

National Energy
Board



Office national
de l'énergie

LETTER DECISION

File OF-Fac-Oil-E101-2011-01 01
27 July 2012

Ms. Chantal Robert
Supervisor Regulatory Affairs
Enbridge Pipelines Inc.
Suite 3000, 425 - 1st Street SW
Calgary, AB T2P 3L8
Facsimile 403-767-3863

Mr. Francis (Frank) P. Durnford
Legal Counsel, Aboriginal and Regulatory
Enbridge Pipelines Inc.
Suite 3000, 425 - 1 Street SW
Calgary, AB T2P 3L8
Facsimile 403-767-3863

Dear Ms. Robert and Mr. Durnford:

**Enbridge Pipelines Inc. (Enbridge) Line 9 Reversal Phase I Project (Project)
Hearing Order OH-005-2011
National Energy Board (NEB or Board) Letter Decision**

Background

Enbridge Line 9 is an approximately 830 kilometre (km) long, 30-inch outside diameter crude oil pipeline between Sarnia, Ontario, and Montreal, Québec. The Board authorized the construction and operation of Line 9 when it issued Certificate of Public Convenience and Necessity OC-30. Line 9 was placed into service in 1976 with eastward flow. The flow of the pipeline was reversed to a westward direction in 1999 following the Board's OH-2-97 proceeding and pursuant to Order XO-J1-34-97.

Application

On 8 August 2011, Enbridge applied under section 58 of the *National Energy Board Act* (NEB Act) to reverse the approximately 194 km long segment of Line 9 between Sarnia Terminal (SA) and North Westover Pump Station (NW) to flow in an eastward direction (the Application). Enbridge also requested exemption from Leave to Open (LTO) under section 47 of the NEB Act.

To allow this reversal, Enbridge proposed infrastructure additions and modifications at four existing fenced and graveled sites: SA, NW, Westover Terminal (WT) and at a densitometer site 4.12 km west of NW. Work is related to pumps, piping, valves, a pig trap and densitometers. A new electrical building would be installed at WT.

A map of the Project can be found on the cover page of the Board's Environmental Assessment (EA) Report (EA Report) for the Project, which is attached as Appendix I to this Letter Decision. The EA Report should be read as a companion document to this Letter Decision. Information about the environmental assessment process for the Project is found in Section 4.0 of this Decision.

This letter sets out the Board's Decision and reasons with respect to the Application.

Process

Following the filing of Enbridge's Application, the Board received a letter from Environmental Defence, Équiterre, Pembina Institute and Vermont Natural Resources Council (EED) on 26 August 2011 regarding the Application and the Board's assessment process. On 6 September 2011, the Board sent a letter inviting comments on the issues raised and on the process that the Board should follow to consider this Application. During the comment process, the Board received Letters of Comment on the Project from landowners, the general public, non-governmental organizations, First Nations groups, government authorities and industry.

On 5 December 2011, the Board determined that the Project was a standalone project as it did not depend on any future facilities to proceed. The Board set the Application down for a public hearing with Hearing Order OH-005-2011.

The Board undertook an Enhanced Aboriginal Engagement (EAE) process by proactively contacting Aboriginal groups that could be affected by the Project and offering more information to help these groups understand the Board's process. The Board carried out its EAE work between December 2011 and February 2012 by sending letters to identified groups and providing the contact information for the Board's EAE contact. The Board also held information sessions about the NEB's process and assigned a Process Advisor to support participants.

Participant funding was applied for and awarded to three Intervenors, including one Aboriginal group, to facilitate their involvement in the OH-005-2011 process. These were: Aamjiwnaang First Nation (AFN), the Ontario Pipeline Landowners Association (OPLA) and a coalition consisting of Équiterre, Environmental Defence and Environment Northeast.

The public hearing process was a combination of a written phase including the filing of written evidence and information requests (IRs), followed by an oral phase consisting of final oral argument. The oral portion of the hearing took place in London, Ontario, on 23 and 24 May 2012. Out of 18 registered Intervenors, the following appeared to make oral argument in addition to Enbridge: Imperial Oil (Imperial), OPLA, AFN (including Chief Chris Plain) and Ms. Louise Lanteigne. Mr. Albert Koehl also gave oral argument on behalf of Équiterre, Environmental Defence, Citizen's Environment Alliance, and Environment Northeast (Équiterre et al). The Ontario Ministry of Energy (OME) and the Canadian Association of Energy Pipeline Landowner Associations (CAEPLA) filed written argument. The Board wishes to recognize the efforts and cooperation of all Parties to the process.

Motions and Rulings

A table listing motions made to the Board leading up to the oral phase of the hearing and the Board's rulings on these motions is attached as Appendix III.

Assessment of Issues

1.0 Need for the Project and Potential Commercial Impacts

Views of Enbridge

In its Application, Enbridge stated that it applied for the Project to meet business demands of shippers. The target annual capacity would be 24 157 cubic metres per day (m^3/d) [152,000 barrels per day (bpd)], with an initial design capacity of 26 858 m^3/d (169,000 bpd) on Line 9 (SA to WT), expandable to 40 000 m^3/d (250,000 bpd). Enbridge submitted that, between 2012 and 2020, the anticipated average daily volume of crude oil shipped would be 7 900 m^3/d (50,000 bpd). The estimated cost of the Project is \$16,914,000.

The Canadian Association of Petroleum Producers' June 2011 Forecast, filed by Enbridge, estimates substantial growth in western Canadian light crude oil supply of approximately 36 480 m^3/d (228,000 bpd) from 2011 to 2021. This growth in light crude oil supply from western Canada and the Bakken/Three Forks Formations in North Dakota is expected to cause the price of light crude oil to drop. Enbridge submitted that access to new markets would moderate this effect.

Enbridge stated that a reversed Line 9 could have other indirect benefits for shippers on its mainline system. In the event of a refinery upset, where traditional markets are unavailable, an eastbound Line 9 could create additional outlets for crude oil supplies and ease pricing and production impacts for all shippers. Enbridge stated that, without the Project, there would be insufficient capacity to supply the Ontario market with western Canadian crude oil.

Enbridge submitted that the Project would have positive commercial impacts for both Ontario crude oil refiners and western Canadian oil producers. It would provide greater access to the Ontario market for western Canadian oil producers and also eliminate the current reliance of Ontario refiners on crude from areas of declining or potentially unreliable supply. Enbridge stated that the Project represents an economic way to utilize the existing pipeline system. Although alternatives to the Project considered by Enbridge included expansion or looping of Line 7, Enbridge ultimately decided these were not viable options.

Enbridge noted that some Intervenors raised concerns that the Project was just a part of the larger Trailbreaker project. In its final argument, Enbridge stated that the objective of the Trailbreaker project was to transport heavy crude to the United States (U.S.) east coast for transportation to the U.S. Gulf Coast whereas the objective of the current Project is to transport light crude oil to WT for delivery to connected Canadian refineries, which is much different. Enbridge said the Project is standalone, independent of any other project, and a response to current market conditions.

Views of the Parties

Imperial

On 9 August 2011, Imperial filed a letter in support of Enbridge's Application. In another letter filed on 20 September 2011, Imperial stated that Enbridge submitted the Application in response to its request for a change in service to its Nanticoke Refinery near Port Dover, Ontario. Prompted by market conditions and available light crude oil supplies, Imperial's objective was to replace its current light crude oil supplies with light crude oil from Canadian and American sources. Imperial noted that there would be no other operational changes to the Nanticoke Refinery.

Imperial indicated that, although it can access some domestic crude for the Nanticoke Refinery between SA and NW via Enbridge's Line 7, this line has insufficient capacity to enable Imperial to meet the full demand, which means that it must still purchase higher-priced offshore crude to meet its needs. Imperial submitted that this puts the Nanticoke Refinery at a competitive disadvantage to other refineries that can access domestic crude supply for their entire needs.

