A Crude Awakening On The Great Lakes?

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By early 2016, Enbridge's 612-mile Sandpiper pipeline is expected to carry as many as 375,000 barrels per day from North Dakota's Bakken formation to its terminal in the port city of Superior, Wis.[1] This would be in addition to over 800,000 barrels per day of Canadian tar sands oil that Enbridge could send to Superior from Alberta, if it receives the necessary regulatory approval to expand the capacity of its thousand-mile Alberta Clipper (Line 67) pipeline.[2]

Some of this crude oil will be refined in Superior[3] but most of it will continue to eastern refineries primarily through Enbridge's 1,900-mile Lakehead system.[4] But there may soon be another option to send large volumes of crude oil from Superior: oil tanker or barge. The prospect of crude oil spills on the Great Lakes, however, has stoked public fears that need to be addressed or this option may never be available, regardless of how much more efficient, cost-effective or safer the option may prove in the shipment of crude oil to U.S. and Canadian refineries.

Current Petroleum Shipping on the Great Lakes

Shipping petroleum products on the Great Lakes is not new. In 2011, over 3.9 million tons of petroleum products — including 759,000 tons of fuel oil and 402,000 tons of gasoline — were shipped over the Great Lakes.[5] The only commodities that were shipped in greater quantities on the Great Lakes, in terms of tonnage, were iron ore, coal, limestone and cement.[6]

However, no crude oil was shipped on any of the Great Lakes in 2011, the last year gross commerce statistics are available.[7] And there have been no shipments of crude oil from Superior since the 1950s.[8] But that may change. With oil production soaring in North Dakota and Canada — and with growing concern over the safety of oil tank cars — finding better ways to ship oil east remains a significant challenge.

Recognizing this challenge, Calumet Specialty Product Partners and its dock operator, Elkhorn Industries, are exploring the feasibility of building and operating a crude oil loading dock on Lake Superior, near Calumet's Superior refinery, designed to load ships or barges with heavy Canadian and light Bakken crude oil for shipment east.[9] If the dock is completed as planned, some estimates indicate that Calumet could ship up to 35,000 barrels of oil per day, and as many as 13 million barrels annually, depending on the availability of appropriate, double-hulled vessels.[10]

Although Calumet reports that it has received interest from its customers regarding Great Lakes crude oil shipments, Calumet has yet to secure commitments.[11] Nevertheless, Calumet predicts that it could ship crude oil across the Great Lakes as early as the 2015 shipping season, pending necessary regulatory approvals.[12] Potential destinations include refineries in Illinois, Indiana, Michigan, Ontario and possibly Atlantic refineries, via the St. Lawrence Seaway. Because ships cannot sail on the Great Lakes during the winter when ice sets in, oil could be stored during the cold months at a tank farm in Superior.[13]

The idea of shipping crude oil on the Great Lakes has already been met with significant opposition, especially the shipment of tar sands oil. For instance, the Alliance for the Great Lakes released a report in November that focused on the unique risks that the shipment of tar sands oil would pose to the Great Lakes.[14] The report concluded that tar sands oil is "a significant environmental threat on multiple fronts" and that, in particular, it "is extremely difficult, potentially even impossible, to completely remove from the water after a spill."[15] There is opposition in Canada as well: the Council of Canadians is calling for an outright ban on such crude oil shipping on the Great Lakes.[16] Whether north or south of the border, opponents regularly point to the ongoing cleanup of the Kalamazoo River as reason enough to ban the shipment of crude oil on the Great Lakes.

The Legacy of the Kalamazoo River Spill

On July 26, 2010, a pipeline on Enbridge's Lakehead System (Line 6B) ruptured near Marshall, Mich. An estimated 843,000 gallons of Canadian tar sands oil entered Talmadge Creek and flowed into the Kalamazoo River, where it was carried as many as 35 miles downstream, about 80 river miles from Lake Michigan.[17]

The subsequent cleanup has been difficult because the Canadian tar sands oil is thick, viscous and heavy.[18] For this reason, it has to be mixed with diluents — usually natural gas condensate, naphtha or a mix of other light hydrocarbons — to be readied for pipeline transportation as diluted bitumen, or "dilbit."[19] Rather than floating on the surface where conventional spill response techniques can be employed, such as booming, skimming and dispersant application, tar sands oil or dilbit can eventually sink and mix with bottom sediment, as it did in the Kalamazoo River.

The U.S. Environmental Protection Agency estimates about 180,000 gallons of this oil still remains in the bottom sediment of the Kalamazoo River and has ordered Enbridge to remove the recoverable oil (about 12,000-18,000 gallons) by dredging.[20] The EPA has concluded that the oil that will remain in the river after this dredging work is complete will not be able to be recovered right now without having a significantly adverse impact on the river.[21] If there is a tar sands oil spill on the Great Lakes, opponents warn, spill responders will face a task more difficult than the one encountered in the Kalamazoo River: recovering heavy crude oil at the lakebed, potentially hundreds of feet below the lake surface.[22] Debate continues regarding the buoyancy of tar sands oil, or dilbit.[23]

Although the Canadian government released a report in November that concluded that two of the highest-volume dilbit products transported by pipeline from the Canadian oil sands, Access Western Blend and Cold Lake Blend, floated on saltwater like conventional oil, more studies will likely follow regarding the oil's behavior in freshwater, which has a lower density.[24] Until additional research proves otherwise, recovering sunken oil is a spill response technique the oil industry will be required to address in much more detail in its spill response planning.

