U.S. Department
of Transportation
**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Ave., S.E.
Washington, DC 20590

April 25, 2014

The Honorable Carl Levin
United States Senate
Washington, DC 20510

Dear Senator Levin:

As promised in my letter of January 3, 2014, I am following up on the questions you and your congressional colleagues had regarding integrity testing and leak detection on Enbridge Energy Partners' (Enbridge) Line 5 pipeline in Michigan.

First, I would like to applaud your efforts to learn about and address pipeline safety concerns and assure you I am also devoted to the well-being of our citizens and the environment. As overseers of the Nation's 2.6 million miles of pipelines, the Pipeline and Hazardous Materials Safety Administration (PHMSA) is committed to the safety of people who work and live in proximity to pipelines.

The July 2010 Enbridge pipeline failure in Marshall, MI, was a tragic wake-up call for all hazardous liquid pipeline companies and reinforced our commitment to holding accountable those companies whose pipelines fail, impact people, and pollute the environment. PHMSA has taken aggressive action to address inadequacies and company non-compliances that contributed to the tragic spill into the Kalamazoo River. We continue to work with the company to verify the corrective actions we ordered are being fully implemented. These actions involved an enforcement case that included a $3.7 million civil penalty and a Consent Order for Enbridge's entire Lakehead pipeline system. The 2012 Consent Order includes actions improving the safe operation of two pipelines running beneath the Straits of Mackinac.

You asked several specific questions about the two parallel (looped) 20-inch pipelines crossing the Straits of Mackinac. These looped pipelines are part of Line 5, which is part of Enbridge's Lakehead pipeline system. Below are our responses to your questions.

- We understand that PHMSA requested that Enbridge conduct various tests to ensure that the integrity of the pipeline would not be compromised with an increase in oil pressure. **Please provide a list and explanation of all tests that were executed, when and where the testing occurred, and if the tests were performed on the section of pipeline under the Straits of Mackinac.**

- As mandated by PHMSA's Federal Pipeline Safety regulations and our 2012 Consent Order, the following integrity tests have been conducted on the Straits of Mackinac pipeline crossings using in-line inspection tools:

  East loop of Mackinac Strait Line 5 crossing:
  - 1998 metal loss survey
  - 2003 metal loss survey
  - 2003 geometry inspection
  - 2005 geometry inspection
  - 2008 metal loss survey
  - 2008 geometry inspection
  - 2013 metal loss survey
  - 2013 geometry inspection

  West loop of Mackinac Strait Line 5 crossing:
  - 1998 metal loss survey
  - 2003 metal loss survey
  - 2005 geometry inspection
  - 2008 metal loss survey
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The east and west legs are also regularly inspected by divers and/or remote operated vehicles that identify and measure unsupported pipeline spans, damage to the external coating and support systems, etc. Mitigation measures, such as mechanical screw anchor supports, are installed to address unsupported spans exceeding Enbridge's criteria. The most recent underwater inspections occurred in 2010 and 2012. The next inspection will take place in 2014.

- The Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 requires pipeline operators or owners who own high consequence areas pipelines to verify that their records accurately reflect the pipeline's physical and operational characteristics and the pipelines' established Maximum Allowable Operating Pressures (MAOP). **Did Enbridge have fully updated MAOP records before it increased the pressure on Line 5? If so, please explain what testing methods Enbridge used to verify the MAOP of Line 5.**

- Section 23 of the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 applies to gas transmission pipelines and does not apply to hazardous liquid pipelines such as Line 5. However, PHMSA agrees that all pipeline operators should determine the upper limits of safety operating pressures—MAOP for gas pipelines and Maximum Operating Pressure (MOP) for liquid pipelines—based on traceable, verifiable, and complete records. In January 2011, we issued an advisory bulletin reminding operators of the only acceptable methods of establishing MAOP and MOP.

- Enbridge established their MOP for Line 5 prior to 2012 based either on their most recent hydrostatic pressure tests or, for some sections, the previous operating pressures. The hydrostatic pressure tests that were mandated in 2012 covered approximately 110 miles of Line 5 and confirmed the MOP for sections where the MOP had been based on previous operating history and not a hydrotest.

- **What measures are in place to detect leaks on Line 5?**

  - PHMSA required Enbridge to improve leak detection on its entire Lakehead system. Some of Enbridge's leak detection methods include employing aerial patrols, periodically calculating line balance for flow in and out of the pipeline, remotely monitoring pressure and flow at the control center, and using a computational pipeline monitoring system that sounds alarms when there are indications of possible leaks.

  - PHMSA has also required Enbridge to focus on necessary enhancements in the company's control center to improve controller recognition and response to abnormal operating conditions. Procedures, training, resourcing, and access to additional information have been addressed to improve the response to possible leak indicators.

- **Have remote-controlled shut-off valves or equivalent technology been installed?**

  - Emergency flow restricting devices, including check valves and automated valves that close on low-pressure indications, are installed on each side of the Straits of Mackinac to limit the amount of oil spilled in the event of a leak.

- **How quickly does PHMSA estimate that a leak could be stopped and resolved?**

    - PHMSA does not have a good way to realistically estimate how quickly a leak could be stopped and resolved. Unfortunately, the most quickly recognized leaks are large failures where a significant loss of pressure or flow is immediately identified by pressure monitors, and pump stations are shut down and remote valves are closed within minutes. Alternatively, pinhole leaks may not be identified for long periods because they do not trip pressure or flow alarms. PHMSA continues to conduct studies and sponsor research on this issue in an attempt to find the best technology available to identify and address pipeline leaks.

- **Has Enbridge provided PHMSA with an updated emergency response plan? If so, how has the plan been updated? Was the Coast Guard involved in updating the plan? Who will have access to this plan? If available, please provide a copy of the updated emergency response plan.**

    - We previously responded to this set of questions in our January 3 letter.

I hope this information is helpful. If we can be of further assistance, please contact Patricia Klinger, Deputy Director of Governmental, International, and Public Affairs, at 202-366-4831 or by email at patricia.klinger@dot.gov. An identical letter has been sent to Senator Debbie Stabenow and Senator Dick Durbin.

Regards,

Cynthia L. Quarterman

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The Honorable Richard Durbin
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