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MEMORANDUM

To: Transportation, Sustainability and Energy Committee

From: Ian Houseal, Assistant to the City Manager, Sustainability Coordinator

Date: May 1, 2013

Re: Resolution to Protect the Health, Safety, and Economic Well-being of Local Citizens and Portland's Natural Resources from the Potential Impact of Tar Sand's Oil

At the request of the Committee, please see the attached revisions to the draft Resolution on tar sands and background documents.

The Committee requested for refinement to the draft resolution to include citations. Citations have been included.

MICHAEL F. BRENNAN (MAYOR)
KEVIN J. DONOGHUE (1)
DAVID A. MARSHALL (2)
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CHERYL A. LEEMAN (4)

CITY OF PORTLAND
IN THE CITY COUNCIL

JOHN R. COYNE (5)
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JILL C. DUSON (A/L)
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A RESOLUTION TO PROTECT THE HEALTH, SAFETY, AND ECONOMIC WELL-BEING OF LOCAL CITIZENS AND PORTLAND'S NATURAL RESOURCES FROM THE POTENTIAL IMPACT OF TAR SANDS OIL

WHEREAS, the City of Portland intends to protect the natural resources on which the city depends, including but not limited to: its land resources; source of drinking water at Sebago Lake; and its marine and aquatic resources including Portland Harbor, Casco Bay, and the rivers and tributaries passing through and adjacent to Portland; and

WHEREAS, tar sands (a.k.a. oil sands or bituminous sand) is a combination of clay, sand, water, and bitumen. Tar sands are mined and processed to extract the oil-rich bitumen, which is then refined into an extra heavy crude oil; and

WHEREAS, nationwide, in the last three years, there have been two major pipeline ruptures and an unspecified number of minor ruptures of pipelines carrying tar sands oil; and

WHEREAS, the July 2010 pipeline rupture in Marshall, Michigan resulted in a spill estimated to be more than 819,000 gallons of tar sands oil and contaminated 35 miles of the Kalamazoo River and Morrow Lake. As of March 14, 2013 the spill has not been fully cleaned-up. The EPA has ordered dredging in sections of the river and in Morrow Lake Delta. The total clean-up cost reached \$809 million in 2012 and is increasing, more than any non-ocean spill on record; and

WHEREAS, the March 2013 pipeline rupture in Mayflower, Arkansas spilled more than an estimated 157,500 gallons of tar sands oil and is still underway, but has resulted in the evacuation of approximately 22 homes, and the clean-up of approximately 28,000 barrels of oily water; and

WHEREAS, the spills occurred on pipelines that had carried non-tar sands oil for years, but had not been specifically designed to carry tar sands oil; and

WHEREAS, tar sands oil alone weighs more than water. However, tar sands oil is diluted with solvents to decrease the viscosity of the tar sands oil. This allows it to flow through a pipeline while also decreasing its weight compared to water; and

WHEREAS, the solvents may separate from tar sands oil in the event of a spill in which case the oil will sink quickly. In such instances, damage may be greater and clean-up more expensive than it would be with other lighter crude oils; and

WHEREAS, techniques for cleaning-up tar sands oil in marine and aquatic environments are still not fully developed and are experimental or difficult; and

WHEREAS, the Portland-Montreal pipeline crosses the Sebago Lake watershed, (Portland's source of drinking water) and terminates at Portland Harbor and Casco Bay, important resources to Portland's economic and recreational wellbeing; and

WHEREAS, the Portland-Montreal pipeline could be, in the future considered for carrying tar sands oil to Portland Harbor;

NOW, THEREFORE, BE IT RESOLVED, the City of Portland expresses its opposition, due to the risk to Portland's natural resources and citizens, of transporting tar sands oil in proximity to Portland's natural resources, specifically Casco Bay and Sebago Lake upon which the city depends; and

BE IT FURTHER RESOLVED, that the City of Portland calls upon the Maine State Legislature, U.S. State Department, U.S. Congress, U.S. EPA, and the President to require a thorough analysis of the potential impacts of any tar sands oil pipeline proposal through Maine, including a complete evaluation of the health, safety, and environmental risks and spill response techniques and impacts; and

BE IT FURTHER RESOLVED, the City of Portland supports the creation of clear Federal and State guidelines for tracking the chemical composition of pipeline transported fuels so that local governments, citizens, and first responders can better understand, and plan for, the risks associated with the specific type of fuel flowing through or to their communities; and

BE IT FURTHER RESOLVED, that the City of Portland transmit a copy of this resolution to Maine's Congressional delegation, Gov. Paul LePage, Maine State House and Senate leadership, the U.S. State Department, President of the United States, CEO of Portland Pipe Line Corporation, and the Canadian Consulate in Boston.