Imperial argued that there are numerous benefits from the Project. It would provide Imperial with the ability to access additional volumes or lower-priced domestic crude for its Nanticoke Refinery, while providing western Canadian producers greater access to the Ontario market. It would also allow Enbridge to make use of existing unused pipeline capacity. Imperial added all this can be achieved without any significant adverse impacts.

Équiterre and Environmental Defence

On 26 August 2011, a letter was submitted that was signed by Environmental Defence, Équiterre, Pembina Institute and Vermont Natural Resources Council (EED). In this letter, EED assumed that Phase I was in fact part of Enbridge's Trailbreaker project, announced in July 2008, to move heavy oil through Montreal and onward for export to Portland, Maine, and points beyond. In the letter, EED asserted that by narrowly scoping the Trailbreaker project into pieces, the Board would not be able to discharge its regulatory duties and the public would have difficulty engaging in a transparent and meaningful process.

During final argument, Équiterre et al questioned whether Phase I is part of a multi-billion dollar expansion program to move western crude to eastern refineries and beyond, locking Ontario and other refineries into what it referred to as western tar sands crude.

In a 12 January 2012 filing, Équiterre et al stated that the proposed Project would also affect the diversity of crude oil supply for Ontario. They submitted that, as a result, Sarnia refineries would be more dependent upon crude supply from the west, from mid-continent and western Canadian sources.

Équiterre et al further submitted that Enbridge had not been specific enough about the economic benefits of the Project. It argued that evidence on the issue of demand was lacking and that assertions by Enbridge that there was demand for the Project were not supported. Équiterre et al took the view that the Board needed this information about demand to make its decision.

OME

OME's view is that the Project has beneficial commercial impacts: the Project enables Ontario refiners to increase their access to lower priced crude oil, improving their viability and competitiveness; the Project increases the utilization of existing infrastructure; there is no commercial opposition to the Project; and the Project will not negatively impact Ontario's energy security.

OME noted that, due to the higher price of offshore crude oil compared to domestic alternatives, the segment of Line 9 between NW and SA in its current westbound configuration is significantly underutilized and that underutilized infrastructure provides limited benefits.

OME disagreed with letters of comment expressing concern that the Project threatens Ontario's energy security. OME noted that these energy security concerns neglect to consider that the replacement crudes from western Canadian and U.S. sources are highly secure and reliable. It stated that approval of the Project will improve the economic viability of the Nanticoke refinery and would enhance provincial energy security.

It was also stated that there is no evidence on the record from Suncor, Shell or Nova Chemicals – companies that are potential Sarnia-area Line 9 shippers – opposing the Project.

OPLA

In a letter dated 3 October 2011, OPLA stated that, since there appears to be “business demands of shippers”, Enbridge was now proposing a mini-Trailbreaker. OPLA shared the views expressed by some of the Parties that this Project was only a smaller version of a larger one.

CAEPLA

CAEPLA took the view that the Line 9 hearing was about a much bigger project. CAEPLA argued that Enbridge was applying to the Board in a piecemeal fashion and breaking up its applications to avoid full impartial transparent hearings.

Other Commercial Parties

There were interventions filed by the Canadian Association of Petroleum Producers, Plains Midstream Canada ULC, BP Canada Energy Trading Company, Canadian Oil Sands, Marathon Petroleum Trading Canada LLC, Suncor Energy Marketing Inc., and Talisman Energy Inc. These Parties did not provide evidence and there was no commercial opposition to the Project.

Views of the Board

The Board notes that Enbridge submitted the Application in response to Imperial's request for a change of service to its Nanticoke refinery near Port Dover, Ontario. The Board also notes that there was no commercial opposition to the Project. The Board is of the view that the Project is commercially viable and there are a number of commercial benefits of eastbound service on Line 9 between SA and NW for Imperial, Enbridge, and western Canadian producers who would have greater access to the Ontario market. The Board is also of the view that making use of existing underutilized pipeline capacity, if this can be achieved without significant adverse impacts, is a sound idea.

The Board is not persuaded by the argument that the reversal would have a negative impact on Ontario's energy security. The original configuration of Line 9 was in eastbound service for many years prior to the reversal in 1999, with no negative energy security impacts. The Board notes that the replacement crudes from western Canada and the U.S. are highly secure and reliable. The Board is persuaded by OME's argument that the Project will improve the economic viability of the Nanticoke Refinery, enhancing Ontario energy security.

As the Board stated in its letter of 5 December 2011, the Board considered the Project to be a standalone project as it does not depend on future phases to proceed. In a letter dated 18 May 2012 responding to a motion made by Équiterre et al, the Board reiterated that the Project is a standalone project to transport crude oil from SA to NW, and not to Montreal, and that it does not depend on any future facilities to proceed. The Board indicated that it is within that context that the Board would assess the need for the Project and its potential commercial impacts. The Board maintains this view. While the Board does not deny that a full Line 9 reversal application is a future possibility, its focus in any proceeding is on the project applied for, including its specific need and purpose. Applicants may frame their applications as they determine to be appropriate. The Board has a legal obligation to hear an application and proceed to make a decision on it once the application is complete and the applicant and other Parties have presented their cases. The Board cannot assess an application that has not been filed. If an application to reverse the rest of Line 9 is filed in the future, the Board would then publicly review that application.

2.0 Enbridge's Public Consultation

This section addresses Enbridge's public consultation program. Enbridge's Aboriginal consultation is discussed in Section 3.0, Aboriginal Matters.

Views of Enbridge

Enbridge submitted that it created a database of landowners located between SA and NW as well as those organizations, municipalities, First Nations and government departments who are in proximity to the Project or who Enbridge believed may have an interest in the Project. Enbridge submitted that additional stakeholders were added as they have made their respective interests known to Enbridge.

Enbridge stated that it developed a project notification letter and related map and distributed this notification package in March 2011 to all landowners or residents within 65 metres (m) of the pipeline and 250 m of the facilities, as well as to First Nations and governments. Communication with these parties and others who provided Letters of Comment continued throughout the process with further updates.

In developing its consultation plan, Enbridge considered that: no new land will need to be acquired for the Project; all work will take place within existing Enbridge right-of-way (RoW) and facility sites; and that minimal construction work will be required at Enbridge's existing facilities. Enbridge submitted that, for the majority of stakeholders, the reversal will have no

noticeable impact since it involves reversing the flow on an existing pipeline and that any impacts arising from construction (noise, dust, traffic, and disruptions due to equipment movement) are expected to be temporary and minor in nature.

Views of OPLA

In a letter dated 7 September 2011, OPLA disagreed with Enbridge's comment in the consultation section of its Application that there were no outstanding concerns. OPLA stated that landowners are always concerned with the product being shipped and how it relates to pipeline safety and integrity and accidents and malfunctions.

Views of the Board

The Board acknowledges Enbridge's efforts to identify and consult with potentially-affected stakeholders. The Board is satisfied that the design and implementation of Enbridge's public consultation program for the Project is adequate. Enbridge provided sufficient notification and information about the Application to anyone who may have had an interest in the OH-005-2011 process. The Board is of the view that Parties had an opportunity to make their views known to Enbridge and to the Board.

The Board considers consultation to be an ongoing process which involves relationship building and being responsive to the needs of stakeholders. The Board expects Enbridge to continue its consultation efforts and address concerns raised by affected stakeholders throughout construction, operation and abandonment of this Project. This includes an expectation that Enbridge will fulfill its obligation under section 35 of the *Onshore Pipeline Regulations, 1999* for a Continuing Education Program for emergency response.

3.0 Aboriginal Matters

Views of Enbridge

Enbridge stated that it began its engagement with respect to the Project in March 2011. Enbridge submitted that the two primary purposes of Enbridge's Aboriginal engagement were to: (i) determine whether the Project would have any potential impacts on the current exercise of traditional activities by Aboriginal communities; and (ii) work with the relevant community in mitigating that impact if a potential impact were to be identified.

