collaboration with a public-private partnership called the Great Lakes Spill Protection

Initiative (GLSPI) and the U.S. Environmental Protection Agency's Great Lakes National Program Office (GLNPO).²⁹ FSIC's main objective was to provide information to the public on spill planning and response information, education and outreach materials, emerging response and prevention technologies, and other spill data. Unfortunately, funding for the site dried up several years ago and the FSIC website has not been updated since 2009; most of the links on the site are now either broken or unavailable.³⁰

B. Threats to Sensitive Great Lakes Areas

EPA has studied inland sensitivity and identified vulnerable resources in the Great Lakes. The Great Lakes Commission has provided support to the EPA and the Inland Area Planning Committee (IAPC) in developing response plans.³¹ Particular emphasis is placed on those areas that may need

27 Waterborne Commerce, *supra* note 2; see also Great Lakes Waterborne Commerce Profile, U.S. Coast Guard (available at http://outreach.lrh.usace.army.mil/Basin/Great%20Lakes/GL_basin.asp); Great Lakes Fact Sheet. U.S. Environmental Protection Agency (U.S. EPA) (available at <http://www.epa.gov/greatlakes/factsheet.html>).

28 See *D9 10 years of Oil Spills*, Freedom of Information Act (FOIA) Response from U.S. Coast Guard District Nine in Cleveland, September 3, 2013.

29 See generally *Freshwater Spills Information Clearinghouse*, Great Lakes Commission, last updated April 8, 2009 (available at <http://www.freshwaterspills.net/index.htm>).

30 Email from Stuart Eddy, Project Manager, Great Lakes Commission, Oct. 4, 2013.

31 See *Inland Sensitivity Atlas*, Great Lakes Commission (available at <http://www.glc.org/spills/>); see also Michelle Jaster, *Isle Royale National Park Protection & Response Strategies: Overcoming Contingency Planning Challenges via the Regional Response Team*, Freshwater Spills Symposium, April 6-8, 2004, U.S. EPA Region 5 (available at http://www.epa.gov/osweroe1/docs/oil/fss/fss04/jaster_04.pdf).

special consideration in the event of a spill.³² For example, changes in transport routes around Isle Royale have been recommended as a precaution to avoid sensitive areas.³³ Additionally, the commission is involved in identifying and compiling location information for major facilities, pipelines, transportation corridors and other potential spill sources. This information and data on sensitive areas and spill sources is being used by the commission to create databases and maps for emergency planners and responders. By the end of 2013, the commission intends to have incorporated data from partner agencies and to begin soliciting data from the region as a whole.³⁴

C. Past Spill History

Analysis of recent spill data from vessels shipping on the Great Lakes indicates that spills of petroleum products, including diesel fuel and bunker fuel oil, from vessels have decreased in frequency and volume in the last 20 years.³⁵ According to Coast Guard data, the average annual spill for commercial vessels from 2003-07 was approximately 3,157 gallons (60 events), and the average annual spill from 2008-12 was approximately 10 gallons (50 events).³⁶ Much of this decrease reflects the occurrence of a major 84,000-gallon spill recorded by the Coast Guard in 2005; when this spill is removed from the equation, the average is about 466 gallons. In contrast, there were no major spills from 2008-12.³⁷

According to the Coast Guard, there have been 220 petroleum-related spills from commercial vessels in the Great Lakes area³⁸ since 2003 when connecting waterways are factored into the equation.³⁹ Most of these, with the exception of the 2005 spill that released 84,000 gallons of crude oil into the Chicago Sanitary and Ship Canal, released less than 10,000 gallons⁴⁰ and appear to be the result of small spills connected with the operations and maintenance of the vessel.⁴¹



Several policy recommendations resulted from a Coast Guard investigation into the 2005 event. In that cargo spill, Egan Marine Corporation was hired to transport several loads of clarified slurry oil from the Exxon/Mobil refinery in Joliet, Ill. to Ameropan Oil Company in Chicago via the Chicago Sanitary and Ship Canal.⁴² A large explosion aboard the tank barge, known as the EMC-423, led to the discharge of 84,000 gallons of oil into the canal.⁴³ In 2010, the U.S. Department of Justice filed charges against Egan Marine in district court for

the Northern District of Illinois for violating the federal Clean Water Act.⁴⁴ In accordance with the Oil Pollution Act of 1990 (OPA), the federal government claimed \$1.5 million in removal costs expended

32 See Inland Sensitivity Atlases, Oil Planning and Response, U.S. EPA Region 5 Superfund, (available at <http://www.epa.gov/region5oil/#atlases>).

33 See *Strategic Protection Plan Response Considerations: Isle Royale National Park*, Marine Pollution Control Corporation, August 17, 2003 (available at http://www.glc.org/irps/irps/docs/IRReport081703_full.pdf).

34 Eddy Email, *supra* note 30.

35 *Emergency Preparedness and Response Programs for Oil And Hazardous Materials Spills: Challenges and Priorities for the Great Lakes – St. Lawrence River*, p. 17, Emergency Preparedness Task Force, Great Lakes Commission, September 2012 (available at http://www.glc.org/announce/12/pdf/FINAL_EmergencyPreparednessTaskForceReport_Sept2012.pdf).

36 See FOIA *supra* Note 28.

37 *Id.*

38 *Id.*

39 *Id.*

40 *Id.*

41 *Id.*

42 See *US v. Egan Marine*, Case No: 08-C-3160, (N.D. Ill, Oct. 13, 2011); see also *Barge Captain and Marine Company Indicted in Fatal 2005 Explosion that Discharged Slurry Oil in Chicago Canal*, Department of Justice (DOJ) Press Release, January 13, 2010 (available at http://www.justice.gov/usao/iln/pr/chicago/2010/pr0113_01.pdf).

43 *Id.*

44 *Id.*

by the Oil Spill Liability Trust Fund. It also requested \$25,000 in civil penalties for each day of the spill cleanup.⁴⁵ In 2011, Egan Marine paid \$2 million in clean-up costs, the statutory limit for vessels weighing less than 3,000 gross tons.⁴⁶ The company paid another \$112,000 in civil penalties, according to court records.⁴⁷

The Coast Guard released a report on its investigation into the EMC-423 explosion in 2010.⁴⁸ The relevant recommendations from that report include: development of hazardous location plans for barges carrying flammable or combustible material;⁴⁹ definitions of cargo grade;⁵⁰ implementation of preventive maintenance systems and ensuring that employees are familiar with safety protocols; and requirements that shippers and receivers specify the chemical composition of products.⁵¹

Despite decreasing spill frequency and volume, proposals to ship tar sands on the Great Lakes still create a significant potential for spills. As discussed below, even one spill from a tar sands tanker would be costly and environmentally destructive. Imagine the consequences of an event the scale of the Egan Marine disaster in the Superior-Duluth Harbor, or worse, on the open waters of the Great Lakes.