Sources:

2nd Paragraph: U.S. Departments of the Interior and Energy Oil Shale and Tar Sands Programmatic Environmental Impact Statement Public Information Guide.

3rd Paragraph: Environmental Protection Agency's (EPA) Mayflower Incident Unified Command Joint Information Center Report on Cleanup Operations in Mayflower, AR: April 16, 2013 and EPA Fact Sheet on EPA Orders Enbridge to Perform Additional Dredging to Remove Oil from Kalamazoo River www.epa.gov/enbridgespill/ updated March 14, 2013.

4th Paragraph: EPA Fact Sheet on EPA Orders Enbridge to Perform Additional Dredging to Remove Oil from Kalamazoo River www.epa.gov/enbridgespill/ updated March 14, 2013 and National Transportation Safety Board Press Release: July 10, 2012

5th Paragraph: Environmental Protection Agency's (EPA) Mayflower Incident Unified Command Joint Information Center Report on Cleanup Operations in Mayflower, AR: April 9, 2013 and ExxonMobil Press Release: March 31 2013.

7th Paragraph – Biello, David, Does Tar Sand Oil Increase the Risk of Pipeline Spills? Scientific American: April 2, 2013.

8th Paragraph – Material Safety Data Sheet, Heavy Crude Oil/Diluent Mix, Cenovus Energy Inc. Health and Safety: November 6, 2012 and ExxonMobil letter to EPA: April 10, 2013 in Gallucci, Maria, Dilbit or Not? Wabasca Crude Is the Question, Inside Climate News: April 18, 2013.

9th Paragraph: EPA - EPA Fact Sheet on EPA Orders Enbridge to Perform Additional Dredging to Remove Oil from Kalamazoo River www.epa.gov/enbridgespill/ updated March 14, 2013.

10th Paragraph: EPA - EPA Letter to U.S. Department of State dated April 22, 2013.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 22 2013

ASSISTANT ADMINISTRATOR
FOR ENFORCEMENT AND
COMPLIANCE ASSURANCE

Mr. Jose W. Fernandez
Assistant Secretary
Economic, Energy and Business Affairs
U.S. Department of State
Washington, DC 20520

Dr. Kerri-Ann Jones
Assistant Secretary
Oceans and International Environmental and Scientific Affairs
U.S. Department of State
Washington, DC 20520

Dear Mr. Fernandez and Dr. Jones:

In accordance with our authorities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, EPA has reviewed the Department of State's draft Supplemental Environmental Impact Statement (DSEIS) for a Presidential Permit application by TransCanada Keystone Pipeline, LP (TransCanada) to construct and operate the Keystone XL Project (Project). This DSEIS builds on the Department of State's August 2011 Final EIS, and includes information regarding a new proposed route in Nebraska.

NEPA serves an important role in the decision making process for federal actions that may have environmental effects. Through the NEPA process, federal agencies disclose and analyze the potential impacts of a proposed action and reasonable alternatives, as well as measures that could mitigate any potential harmful effects. NEPA brings transparency to the federal decision making process, requiring that other federal, state, tribal and local agencies, as well as citizens, are given a meaningful opportunity to provide comments, helping to ensure federal decisions are better informed.

EPA believes this DSEIS strengthens the analysis presented to date in the NEPA process. While we appreciate this effort, we also have several recommendations for improving the analysis and considering additional mitigation as you move forward to complete the NEPA process.

Greenhouse Gas Emissions

We commend the Department of State's efforts to estimate the lifecycle greenhouse gas (GHG) emissions associated with oil sands development and the proposed Project, to analyze the effect of the Project on Canadian oil sands production and to consider measures to reduce GHG emissions. As recognized by the DSEIS, oil sands crude is significantly more GHG intensive than other crudes, and therefore has potentially large climate impacts. The DSEIS reports that lifecycle GHG emissions from oil sands crude could be 81% greater than emissions from the average crude refined in the U.S. in 2005 on a well-to-tank basis, and 17% greater on a well-to-wheels basis.¹ This difference may be even greater depending on the assumptions made.² The incremental emissions from oil sands crude transported by the Project would therefore be 18.7 million metric tons CO₂-e (carbon dioxide equivalent) per year when compared to an equal amount of U.S. average crudes, based on the Project's full capacity of 830,000 barrels of oil sands crude per day.³ To place this difference in context, we recommend using monetized estimates of the social cost of the GHG emissions from a barrel of oil sands crude compared to average U.S. crude. If GHG intensity of oil sands crude is not reduced, over a 50 year period the additional CO₂-e from oil sands crude transported by the pipeline could be as much as 935 million metric tons. It is this difference in GHG intensity - between oil sands and other crudes - that is a major focus of the public debate about the climate impacts of oil sands crude.

