

Sandpiper Pipeline Project
North Dakota Pipeline Company LLC
Docket No. PU-13-848
Late Filed Exhibits



Exhibit No. 3

Letter to National Transportation Safety Board

Progress Report on Safety Recommendation

Dated January 15, 2014



Al Monaco
President & CEO

January 15, 2014

Honorable Deborah A.P. Hersman
Chairman
National Transportation Safety Board
Washington DC 20594

Dear Chairman Hersman:

Re: Safety Recommendations P-12-11 through – 16

Enbridge Energy, Limited Partnership ("Enbridge") submits this letter and attachment as an update to our previous letter of October 22, 2012 and in response to the National Transportation Safety Board ("NTSB") letter dated July 25, 2012.

Over the past year, Enbridge has made great progress in relation to implementing enhancements in the areas of safety and operational reliability. Our focus remains on delivering energy safely and reliably. As such, of the 47 commitments we made in our correspondence of October 22, 2012, 45 have been completed (some have ongoing reviews and implementations) and we expect the final two commitments to be completed by the end of 2014.

In addition to the commitments made over a year ago, we have taken additional steps to enhance our safety performance and operational reliability. In 2013, Enbridge appointed a Senior Vice President of Enterprise Safety and Operational Reliability reporting directly to me. A key responsibility of this role is to coordinate a consistent approach across all of Enbridge's business activities to build, share, and promote industry-leading safety practices and culture. Throughout the past year, we continued, through communications and training programs, to actively involve our employees and contractors in achieving our goal of zero incidents – which we call our "Path to Zero". As such, we have provided additional guidance to our workforce through the establishment of Health & Safety Principles that supplement our existing Lifesaving Rules.

To further our progress, one of our key initiatives in 2013 was to conduct an enterprise-wide safety perception survey to measure our advancements in relation to safety culture. More than 90% of Enbridge employees participated in the survey, a strong indicator on its own of the level of employee engagement in meeting our safety objectives. That survey, which is evaluated by DuPont, found that tremendous progress occurred in all aspects of safety (leadership, structure, processes and actions), such that Enbridge has achieved the Independent Stage of Safety Culture – a positive measure of the relative strength of our safety culture.

Measuring our progress is important to us and to that end, Enbridge retained an independent consultant to verify and make suggestions for improvements in relation to pipeline integrity, leak detection, and public safety. That is in addition to the ongoing regular audits and inspections conducted by our various regulatory agencies. All of the information provided through regulatory or independent audits, is useful to Enbridge and our industry in order for us to all continue down the Path to Zero incidents.

Finally, Enbridge has actively participated and presented in numerous industry and regulator-led initiatives to advance industry safety, such as the National Energy Board Safety Forum and API's quarterly Hazardous Liquid Pipeline Shared Practices Virtual Tailgate conferences.

As discussed earlier, Enbridge has made significant strides in the area of safety culture and performance and I am proud of what we have been able to accomplish during the past year. However, as I indicated previously, Enbridge will remain diligent and is determined to continually improve our safety culture, performance and to lead industry in safety best practices. As we continue on our Path to Zero, we will continue to improve our safety processes through the use of management systems, by monitoring our progress, and by seeking out opportunities to enhance our risk management processes.

I trust the attachment provides a satisfactory update and I would ask that you contact me directly should you have any questions in relation to our update.

Sincerely,

A handwritten signature in blue ink, appearing to read "Al Manow". The signature is written in a cursive style with a long, sweeping underline.



**NTSB Safety Recommendation
P-12-11**

P-12-11: Revise your integrity management program to ensure the integrity of your hazardous liquid pipelines as follows: (1) implement, as part of the excavation selection process, a safety margin that conservatively takes into account the uncertainties associated with the sizing of crack defects from in-line inspections; (2) implement procedures that apply a continuous reassessment approach to immediately incorporate any new relevant information as it becomes available and reevaluate the integrity of all pipelines within the program; (3) develop and implement a methodology that includes local corrosion wall loss in addition to the crack depth when performing engineering assessments of crack defects coincident with areas of corrosion; (4) develop and implement a corrosion fatigue model for pipelines under cyclic loading that estimates growth rates for cracks that coincide with areas of corrosion when determining reinspection intervals.