Photo: Michelle Barford Smith

D. The Risks of Tar Sands Crude on the Great Lakes: What Experience Has Taught Us

Increased flow through Line 67 will increase the movement of tar sands crude shipping in all modes across the Great Lakes region. Calumet L.P. has the capability to fill 75 to 100 ships with tar sands crude each year,⁵² and the consequences of just a single spill could be disastrous considering the properties unique to tar sands crude that make this type of oil particularly dirty and difficult to remove. The typical Great Lakes cargo ship is approximately 400 feet long and can hold about 77,000 barrels, such as the AlgoCanada, owned by Canada-based Algoma Tankers.⁵³ A typical barge is about the same length and can hold up to 118,000 barrels.⁵⁴ According to a 2007 U.S. Geological Survey report, the oil extracted from Alberta tar sands contains uniquely high levels of numerous potentially harmful pollutants — 11 times more sulfur, six times more nitrogen, 11 times more

nickel, and five times more lead than conventional oil.⁵⁵

Moreover, the process of extracting tar sands crude produces high amounts of carbon dioxide (CO₂) and involves the destruction of ecosystems.⁵⁶ Specifically, tar sands extraction produces three times

45 *Id.*

46 33 U.S.C. § 2704.

47 33 U.S.C. § 2702; *U.S. v. Egan Marine* WL 8144393 (N.D. Ill 2011).

48 See U.S. Coast Guard, *Report of Investigation into Circumstances of the Explosion, Fire and Sinking of the Tank Barge EMC-423 with One Loss of Life on the Chicago Ship and Sanitary Canal on 01/19/2005*, MISLE Activity No. 2277817, April 6, 2010 (available at http://towmasters.files.wordpress.com/2009/03/tb_emc_423_explosion.pdf).

49 40 C.F.R. §110.25; 46 C.F.R. §111.105

50 33 C.F.R. §156; 46 C.F.R. §30.10.

51 *Id.* 46 C.F.R. §30.10.

52 See Myers, *supra* note 17 (stating that Calumet can fill a barge or tanker every three to four days – that is equivalent to one ship every three to four days for 10 months. The Sault Ste. Marie Locks at the eastern end of Lake Superior are typically closed for about two months each year).

53 AlgoCanada Ship Detail, Marine Traffic (available at <http://www.marinetraffic.com/ais/fr/shipdetails.aspx?MMSI=316013215>)

54 Myers, *supra* note 17.

55 *Heavy Oil and Natural Bitumen Resources in Geological Basins of the World*, U.S. Geological Survey (USGS), 2007 (available at <http://pubs.usgs.gov/of/2007/1084/OF2007-1084v1.pdf>).

56 See *Tar Sands, Friends of the Earth* (available at <http://www.foe.org/projects/climate-and-energy/tar-sands>).

more CO₂ than the extraction and production of conventional oil and has had a tremendously negative impact on the Canadian Boreal Forest through clear-cutting, draining wetlands, and removing soil and living matter. Four tons of sand and soil, and three barrels of water, are removed in the extraction process for every barrel of tar sands oil.⁵⁷ Approximately 400 million gallons per day of extraction water ends up as toxic waste. According to researchers, tar sands development will produce 62 million metric tons of CO₂ by 2020 in Canada alone.⁵⁸

As noted earlier, however, most

worrisome for the Great Lakes is the fact that tar sands crude is more difficult to clean up than conventional oil because its viscosity causes it to sink to the bottom of water bodies.⁵⁹ Enbridge's 2010 tar sands crude spill in Michigan's Kalamazoo River demonstrated that tar sands crude behaves differently than conventional oil when released into freshwater.⁶⁰ In fact, three years and about \$1 billion after the spill of tar sands crude into the Kalamazoo River from an Enbridge pipeline, the river remains

polluted.⁶¹ Of the estimated 843,000 gallons of tar sands crude spilled, approximately 180,000 gallons (more than 20 percent of the total) remain in the river.⁶² Although EPA has ordered Enbridge to perform further dredging to remove more tar sands crude by Dec. 31, 2013, it has concluded that 162,000 to 168,000 gallons cannot be removed immediately without causing significant harm to the river. In light of this, EPA has said the pollution must instead be monitored and removed slowly over time with no definite timeline for a complete cleanup.⁶³ Notably, the Enbridge spill occurred in relatively shallow waters, foreshadowing even greater difficulty if a deep-water cleanup were ever required in the Great Lakes. Tar sands crude spills can have other negatives impacts as well. In the case of the Enbridge spill, toxic chemicals such as benzene were released into the air, forcing area residents to evacuate and making cleanup more difficult for responders.⁶⁴

As highlighted earlier, the current proposal by Calumet Superior to ship heavy tar sands crude using vessels leaving from Superior, Wis. across the Great Lakes makes concern about the risks from oil-loading and transportation even more pressing. According to industry groups, movement of tar sands crude would likely require the construction of new vessels.⁶⁵ Vessels moving crude oil are required to meet regulations and standards for both the Coast Guard and the American Bureau of Shipping, the latter of which verifies that vessels comply with its rules for design and construction. The vessels would need to safely load tar sands crude that comes to Superior via rail or pipeline, and sail across the Great



Photo: U.S. EPA

57 *Pay Dirt: How to Turn Tar Sands Into Oil*, Scientific American, December 10, 2012 (available at <http://www.scientificamerican.com/article.cfm?id=how-to-turn-tar-sands-into-oil-slideshow>).

58 E360 Digest, Environment 360, Yale University School of Forestry and Environmental Studies, August 8, 2011 (available at http://e360.yale.edu/digest/emissions_from_tar_sands_will_dwarf_carbon_cuts_in_canada/3072/).

59 Sara Gossman, *After the Marshall Spill: Oil Pipelines in the Great Lakes Region*, National Wildlife Federation, April 27, 2012 (available at <https://www.nwf.org/News-and-Magazines/Media-Center/Reports/Archive/2012/4-30-2012-After-The-Marshall-Spill-Pipelines-in-The-Great-Lakes-Region.aspx>).

60 *Keystone XL Pipeline Project: Key Issues*, pp. 31-32, Congressional Research Service, May 7, 2013 (available at <http://www.fas.org/sap/crs/misc/R41668.pdf>).

61 *Id.*

62 *See EPA's Response to the Enbridge Oil Spill*, U.S. EPA, last updated October 22, 2013 (available at <http://www.epa.gov/enbridgespill/>).

63 *Id.*

64 *Id.*

65 Conversation with Lake Carriers Association, James H.I. Weakley, President, (September 20, 2013).

Lakes and connecting channels to a refinery where they would then offload their cargo. Each step – from well to refinery — presents a degree of risk.

Industry representatives say the loading, shipping and offloading of petroleum cargo are safe operations as a result of increased safety precautions and regulations added after OPA.⁶⁶ Shipping companies conduct frequent spill-response training, have annual “table-top” or informal scenario-



Photo: U.S. EPA

based exercises conducted in-house by corporate staff, and must position spill-response equipment before shipment is made.⁶⁷ Industry says the extensive training and federal safety requirements have improved dramatically, making bulk transport of petroleum by ship the safest method of transportation.⁶⁸ They note that the incidence of spills is very low and the vast majority are small (an oil sheen, for instance, is considered a reportable quantity).