Enbridge explained that its determination as to which groups to initially engage was informed, among other considerations, by the Project's limited scope of work and Enbridge's history of operating Line 9, during which time Enbridge has not observed nor been made aware of the exercise by a First Nation, of any traditional rights on the Line 9 RoW or on Enbridge-owned property.

Enbridge initially identified two communities who could potentially be interested in the Project; AFN and Walpole Island First Nation. Enbridge noted that AFN was the only Aboriginal community that intervened in the OH-005-2011 proceeding.

Enbridge stated that its engagement with AFN included written notice of the Project, in-person meetings, Project update letters, distributing Project application materials and NEB information brochures and offers to hold community open houses. Enbridge submitted that its consultation with AFN occurred prior to and following the filing of its Application.

Enbridge noted that, aside from AFN, three other groups or Nations have participated in the application process for the Project, but not as Intervenors. These were: the Haudenosaunee Development Institute (HDI), on behalf of the Haudenosaunee Confederacy Chiefs Council; the Oneida Nation of the Thames (Oneida Nation), and the Chippewas of the Thames First Nation (CTFN).

Views of Parties

Aamjiwnaang First Nation

AFN expressed concerns that meaningful consultation with Enbridge did not occur and that its consultation protocol was not followed for the Project. AFN stated that consultation was required to understand any potential impacts of the Project on AFN's Aboriginal and Treaty rights since parts of Line 9 between the SA and NW are located within AFN's traditional territory. AFN stated that they assert their rights to hunt, trap, fish, and to collect medicines within their traditional territory and take issue with Enbridge's assertion that AFN members do not currently practice traditional uses on lands within their traditional territory.

During the proceeding, AFN discussed the impacts it has experienced living within what it refers to as Canada's "Chemical Valley". AFN described the health effects it has endured which, it submits, are attributable to toxins being released by the numerous industrial facilities in the area. AFN is of the view that the Project would cause direct and cumulative impacts through the storage of different commodities at SA or by delivering different crude types to local refineries and industrial operators.

In final argument, AFN submitted that, prior to taking a course of action pursuant to section 20(1) of the *Canadian Environmental Assessment Act* (CEA Act) and, prior to making a decision on the Project, the Board must first require Enbridge to assess the environmental effects, including cumulative effects, of operating Line 9 following the reversal of flow, in the manner described by AFN. Secondly, AFN submitted that the Board must require Crown consultation to occur with AFN in respect of the potential adverse impacts that the Project may have on AFN's Aboriginal and Treaty rights. AFN argued that it would be an error for the Board to make those decisions before a proper environmental assessment had been carried out and the Crown's duty to consult and accommodate AFN had been discharged.

Haudenosaunee Development Institute, on behalf of Haudenosaunee Confederacy Chiefs Council

The HDI filed a letter with the Board on 20 September 2011 and expressed concerns about the Project's potential impacts on the lands, waters, rights and interests of the HDI. Concerns with accidents and malfunctions, pipeline safety and integrity and the scope of the Project were also

raised. HDI took the view that no process of engagement had occurred which would uphold Crown consultation obligations. HDI requested that the NEB work with them to determine a reasonable process for engagement for the Project, and also requested that the NEB reconsider Enbridge's Application.

Oneida Nation of the Thames

The Oneida Nation filed a letter with the Board on 12 October 2011 stating that they did not believe that the request for an order under section 58 was appropriate for the Project. The Oneida Nation expressed concerns with the Project's potential impacts on their lands, waters, rights and interests. They also expressed concern with risks related to the pipeline's age, product corrosiveness, and higher pipeline temperatures and pressures.

Chippewas of the Thames First Nation

CTFN filed a letter with the Board on 26 January 2012 which stated a desire to meet with Enbridge to discuss the Project and any potential impacts that it may have on the exercise of the community's rights. CTFN submitted that the Project lies within their traditional territory.

Enbridge's Response to Views of the Parties

Enbridge submitted that it confirmed its understanding of AFN's expectations following a review of AFN's Consultation Protocol and a meeting with the AFN Health and Environment Committee. Enbridge also notes that AFN did not share specific evidence of Aboriginal or Treaty rights.

Enbridge's response to AFN's IR indicated that, in its 35-year history of operating Line 9, Enbridge has not observed or been made aware of a First Nation exercising traditional rights on the Line 9 RoW or on Enbridge-owned property.

Enbridge submitted that, despite Enbridge's engagement and, despite the Board's process designed to gather relevant evidence on Aboriginal concerns, AFN has not provided specific details respecting the hunting, fishing, medicine gathering and ceremonial activities it purports to practice in the Project area. AFN only made broad assertions about the potential impacts of the Project, failing to identify ways in which any potential effects of the Project could be avoided or mitigated. However, Enbridge submitted that it is committed to responding to AFN's concerns through an ongoing relationship with AFN and candid dialogue throughout the life of Enbridge's projects.

Enbridge sent a letter in October 2011 to HDI and the Oneida Nation in response to their Letters of Comment. Both groups were added to the project distribution list and received Project updates throughout the process. Neither HDI nor Oneida Nation subsequently contacted Enbridge or the Board about the Project.

Enbridge responded to the CTFN letter and provided CTFN with a copy of the Project application as well as Project update letters. Enbridge met with CTFN on 3 May 2012 to discuss the Project and any Project-specific concerns. CTFN filed another Letter of Comment with the

Board on 10 May 2012 acknowledging their meeting with Enbridge and outlining the issues discussed. Enbridge submitted that a follow-up meeting between Enbridge and CTFN has been scheduled for 18 July 2012.

Views of the Board

As was previously explained in the Board's letters of 21 March 2012 and 9 May 2012 to AFN, the Board is a quasi-judicial decision-maker and interprets its responsibilities under section 58 of the NEB Act in a manner consistent with the *Constitution Act, 1982*. Throughout this proceeding, the Board has established a process to ensure that interested Parties, including AFN, have an opportunity to provide their views on the Project. With respect to AFN's assertion that the Board should require Crown consultation in respect of the Application, the Board notes that there is no other federal government agency involved in this decision; only the Board has the jurisdiction to make a decision on whether or not to approve this Application and what mitigation measures it would impose if the Project is approved. Therefore, it is appropriate that the Board, as the decision-maker, heard the views of AFN so that it could take them into consideration.

The Board's process is designed to obtain as much relevant evidence as possible on Aboriginal concerns about a project, how the project may impact Aboriginal interests and possible mitigation measures that may address those concerns. Where a project has the potential to impact Aboriginal interests, the Board requires the proponent of the project to consult with all potentially-affected Aboriginal groups and to provide information to the Board about those consultations. The greater the potential for impacts on Aboriginals as a result of the project, the more the Board requires of the project proponent's consultation program. By the same token, where there is a remote possibility of impact on Aboriginal interests, or the potential impacts are minor in nature, the proponent's consultations will not be required to be as extensive.

The Board is satisfied that Enbridge meaningfully engaged Aboriginal communities, including AFN, in respect of the Project to an extent that was commensurate with the scope of the Project. The Board is of the view that all potentially-impacted Aboriginal communities were provided with sufficient details about the Project, and given the opportunity to make their views known in a timely manner to Enbridge and the Board so that their views could be factored in the decision-making process.

In addition to the one-on-one consultation proponents are required to carry out, the Board's public hearing process itself is part of the overall consultative process. Aboriginal groups that are concerned about the potential impacts of a particular project can bring their concerns directly to the Board. The Board notes that, for this Application, AFN actively intervened, while the Oneida Nation, CTFN and HDI made their views known through Letters of Comment.

As an Intervenor in this hearing, AFN was given the opportunity to file evidence with the Board regarding the potential impacts the Project could have on its interests. AFN also made use of the opportunity to ask IRs to Enbridge on its evidence. AFN presented final oral argument and

summarized its point of view on the potential impacts that the Project would have on its Aboriginal and Treaty rights and had the opportunity to discuss the appropriateness of any mitigation that might be required to accommodate AFN's concerns, and to make submissions about the weight and relevance of Enbridge's evidence and on the direction the Board should take in carrying out its environmental screening pursuant to the CEA Act. AFN was also provided an opportunity to comment on possible draft conditions that could be attached to any authorization that the Board could issue. The Board is of the view that AFN had full opportunity to make its views known to the Board and that the Board has sufficient information about the concerns of AFN and other Aboriginal groups in the area regarding the Project.