Although the DSEIS describes the GHG intensity of oil sands crude, the DSEIS nevertheless concludes that regardless of whether the Project permit is approved, projected oil sands production will remain substantially unchanged. This conclusion is based on an analysis of crude oil markets and projections of oil sands crude development, including the potential for other means of transport to bring oil sands crude to market. One of the alternative transport possibilities discussed in the DSEIS is the potential construction of other pipelines. As part of this discussion, the DSEIS appropriately recognizes that there is uncertainty about when, if ever, additional pipelines will be built. In light of these uncertainties, the DSEIS examines options for transporting oil sands crude by rail, and concludes that scaling up transport by rail is logistically and economically feasible, and that market forces will result in additional rail transport of oil sands crude if the Project is not built. It is this finding that supports the DSEIS' overall conclusion that approval of the permit will not by itself substantially affect GHG emissions or contribute to climate change.

¹ DSEIS, Table 4.15-22 "GHG Emissions for Producing Gasoline from Different Crude Sources from NETL 2009 and Estimates of the Impact of Key Assumptions on the Oil Sands - U.S. Average Differential." In addition to lifecycle emissions estimates from the Department of Energy's National Energy Technology Laboratory (NETL) study, the DSEIS also provides estimates from other analyses. See discussion in DSEIS section 4.15.

² DSEIS, p. 4.15-106, "Adjusting the NETL results to include other product emissions could increase the differential in incremental emissions from WCSB oil sands compared to the 2005 U.S. average crude oils by roughly 30 percent."

³ DSEIS p. 4.15-105

The market analysis and the conclusion that oil sands crude will find a way to market with or without the Project is the central finding that supports the DSEIS's conclusions regarding the Project's potential GHG emissions impacts. Because the market analysis is so central to this key conclusion, we think it is important that it be as complete and accurate as possible. We note that the discussion in the DSEIS regarding energy markets, while informative, is not based on an updated energy-economic modeling effort. The DSEIS includes a discussion of rail logistics and the potential growth of rail as a transport option, however we recommend that the Final EIS provide a more careful review of the market analysis and rail transport options. This analysis should include further investigation of rail capacity and costs, recognizing the potential for much higher per barrel rail shipment costs than presented in the DSEIS. This analysis should consider how the level and pace of oil sands crude production might be affected by higher transportation costs and the potential for congestion impacts to slow rail transport of crude.

In its discussion of practicable options for mitigating GHG emissions, the DSEIS outlines ongoing efforts by the government of Alberta to reduce the GHG emissions associated with development of oil sands crude in Alberta. EPA recommends that the Final EIS complement this discussion with an exploration of specific ways that the U.S. might work with Canada to promote further efforts to reduce GHG emissions associated with the production of oil sands crude, including a joint focus on carbon capture and storage projects and research, as well as ways to improve energy efficiency associated with extraction technologies. With regard to the estimated GHG emissions from construction and operation of the proposed Project - primarily emissions associated with electrical generation for the pumping stations - we recommend that the Department of State explore specific commitments that TransCanada might make to implement the mitigation measures recommended in the DSEIS. This would complement the significant efforts already made to reduce the risk of spills and ensure community safety. Specifically, we recommend a focus on pumping station energy efficiency and use of renewable energy, as well as investment in other carbon mitigation options.

Pipeline Safety

We have learned from the 2010 Enbridge spill of oil sands crude in Michigan that spills of diluted bitumen (dilbit)⁴ may require different response actions or equipment from response actions for conventional oil spills. These spills can also have different impacts than spills of conventional oil. We recommend that these differences be more fully addressed in the Final EIS, especially as they relate to the fate and transport of the oil and the remediation that will be required. The Enbridge spill involved a 30-inch diameter pipeline, smaller than the 36-inch diameter pipeline for proposed Project, and 20,000 barrels of oil sands crude were released. In that spill, oil sands crude sank to the bottom of the Kalamazoo River, mixing with the river bottom's sediment and organic matter, making the oil difficult to find and recover. After almost three years of recovery

⁴ As noted in the DSEIS, transporting oil sands crude via pipeline requires that it be mixed with a petroleum-based product (called a diluent), such as benzene, naphtha or natural gas condensate, to make a less viscous liquid called dilbit (diluted bitumen).

efforts, EPA recently determined that dredging of bottom sediments will be required to protect public health and welfare and the environment. This determination was based in large part on demonstrations that the oil sands crude associated with the Enbridge spill will not appreciably biodegrade.⁵ We recommend that the Final EIS more clearly acknowledge that in the event of a spill to water, it is possible that large portions of dilbit will sink and that submerged oil significantly changes spill response and impacts. We also recommend that the Final EIS include means to address the additional risks of releases that may be greater for spills of dilbit than other crudes. For example, in the Enbridge spill, the local health department issued voluntary evacuation notices based on the level of benzene measured in the air. Given these concerns, it is important to ensure that the future response and remediation plans will protect communities from impacts due to spills.