The Coast Guard and the Department of Homeland Security (DHS) recently conducted a study and issued a report on spill-response protocols for submerged oil.⁶⁹ The Coast Guard notes that although U.S. law requires facilities or vessels storing or transporting heavy and sinking oils in U.S. waters to identify response organizations and strategies for responding to spills — including identifying methods for assessing, containing and recovering oil from subsurface environments — current methods for finding and recovering submerged oil are inadequate as responders must reinvent the techniques on each occasion, with mixed success.⁷⁰ The Coast Guard tested three submerged oil recovery systems: a remotely operated vehicle (ROV) tethered to a surface buoy; a manned submersible (a submarine outfitted with sonar tethered to a surface buoy); and dredging.⁷¹ The Coast Guard found that the ROV had design flaws and the manned submersible was cost-prohibitive, albeit effective. The dredging system was found to be logistically complicated and environmentally damaging, though also mostly effective when compared to manual recovery by divers.⁷² The Coast Guard concluded that the report is a helpful step forward in understanding the complexities of submerged oil cleanup, though each scenario must be evaluated differently.⁷³ A similar report on tar sands crude is currently in progress.⁷⁴

⁶⁶ *Id.*

⁶⁷ 33 C.F.R. 150; see also Arlene Anderson, Mia Pasquerella, Troy Swackhammer, Government Initiated Unannounced Exercises (GIUE) under the Facility Response Plan (FRP) Rule, U.S. EPA Freshwater Spills Symposium, 2009 (available at <http://www.epa.gov/osweroe1/docs/oil/fss/fss09/swackhammeroilspill.pdf>).

⁶⁸ Weakley, *supra* note 65.

⁶⁹ *Development of Bottom Oil Recovery Systems Final Report*, Department of Homeland Security, June 2013.

⁷⁰ *Id.* at v.

⁷¹ *Id.* at 4

⁷² *Id.* at 25

⁷³ *Ibid.* note 70.

⁷⁴ Email from Lorne W. Thomas, Public Affairs Officer, U.S. Coast Guard, September 26, 2013.



Photo: Michelle Barlund Smith

Current U.S. Oil-Spill Laws and Policies

As pressure for tar sands crude shipping across the Great Lakes grows, the U.S. must carefully consider whether this kind of shipment is the right choice for the region and re-evaluate its current oil-spill laws and policies. This section summarizes the present legal landscape.

A. The Oil Pollution Act of 1990

In the U.S., petroleum shipping at the federal level is governed primarily by OPA.⁷⁵ Congress passed the act largely in response to the public's reaction and widespread environmental destruction caused by the Exxon Valdez disaster.⁷⁶ Some of the most critical provisions of OPA involve requirements for oil transportation vessel construction and crew licensing. The most important construction change found in OPA is a requirement for double hulls in certain oil-shipping vessels to protect against spills.⁷⁷ The act includes a phase-out of single-hull vessels operating in U.S. waters,⁷⁸ with all vessels required to be in compliance by 2015.⁷⁹

All foreign vessels operating in the Great Lakes currently meet double-hull standards mandated under OPA.⁸⁰ According to Coast Guard data, there are currently 10 domestic oil transport ships on the Great Lakes and most of these meet the OPA requirements.⁸¹ Only a few vessels operating on the Great Lakes lack double-hulled bottom construction, and these carry only small amounts of cargo. For example, the National Park Service operates the Ranger III, a single-hull vessel that carries fuel and passengers to Isle Royale National Park.⁸²

To increase preparedness for spills, OPA also mandates the establishment of Port Area Committees (PACs) in every U.S. port area. These PACs are tasked with preparing Area Contingency Plans (ACPs) to coordinate the community's response to an oil or hazardous material discharge, and to establish the framework for carrying out response efforts at each port.⁸³ The act also requires certain facilities and

75 Pub. L. 101—380. 33 U.S.C. §2701.

76 Exxon Valdez, U.S. EPA Emergency Management, last updated 11/1/2013 (available at <http://www.epa.gov/osweroe1/content/learning/exxon.htm>).

77 46 U.S.C. § 3703a.

78 *Id.*

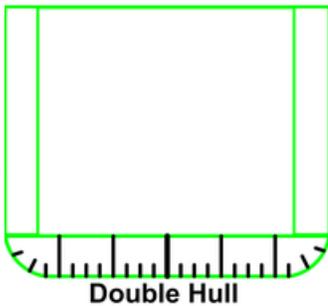
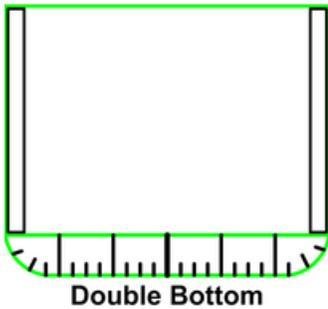
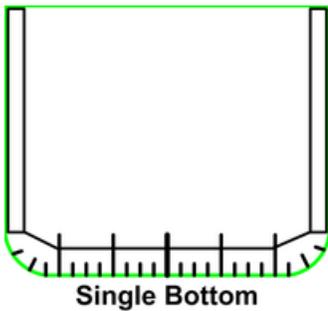
79 *Id.*; see also *Guidance for Determination and Documentation of The Oil Pollution Act of 1990 (OPA 90) Phase-Out Schedule For Existing Single Hull Vessels Carrying Oil In Bulk*, U.S. Coast Guard, December 22, 1994 (available at <http://www.uscg.mil/Hq/Cg5/Nvic/Pdf/1994/N10-94.Pdf>).

80 See FOIA, *supra* note 28.

81 *Id.*

82 Isle Royale National Park, Ranger III General Information, National Park Service, last updated October 17, 2013 (available at <http://www.nps.gov/isro/planyourvisit/ranger-iii-general-information.htm>).

83 33 U.S.C. §1321(j).



Graphic: George William Herbert

vessels involved in the transportation of oil to have individual response plans in place to handle a potential spill. ACPs are discussed in detail in Part B below.

In addition to prevention policies, OPA includes provisions for costs incurred by the government during spill-response and recovery efforts.⁸⁴ The act increases penalties for non-compliance with oil-handling regulations⁸⁵ and preserves states' authority to enact higher penalties or stricter oil-handling requirements.⁸⁶ The act also authorizes the aforementioned Oil Spill Liability Trust Fund (OSLTF),⁸⁷ a fund of up to \$1 billion to pay for oil removal and uncompensated damages. OSLTF funds come from investment interest on the fund's principal, costs recovered from responsible parties, civil and criminal penalties from responsible parties, a barrel tax on domestic and imported oil, and transfers from other legacy pollution funds.