The Board notes that AFN did not provide specific information respecting traditional activities that it practices in the Project area. AFN only made broad assertions about potential impacts of the Project and did not identify ways in which any potential effects of the Project on its interests could be avoided or mitigated.

The Board notes AFN's concerns related to impacts of living in what AFN describes as "Chemical Valley". The Board recognizes that the Sarnia area is heavily industrialized which has had an impact on local air quality. However, the Project would not be a significant contributor to these effects (see the attached EA Report for more details).

All known environmental effects and relevant socio-economic effects associated with the Project are assessed in the EA Report including effects on current traditional land uses by Aboriginal people, wildlife, fish, vegetation, air quality, human health and water resources.

The Board also confirms that the assessment of the operation of the Project post-reversal was contemplated from the beginning of the process. The EA Report includes an assessment of effects resulting from accidents and malfunctions during operation, as well as integrity issues during operation under reversed flow conditions, and contingency planning for accidents and malfunctions during operations.

Lastly, the Board notes that Enbridge is committed to ongoing communication throughout the life of the Project and will continue to engage AFN, HDI, Oneida Nation and CTFN as appropriate.

The Board is of the view that, taking into account the limited scope of the Project and minimal physical impacts, the implementation of Enbridge's proposed environmental protection procedures and mitigation measures, and through its compliance with the Board's regulatory requirements, conditions, and Enbridge's commitments, any potential Project impacts on Aboriginal interests will be minimal and will be appropriately mitigated.

4.0 Environment and Socio-Economics

Environmental Assessment Process

The Project was applied for under section 58 of the NEB Act. At the time of Enbridge's application, the Board was required to undertake an environmental screening level of EA under the CEA Act.

On 6 July 2012, the CEA Act was repealed and the *Canadian Environmental Assessment Act, 2012* (CEA Act 2012) was enacted. The Project is not captured by the CEA Act 2012 or the transitional provisions and an EA under the CEA Act 2012 is not required. However, under Part III of the NEB Act, the Board continues to have a mandate to consider whether or not the proposed Project is in the Canadian public interest, which includes consideration of the environmental impacts of the Project.

The Board has prepared the attached EA Report, based on the previously-issued draft Environmental Screening Report (ESR) under the former CEA Act, to reflect its assessment of the environmental and socio-economic effects of the Project. It also considered comments and information received from the public throughout the proceeding, including comments received on the draft ESR.

More information on the transition of the EA from the former CEA Act process to the process under the NEB Act is found in the EA Report.

Table 1 below shows where certain topics of public concern, or issues included on the Board's List of Issues, are discussed in the EA Report:

Table 1

Topic	Location in EA Report
Impacts of operational accidents and malfunctions, including: <ul style="list-style-type: none">▪ pipeline integrity (including impacts of flow reversal and crude slate)▪ integrity management practices▪ leak detection▪ contingency planning for spills, accidents or malfunctions, during construction and operation of the pipeline▪ Safety and security during construction of the Project and operation of the pipeline, including emergency response planning and third-party damage prevention▪ liability for damages	8.2.2.2 8.2.2.2 8.2.2.3 8.2.1, 8.2.2.4 8.2.2.2, 8.2.2.4 8.2.2.4
Impacts on air and water quality in Ontario (including in the Sarnia area)	8.2.1, 8.2.2, 8.3
Impacts on traditional land use	5.0, 8.2.2
Cumulative effects (including upstream and downstream activities)	8.3

Views of the Board

Construction work associated with the Project is of a limited scope. As mentioned in the EA Report, work would take place within the confines of existing fenced and graveled Enbridge facilities and surface leases with no planned ground disturbances along the RoW itself.

The Board recognizes the concerns voiced by the public about operational accidents and malfunctions, including concerns about the structural integrity of the pipeline. Details are provided in the EA Report and in Section 6.0 of this Letter Decision. As discussed in its EA Report, the Board is of the view that Enbridge has an appropriate set of systems, procedures and protocols in place to manage the risks associated with pipeline integrity, to identify potential leaks or ruptures and to respond effectively to those events, if they occur.

As the Board determined in its EA Report, taking into account Enbridge's implementation of its proposed environmental protection procedures and mitigation measures, and through its compliance with the Board's regulatory requirements and the Board's conditions of approval, the Project is not likely to cause significant adverse environmental effects.

5.0 Abandonment

During the OH-005-2011 proceeding, Enbridge submitted that it is currently participating in the Group 1 Abandonment Cost Estimates (ACE) – MH-001-2012 Hearing and has filed its pipeline abandonment cost estimates with the Board, including those for Line 9.

Enbridge further submitted that it is not currently exploring plans to abandon any portion of Line 9. Enbridge acknowledged that it requires Board approval for the abandonment of any part of Line 9. Enbridge asserted that specific steps to identify contamination along the RoW would be determined as part of the abandonment plan and regulatory process at the time. Enbridge also stated that it has a program in place to remediate contaminated sites as they are identified. Enbridge indicated that it would remediate to the standards of the day.

Views of the Parties

OPLA

OPLA expressed concerns that the recent filings with the NEB regarding Enbridge's proposed method of abandoning its pipelines, including Line 9, suggest that Line 9 would be abandoned in place without any ongoing corrosion protection and, in the absence of removal operations, without an investigation of the presence of any historical undiscovered contamination along the line.

CAEPLA

CAEPLA submitted that the Project should not be approved or allowed to proceed until the outstanding issues between CAEPLA, OPLA, the NEB, and Enbridge have been resolved. CAEPLA pointed out that Enbridge stated in the 1975 Line 9 hearing that the life expectancy of pipelines was 30-35 years. CAEPLA has many concerns about abandonment and the effect it would have on landowners who would remain liable for the lands. It submitted that although the

ACE filings show that Enbridge plans to leave 99.9% of the pipes in the ground, CAEPLA is of the view that only 100% removal or care into perpetuity would protect landowners.

Views of the Board

In its RH-2-2008 Decision, the Board articulated the key principle that landowners will not be liable for costs of pipeline abandonment. All Parties agreed that pipeline companies have an obligation to ensure sufficient funds will be in place to pay for all costs of abandonment. Cost estimates for abandonment funding will be more fully addressed in the MH-001-2012 proceeding and Enbridge will be required to comply with any resulting decision or direction.

Companies are also required to include an abandonment plan developed in consultation with landowners when making an application for abandonment. In the future, if Enbridge decides to abandon all or any part of Line 9, Enbridge will have to file an application. The Board would assess any plan for abandonment at the time an application is made. The Board notes that an application for abandonment usually includes an abandonment plan developed in consultation with landowners and that applicants are required to consult with stakeholders that may be affected. For more information, Parties may refer to the Board's publication [Regulating Pipeline Abandonment](#) found on the Board's website or can be obtained in hard copy from the Board's Library.

6.0 Engineering and Integrity

Views of Enbridge

6.1 Project Details

A description of the Project and associated work is found in Section 4.0 of the attached EA Report.

Enbridge plans to transport 50,000 to 90,000 bpd of crude oil between NW and SA upon reversal, with the potential in future to transport beyond 150,000 bpd at the previously-approved Maximum Operating Pressure (MOP)¹. Enbridge stated that it anticipated the actual operations of the reversed line to be 50,000 bpd and that it will operate the pipeline within the approved operating and design parameters.

Enbridge stated that the products historically and currently shipped, and those it plans on shipping, are classified as light crude oils. The specific products to be shipped are defined by Enbridge as Light Sour Blend, Edmonton High Sour, Edmonton Low Sour and Mixed Blend Sour.