Sunken Oil Recovery

Spill responders, of course, have had to deal with sunken oil in past spills. In June 2013, the Department of Homeland Security issued a report on bottom oil recovery systems that identified nearly 50 incidents of submerged and sunken oil spills around the world since 1967.[25] In fact, since the Oil Pollution Act of 1990, facilities or vessels which store or transport heavy or sinking oils ("Group V" oils) in U.S. waters must identify response organizations and strategies for responding to heavy oil spills, including identifying methods for assessing, containing and recovering oil from subsurface environments.[26] Despite this fact, the DHS report found that "[s]ubmerged oil tracking, mapping and recovery is a largely unexplored area of spill response."[27]

To help advance oil detection and recovery capabilities, the DHS studied three systems that had been designed, including prototypes of those systems, to locate and recover sunken oil. The systems used, respectively, remote operating vehicles ("ROVs"), manned submersibles and dredging techniques. Despite the "unique capabilities" presented by each system, the DHS still concluded that "[c]urrent methods are inadequate to find and recover submerged oil, with responders having to reinvent the techniques on each occasion."[28]

Based on such conclusions, there will be significant public and political pressure on the industry to identify proven spill response techniques to detect and recover sunken oil — in addition to surface oil — before crude oil will be shipped over the Great Lakes in large volumes.

Upcoming Regulatory Battles

The unique spill risks crude oil shipping poses to the Great Lakes may be evaluated by the Wisconsin Department of Natural Resources ("WDNR") early this year as it determines whether to permit Calumet and Elkhorn to upgrade and operate their Superior dock. Although it appeared that the WDNR was inclined to approve the project with certain conditions in late December,[29] in a surprising move it rejected the project, without prejudice, and is now requesting more information about the project.[30]

The WDNR has also reversed its earlier position and will also be conducting an environmental assessment of the project, which will serve as the primary document of the WDNR's factual investigation to identify areas of environmental concern, and permit a reasonably informed prediction of a proposal's effect on the environment.[31] Notwithstanding the WDNR's new position, Calumet and Elkhorn continue seeking the necessary permits related to the oil-loading dock and its operation.[32]

Conclusion

If the WDNR allows the Calumet and Elkhorn's dock project to proceed, the discussion over crude oil shipping on the Great Lakes will move to a much larger stage, actively joined by the other Great Lakes states and the U.S. and Canadian governments over the risks — and necessary spill preparedness — of adding crude oil to the many other petroleum products now being shipped across the Great Lakes. These risks must be evaluated and compared, in turn, to the current risks and costs posed by moving the same oil by rail tank car and pipeline.

[1] Enbridge Press Release, Enbridge's $2.6 Billion Sandpiper Project Secures Anchor Shipper, Reinforcing Light Oil Market Access Program, Nov. 25, 2013, available at http://www.enbridgeus.com/Media-Center/News/2013/1879923/.

[2] Application for a Certificate of Need for a Crude Oil Pipeline, Aug. 16, 2013, available at http://www.enbridge.com/~/media/www/Site%20Documents/Delivering%20Energy/Projects/US/Line%2067%20Station%20Upgrade%20Project%20Phase%202%20Certificate%20of%20Need%2

[3] Calumet Specialty Product Partners operates a refinery in Superior that has aggregate crude oil throughput capacity of approximately 45,000 bpd. Calumet Superior Refining – Superior, Wisconsin, available at http://www.calumetspecialty.com/about-us/facilities/calumet-superior-refining.

[4] Enbridge U.S. Operations, available at http://www.enbridgeus.com/Delivering-Energy/Pipeline-Systems/Liquids-Pipelines/.

[5] U.S. Army Corps of Engineers, Waterborne Commerce of the United States Part 3 – Waterways and Harbors Great Lakes, 2011, xii, Statistics Commerce Statistics Center, available at http://www.navigationdatacenter.us/wcsc/wcsc.htm.

[6] Id. at xii-xiii.

[7] Id. at xii. The U.S. Army Corps of Engineers does note that 30,000 tons of crude oil was shipped on the Illinois River in 2011. Id. at 46.

[8] N. Vanderwall, Lake Superior Refinery Investigates Petroleum Shipping, April 25, 2013, available at http://greatlakesecho.org/2013/04/25/lake-superior-refinery-investigates-petroleum-shipping/.

[9] Calumet Press Release, Jan. 25, 2013, available at http://phx.corporate-ir.net/phoenix.zhtml?c=194485&p=irol-newsArticle_print&ID=1778108&highlight=.