The DSEIS also outlines specific measures that the Department of State would require TransCanada to undertake to prevent and detect oil discharges. The measures include commissioning an independent engineering analysis to review TransCanada's risk assessment of the potential impacts from oil discharges to surface and groundwater resources, as well as TransCanada's current proposals for placing mainline valves along the pipeline route and installing leak detection equipment. The DSEIS also notes that the Department of State will obtain concurrence from both EPA and PHMSA on both the scope of the engineering analysis and decisions regarding the need for any additional mitigation measures. We recommend that the Department of State provide an opportunity for public review and comment on the scope of the analysis, and an opportunity for public comment on a draft of the analysis when it is completed. We also recommend that the Final EIS consider requiring TransCanada to establish a network of sentinel or monitoring wells along the length of the pipeline, especially in sensitive or ecologically important areas, as well as where water supply wells are located and at stream crossings to provide a practical means for early detection of leaks that are below the proposed detection limit (1.5 – 2%) of the pipeline flow rate.

In addition to prevention measures, we agree with the DSEIS's suggestion that additional mitigation measures regarding preparedness to reduce the impacts of a spill may be appropriate (DSEIS, p. 4.13-79). For example, we recommend including the following measures as permit conditions:

- Requiring that the emergency response plan, as well as contingency plans address submerged oil, as well as floating oil, including in a cold weather response;
- Requiring pre-positioned response assets, including equipment that can address submerged oil;
- Requiring spill drills and exercises that include strategies and equipment deployment to address floating and submerged oil; and

⁵ Order for Removal under Section 311(c) of the Clean Water Act, March 14, 2013 (<http://www.epa.gov/enbridgespill/ar/enbridge-AR-1720.pdf>)

- Requiring that emergency response and oil spill response plans be reviewed by EPA.

The DSEIS also recognizes that dissolved components of the dilbit that may be transported through the pipeline, such as benzene, polycyclic aromatic hydrocarbons (PAHs), and heavy metals, could be slowly released back to the water column for many years after a release and could cause long-term chronic toxicological impacts to organisms in both the benthic and pelagic portions of the aquatic environment. We recommend that the Final EIS more clearly recognize that this characteristic of dilbit is different from the fate and transport of oil contaminants associated with conventional crude oil and refined product spills from pipelines. For that reason we recommend that as a permit condition TransCanada be required to develop a plan for long term sampling/monitoring in the event of an oil discharge to assess and monitor these impacts as part of the spill response plan. In addition, we recommend that the permit require TransCanada to provide detailed Material Safety Data Sheets and information about the diluent and the source crude oil to support response preparations and address safety concerns in advance of any spills.

Alternative Pipeline Routes

CEQ regulations implementing NEPA require the consideration of project alternatives in an EIS, and characterize the alternatives analysis as the “heart” of an EIS.⁶ The DSEIS has been significantly improved by considering more alternative routes, including an alternative that would avoid crossing the Sand Hills Region in Nebraska, reducing impacts to this fragile ecosystem. Another significant issue in the consideration of alternative routes for this Project has been the potential for impacts to the Ogallala Aquifer in the event of a spill. The alternative route in Nebraska has avoided most of the impacts to the Sand Hills Region, but still crosses the Ogallala Aquifer. The alternative laid out in the DSEIS that would avoid the Ogallala Aquifer is the I-90 Corridor Alternative, which largely follows the path of existing pipelines. The I-90 Corridor Alternative would significantly reduce the length of pipeline crossing the Northern High Plains Aquifer system, which includes the Ogallala formation, and would further reduce the potential for adverse impacts to critical groundwater resources.