Enbridge indicated that, in its proposed configuration, Line 9 between SA and NW could transport heavy crude oil, but that it was only proposing to transport light crude oils.

¹ Maximum Operating Pressure (MOP) is defined as those approved by the Board in the Orders reproduced in Schedule A attached to the Order found in this Letter Decision. These were originally referenced in Enbridge's IR response 3.7(b)(i) ([A2Q4K2](#)) Adobe pg 13 of 37.

Enbridge submitted that the Project would be designed, constructed, tested and operated in accordance with the requirements of the Board's OPR-99, Canadian Standards Association (CSA) Z662-11 *Oil and Gas Pipeline Systems*, and all other applicable standards, specifications, and codes referenced in the Application. It would also comply with other applicable federal, provincial and municipal codes and regulations.

6.2 Operating Pressure

Enbridge proposes that the MOP for the pipeline should not involve a change to the previously-approved MOP, which, for the segment between SA and NW varies between 4 037 kilopascals (kPa) [585 pounds per square inch (psi)] and 5 551 kPa (805 psi) and, for SA, is 5 281 kPa (766 psi). Enbridge submitted that the anticipated operating pressure would be 3 393 kPa (492 psi). Enbridge asserted that the approved MOP would continue to be appropriate post-flow reversal.

6.3 Pipeline Integrity and Enbridge's Integrity Management Program

Enbridge asserted that over its long history of operating thousands of kilometres of pipelines, it has maintained a good record for safety and reliability. Enbridge submitted that it builds and maintains its pipeline system as a long life asset and that it uses a comprehensive Integrity Management Program (IMP), which includes the use of advanced internal inspection tools to ensure that the pipeline is inspected and maintained and can continue to safely operate as long as the pipeline is required. These programs encompass all the tools, technologies and strategies needed to ensure that the pipeline has the necessary strength and operating capability to operate safely.

Enbridge also noted that the cause of the Line 6B incident in Michigan is still under investigation by the U.S. National Transportation Safety Board (NTSB). Although Enbridge could not comment on specific details associated with the investigation until after the NTSB incident report is released, it would evaluate all information and learnings from the Line 6B incident and has and will continue to apply them to all of its pipeline operations.

Following the close of the hearing, the synopsis of the report of the NTSB concerning the Line 6B incident was released to the public. On 16 July 2012, OPLA filed a notice of motion (Motion) seeking to re-open the evidentiary record of the OH-005-2011 proceeding and to admit the synopsis onto the record. OPLA also requested that the Board direct Enbridge to file the complete NTSB report for the record once it became available, and to have the Board reserve a decision until the full report was reviewed and considered. The Board denied this Motion with reasons in its letter dated 20 July 2012.

6.4 Corrosion

6.4.1 Internal Corrosion

Enbridge submitted that it conducts regular analysis of the Internal Pipe Corrosion (IPC) threat. This includes an analysis of relevant data such as characteristics of the product(s) shipped, the

corrosion status of the line according to the most recent In-Line Inspection (ILI), and operating/flow conditions. Enbridge also stated that these analyses are updated as new data becomes available.

Enbridge submitted that, similar to its past operation, the line will continue to transport crude oils that typically contain trace amounts of water, suspended solids and bacteria. Enbridge stated that the Project poses no increased IPC threat due to the product to be shipped, as both the proposed products and the products currently and historically shipped are classified as light crude oils. Enbridge submitted that it regularly conducts evaluations that include periodic testing to ensure that the products being transported meet the specifications established in the applicable tariff.

Enbridge submitted that it has considered the potential causes for corrosion and that no new corrosion concerns will arise as a result of the products it will ship. Enbridge stated that it incorporates contaminant data into the IPC susceptibility analyses in combination with operating conditions to identify appropriate mitigative measures. Preventative measures are continually taken to inhibit or stop corrosion, and any areas of concern identified by regular line assessments are addressed through repair or mitigation as necessary. Any threat to internal corrosion would be addressed through the regular cleaning (pigging) program that Enbridge already has in place.

Enbridge affirmed that it would simply not transport oil that cannot be transported safely and stated that its IMP will ensure that Line 9 would only transport products that could be transported safely.

In response to Board IRs 3.2, 3.3, and 5.2, regarding the properties of the crude oil to be transported in the line and how it relates to internal corrosion, Enbridge stated that it does not currently measure corrosivity of the crude oil itself for use in the IPC susceptibility analysis. However, Enbridge does measure each custody transfer batch for sediment and water content using appropriate industry standards.

6.4.2 External Corrosion

Enbridge stated that the line is protected by the original single layer of polyethylene (PE) tape coating supported by a Cathodic Protection (CP) system. Enbridge submitted that the risk of external corrosion for the Line 9 facilities is already known and successfully managed through its IMP. Enbridge further submits that the proposed change in flow direction will not impact external corrosion. In response to questioning about its management of external corrosion due to concerns of PE tape disbondment, Enbridge stated, that through its IMP, it will continue to utilize CP, ILI and inspections to prevent failures due to corrosion.

Enbridge committed to monthly inspections of the rectifier component of the CP system, and annual pipe-to-soil surveys to evaluate the protection level achieved by the CP system. Enbridge also committed to completing the implementation of a remote monitoring system that would allow for weekly recordings of the rectifier readings. The rectifier readings enable Enbridge to monitor the potential for external corrosion, and to confirm that their CP system is continuing to manage this issue.

Enbridge submitted that its continued use of ILI enables it to identify and monitor external corrosion (as well as internal corrosion and mechanical damage) and that it would address any identified issues through its IMP.

6.4.3 Corrosion Management

Enbridge submitted that it has monitored, and would continue to monitor, metal loss due to internal and external corrosion through the use of appropriate tools, including Ultrasonic Testing (UT) and Magnetic Flux Leakage ILI pigs. Enbridge argued that requiring it to use a Phased Array ILI tool would be unduly restrictive given the limited availability of this tool world-wide and that “Phased Array” ought to be deleted from the proposed condition 13 and replaced with “ultrasonic”.

Enbridge’s IMP utilizes conservative repair criteria that require it to repair corrosion features well before they could grow to cause an integrity failure. Enbridge submitted that ILI tools provide a high level of certainty that metal loss exceeding their repair criteria will be detected. Enbridge also stated that no discernible trend exists in the internal corrosion ILI data, suggesting that their internal corrosion mitigation program is adequate.

Enbridge plans to perform the next metal loss ILI in 2013 as part of their corrosion management program. Enbridge also stated that their engineering assessment demonstrates that the metal loss threat on Line 9 is currently being adequately managed through its mitigation programs, and that flow reversal will not affect the effectiveness of those programs.

6.5 Cracking

Enbridge submitted that it has an established Crack Management Program to manage the threat associated with crack-related defects. The program applied on Line 9 consists of running UT crack detection ILI tools (Ultra Sonic Crack Detection [USCD]), conducting an engineering assessment on the data to determine the current Fitness for Service (FFS), validating and repairing identified critical anomalies through excavations, and then conducting a predictive engineering analysis that assesses the line’s continued FFS.

The current and post-reversal risk profiles for this segment of Line 9 were compared and Enbridge found that the risk profiles pre and post reversal are essentially the same except for approximately the first 8 km downstream of SA where the risk profile is higher and the last 8 km upstream of NW where the risk profile is lower. Enbridge explained that a higher risk profile immediately downstream of SA is to be expected since this section, post-flow reversal, will be seeing higher operating pressures than it has typically seen in the past. Enbridge stated that although the risk profile is theoretically higher post-flow reversal immediately downstream of SA, this section of the line is not at an immediate threat from cracking related mechanisms.

Enbridge stated that its analysis found that there are no adjusted tool-reported crack-like features that are expected to potentially fail at the anticipated operating pressure of 3 393 kPa (492 psi) during the next three years. Enbridge states that it plans on re-inspecting (for cracking using ILI) in two years time.