B. Role of the U.S. Coast Guard in Oil-Spill Prevention

The Coast Guard has many responsibilities in implementing OPA, and is therefore a key player in domestic spill prevention and policy and in ensuring that the Great Lakes are adequately protected against tar sands crude spills.⁸⁸ It also promulgates rules for carrying liquid bulk and dangerous cargo.⁸⁹ In order to ship oil in U.S. waters, a vessel must receive a "Certificate of Inspection" from the Coast Guard certifying that the vessel complies with all applicable rules.⁹⁰

On an international level, the Coast Guard has a role in implementing the International Convention for the Prevention of Pollution from Ships (MARPOL). MARPOL includes regulations aimed at preventing and reducing oil pollution from ships, including limitations on discharges, waste handling practices, and requirements for Shipboard Oil Pollution Emergency Plans (SOPEPs).⁹¹ In accordance with U.S. regulations implementing MARPOL, the Coast Guard has the authority to approve these SOPEPs.⁹² Although SOPEPs are similar to the spill response plans discussed below (which also require Coast Guard approval), the purpose of a SOPEP is different. A SOPEP provides guidance to the ship's master and officers for the onboard emergency procedures that must be followed when a pollution incident has occurred or is likely to occur.

The Coast Guard also engages in frequent exercises to simulate responses to oil spills. In the Great Lakes, the Coast Guard generally performs two multi-agency, interstate spill response exercises each year as well as smaller monthly exercises. Over the next five years, the Coast Guard has 29 planned oil-spill response exercises in the Great Lakes region.⁹³ The Coast Guard policy — the Preparedness for Response Exercise Program (PREP) — outlines the required timelines for exercises.⁹⁴ The PREP addresses the exercise and planning requirements for oil pollution response, including frequencies of the different types of exercises, and the varying requirements for different types of vessels and

⁸⁴ 33 U.S.C. §2704 et seq.

⁸⁵ *Id.* at 2704(a); see also Pub. L. 109-241 (Congress subsequently raised the liability limits again in the Coast Guard and Maritime Transportation Act of 2006).

⁸⁶ 33 U.S.C. §2718(c).

⁸⁷ 26 U.S.C. §9509.

⁸⁸ See *Report on Implementation of the Oil Pollution Act of 1990*, United States Coast Guard (available at http://www.uscg.mil/hpfc/docs/PDFs/Reports/osltf_report.pdf).

⁸⁹ 46 U.S.C. § 3703.

⁹⁰ 46 U.S.C. § 3714.

⁹¹ See MARPOL Annex I, *Regulations for the prevention of pollution by oil*, GARD AS, June 20, 2011 (available at <http://www.gard.no/ikbViewer/Content/72338/Marpol%20June%202011.pdf>).

⁹² 33 C.F.R. § 151.26.

⁹³ FOIA Response from Lieutenant Commander Ben Gullo, U.S. Coast Guard District, May 17, 2013.

⁹⁴ See *National Preparedness for Response Exercise Programs (PREP) Guidelines*, Department of Transportation, U.S. Coast Guard Research and Special Programs Administration, U.S. EPA, Department of the Interior, August 2002 (available at http://www.au.af.mil/au/awc/awcgate/uscg/prep_guid.pdf).

facilities. According to the Coast Guard, PREP represents the minimum guidelines for ensuring adequate response preparedness. The PREP exercises are utilized to ensure continuous review of the local geographic response plans and the entire area response system.⁹⁵

Larger-scale national or binational practice events usually fall under the Spill of National Significance (SONS) program.⁹⁶ The only SONS exercise to address a Great Lakes spill was in 2007; it was the fifth and largest exercise in the SONS series.⁹⁷ The SONS 2007 was also the first and only national or regional oil and hazardous material (HAZMAT) exercise to focus on the critical inland river system and the Great Lakes instead of coastal areas. The SONS 2007 focused on catastrophic releases in the New Madrid Seismic Zone and a tornado measuring F4 on the Fujita Scale striking Naval Station Great Lakes on Lake Michigan.⁹⁸ In addition to SONS exercises for spills having a truly national scope, individual vessels that are required by the Coast Guard to have a Vessel Response Plan (VRP)⁹⁹ must conduct smaller exercises for “Worst-Case Discharges”¹⁰⁰ at least once every three years.

The Coast Guard is also responsible for drafting and implementing Area Contingency Plans (ACP) for response to spills.¹⁰¹ The ACP is prepared by the Area Committee (AC) and implemented in conjunction with the National Contingency Plan (NCP) and the Regional Contingency Plan (RCP).¹⁰² ACPs are reviewed annually and major updates are conducted triennially.¹⁰³ The areas to be examined, and updated if necessary, are as follows: emergency notification lists; response equipment information (type and amount of available equipment); sensitive areas; hazard/risk assessment of the area; response strategies (changes based on new technologies or equipment); and/or dispersants approval. Major revisions will be based on commandant or district-mandated revisions or modifications, which would substantially impact the format or content of the ACP.¹⁰⁴ Revisions must be submitted and approved by Coast Guard District Nine (Cleveland).¹⁰⁵

Currently, the Coast Guard has multiple ACPs for the Great Lakes region. These include: Northern Michigan, Western Lake Erie, Western Lake Superior, Eastern Great Lakes, Southeast Michigan, and Lake Michigan — the latter of which includes Geographic Response Plans (GRPs) for the southern tip of Lake Michigan, Southwest Wisconsin, and Green Bay. These ACPs are roughly correlated with the local Marine Safety Unit, which is responsible for the coordinating response activities. Within each ACP, the Coast Guard is required to identify “Worst-Case Discharge” scenarios, whereby a metric is used for determining the scale and magnitude of a spill from a vessel or facility.¹⁰⁶ For vessels, the metric is generally the largest vessel currently operating in the area losing full cargo capacity in a collision event in adverse weather conditions. For example, the largest tanker operating in the Northern Michigan area has a capacity of 75,298 barrels of oil.¹⁰⁷ The Worst-Case Discharge scenario is based on such a vessel

95 See *Spill of National Significance 2007 Exercise (SONS 07) After Action Report – Ninth District Action Items*, U.S. Coast Guard, December 18, 2008 (available at <http://www.uscg.mil/history/docs/SONS/2007SONSAfterActionReport.pdf>).

96 See generally National Pollution Funds Center (available at http://www.uscg.mil/npfc/About_NPFC/nrf.asp).

97 SONS, *supra* note 95.

98 *Id.*

99 Vessel Response Plans (VRPs), U.S. Coast Guard (available at <https://homeport.uscg.mil/mycg/portal/ep/channelView.do?channelId=-30095&channelPage=%252Fep%252Fchannel%252Fdefault.jsp&pageTypeld=13489>).

100 33 C.F.R. §155.1020.

101 VRPs, *supra* note 99.

102 *Id.*

103 See *U.S. Coast Guard Guidance: Area Contingency Plan Organization, Content, Revision Cycle and Distribution* (available at: http://www.uscg.mil/directives/ci/16000-16999/CI_16471_3.pdf); see also e.g. Sector Lake Michigan Area Contingency Plan, including section 9000 Geographic Response Plans for Milwaukee, Grand Haven, Southern Tip of Lake Michigan, Green Bay, last updated 2011 (available at: https://homeport.uscg.mil/cgi-bin/st/portal/uscg_docs/MyCG/Editorial/20120315/SLM%20ACP%20Sections%201000%20to%208000.pdf?id=2b7e8f280cf64000d524cb7ae5b105c2c3a1d781&user_id=3969bfb90e5506314f810854469d06f).