We are concerned, however, that the DSEIS does not provide a detailed analysis of the Keystone Corridor Alternative routes, which would parallel the existing Keystone Pipeline and likely further reduce potential environmental impacts to groundwater resources. By determining that these routes are not reasonable, the DSEIS does not provide an analysis of their potential impacts sufficient to enable a meaningful comparison to the proposed route and other alternatives. The Keystone Corridor Alternatives were determined not to be reasonable alternatives primarily on the basis that these routes are longer than the proposed Project’s route, and that additional pipeline miles would be needed to connect to Bakken MarketLink project, which would allow the proposed Project to also transport crude from North Dakota and Montana. As we have indicated in the past, we believe these alternative routes could further reduce risks to

⁶ 40 C.F.R. 1502.14

groundwater resources. We recommend that the Final EIS either provide more detailed information as to why these alternatives were not considered reasonable or analyze these alternatives in more detail.

Community and Environmental Justice Impacts

The DSEIS provides a comprehensive analysis of community demographics, including minority, low-income, and tribal populations, along TransCanada's proposed pipeline route. We are especially appreciative of the effort to identify and contact each of the Local Emergency Planning Committees regarding the status of their emergency response plans, and to provide that information in the DSEIS. We also commend your recognition that environmental justice communities may be more vulnerable to health impacts from a spill, and appreciate your efforts to consider communities' access to health care, including consideration of "Health Professional Shortage Areas and Medically Underserved Areas" located along the proposed pipeline route.

EPA appreciates TransCanada's commitment to conduct cleanup and restoration and to provide alternative water supplies to affected communities in the event of an oil discharge affecting not only surface waters, but also groundwater. We recommend that these commitments be clearly documented as proposed permit conditions. We believe this would give important assurances to potentially affected communities of TransCanada's responsibilities in the event of an oil discharge that affects either surface or groundwater resources.

Conclusion

Based on our review, we have rated the DSEIS as EO-2 ("Environmental Objections – Insufficient Information") (see enclosed "Summary of Rating Definitions and Follow-up Actions").

We look forward to continuing to work with you and to provide assistance as you prepare the Final EIS. We also look forward to working with you as you determine whether approving the proposed project serves the national interest under Executive Order 13337 "Issuance of Permits With Respect to Certain Energy-Related Facilities and Land Transportation Crossings on the International Boundaries of the United States".

Please feel free to contact me or have your staff contact Susan Bromm, Director, Office of Federal Activities, at (202) 564-5400 if you have any questions or would like to discuss our comments.

Sincerely,


Cynthia Giles

Enclosure

Summary of Rating Definitions and Follow-up Action

Environmental Impact of the Action

LO--Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC--Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO--Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU--Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1--Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2--Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3--Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

EPA: Tar Sands Pipelines Should Be Held To Different Standards

by Elizabeth Shogren

April 24, 2013

Up until now, pipelines that carry tar sands oil have been treated just like pipelines that carry any other oil. But the Environmental Protection Agency now says that should change. That's because when tar sands oil spills, it can be next to impossible to clean up.

The agency made this argument in its evaluation of the State Department's environmental review of the Keystone XL pipeline project, which, if approved, would carry heavy crude from Alberta, Canada, to refineries in the United States.

The EPA's letter urges the State Department to set special standards to prevent Keystone from spilling, and make sure any spills that happen are rapidly contained.

The EPA says it has learned about the additional risks of tar sands spills from a cleanup of a 2010 tar sands spill into Michigan's Kalamazoo River that has dragged out nearly three years and cost more than \$1 billion. A lot of the heavy crude sank to the bottom and hasn't biodegraded.

Despite years of cleanup efforts, so much oil remains in the river bottom that the EPA recently ordered Enbridge, the company that operates the pipeline that spilled, to start dredging again.

"We're coming into the third year of intensive cleanup activity, and now we're looking at very intrusive and expensive dredging to try to get it out of the worst places where it's accumulated behind three dams," says Stephen Hamilton, an ecology professor at Michigan State University, who is the independent science adviser to the cleanup.

The EPA says another lesson of the 2010 Michigan spill is that tar sands spills can send harmful air pollution, such as benzene, into nearby communities.

"Given these concerns, it is important to ensure that the future response and remediation plans will protect communities from impacts due to spills," the EPA's letter states.

The EPA wants the State Department to require TransCanada to be ready, in case of a spill, with special equipment on hand to contain and clean up sunken oil. It also wants TransCanada to set up additional systems to detect leaks early, especially in ecologically sensitive areas and places where the pipeline crosses streams or near drinking water wells.

TransCanada, the company that wants to build and operate the Keystone, says its project already includes 57 new safeguards.

"We're talking about building the newest, safest pipeline that has been built to date in America," says Shawn Howard, a spokesman for TransCanada.

Some environmental groups recently petitioned the federal government to set new regulations for pipelines that carry tar sands oil, and they see the EPA's letter as a strong indication that the EPA supports the additional safeguards.