Enbridge submitted that the section of Line 9 between SA and NW has not experienced any in-service incidents and no ruptures were experienced during the 1997 hydrostatic test at 125% MOP. Enbridge also submitted in its response to NEB IR 3.7b) that there are currently three Enbridge voluntary pressure restrictions between SA and NW due to integrity features that have been identified for field assessment and repair. The lowest of those voluntary pressure restrictions is 3 393 kPa (492 psi). Enbridge submitted that it will perform investigative crack excavations with a particular focus east of SA where the cracking risk profile would increase due to the line reversal.

6.6 Mechanical Damage

Enbridge stated that it has a Mechanical Damage Management Plan (MDMP) to address the threat of damage (such as dents, gouges, and others identified in CSA Z662) from sources such as strikes from excavating equipment and pipe settlement onto rock. The MDMP primarily assesses the condition of the pipeline through ILI and field excavations. Enbridge submitted that the segment of Line 9 from SA to NW has never experienced a leak or rupture due to mechanical damage. Enbridge submitted that a key component of mitigating mechanical damage is preventing third-party damage through programs such as RoW monitoring, stakeholder awareness, signage and depth of cover surveys.

The Board requested more information on the depth of cover status for this section of Line 9 through NEB IR 3.11. The last depth of cover survey from SA to NW was completed in 2006 and 2007. It found two locations where the depth of cover was less than permitted by Clause 4.11 of CSA Z662-11, and Enbridge stated that these sites were addressed.

Enbridge uses RoW inspections to identify areas of slope instability. Enbridge stated that it has not identified any areas of slope instability that could affect the integrity of the segment of Line 9 between SA and NW; however, Enbridge stated that routine RoW inspections will continue to detect any area where slope instability may exist.

6.7 NW to WT Lateral

As Enbridge's engineering assessment focused on the integrity of the Line 9 mainline between SA and NW, the Board questioned the integrity of the 900 m, 502 mm outside diameter (NPS 20) lateral between NW and WT and the pumping facilities through NEB IR 3.16 and 3.17. In its response to NEB IR 3.16, Enbridge provided an engineering assessment for this lateral which affirmed that the Project does not involve reversing flow on the lateral. It also stated that the integrity of the lateral is being adequately managed. The line would be operating within its existing parameters and the engineering assessment concluded that the revised conditions as a result of the Project do not pose any additional threats to the integrity of the lateral. Enbridge's engineering assessment concluded that the Project would not change the approved MOP for the lateral.

6.8 Pumping Facilities at SA, NW and WT

In its engineering assessment of the facilities, Enbridge concluded that the pumping facilities at SA, NW, and WT can continue to operate safely and reliably under the proposed operating conditions. Enbridge submitted that the facility pipe operates at low stresses and that Enbridge performs inspections on facility assets such as pipe, valves and pumps at regular intervals between one and three years.

6.9 Overpressure Control, Pressure Surge Analysis and Leak Detection

6.9.1 Overpressure

Enbridge stated that its Mainline Risk Assessment Model (MRAM) integrates the results of the corrosion, cracking, and mechanical damage analyses in its IMP, along with other threats such as third-party damage, ground movement, natural forces, and incorrect operations. Consequence impacts on the general population, the environment, and on Enbridge's business interests are then used to calculate relative risk scores. Enbridge lists Abnormal Operating Conditions and Pressure Safety Systems for Mainline Overpressure as incorrect operations in its Risk Assessment.

In its response to NEB IR 3.10, Enbridge submitted that, upon review of historical data since the 1999 westbound Line 9 reversal, no actual overpressures have occurred. Enbridge also submitted that the MRAM concluded that the reversal to eastbound service will not increase the risk of incorrect operations and that the threat of incorrect operations is adequately managed by Enbridge policies and procedures.

6.9.2 Pressure Surge Analysis

Enbridge provided a study that considered an involuntary closure of the WT suction valves as a worst case scenario that would produce the highest back pressure profile. In that response, Enbridge concluded that an involuntary closure of those valves would not create an overpressure of 110% MOP. Enbridge stated that the mainline sectionalizing valves cannot create the worst case outcome due to the closure time and control logic used. Enbridge justified that any pressure surge would not affect the integrity features in the line as the repair criteria does not allow features to grow to a predicted failure pressure of 125% MOP, and the worst case pressure surge scenario was found to not create overpressures of 110% MOP.

6.9.3 Leak Detection

Enbridge stated that it uses multiple approaches for leak detection that include computational pipeline monitoring, controller monitoring, line balance calculations and RoW inspections. Enbridge submitted that its ability to detect leaks and its response to leaks would comply with all necessary standards and regulations.

Views of the Parties

Équiterre et al

Équiterre et al submitted a report authored by Accufacts Inc. (Report) as part of its evidence. The Report noted that a periodic cleaning pig program, coupled with an analysis and monitoring

of the material removed by the cleaning pigs, should prove to be more than adequate in controlling internal corrosion. The Report further stated that corrosion rates can increase if the operating temperature is increased due to crude slate changes.

The Report noted that PE tape is susceptible to coating disbondment, and is a contributing risk factor for exterior corrosion and stress corrosion cracking (SCC). However, the Report also noted that Enbridge appears to be utilizing the appropriate ILI tools that can reliably detect general corrosion pipe wall loss, and some metal losses associated with third party damage.

The Report concurred with Enbridge's repair criteria for internal and external corrosion features as being appropriately conservative.

In addition, the Report stated that Enbridge's selection of an USCD ILI tool is appropriate for detecting cracks and SCC as opposed to other ILI tool technologies. It noted that investigative digs reported in Enbridge's engineering assessment showed that the tool conservatively estimated the length of crack-like features.

The Report noted that cracking-related threats pose the greatest possible integrity threat to this pipeline segment, and that additional crack detection ILI and field validation of reporting confidence intervals is warranted.

The Report stated that Enbridge's integrity management approach to evaluating mechanical damage (both simple dents and combined stress concentrators) appears reasonable.

The Report showed that overpressure from involuntary closure of mainline sectionalizing valves is of concern. It also supported the NEB's IR to Enbridge asking for information related to potential overpressure from sectionalizing valves. The Report noted that the approach to reducing spill volume outlined by an Enbridge presentation at the valve installation and leak detection public workshop appears sound.

The Report stated that little credibility can be placed on pipeline Supervisory Control and Data Acquisition (SCADA) leak detection requirements as a function of capacity throughput. The Report indicated that higher confidence occurs on SCADA leak detection systems that focus on reliability rupture detection.

Équiterre et al, via a letter from Accufacts Inc. (Accufacts), also filed the following comments on the draft conditions:

- requiring Enbridge to run three types of ILI pigs within a year of Board approval appears to be a key factor in the proposed draft conditions. In Accufacts' view, it is critical that the GE Phased Array cracking detection tool be given priority, and that this tool run be properly field confirmed on the pipeline with sufficient confirmation digs to develop adequate unity graphs;
- Accufacts supports the Board's proposed condition to reduce the repair criteria threshold to 40% wall loss, instead of 50% wall loss targeted in Enbridge's proposal, to add more safety margin for certain threats related to corrosion;

- Enbridge should update its leak detection manual to address slack. Reliable leak detection can be much more difficult than it seems;
- sufficient information should be made available to confirm a prudent surge analysis has been done to avoid overpressure from valve additions and modifications;
- temperatures might increase if there is a change in the crude slate, substantially increasing the potential for higher possible corrosion rates; and
- the Board might wish to incorporate the resulting recommendations from the NTSB report about the pipeline rupture in Michigan to avoid a possible rupture on Line 9.

During final argument, Équiterre et al expanded on its comments on the draft conditions, indicating that the Board should impose a condition on Enbridge to carry only light crude on the line and requiring Enbridge to come back to the Board for permission before changing the commodity since there had been significant public interest and concern about this issue.