104 U.S. Coast Guard guidance derived from 40 C.F.R. 300.210 (National Oil and Hazardous Substances Pollution Contingency Plan), p. 5(c)(3) (available at http://www.uscg.mil/directives/ci/16000-16999/CI_16471_3.pdf).

105 *Id.*

106 33 USC § 1321(j)(5)(D)(iii); see also *Guidance on Vessel and Facility Response Plans 2007*, U.S. Coast Guard, July 2001 (available at <http://www.uscg.mil/hq/cg5/nvic/pdf/2007/NVIC%2001-07.pdf>).

107 Sector Lake Michigan Area Contingency Plan, *supra* note 103.

losing its entire cargo capacity in a single event (i.e. striking an object while transiting the Sault St. Marie Harbor and discharging all 75,298 barrels of oil into the St. Mary's River).¹⁰⁸ Notably, this worst-case scenario considers a cargo, presumably some form of finished petroleum, much different and less damaging to the environment than tar sands crude.

The ACP/GRP's development takes into account extensive collaboration between federal, state and local agencies, nongovernmental organizations, and the private sector throughout each unique planning area.¹⁰⁹ These plans integrate best practices from a wide array of area-specific disciplines, including fire, emergency management, law enforcement, public works and emergency medical services.¹¹⁰ Some ACPs include spill history for the relevant area and statistics on common spill types and quantities, including Maximum Most Common Discharge Scenarios.¹¹¹ Response protocols and identified shortfalls are available in some ACPs, including proximity of local clean-up contractors and equipment (see recommendations below). Some ACPs are comprehensive and include spill history and specific metrics based on current shipping trends, while others are relatively incomplete. The Northern Michigan ACP includes the aforementioned details, for example, while the Eastern Great Lakes ACP is much less comprehensive. The latter plan, for example, defines the Worst-Case Discharge scenario in only general terms, rather than based on specific metrics such as spill history, or current vessel or facility data. The Coast Guard is currently working to standardize these plans.¹¹²

C. Role of U.S. Environmental Protection Agency in Oil-Spill Prevention

The EPA's Spill Prevention, Control and Countermeasure (SPCC) rule includes requirements for prevention and response to oil spills during storage at many facilities that have a reasonable chance of a discharge into navigable waters. As of 2010, EPA estimated there were approximately 64,000 facilities under SPCC jurisdiction.¹¹³ EPA cannot provide an exact figure because the SPCC program relies on self-reporting. Because of budget and travel constraints, only certain facilities are inspected every year and preference is typically given to facilities that have not been previously inspected. EPA typically does not re-inspect facilities that have been previously inspected and passed inspection, or have passed inspection within the last 10 years.¹¹⁴ EPA personnel report that a significant amount of time is spent tracking down facilities and requiring them to follow compliance requirements.¹¹⁵

The last survey analysis to provide a national estimate of the number of facilities regulated by EPA's SPCC Program was conducted almost two decades ago,¹¹⁶ with no new EPA research completed since the 1995 SPCC Survey. According to this survey, only an estimated 39 percent of the facilities in the petroleum-refining and related industries category met the SPCC storage criteria. Another significant finding of the survey was that a large proportion of facilities that meet the SPCC capacity threshold requirements might not be in full compliance with all regulatory requirements.¹¹⁷ These numbers and trends show that many of these facilities were not meeting the SPCC storage and compliance criteria, which may indicate they don't comply with other regulatory requirements — such as the Facility and Vessel Response plans described more fully below.

108 *Id.*

109 Thomas Email, *supra* note 74.

110 *Id.*

111 Guidance on Vessel and Facility Response Plans, *supra* note 106.

112 Thomas Email, *supra* note 74.

113 Telephone communication with Dr. Barbara Carr, SPCC coordinator, U.S. EPA Region 5, August 1, 2013.

114 *Id.*

115 *Id.*

116 *Analysis of the Number of Facilities Regulated by EPA's SPCC Program*, U.S. EPA, 1995 (available at http://www.epa.gov/osweroe1/docs/oil/spcc/pap_tpop.pdf).

117 *Nutshell Summary of EPA's National Survey of Oil Storage Facilities*, 1995 (available at http://www.epa.gov/osweroe1/docs/oil/spcc/surv_oilfac.pdf).

Along with Coast Guard regulations pertaining to Vessel Response Plans, EPA regulations also mandate preparedness plans for facilities—known as Facility Response Plans (FRPs)—in accordance with the Oil Pollution Act. According to EPA, 540 facilities in EPA Region 5 meet FRP criteria.¹¹⁸ Notably, there are 24 FRP facilities within a half-mile of the Great Lakes and 15 of these facilities transfer petroleum over water.¹¹⁹

While the main goal of the SPCC regulation is prevention, the FRP rules are designed to ensure that major petroleum facilities have adequate oil-spill response capabilities.¹²⁰ For facilities that ship products by vessel, the Coast Guard’s jurisdiction extends from the vessel to the tank or vice versa.¹²¹ EPA jurisdiction extends from the storage tanks on land and their transfer to a truck.¹²² The U.S. Department of Transportation regulates the product once in transit.¹²³ FRP rules generally apply to facilities storing more than 1 million gallons of oil; facilities storing 42,000 gallons and transporting oil over water; and facilities which had a previous spill of 10,000 gallons or more.¹²⁴ In order for EPA to require such a response plan, there must be a reasonable chance of substantial harm.¹²⁵ Although the details of the FRP plans are largely left to the facility, or the vessel owner or operator, federal regulations contain minimum guidelines for the plans and require semi-regular exercises to ensure personnel respond appropriately in the event of a spill.¹²⁶

D. Role of U.S.-Canadian Agreements in Oil-Spill Prevention

The U.S. and Canada began their cooperation on Great Lakes issues with the Boundary Waters Treaty of 1909.¹²⁷ In 1978, the U.S. and Canada signed the Great Lakes Water Quality Agreement (GLWQA) to provide a framework for binational cooperation and coordination regarding the Great Lakes; the agreement was significantly revised in 2012.¹²⁸ Although the scope of the GLWQA is broader than oil transportation, it contains provisions relevant to oil shipping and spills. For example, if one country becomes aware of a pollution incident or threat of an incident that would be of joint concern, it must notify the other country.¹²⁹ Additionally, Annex 5 to the GLWQA calls for the development of measures aimed at preventing and controlling vessel discharges, including oil.¹³⁰ Finally, the GLWQA may require notification regarding shipping even before a spill happens or becomes imminent, under a provision requiring notification “of planned activities that could lead to a pollution incident or could have a significant cumulative impact” on the Great Lakes.¹³¹ Section 6(c) of the GLWQA lists oil pipelines and drilling as examples of activities that could trigger such notification.

In addition, the Great Lakes-St. Lawrence Seaway System is administered jointly by the Canadian and U.S. governments.¹³² The system makes all of the Great Lakes accessible to smaller oceangoing vessels on all of the lakes through a system of channels and canals that connect to the Atlantic Ocean.

118 Meeting with U.S. EPA Region 5 Superfund Emergency Response and SPCC Section: Dr. Barbara Carr, Alexander Tzallas, Mindy Clements, Mick Hans, Anne Whelan, September 24, 2013.