"This is the first time that an agency has come out and said that needs to happen, and we applaud them for that," says Beth Wallace, who has closely followed the EPA's response to the Michigan spill as a representative of the National Wildlife Federation.

An EPA spokeswoman said the agency had no comment beyond its letter.

Michigan State University professor Stephen Hamilton thinks more regulation is needed because of the many ways that a tar sands spill can be more harmful to the environment and people than a conventional oil spill. Another example he cited is that tar sands oil is a lot stickier than conventional crude, so everything it touches, even rocks, cannot be cleaned and needs to be thrown away.

"The consequences and the costs of the cleanup, once it gets into surface water systems as we've seen in the case of the Kalamazoo River, are incredibly high," he says. "And, you know, we'll never get it all out."

But Hamilton says even after all the damage he's seen from the Kalamazoo spill, there are bigger environmental risks from producing new sources of oil — the greenhouse gas emissions.

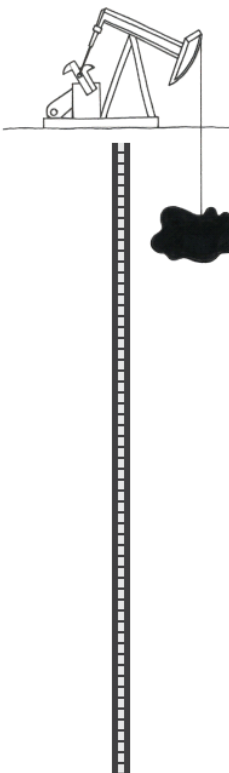
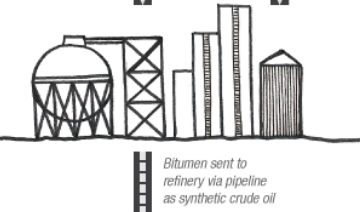
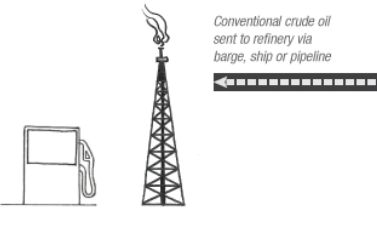
"Oil spills, as ugly as they are in the short term, ecosystems do eventually recover. It's quite different for the carbon that we're pumping into the atmosphere — that's going to be with humanity for centuries with its negative implications," Hamilton says. "So that's a much more worrisome issue."

It takes a lot more energy to produce tar sands oil than the conventional variety, so the former has a larger greenhouse gas footprint.

The EPA also says in its critique that the U.S. should work with Canada to figure out ways to reduce the greenhouse gases that come from getting tar sands oil out of the ground and turning it into gasoline.

Infographic: How Tar Sands Oil Is Produced

August 16, 2012

STAGE	TAR SANDS	OIL DRILLING
<p>MINING AND EXTRACTION</p>	<p>Open-Pit Mining</p> <p>About 255 square miles of land in Alberta, Canada, are surface mined. Once trees and top layers of soil are cleared away, big mining shovels scoop oil sands — a sticky mix of sand, water and bitumen — into trucks.</p> <p>The trucks deliver the material to an on-site processing facility, where it's mixed with hot water and shaken up. This separates the tar sand into three main layers: sand, water and bitumen.</p> <p>The bitumen is skimmed off the top and thinned with diluting chemicals, such as natural gas or light crude oil, so it can be sent via pipeline to an upgrading facility. Most of the water is recycled and used again in future processing; the sand is hauled back to the mine.</p> <p>Steam Extraction</p> <p>When oil sands deposits are more than 225 feet underground, two wells are drilled. One is used to inject steam into the tar sands deposit to heat the sand and make the bitumen flow more easily. The second well pipe collects the flowing bitumen and brings it to the surface. About 80 percent of Canada's tar sands reserves are deep enough to require this steam extraction method.</p>	<p>Crude Oil Drilling</p> 
<p>PROCESSING</p>	<p>Bitumen from the mines is usually processed at an upgrading facility into synthetic crude oil. On average it takes about two tons of mined tar sands to produce one barrel of crude oil.</p> <p>The bitumen extracted from the ground using steam gets diluted with liquid natural gas and other chemicals.</p>	 <p>Bitumen sent to processing facility via pipeline</p> <p>Bitumen sent to refinery via pipeline as synthetic crude oil</p>
<p>REFINING</p>	<p>The bitumen arrives at an oil refinery via pipelines.</p> <p>Regular crude oil arrives at a refinery by barge, ship or pipeline.</p> <p>The oil is processed into products like gasoline, jet fuel, plastics, asphalt, and other consumer and industrial products.</p>	 <p>Conventional crude oil sent to refinery via barge, ship or pipeline</p>
<p>CLEANUP</p>	<p>Tar Sands</p> <p>Raw bitumen can be denser than water, which can make it harder to clean up when it spills into waterways.</p> <p>In the 2010 Kalamazoo River spill, workers dredged up river sediment and aerated it to make the oil rise to the surface. They then captured the oil using standard cleanup methods.</p>	<p>Oil Drilling</p> <p>Oil produced by conventional oil drilling is generally less dense than water, so it floats. When it spills into water, it's corralled with booms, and cleaned up with vacuum trucks and absorbent pads.</p>