Équiterre et al argued that there was an absence of any reports or analysis on the issue of the safety of transporting diluted bitumen (heavy crude). Équiterre et al questioned the lack of transparency and public engagement in the process that would enable Enbridge to change its tariff to allow the line to transport diluted bitumen.

OPLA

OPLA argued that Line 9 is nearly 40 years old and was built at the wrong time with the wrong materials. OPLA asserted that, for most of its length, Line 9 is thin-walled pipe; the thickness of the pipe met standards when it was constructed in the mid-1970s, but it does not match the standards employed by Enbridge today. OPLA pointed out that, in Enbridge's own engineering assessment, it was noted that a high diameter-to-thickness ratio was present in the pipe. OPLA went on to say that this is a deficiency that cannot be corrected unless the pipe is replaced.

OPLA stated that it is particularly concerned about the risk of SCC on Line 9 due to potential disbondment of its PE tape coating. OPLA was concerned about metal loss anomalies and questioned how Enbridge could make a statement that there is a low feature density per kilometre when no context was provided for what "low" meant. OPLA expressed further concerns with the Line 9 pipe and how it compared to Enbridge's Line 6B, which had a rupture in Michigan in July 2011.

OPLA argued that there are limitations to the accuracy and effectiveness of the integrity management tools used by Enbridge. OPLA stated that pinhole corrosion is a major concern for OPLA landowners and that there are no ILI tools that can accurately detect pinhole corrosion. OPLA submitted that, in regards to the pipeline rupture in Michigan, a report from the Pipeline and Hazardous Material Safety Administration in the U.S. noted the limits of defect detection with regards to Line 6B and its disbonded PE tape.

OPLA asserted that the potential risks of contamination to the land and water in the vicinity of the pipeline would be due to deficiencies in the integrity of the pipeline related to corrosion,

insufficient depth of cover and other factors. OPLA argued that the potential for small leaks that could go undetected for a long time makes it all the more important to avoid the risk of contamination in the first place. OPLA also argued that the Board should have looked at the entire operation of the line. OPLA noted that no modeling was done by Enbridge to assess the potential impacts of a hydrocarbon leak along the entirety of Line 9 and the costs associated with them.

OPLA's consultant submitted that the Project should have minimal impact on the overall internal corrosion rate. The consultant had concerns in two areas: (i) Enbridge did not discuss the new corrosion patterns that may develop as a result of the flow reversal at localized sources of turbulence such as girth welds, tees and elbows; and (ii) Enbridge had not planned a baseline internal corrosion ILI prior to reversal. OPLA's consultant recommended that a baseline study be required by Enbridge. OPLA's consultant recommended that Enbridge perform an ILI to coincide with the flow reversal to gather baseline data, and that a follow-up ILI be performed in 2015.

OPLA requested that the following three conditions be imposed on Enbridge:

- require Enbridge to conduct a full ILI of Line 9 prior to reversal and in 2015 as recommended by OPLA's consultant;
- require that the results of any ILI be analyzed in an updated engineering assessment to be made available for review by the Board and Intervenors prior to granting LTO; and
- restrict Enbridge to ship only light oil on its line until it has filed an updated engineering assessment that includes consideration of the potential impacts of medium and heavy crude oils. OPLA argued that medium and heavy crude oils could have greater impact on the corrosion risk to the pipeline.

OPLA put forward the above conditions without prejudice to the position advanced by AFN regarding the scoping of the EA required for the Project.

OME

In its written final argument, OME stated that it expected that the risks posed by the Project will be addressed through Enbridge's risk management program, existing pipeline safety standards and oversight by the NEB. OME was of the view that approval of the Project will result in operations within the pipeline's design parameters. In response to concerns about increased pipeline pressure, OME noted that post-reversal operating pressure will be well below the MOP established by previous hydrotests.

OME also argued that Enbridge had experience in handling high sulphur crude oil on the SA to NW segment of Line 9 and deliveries of sour crude oil on Line 9 in a reversed direction would be routine. OME noted that Enbridge anticipates the actual operations of the reversed line to be 50,000 bpd, which are well within historical operating rates and design parameters.

OME stated that Line 9 could possibly ship heavy crude since Enbridge noted that shippers would be permitted to ship any crude oil that meets the specifications of the tariff. Enbridge also stated that its engineering analysis would not change if medium or heavy crude oil was shipped on Line 9 and that changes in product would be addressed through its IMP. OME agreed that this approach can be reasonable and appropriate with appropriate regulatory oversight from the Board.

Regarding Enbridge's approach to PE tape, OME agreed that Enbridge's risk management programs are appropriate.

CAEPLA

CAEPLA expressed concern about the improprieties of pipelines coated with PE tape. CAEPLA submitted that PE tape comes unstuck from the pipe and sags, allowing moisture to get between the tape and the pipe, which then corrodes the pipeline. CAEPLA further submitted that the sagging tape compromises the CP since it insulates the area so that the electrical charge cannot act to protect the pipe from corrosion. CAEPLA argued that PE tape actually appears to speed up the corrosion of the pipe, initiating many integrity digs on landowners' land further causing risk and cost to landowners. CAEPLA stated that Line 9 is one of the many pipelines across Canada built in the 1960s and 1970s coated with this tape, creating severe risk for environmental contamination of farmland.

Louissette Lanteigne

Ms. Lanteigne submitted that the water supplies in the Grand River Watershed would be impacted by any failure and spill and that it would be difficult to isolate. She described the effects that a leak or rupture would have on local aquifers and rivers, including the Grand River, which serves as an important economic and recreational waterway through its support of commercial fishing, tourism, birding and boating. Ms. Lanteigne argued that there should be mandated criteria to better analyze potential aquifer contamination.

Aamjiwnaang First Nation

AFN stated that it is concerned that external and internal corrosion of the pipeline will increase following the reversal of flow as a result of the combined effect of the age and design of the pipeline, and shipping greater volumes of potentially more corrosive commodities. AFN also noted that the pipeline's main protection against external corrosion is a single layer of PE tape, and it has been well-documented that other PE tape-coated pipelines have exhibited moderate to high susceptibility to SCC. AFN argued that increased rates of corrosion will likely increase the frequency and size of spills, leaks and discharges from the pipeline following the reversal of flow.

More details regarding AFN's concerns with accidents and malfunction can be found in Section 3.0 above related to Aboriginal Matters. Explanation of the Project's potential effects on the environment, including effects resulting from accidents and malfunctions during operation, are also addressed in Section 8.0 of the EA Report.

Views of the Board

When a company designs, constructs, operates or abandons a pipeline, it must do so in accordance with the Board's OPR-99, the commitments made during the Board's hearing process and the conditions attached to any approval. OPR-99 references various engineering codes and standards including CSA Z662. The applicant is responsible for ensuring that it follows the design, specifications, programs, manuals, procedures, measures and plans developed and implemented by the company in accordance with these requirements.

The integrity of the pipeline and facilities is largely defined by the impact on the pipeline of internal corrosion, external corrosion, cracking, mechanical damage, and pressure control. Leak detection is an aspect of integrity management as it is the final alert to an integrity matter that has failed to be suitably controlled. An effective IMP can be defined as one that addresses the potential integrity problems that can arise from these, and other areas, to prevent integrity failures.

The integrity of this proposed Project is influenced by the design, past operation, and previous operating environment of this pipeline. The proposed operating parameters (flow direction, product type, and operating pressure) combined with current pipeline integrity may exacerbate existing issues or create new ones. The safe operation of pipelines is paramount to the Board. The Board expects that integrity issues will be identified and managed effectively by the companies it regulates.

The Board monitors a company's compliance with its conditions of approval and with legislation during all stages of the construction and operation of a project. The Board evaluates the need for specific compliance verification activities and determines whether an on-site inspection or review of the company's management systems (audit) is required. The Board may also take actions in response to a complaint from an affected party.