119 *Id.*

120 Facility Response Plan Rule, U.S. EPA Emergency Management, last updated 11/1/2013 (available at <http://www.epa.gov/oem/content/frps/>).

121 EPA Meeting, *supra* note 118.

122 See generally *Facility Response Planning Compliance Assistance Guide*, U.S. EPA Oil Program Center (available at <http://www.epa.gov/osweroe1/docs/oil/frp/frpguide.pdf>).

123 See generally Pipeline and Hazardous Materials Safety Administration website, last updated November 1, 2013 (available at <http://www.phmsa.dot.gov/hazmat/regs>).

124 33 C.F.R. §§154, 155.

125 <http://www.epa.gov/oem/content/frps/frpwho.htm>

126 EPA Meeting, *supra* note 118.

127 Treaty Between the United States and Great Britain Relating to Boundary Waters, and Questions Arising Between the United States and Canada, 1909 (available at <http://www.ijc.org/en/BWT>).

128 Great Lakes Water Quality Agreement, as amended in 2012 (available at http://www.epa.gov/glnpo/glwqa/20120907-Canada-USA_GLWQA_FINAL.pdf).

129 *Id.* at Article 6(a).

130 *Id.* at Annex 5.

131 *Id.* at Article 6(c).

132 Great Lakes-St. Lawrence Seaway System website, The St. Lawrence Seaway Management Corporation, last updated 2013 (available at <http://www.greatlakes-seaway.com/en/seaway/history/>).

This system has its own spill-response regulations and requirements that piggyback onto the Coast Guard requirements.¹³³

E. Role of the States and Provinces in Oil-Spill Prevention

In terms of spill prevention, some Great Lakes states have prevention programs in place to supplement EPA and Coast Guard programs, including Michigan,¹³⁴ Wisconsin¹³⁵ and Minnesota.¹³⁶ In regard to spill response, Great Lakes states have first-response capability through state emergency response programs and participate in Regional Response Exercises. States outside the Great Lakes region have updated their spill-response protocols for spills in open water and could serve as a model for Great Lakes states. For example, the state of Washington has created a Vessel of Opportunity (VOO) Plan, which identifies private vessels — such as fishing vessels — that can help out in the event of a spill.¹³⁷ VOOs were an integral part of the cleanup following the 2010 Deepwater Horizon spill off the Gulf Coast.¹³⁸ Washington has also implemented an aggressive spill-response program with a 2013-15 implementation schedule.¹³⁹ California and Alaska are still other examples of states that have robust oil-pollution prevention and response programs that could be used as models for Great Lakes states.¹⁴⁰

Under the Canadian Environmental Policy Act, Canada has created a Marine Oil Preparedness and Response Regime, which coordinates response activities with the federal government, provincial governments and industry.¹⁴¹ Ontario's Ministry of Environment manages the Spills Action Centre, which monitors spills in the Great Lakes and coordinates response efforts.¹⁴² Ontario and Michigan signed an agreement in 1988 requiring notification for spills if drinking water supply is threatened.¹⁴³ Local Coast Guard personnel have primary responsibility to respond to spills and coordinate with clean-up contractors as necessary.¹⁴⁴ Unfortunately, as of 2012, Environment Canada has proposed dramatic funding cuts and consolidation of its oil-response programs, which would place a larger burden on the U.S. government, states and private industry to respond to spills.¹⁴⁵

133 33 C.F.R. §401 et seq.

134 Michigan Rules for Pollution Incident Prevention plans (see http://www.michigan.gov/deq/0,4561,7-135-3313_23420---,00.html).

135 Hazardous Substances Spills website, Wisconsin Department of Natural Resources, last updated March 29, 2013 (available at <http://dnr.wi.gov/topic/spills/>).

136 Minnesota Pollution Control Agency Emergency Response website, last updated on August 22, 2013 (available at <http://www.pca.state.mn.us/index.php/waste/waste-and-cleanup/cleanup/emergency-response/index.html>).

137 National Commission on the BP Deepwater Horizon Oil Spill and Offshoring Drilling, March 11, 2011 (available at <http://cybercemetery.unt.edu/archive/oilspill/20121210181843/http://www.oilspillcommission.gov/media/response/response-actions-vessels-of-opportunity.html>).

138 *Id.*

139 The Spill Program's vision is to prevent, prepare for and respond aggressively to oil spills; to be our best for the state of Washington. Our goal is "zero spills." The Spill Program's mission is to protect Washington's environment, public health and safety through a comprehensive spill prevention, preparedness and response program. See Spill Prevention, Preparedness and Response Program 2013-15, Washington Department of Ecology (available at [http://www.ecy.wa.gov/programs/spills/about_us/SPPR%202013-2015%20Program%20Plan%20\(Final\).pdf](http://www.ecy.wa.gov/programs/spills/about_us/SPPR%202013-2015%20Program%20Plan%20(Final).pdf)).

140 See Spill Prevention and Response, Alaska Department of Environmental Conservation (<http://dec.alaska.gov/spar/>); see also Office of Spill Prevention and Response, California Department of Fish and Game (<http://www.dfg.ca.gov/ospr/>).

141 See S.C. 1999, c. 33 et seq. (available at <http://www.tc.gc.ca/eng/marinesafety/tp-tp14471-menu-1024.htm>).

142 See Ontario's Framework for Spill Preparedness and Response, Great Lakes Commission, October 7, 2010 (available at <http://www.glc.org/announce/10/pdf/Zikovitz101007.pdf>).

143 *Id.*, at 16.

144 *Id.*, at 21-23.

145 Gloria Galloway, *Cuts at Environment Canada Mean Fewer Left to Clean Up Oil-Spill Mess*, The Globe and Mail, September 6, 2012 (available at <http://www.theglobeandmail.com/news/politics/cuts-at-environment-canada-mean-fewer-left-to-clean-up-oil-spill-mess/article4178488/>).



Photo: Jason Rehmus

Policy Recommendations

Pressure for significant tar sands crude shipping by vessels on the Great Lakes is mounting, as is the need to understand whether our region can or should embrace such a scenario with all of its inherent risks. Although the U.S. has both a domestic and international framework in place that is intended to prevent, respond to and pay for spill mitigation, the current regulatory net has far too many holes. The regulatory and response framework for petroleum shipping on the Great Lakes is not fully up to the task of protecting the lakes from spills today, and is certainly not an adequate starting point from which to consider the viability of tar sands crude shipment by vessel. Now is the time to upgrade our oil-spill policies, before the next spill causes irreversible harm to the Great Lakes. These are the initial commitments that must be made prior to a discussion of whether tar sands crude shipping is a wise choice for the Great Lakes.

Improving oil-spill policies requires an “all-hands-on-deck” approach. Action is needed internationally and nationally, at the federal and state level, and from both public and private entities. Below are specific policy recommendations and suggested lead parties for implementing them.