Enbridge Response:

Enbridge applies continuous learning and improvement to our Integrity Management Program (“IMP”). Incorporating lessons learned and re-assessing the condition of our pipeline system has been an aspect of our IMP for many years and has been demonstrated in our responses to research output, technological advances, formalized internal review and improvement processes, regulatory audits, and investigations into non-conformances and incidents such as pipeline releases. We have addressed the recommendation to implement, as part of the excavation selection process, a safety margin that more conservatively takes into account the uncertainties associated with the sizing of crack defects from in-line inspections in the following manner:

- 1) We have modified the IMP to implement a more conservative approach in our excavation selection process in order to address uncertainties associated with the sizing of crack defects from in-line inspections (“ILI”). Specifically, Enbridge has implemented adjustments in our IMP to increase the level of conservatism as summarized below:
 - Utilize the lesser of nominal wall thickness or the value from an ILI tool, as input into the engineering critical assessment (“ECA”) calculation. **Completed.**
 - Enbridge no longer uses crack profile information for the depth of crack features. Instead, the maximum value of the depth bin is now being used as the starting point for crack depth estimation. **Completed.**
 - Enbridge now accounts for crack tool tolerances / uncertainty by adjusting the depth estimation by a minimum of one tool tolerance. **Completed.**

Enbridge Response:

We have addressed the recommendation to implement procedures that apply a continuous reassessment approach to immediately incorporate any new relevant information as it becomes available and reevaluate the integrity of all pipelines within the program in the following manner:

- 2) We created a team dedicated to a Quality Management Program (“QMP”) for integrity activities (i.e., procedures, training, audits and change management) that provides increased resources and leadership for the development and implementation of enhanced processes. Additionally, increased resources and capacity are now positioned for conducting integrity engineering assessments and strengthening of subject matter expertise related to welding, coatings, cathodic protection, repair techniques, failure models – all aspects that can support an enhanced integrity system continuous re-assessment process. **Completed.**
- 3) We implemented updated ILI data flow and quality assurance processes including formalized communication of any unreported defects that meet the detection threshold back to the ILI vendor with a documented investigation and review. **Completed.**
- 4) We integrated ILI root cause analysis of accidents into pipeline integrity programs. **Completed.**
- 5) Building upon processes already implemented, we will complete an audit and process review on the ILI vendors’ analysis processes with the objective to confirm implementation of lessons learned and to identify any additional opportunities for improvement. **Completed.**
- 6) We are preparing and implementing a Technology Improvement Plan with Enbridge ILI vendors including the incorporation of new technologies (e.g., EMAT). **Completed.**
- 7) We will conduct a comprehensive review of past Enbridge failures where ILI performance was identified as the root cause. **Completed.**
- 8) We are in the process of conducting a reliability engineering analysis of the effectiveness of hydrotesting in conjunction with ILI utilizing results from recently hydrotested Enbridge pipelines. **This work is ongoing and has a target completion of end of Q1 2014.**
- 9) We will conduct an independent expert review of Enbridge ILI verification processes to ensure continued compliance with the new version of API 1163 expected in 2012. **Completed.**
- 10) We are reviewing current crack ILI reporting requirements and identifying opportunities to increase reporting parameters in order to improve interpretation of the results. **Completed.**
- 11) We will organize an industry review to develop the protocols for the overlay of multiple ILI data sets so as to improve integrity threat integration methods. **Completed.**
- 12) We will continue to participate and lead in industry initiatives to define standards and protocols for crack identification technology and integration of ILI data improvements. **Completed.**

Enbridge Response:

We have addressed the recommendation to develop and implement a methodology that includes local corrosion wall loss in addition to the crack depth when performing engineering assessments of crack defects coincident with areas of corrosion in the following manner:

- 13) We developed a methodology to ILI data overlay and assessment actions and integrated such processes into the Enbridge IMP. In particular, improvements have been made in our excavation selection criteria, crack depth estimate process, and the wall thickness value used in the crack engineering assessment. **Completed.**
- 14) Enbridge supports and leads industry efforts to improve the understanding and approach to ILI data overlay. For example, Enbridge has identified additional investigations that will support the Continued development of a methodology for assessing coincidental corrosion and crack features such as organizing an industry review to develop the protocols for the overlay of multiple ILI data sets so as to improve integrity threat integration methods. **Completed.**

Enbridge Response:

We have addressed the recommendation to develop and implement a corrosion fatigue model for pipelines under cyclic loading that estimates growth rates for cracks that coincide with areas of corrosion when determining reinspection intervals in the following manner:

- 15) Enbridge initiated investigations into the potential growth rates that may have been experienced by the Marshall feature. Information provided in the NTSB Final Report and detailed analyses of essential growth rate parameters such as pressure cyclic loading history have been integrated into this investigation. **Completed.**
- 16) We expanded the crack growth modeling processes to specifically account for both environmentally assisted stress corrosion cracking ("SCC") and fatigue processes. **Completed.**
- 17) We implemented changes to the growth modeling process to address the potential for uncertainty in the crack depth estimate provided by in-line inspection technology. **Completed.**
- 18) We reduced re-assessment intervals for crack in-line inspections to accommodate possible uncertainty with growth rates on corrosion fatigue susceptible pipelines. **Completed.**

**NTSB Safety Recommendation
P-12-12**

P-12-12: Establish a program to train control center staff as teams, semiannually, in the recognition of and response to emergency and unexpected conditions that includes supervisory control and data acquisition system indications and Material Balance System (MBS) software.

Enbridge Response:

We have addressed the recommendation to establish a program to train control center staff as teams, semiannually, in the recognition of and response to emergency and unexpected conditions that includes supervisory control and data acquisition system indications and Material Balance System (“MBS”) software in the following manner:

- 1) The Control Center Operations (“CCO”) is developing and implementing enhanced team training to include the theory and practice of decision making (crew resource management) in a group environment. All team members involved in decision making related to emergency and unexpected conditions will participate in semiannual team training sessions, including:
 - Operators
 - On-shift Senior Technical Advisors
 - Shift Supervisors
 - Leak Detection Analysts (formerly MBS Analysts)
 - CCO On-Call Personnel**Completed.**
- 2) Participants will gain a greater awareness of the concepts, philosophies and objectives of crew resource management, and demonstrate tools for effective teamwork in areas such as:
 - Communication
 - Attitudes and Behaviors
 - Human Factors
 - Leadership and Team Building
 - Situational Awareness and Workload Management**Completed.**
- 3) Participants will apply and build upon the knowledge, skills and abilities of crew resource management and team effectiveness in case studies and simulated scenarios. **Completed.**
- 4) The CCO will further enhance its training program to incorporate Operator Qualification processes and methodologies to evaluate all CCO staff involved in pipeline operational decisions. The enhanced team training and predetermined technical training will support this enhancement. **Completed and ongoing.**
- 5) We have implemented new procedures that have clarified communications between Leak Detection and CCO personnel, including during periods of transient conditions as well as column separation. These procedures also allow alternatives (e.g., Volume Balance and Pressure Monitoring) to complement and supplement the Leak Detection system during transient operations. **Completed.**

**NTSB Safety Recommendation
P-12-13**

P-12-13: Incorporate changes to your leak detection processes to ensure that accurate leak detection coverage is maintained during transient operations, including pipeline shutdown, pipeline startup, and column separation.