Source: Energy Information Administration, Government of Alberta/Alberta Energy

Credit: Alyson Hurt, Ayodha Ouditt and Andrew Prince / NPR

Chellie Pingree lobbies Obama to require environmental review if Portland pipeline is reversed to carry tar sands

By Whit Richardson, BDN Staff

Posted Feb. 27, 2013, at 4:52 p.m.

Last modified Feb. 27, 2013, at 5:10 p.m.

Reversing the flow? Currently, imported oil flows from South Portland to refineries in Ontario and Quebec via the Portland-Montreal Pipe Line. Concerns revolve around Portland Pipe Line Corp. statements that it might pursue to reverse the flow of the pipeline to carry oil sand crude oil from Montreal to South Portland.

WASHINGTON, D.C. — U.S. Rep. Chellie Pingree, D-Maine, sent a letter Wednesday to the Obama administration asking that any plan to reverse the flow of the Portland Montreal Pipeline to carry oil sands from Canada to Portland Harbor require a new permitting process and a thorough environmental review.

Pingree's letter to Secretary of State John Kerry includes the signatures of 17 other members of Congress, including Democratic Rep. Mike Michaud, who represents Maine's 2nd Congressional District. Neither Sen. Susan Collins, R-Maine, nor Sen. Angus King, I-Maine, signed the letter.

"Many of our constituents have significant concerns about the environmental and economic impacts a tar sands pipeline could pose to the region," Pingree, who represents Maine's 1st District, wrote in her letter to Kerry. "They question whether the transportation of Canadian tar sands through our communities for export would be in the United States' national interest. Oil tankers carrying tar sands could pose a real risk to wildlife and fisheries in Casco Bay, and throughout the Gulf of Maine and Atlantic."

At issue is the future of the Portland-Montreal pipeline, which Portland Pipe Line Corp. has operated for 70 years. Traditionally the pipeline has carried crude oil from Portland Harbor, where it arrives on oil tankers from all over the world, to refineries in Montreal. But as demand for foreign oil has fallen, the pipeline company has searched for new revenue sources.

Larry Wilson, the company's CEO, recently told the Bangor Daily News the company is "aggressively" looking for every opportunity to diversify its revenue, including reversing the flow of the pipeline to bring oil sand crude from Montreal to Portland, where it would be shipped to refineries on the East Coast.

The idea of pumping oil sands, often referred to as tar sands, through Maine has mobilized several environmental groups, led by the Natural Resources Council of Maine, to oppose the idea.

Pingree's letter is a follow-through on comments she made at a rally in Portland on Jan. 26, where more than 1,000 people protested the potential of pumping oil sands through the pipeline. In her speech that

day to protesters, she said she would lobby the president on requiring a new permitting process and environmental review.

While Pingree wants a new permitting process to take place if the company pursues such a reversal, Wilson maintains no additional permits would be required and that the U.S. Department of State confirmed that fact in 2008 when the company first entertained the idea of pursuing a reversal project. The State Department said reversing the pipeline's flow to carry oil sands crude was not a change of use significant enough to warrant a new review and permitting process, Wilson said.

Pingree and others disagree.

"We believe that a changeover to carrying tar sands is a significant alteration in function and environmental risk for existing pipelines," Pingree wrote in her letter to Obama. "Tar sands is a greater hazard to the communities through which it is shipped than conventional oil, as illustrated by the 2010 Kalamazoo River tar sands oil spill in Michigan -- the most expensive pipeline spill in U.S. history.

"The State Department has the responsibility to ensure transnational pipeline projects serve the national interest and prevent projects that will put our communities and the environment at risk of destructive spills. A project that places American communities at risk without any tangible benefits is certainly not in the interest of our constituents," she wrote.

In a separate statement, Pingree said her efforts to require a new environmental review for a reversal project are not a criticism of the Portland Pipe Line Corp.