A. Congressional Action

The Great Lakes Commission’s Emergency Preparedness Task Force issued a report (the “Emergency Task Force Report”) in 2012 with several key recommendations to address Great Lakes spills.¹⁴⁶ A key recommendation was to increase federal funding for preparedness and response programs in four priority spill categories: vessel-based, facility-based, cold weather and pipeline spills.¹⁴⁷ A proactive stance by Congress now can ensure the U.S. is prepared to prevent and respond to spills as effectively as possible, saving scarce funds in the long run while protecting some of our nation’s greatest national resources. Specifically, the commission proposed funding increases to the Oil Spill Liability Trust Fund,¹⁴⁸ the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), EPA, Coast Guard, the Pipeline and Hazardous Materials Safety Administration (PHMSA) acting through the Office of Pipeline Safety (OPS), and state environmental agencies.¹⁴⁹

¹⁴⁶ Task Force Report, *supra* note 35.

¹⁴⁷ *Id.*, at, p. 23.

¹⁴⁸ 26 U.S.C. §9509 et seq.

¹⁴⁹ Task Force Report, *supra* note 35, p. 19-23.

B. Coast Guard and EPA Action

1. Improve Collaboration

Following the 2007 SONS exercise,¹⁵⁰ the Coast Guard (along with EPA) issued a report¹⁵¹ identifying 24 action items from the two main phases of the exercise that should be addressed to improve future response efforts. Many underscored the need for better communication and coordination between

the parties involved.¹⁵² For instance, the report found most agencies were unaware of the other agencies' competencies and resources, a factor that hindered the coordination needed for an efficient response.

The SONS report assigned different agencies the task of improving responses in the highlighted action items, noting that the success of the exercise ultimately depends on those agencies' abilities to address the issues in a timely and effective manner.¹⁵³ The Coast Guard, in



consultation with the EPA, should next issue a follow-up report on the progress made in addressing the coordination and communication issues identified in the SONS 2007 report, and create a timeline for achieving results in areas where insufficient progress has been made.

Regionally, the Coast Guard has identified specific problem areas and remedies. These include developing Type 2 and 3 Incident Management Teams. Type 2 teams are made up of national and state personnel, whereas Type 3 teams are typically made up of state and local personnel.¹⁵⁴ In addition, responders must be qualified according to National Incident Management System (NIMS)¹⁵⁵ standards to improve resource tracking, prioritization, allocation and ordering at all levels of response and among various agencies. Further, the Region 5 Regional Response Team (RRT) must commission a science and technology committee to regularly discuss emergent mapping and imaging resources and technologies, as well as other technology issues. Future participation in PREP exercises is also required.¹⁵⁶

2. Continue to Conduct Exercises for the Four Spill Categories and Perform another SONS Exercise in the Great Lakes Region

Continuing exercises in the priority spill categories is important. Although these exercises inevitably will be — and should be — multi-jurisdictional, the Coast Guard should continue to take the lead. Additionally, the Coast Guard and other responsible agencies should coordinate another SONS exercise involving a spill in the Great Lakes. Another SONS exercise in the region is also an effective method of gauging progress on the action items identified after SONS 2007 and determining where improvement is still needed. This exercise should include submerged oil scenarios and deployment of the new technologies described above, including a tar sands-specific exercise.

¹⁵⁰ SONS, *supra* note 95.

¹⁵¹ *Id.*

¹⁵² *Id.*, at Appendix B.

¹⁵³ *Id.*, at p. III.

¹⁵⁴ See National Response Team, *U.S. Coast Guard National Response Framework Concept of Operations* (available at http://www.nrt.org/production/NRT/RRTHome.nsf/Resources/RRTHome.nsf/FILE/NRF_USCG_CONOP.PDF).

¹⁵⁵ See generally: Incident Management System, Federal Emergency Management Agency website, last updated June 4, 2013 (available at <http://www.fema.gov/national-incident-management-system>).

¹⁵⁶ SONS, *supra* note 95



Better spill-response procedures, which will increase response capability and decrease response time, are necessary to remove oil more quickly, effectively and efficiently from the affected environment. The Coast Guard must review and evaluate current spill-preparedness and response education and training requirements for operators of oil transport vessels in the Great Lakes. These education programs and requirements must be improved and modified frequently. Spill-response

trainings, involving various authorities and different companies, should be carried out monthly to ensure communication, information sharing and collaboration between the public and private sector.

3. Update Area Contingency Plans to Reflect Spill-Response Protocol for a Tar Sands Crude Event, and Standardize ACP Process

The Coast Guard should also update the ACPs for the Great Lakes region to include response activities required for a tar sands crude spill event. The ACPs that include response protocols focus mainly on the requirements of a crude oil or fuel oil event (e.g. nearest environmental contractor, available equipment and personnel, and projected timeline based on past events). Because a tar sands crude spill event in the Great Lakes is unprecedented, the Coast Guard is unprepared for the particular type of submerged oil clean-up regime that would be required. The Coast Guard should also work to streamline the ACP process and format.

C. State Action

1. Increased Response and Preparedness Funding

No matter how strong the federal commitment to spill prevention and response, a comprehensive approach to spills requires that state agencies are also adequately staffed and fully funded. Maintaining appropriate levels of funding (and thereby ample staffing) is needed as state agencies begin to review permits for companies, such as Calumet L.P., that seek to embark on major tar sands crude shipping on vessels. Only with sufficient funds and personnel can state agencies properly review permits before sanctioning new activities on the Great Lakes. Great Lakes states should look to Minnesota and Wisconsin as examples of robust state-based oil-spill prevention programs; while EPA's spill-prevention and response capabilities are significant, states have an important role to play.¹⁵⁷

2. Update Great Lakes State Regulatory Regimes

Great Lakes states must modernize their approach to spill prevention and response. Unfortunately, many states have not revised their spill laws in decades. Great Lakes states should follow the lead of states such as Washington which, after having not revised its oil-spill laws since the early 1990s, recently conducted a thorough overhaul of those laws.¹⁵⁸ Following the Deepwater Horizon spill in the Gulf of Mexico, the state of Washington reviewed its laws to assess strengths and weaknesses in responding to and preventing spills from vessels. In Washington, the evaluation led to passage of a law¹⁵⁹ that required the Washington State Department of Ecology¹⁶⁰ to update planning and response

¹⁵⁷ EPA Meeting, *supra* note 118.

¹⁵⁸ See Russell Prugh, *Washington State Revises Oil Spill Laws on One-Year Anniversary of Deepwater Horizon Disaster*, Marten Law, May 4, 2011 (available at http://www.martenlaw.com/newsletter/20110504-wash-revises-oil-spill-laws#_ednref1).

¹⁵⁹ H.R. 1186, Washington State, 2011; see also *Governor signs landmark legislation improving Washington protection from major oil spills: Ecology-Puget Sound Partnership recommendations from 2010 Gulf of Mexico spill response align with bill*, April 20, 2011 (available at http://www.ecy.wa.gov/news/2011/qov_20110420.html).