Enbridge Response:

We have addressed the recommendation to incorporate changes to our leak detection processes to ensure that accurate leak detection coverage is maintained during transient operations, including pipeline shutdown, pipeline startup, and column separation in the following manner:

- 1) We have implemented new procedures that have clarified communications between Leak Detection and CCO personnel, including during periods of transient conditions as well as column separation. These procedures also allow alternatives (e.g., Volume Balance and Pressure Monitoring) to complement and supplement the Leak Detection system during transient operations. **Completed.**
- 2) We developed and have implemented procedures for Control Room Management (“CRM”) in accordance with new regulatory requirements. **Completed.**
- 3) We created and are implementing procedures to differentiate between transient conditions during a startup and transient conditions during a shutdown. **Completed.**
- 4) Enbridge has initiatives underway to improve controller decision support systems including development of tools to further support the analysis of abnormal conditions, column separation and identification of leak signatures. We are also implementing expert systems to support alarm analysis. **Completed.**
- 5) We have undertaken significant steps to reduce the number of overall alarms, reducing Leak Detection and CCO personnel workload and potential desensitization to active alarms. For example, dynamic alarm thresholds are being introduced on all systems to reduce or eliminate false alarms during transient conditions and to tighten leak sensitivity thresholds during normal or steady state conditions. **Completed.**
- 6) The Enbridge Leak Detection Analyst Training Program has been enhanced in several areas including On-The-Job training, Training Program Layout, Readiness Assessment, and Communications with CCO personnel. **Completed.**
- 7) We are implementing team training objectives for Leak Detection Analysts and working to develop line specific simulators for the purposes of scenario based team training. **Completed.**
- 8) Under the area of instrumentation addition and program enhancements, a leak detection equipment design standard was initiated to optimize the performance of the existing Leak Detection system. For example, the maintenance management program has been reviewed and restructured to formalize the inventory and management of critical leak detection equipment. In addition, as part of a Leak Detection Instrumentation Improvement project that started in

2011, Enbridge is adding flow meters, pressure and temperature sensors across our pipeline systems. **Leak Detection Equipment Design Standard - Completed.** Addition of leak detection instrumentation is ongoing and has a target completion of the end of Q2 2014.

- 9) We are implementing a Quality Management Program (QMP) to ensure effective execution of critical work activities meeting pre-defined quality objectives. **Completed.**
- 10) Continuous improvement plans have been developed and are being implemented to tune the MBS leak detection system for optimal performance. **Completed and ongoing.**

**NTSB Safety Recommendation
P-12-14**

P-12-14: Provide additional training to first responders to ensure that they (1) are aware of the best response practices and the potential consequences of oil releases, and (2) receive practical training in the use of appropriate oil-containment and recovery methods for all potential environmental conditions in the response zones.

Enbridge Response:

We have addressed providing additional training to first responders to ensure that they are aware of the best response practices and the potential consequences of oil releases, in the following manner:

- 1) We are rolling out company-specific online emergency responder training to third party emergency response organizations in our counties of operation, to provide them with system-specific information, best response practices and the potential consequences of releases. **Completed.**
- 2) We will have mailed supplemental information (posters) to 911 dispatch centers and fire departments within its counties of operation by the end of 2012. **Completed.**
- 3) We are educating the public on pipelines, signs of a leak and appropriate response and will run newspaper advertising in key areas along our pipeline systems as identified by region and district management and the Public Awareness Committee. **Completed.**

Enbridge Response:

We have addressed providing additional training to the first responders to ensure that they receive practical training in the use of appropriate oil-containment and recovery methods for all potential environmental conditions in the response zone in the following manner:

- 4) We are conducting internal emergency response (“ER”) drills and lead area response drills to involve communities, external agencies and local emergency responders for potential incidents along the Lakehead System in 2012/2013 and regularly thereafter. Enbridge coordinates these drills and shares appropriate parts of our Facilities Response Plan (“FRP”) for inclusion with Area and Regional Contingency Plans (National Incident Management System). **Completed and ongoing.**
- 5) Practical training will be enhanced through ER and Training groups as they assess and evaluate tactical ER programs currently delivered across Enbridge regions and develop a consistent ER training plan that covers tactical topics, such as: ER notification; ice slotting; boat handling; Hazardous Waste and Emergency Response (“HAZWOPER”); inland oil spill response; and boom deployment. **Completed and ongoing.**
- 6) Baseline ICS training and certifications from an external consultant will continue to be provided to response teams across Enbridge. The training courses being given include: ICS 100/200; ICS 300; Exercise Design; and Environmental Unit Lead Training. **Completed and ongoing.**