The Board expects regulated companies to implement mitigative and preventative measures for all risks posed by hazards and threats to the integrity of pipeline systems, the public and workers, and to the environment. This includes company programs to address damage prevention. In the case of an incident, the Board coordinates the response to the emergency situation, monitors response activities, and may also assess and report on the incident following clean-up. More information on this can be found on the Board's website www.neb-one.gc.ca under *Safety* or in the Board document [*Protecting Canadians and the Environment: How Does the National Energy Board Monitor and Enforce Safety, Security and Environmental Protection on Pipeline Systems?*](#).

Leave to Open

The Board denies Enbridge's request for an exemption from section 47 of the NEB Act and Enbridge will be required to apply for LTO before it can commence operation of the facilities in reversed flow.

The Board does not anticipate that additional hydrotests would be required on existing pipe in this case. The Board has imposed a number of conditions, as described below, which will need to be complied with prior to applying for LTO. The Board will then ensure that the required conditions are met and satisfy itself that the pipeline can be operated in a safe and secure manner.

Operating Pressure

The Board considers the existing and potential impact of corrosion, cracking, mechanical damage, and integrity management of the pipeline when determining a safe MOP.

The Board seeks to ensure that the approved MOPs, as detailed in Schedule A to the attached Order, will continue to be appropriate in reversed flow conditions. Consequently, the Board has imposed Condition 8 requiring Enbridge to, prior to applying for LTO, demonstrate that the line is fit for service at the approved MOP² which is a higher pressure value than the 3393 kPa (492 psi) pressure value that was used in Section 4.3 of Enbridge's engineering assessment related to the remaining life analysis for cracks.

The Board is of the view that, if a pipeline is not able to operate safely at its approved MOP or existing pressure, a pressure reduction may be a temporary solution. Ultimately, repair of any features affecting the integrity of the pipeline is the only permanent solution. Therefore, the Board has also imposed Condition 9 requiring Enbridge to repair known critical integrity features prior to applying for LTO.

Corrosion

The Board is of the view that Enbridge's IMP, including its corrosion management methods, should adequately manage and protect the integrity of the facilities to enable the safe transport of crude oil products.

Enbridge has studied and assessed internal corrosion of Line 9 since its construction. In the Board's view, Enbridge has maintained and improved upon its IMP for this line and has maintained the line in an appropriate manner. The Board notes that, since Line 9's construction, Enbridge has continuously acquired information pertaining to its condition. This information, combined with the engineering analysis performed to assess the impact of the line's condition and future operation on integrity, would make, in the Board's view, the proposed requirement for Enbridge to establish a baseline unnecessary and redundant. The Board notes that Enbridge has stated that it performs routine ILI pigging of the line, building up a history of the condition and performance of the line that a single baseline tool run could not achieve.

The Board acknowledges that Enbridge is aware of issues with PE tape, and encourages Enbridge to continue monitoring and addressing them through its IMP before problem areas become failures.

² Condition 8 uses the approved MOP for the SA terminal of 5 281 kPa (766 psi).

The Board finds that Enbridge's approach to identifying and mitigating internal and external corrosion is sufficient to operate safely in reversed flow, subject to Condition 13. This condition would enable improved data collection for corrosion, cracks and other potential future sources of failure, for the proposed facilities. The Board agrees with Enbridge that the requirement to use a Phased Array ILI tool may be too restrictive and has therefore removed this specific requirement from condition 13. The Board is of the view that the technologies listed in that condition are sufficient and adequate. Condition 14 would serve to promote a continued integrity improvement plan for the pipeline, promoting its capability of operating safely into the future. The Board notes that the operating characteristics of the line have changed over the years and it is wise to encourage integrity improvements for this line.

Cracking

The Board finds that cracking, more than corrosion or mechanical damage, can pose the greatest risk to the integrity of the line, particularly downstream of SA due to the pressure reversal.

As mentioned above, the Board is conditionally accepting Enbridge's assertion that reversing the flow direction and operating pressure profile of the pipeline does not require a change to the approved MOP as listed in Schedule A of the attached Order. The Board has imposed Conditions 8 and 9 that will need to be complied with prior to LTO.

The Board is of the view that, through its Crack Management Program (part of its IMP), Enbridge should adequately manage the threats associated with crack-related defects and determine that the pipeline can continue to be operated safely.

Mechanical Damage

In the Board's view, Enbridge is aware of the status of its line, knows the damage that exists, has tools to assess this damage, and remains committed to preventing, addressing and repairing mechanical damage to the standards set out in CSA Z662. The Board is of the view that through its MDMP (part of its IMP), Enbridge should be able to adequately manage the threats associated with mechanical damage to ensure the integrity of the line is maintained.

NW to WT Lateral

The Board notes that the Project does not involve reversing the flow on this lateral. The Board is satisfied that the integrity of this lateral is being adequately managed and agrees that the revised conditions as a result of the Project do not pose additional threats to the integrity of that lateral.

Pumping Facilities at SA, NW and WT

The Board is of the view that the facilities are adequately managed and are of low risk to rupture.

Overpressure Control, Pressure Surge Analysis and Leak Detection

The Board finds that Enbridge's proposed approach to overpressure protection, surge protection, and leak detection, which is a continuation of the approach it has maintained on the line in its previous operational configuration, is acceptable. The Board has imposed Condition 10 on

Enbridge which requires a Leak Detection System (LDS) Manual to be filed with the Board 60 days prior to an application for LTO. The LDS Manual must include details on Enbridge's policies and procedures for leak detection and provide a rationale for the design of its LDS, as well as information on how it will use the LDS to respond to any leaks.

The Board is of the view that Enbridge remains committed to its IMP and that the company is best positioned to know its pipeline and operating procedures. The Board expects that Enbridge will collect and apply information and learnings relating to pipeline integrity (such as the recommendations from the NTSB report about the Michigan pipeline rupture) into its program to the greatest extent possible.

Engineering and Integrity Conclusion

The Board acknowledges that Enbridge has significant experience with safely transporting products of the type proposed and operating the facilities presented in this Application, using the tools and approaches outlined in its submissions to the Board in support of its Application.

The Board is of the view that the new facilities and components required for the Project will conform to current standards and regulatory requirements.

The Board notes that Enbridge intends to transport light crude oils as defined in its submissions. Enbridge's current NEB-approved tariff for Line 9 (as it currently operates in an east to west direction from Montreal, Québec to Nanticoke, Sarnia and the International Border near Chippewa, Ontario) does not allow it to transport heavy crude oil. Under the tariff, Enbridge can only ship and impose a toll for the transportation of light and medium petroleum products with defined densities and viscosities. In the future, if Enbridge wishes to transport heavy crude oil on Line 9, it will need to apply to the Board for this change under Part IV of the NEB Act. The Board accepts Enbridge's statement that it would not transport any product that cannot be transported safely. The Board would, however, as part of its Part IV tariff assessment, review the quality specifications, including temperature, contained in the tariff at that time.

The Board reminds Enbridge that commitments made in its Application, subsequent filings and throughout the OH-005-2011 proceeding, conditions of approval and regulatory requirements are binding on it. The Board is of the view that, based on the reasons expressed above, Enbridge has adequate plans to identify integrity issues and managed them safely and effectively to protect the integrity of its pipeline.

Decision

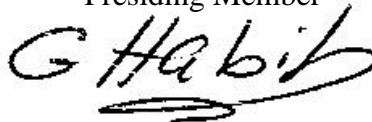
Having considered and weighed all of the evidence before it, the Board is satisfied that it is in the public interest to approve the Project.

The Board exempts Enbridge from the provisions of paragraph 30(1)(a) and section 31 of the NEB Act. As explained previously in this Letter decision, the Board is not granting an exemption under section 47 of the NEB Act. Enbridge is directed to apply for LTO prior to commencing operation of the pipeline under reversed flow conditions.

Based on the foregoing reasons, which includes the companion EA Report, the Board approves Enbridge's Application, subject to the conditions set out in the attached Order XO-E101-010-2012 found in Appendix II.



R. R. George
Presiding Member



G.A. Habib
Member



L. Mercier
Member

Calgary, Alberta
July 2012