¹⁶⁰ Washington Spills Program, *supra* note 139.

procedures and revise technology requirements, expand reporting requirements, triple the penalties for some spills, and make numerous other changes.¹⁶¹

States in the Great Lakes region should similarly review and update their laws — even states that have been singled out earlier here for generally commendable regulations. For instance, Wisconsin and other states that require notification only upon a discharge¹⁶² should modify their laws to require notification upon the possibility or threat of a discharge in order to ensure quicker responses to spills. Minnesota’s Emergency Response Team (ERT) includes 24-hour on-call staff responding to approximately 2,000 spills across the state annually.¹⁶³ The ERT works closely with local and federal responders and coordinates response plans.¹⁶⁴ This is a model for other Great Lakes states, yet there’s room for Minnesota’s policies to be improved in other areas. Great Lakes states should follow the state of Washington’s lead and task their relevant state agencies with designing effective VOO plans.¹⁶⁵ Such rules can coordinate VOO response efforts in advance, thus helping create a more efficient spill response. Great Lakes states should also adopt California’s¹⁶⁶ and Alaska’s¹⁶⁷ “financial responsibility approach,” which requires operators of oil transport vessels to provide proof of financial ability to respond to clean-up efforts and claims resulting from a spill in order to lawfully operate.¹⁶⁸ The preemptive approach of coastal states like Washington, responding to the threat of vessel spills before they happen, is needed throughout the Great Lakes region.

D. Private Action

1. Spill-Response Preparation

The most effective and thorough oil-spill policy will include efforts from those beyond the public agencies with jurisdiction over shipping. Private parties who wish to benefit from tar sands crude shipping bear most of the burden of implementing spill planning and response procedures. The Coast Guard, EPA and other relevant agencies should take the lead in developing generally applicable regulations, but private parties should engage in the process by working with consultants to tailor Best Management Practices and training to a particular facility or vessel. For example, private parties should identify specific spill-response capabilities and VOO resources in advance of a spill and conduct thorough spill-response training.

2. Improved Industry Coordination

Financial support from industry should revive previously abandoned efforts, such as the FSIC.¹⁶⁹ An updated FSIC would be an invaluable resource for spill planning and response. Creating a newly functioning FSIC would require coordinated industry participation that would also have the positive effect of resuscitating GLSPI or a similar public-private partnership. At its founding, GLSPI included not only the governors of the Great Lakes states, but also the chief executive officers of Amoco Oil Company, BP America, Marathon Oil Company, Mobil Oil Corporation, Sun Oil Company and Total Petroleum.¹⁷⁰ The concept of industry leaders working with government officials to protect the Great Lakes is as an even better idea now, given the new threats, than it was at GLSPI’s founding. Industry must again become involved in partnerships aimed at protecting public resources.

161 Prugh, *supra* note 158.

162 s. 292.11(2)(a) Wis. Stats.

163 Minnesota Spill Response, *supra* note 136.

164 *Id.*

165 *Id.*

166 14 C.C.R. subd. 4 ch. 2 subchap. 1 §795(c) (Surety Bond).

167 Alaska Stats. 46.04.040 and 46.04.055; 18 AAC 75, Article 2.

168 Alaska Spill Response, *supra* note 140.

169 Freshwater Spills Information Clearinghouse, *supra* note 29.

170 *Id.*

E. International Action

1. GLWQA Notification

As noted above, petroleum shipping on the Great Lakes is contemplated in the GLWQA. Before the U.S. or Canada considers allowing tar sands crude shipping by vessel or makes administrative decisions that substantially affect how such shipping will take place, they should notify one another in accordance with the GLWQA. Doing so will ensure the two countries collaborate on shipping decisions likely to have a substantial effect on the Great Lakes.

2. Great Lakes Commission Study on Tar Sands Crude

Previous experience has shown that tar sands crude spills present particular challenges to responders.¹⁷¹ Although the experience with Enbridge's Kalamazoo River spill exposed many of the difficulties related to tar sands crude spills, a river spill is not a perfect analogue to a deep-water spill in the Great Lakes.

Fortunately, the Great Lakes Commission (GLC) has decided to take a closer look at oil transport on the Great Lakes.¹⁷² During its annual meeting on Sept. 9, 2013, the GLC instructed its staff to conduct a study of the environmental and economic implications of plans to move more oil over and around the Great Lakes and the St. Lawrence River region by pipeline, rail cars and ships.¹⁷³ In this broader context, the GLC should carefully study the risks of shipping tar sands crude on the Great Lakes and follow through on its commitment to prepare an issue brief for U.S. and Canadian review in 2014. Given the GLC's independence and expertise, it can help to fill gaps in the U.S. and Canada's knowledge about the best ways to respond to tar sands crude spills and whether this method of transport is appropriate for the Great Lakes.

¹⁷¹ Keystone XL, *supra* note 60.

¹⁷² *Preparation of an issue brief on the transportation of crude oil in the Great Lakes-St. Lawrence River region*, Great Lakes Commission, adopted September 9, 2013 in Milwaukee, Wisconsin (available at <http://www.glc.org/about/resolutions/13/pdf/FINAL-transport-oil-9-9-2013.pdf>).

¹⁷³ *Id.*

*Photo: Lloyd DeGrane*

Conclusion

As pressure for significant tar sands crude shipping by vessels on the Great Lakes mounts, so, too, does the need to understand whether our region can or should embrace such a use of the lakes with its inherent risks. No method of transporting oil can ever be perfectly safe, and history has shown that shipping by vessel is no exception. Additionally, as tar sands crude spill cleanups have proved particularly problematic, a cleanup of a deep-water tar sands crude spill in the Great Lakes would present new and extraordinary challenges. With the amount of tar sands crude shipped on the Great Lakes by vessel poised to expand as early as 2015, the Great Lakes will soon face a new threat that poses a substantial risk to their future.

We must preface our choice of whether to ship tar sands crude by vessel by proactively improving our oil-spill prevention and response policies. Efforts to improve our laws and regulations will necessarily be collaborative and engage all levels of government, as well as both private and public actors. At the federal level, the government must improve coordination and communication between the various agencies and departments responsible for shipping regulation and spill response. Great Lakes states must follow the lead of other states that have modernized their own agencies' practices based on lessons learned from previous spills and the availability of new technology. Industry, for its part, should work to develop best practices appropriate for different types of facilities and vessels. Finally, the U.S. and Canada should notify one another of plans to increase tar sands crude vessel shipping and complete the Great Lakes Commission study on petroleum transport in the Great Lakes.

These are steps we can take right away to make tar sands crude oil shipping on Great Lakes vessels a safer practice and to improve our ability to respond when something goes wrong. We cannot wait for a spill to occur — and risk potentially irreversible damage to the Great Lakes — before we improve our current policies.

*Photo: David Dodge*

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Photo: Chris Hadfield

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ALLIANCE FOR THE GREAT LAKES

ENSURING A LIVING RESOURCE FOR ALL GENERATIONS

About Alliance for the Great Lakes

Alliance for the Great Lakes serves as the voice of the 40 million people who rely on Great Lakes water for drinking, recreation and commerce. Formed in 1970, it is the oldest Great Lakes protection organization in North America. Its mission is to conserve and restore the world's largest freshwater resource using policy, education and local efforts, ensuring a healthy Great Lakes and clean water for generations of people and wildlife. Its headquarters are in Chicago, with offices in Buffalo, Cleveland, Detroit, Grand Haven and Milwaukee.

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