[10] See Y. Hussain, Are the Great Lakes the New Transport Lane for Alberta Crude Oil?, Financial Post, Dec. 12, 2013, available at http://business.financialpost.com/2013/12/12/are-the-great-lakes-the-next-pipeline-for-alberta-crude-oil/?__lsa=f905-1eff; The Council of the Canadians, Letter to the Wisconsin Department of Natural Resources, Dec. 6, 2013, available at http://canadians.org/sites/default/files/oil-barge-submission-1213.pdf.

[11] Y. Hussain, Are the Great Lakes the New Transport Lane for Alberta Crude Oil?, Financial Post, Dec. 12, 2013, available at http://business.financialpost.com/2013/12/12/are-the-great-lakes-the-next-pipeline-for-alberta-crude-oil/?__lsa=f905-1eff.

[12] Calumet Press Release, Jan. 25, 2013, available at http://phx.corporate-ir.net/phoenix.zhtml?c=194485&p=irol-newsArticle_print&ID=1778108&highlight=.

[13] Joe Taschler, Calumet Specialty Products Considers Lake Superior Crude Oil Loading Dock, Jan. 26, 2013, available at http://www.jsonline.com/business/calumet-specialty-products-considers-lake-superior-crude-oil-loading-dock-f98h3ub-188375851.html.

[14] Alliance for the Great Lakes, Oil and Water: Tar Sands Crude Shipping Meets the Great Lakes?, Nov. 20, 2013, available at http://www.greatlakes.org/document.doc?id=1425.

[15] Id. at i-ii.

[16] The Council of Canadians, Council of Canadians Calls on Wisconsin Ministry of Natural Resources to Shut Down Tar Sands Project, Dec. 6, 2013, available at http://www.canadians.org/media/council-canadians-calls-wisconsin-ministry-natural-resources-shut-down-tar-sands-project.

[17] EPA's Response to the Enbridge Oil Spill, available at http://www.epa.gov/region5/enbridgespill/index.html.

[18] Canadian Association of Petroleum Producers, What are Oil Sands?, available at http://www.oilsandstoday.ca/whatareoilsands/Pages/WhatareOilSands.aspx.

[19] API Fact Sheet, Diluted Bitumen, available at http://oilsandsfactcheck.org/wp-content/uploads/2013/04/Diluted-Bitumen-Fact-Sheet_API-AOPL.pdf.

[20] EPA, Dredging Begins on Kalamazoo River, Aug. 2013, available at http://www.epa.gov/region5/enbridgespill/pdfs/enbridge_fs_201308.pdf.

[21] Id.

[22] Government of Canada, Properties, Composition and Marine Spill Behavior, Fate and Transport of Two Diluted Bitumen Products from the Canadian Oil Sands, Nov. 30, 2013, available at http://www.ec.gc.ca/scitech/F5C2D374-AC34-4429-BB1A-93FD61E2D3F3/1633_Dilbit_Technical_Report_e_v2_FINAL-s.pdf.

[23] See, e.g., Lisa Song, Dilbit Sinks in Enbridge Oil Spill, but Floats in its Lab Study, Inside Climate News, Mar. 14, 2013, available at http://insideclimatenews.org/news/20130314/tar-sands-dilbit-sinks-enbridge-oil-spill-floats-its-lab-study.

[24] Government of Canada, Properties, Composition and Marine Spill Behavior, Fate and Transport of Two Diluted Bitumen Products from the Canadian Oil Sands, Nov. 30, 2013, 5-6, available at http://www.ec.gc.ca/scitech/F5C2D374-AC34-4429-BB1A-93FD61E2D3F3/1633_Dilbit_Technical_Report_e_v2_FINAL-s.pdf.

[25] Department of Homeland Security, Development of Bottom Oil Recovery Systems – Final Project Report, June 2013, Appendix B, available at http://www.iccopr.uscg.gov/iccopr/i/files/Development%20of%20Bottom%20Oil%20Recovery%20Systems%20-%20Final%20Project%20Report.pdf.

[26] Id. at v.

[27] Id.

[28] Id.

[29] Y. Hussain, Are the Great Lakes the New Transport Lane for Alberta Crude Oil?, Financial Post, Dec. 12, 2013, available at http://business.financialpost.com/2013/12/12/are-the-great-lakes-the-next-pipeline-for-alberta-crude-oil/?__lsa=f905-1eff.

[30] Lee Burquist, DNR Delays Upgrade for Superior Dock, Milwaukee Journal Sentinel, Jan. 9, 2014, available at http://www.jsonline.com/news/wisconsin/dnr-delays-upgrade-for-superior-dock-b99180921z1-239517231.html.

[31] Wisconsin Administrative Code NR 150.

[32] Steve Sutherlin, Barge Plan Still Has Life, Petroleum News – Bakken, Jan. 5, 2014, available at http://www.petroleumnewsbakken.com/pntruncate/960748512.shtml.