"The company has a good safety record, but this would be a new use for the pipeline and needs proper environmental review," Pingree said Wednesday in the statement.

Huge crowd turns out to denounce possible transport of tar sands in region

Foes and backers dispute whether there are plans to transport the substance to Casco Bay

Portland Press Herald By Beth Quimby and Edward D. Murphy Staff Writers January 27

This story was updated at 10:50 a.m. 1/27 to correct where the tar sands oil is extracted from.

PORTLAND – More than 1,400 people marched from Monument Square to the Maine State Pier to protest the possible use of the Portland-to-Montreal oil pipeline to transport tar sands crude oil to Casco Bay.

Billed by organizers as the largest rally against tar sands oil in the Northeast, the protest featured more than a dozen speakers, including U.S. Rep. Chellie Pingree, D-1st District, and Portland Mayor Michael Brennan.

"I'm going to ask the Obama administration to do a full environmental review of any attempts to pump tar sands through that pipeline," said Pingree.

Portland police estimated the crowd at between 1,400 and 1,500 people. Most other protests against either the use of tar sands crude oil or the Keystone XL pipeline -- proposed to transport the oil from Canada to U.S. refineries on the Gulf Coast -- have been sporadic and smaller than the one in Portland on Saturday.

Protesters, many of whom arrived in Portland on chartered buses, didn't seem to mind the biting cold.

Carrying a sign that read "Don't stick your head in the sands," John Ersek of Gorham said he showed up at the urging of his daughter, Olivia.

"The protest was my daughter's idea. I came up with the sign," he said.

Portland Water District Trustee Brad Cleaves of Portland was also on hand to protest piping tar sands crude through the region.

"It will definitely jeopardize our water supply," said Cleaves.

The rally was the latest move by tar sands opponents to spread their message that oil companies are planning to move tar sands oil through the 236-mile, 62-year-old pipeline, which runs from Vermont to New Hampshire and through the Sebago Lake watershed to South Portland.

The producers of tar sands oil and other proponents, including the pipeline's owner, the Portland Pipe Line Corp., continue to insist that there is no plan to use the pipeline for tar sands oil. They also say opponents exaggerate the environmental risks of tar sands oil.

The New England Petroleum Council in Boston issued a statement last week calling into question protesters' concerns about the safety of tar sands oil. Enbridge, the company that operates the

Canadian pipeline from Ontario to Montreal, said Friday it had no plans for the Montreal-to-Maine pipeline.

Tar sands oil -- also known as diluted bitumen -- is extracted from sandy soils in Alberta. A study financed by the Canadian government released earlier this month found development of the oil sands had increased the amount of cancer-causing compounds in surrounding lakes.

Opponents of the shipment of tar sands oil to the U.S. say it increases the country's dependence on oil and will add to emissions that contribute to global warming.

They also say tar sands oil is extracted using methods similar to coal strip mining, which will damage the northern Canadian forests where the oil is drawn, and transporting and refining it poses risks that are much greater than those involved in drilling, shipping and refining conventional crude oil.

The Natural Resources Defense Council late last year issued a detailed report on tar sands oil, charging that it is highly corrosive and acidic and can weaken the pipelines that carry it, increasing the risk of spills. They also say the pipelines that carry the oil must operate at higher temperatures and pressures, two factors that they said could make a leak involving tar sands crude more devastating than a leak involving regular crude oil.

Extracting, transporting and refining tar sands crude also requires much more water and energy than conventional crude, the NRDC said.

Proponents, however, say tar sands oil is no more corrosive or dangerous than conventional crude. They also note that Canada has adopted stricter air and water quality standards to mitigate the impact of extracting and transporting tar sands crude oil.

Exploiting a new source of oil, they add, creates jobs, protects those jobs that are dependent on the use of oil and also lessens U.S. dependence on oil from the Mideast.

"The oil sands production process is not the 'vast and destructive' industrial operation" that opponents describe, John Quinn, executive director of the New England Petroleum Council, said Jan. 21 in an *Another View* editorial in the *Portland Press Herald*.

He said tar sands oil extraction has affected less than 0.2 percent of Alberta's forests, and a tract of the forest about the size of South Carolina is under federal protection and is off-limits to extraction efforts.

Earlier this month, Casco voters approved a resolution against moving tar sands oil through the pipeline, which runs through their town. Burlington, Vt., has passed a similar measure.

The Windham Town Council will hold a special meeting at 7 p.m. Tuesday at the town offices to hear Environment Maine's request for an anti-tar sands resolution.

Last week, the Portland City Council referred a measure that would have banned the use of tar sands oil products back to its Transportation, Sustainability and Energy Committee for more review.