- 7) In 2013, we will roll-out online first responder training to employees designed to prepare employees to engage in contact with key stakeholder audiences, thereby increasing the safety of its pipeline systems. **Completed and ongoing.**
- 8) The HAZWOPER training program will provide first responders with the skill and knowledge level to identify hazards and protective measures during emergency response based on the duties and function to be performed by each responder level. Training is required within one year of initial hire or before being permitted to take part in actual emergency operations on an incident and annually thereafter (8-hour refresher). **Completed and ongoing.**

**NTSB Safety Recommendation
P-12-15**

P-12-15: Review and update your oil pipeline emergency response procedures and equipment resources to ensure that appropriate containment equipment and methods are available to respond to all environments and at all locations along the pipeline to minimize the spread of oil from a pipeline rupture.

Enbridge Response:

We have addressed the recommendation to review and update our pipeline emergency response procedures and equipment resources to ensure that appropriate containment equipment and methods are available to respond to all environments and at all locations along the pipeline to minimize the spread of oil from a pipeline rupture in the following manner:

- 1) A project team has been assembled, with oversight from an independent expert to review the emergency response procedures contained in Enbridge's Operation and Maintenance Procedures ("O&MPs") Book 7, Parts I (general) and II (regional specific). The review is focused on content, usability and regulatory requirements for submission. **Completed.**
- 2) An independent expert has been contracted to evaluate the Crisis Management Plan and recommend improvements to streamline the plan and ensure consistency with the overall ER Plan. **Completed.**
- 3) Equipment has been identified, with the assistance of local Operations input, and funds approved and allocated in the following ER areas:
 - **Dedicated Emergency Response:** Equipment, vehicles, trailers and buildings used to support initial response to a pipeline emergency (release, fire, business continuity, security) in an effort to protect the public, personnel and the environment.
 - **Identified Emergency Response:** Equipment, vehicles, trailers and buildings that can be used for normal operations as well as for emergency response.
 - **Emergency Pipeline Repair Response:** This is equipment needed to repair the pipe (vapor tools, stopple towers, tapping machines, leaking defect sleeves, Plidco Sleeves, security pipe, etc.). **Completed and ongoing.**

**NTSB Safety Recommendation
P-12-16**

P-12-16: Update your facility response plan to identify adequate resources to respond to and mitigate a worst-case discharge for all weather conditions and for all your pipeline locations before the required resubmittal in 2015.

Enbridge Response:

We have addressed your recommendation to update our facility response plan to identify adequate resources to respond to and mitigate a worst-case discharge for all weather conditions for all pipeline locations before the required resubmittal in 2015 in the following manner:

- 1) An independent expert has been retained to complete a system-wide emergency response capability assessment. The assessment will focus on company capabilities and the state of readiness to respond and successfully contain potential releases. As part of this assessment, Enbridge will review historic timelines with respect to discovery, response and containment and will accordingly revise the capability assessment, plans and procedure. The capability assessment includes mitigation measures for worse-case discharge for all weather conditions. **Completed.**
- 2) Incident Action Plan (“IAP”) Tool Development: This task involves work by the independent expert to populate IAP software with Enbridge specific content, including: equipment locations, current control point information, tactical plan information, plan templates and contact/notification information. **Completed and ongoing.**
- 3) Emergency Response (“ER”) Job Aids Development: This task is focused on providing job aids to support the regional ER teams, including: an incident management handbook; an exercise design guide; a tactical response guide; and, incident command system role-specific guides. **Completed and ongoing.**