



24 April 2015

Ontario Energy Board
energyeast@swerhun.com

Dear Sirs:

Re: OEB Energy East Consultation and Review – Part 2

Ontario Rivers Alliance (ORA) is a Not-for-Profit grassroots organization acting as a voice for the Friends of Temagami, Organisme de Bassin Versant du Témiscamingue, French River Delta Association, Vermilion River Stewardship, Friends of Grassy River, Mississippi Riverwatchers, French River Stewardship, as well as many other stewardships, associations, and private and First Nations citizens who have come together to protect, conserve and restore healthy river ecosystems all across Ontario.

The Ontario Energy Board (OEB) is seeking feedback on what are considered to be the three most important concerns regarding the proposed Energy East Pipeline (Project), in consideration of Ontario's Minister of Energy's list of priorities.

ORA is writing further to our 28 April 2014 submission, and in response to our online attendance at the OEB consultation meeting in North Bay on 21 January 2015, as well as our presentation at the OEB Public Forum held in Ottawa on the 29th of February 2015.

Based on the information provided by TransCanada (TC) in their application, it is impossible to choose only three areas of primary concern when there are so many pressing issues. ORA is primarily concerned with the potential impacts on our freshwater and environment, and on communities that could be impacted in the event of a spill. ORA also have a lack of confidence in TC's track record in the area of pipeline safety and emergency responsiveness.

Consequently ORA offer our comments and recommendations for your consideration. The following is by no means a complete list of our concerns; however, ORA have attempted to place our recommendations in order of their priority as follows:

1. Improved Leak Detection

TC must lower its leak detection targets. Their current leak detection objective of 1.5% of full flow would result in 2,000m³ per day of crude oil spilled into the environment if a leak were to go undetected. Anything less than 1.5% is not detectable with current technology, and there is no regulatory imperative or incentive to improve upon this level of detection. With only weekly aerial pipeline patrols, any leak under 1.5% could go undetected for up to seven days before it is detected by TC personnel.

A spill the magnitude of the one at Marshall, Michigan in 2010, totalled 3,200 m³, and the clean-up cost was over \$1Billion. This type of spill could occur in less than two days and still go undetected by TC's leak detection system (LDS). This is simply not acceptable.



In this instance the spill site was readily accessible to the US Interstate highway system and would have made clean-up and response time reasonable. On the other hand much of the pipeline route in northern Ontario is very remote with limited access, which could make response time longer, and clean-up much more challenging.

Given TC's reliance on their LDS to warn of significant releases, their leak detection technology must be improved by several degrees of magnitude. The NEB must determine the minimum level of release that would result in detectable environmental impacts, or require emergency response. TC must then be required to develop leak detection technologies that meet these reduced limit requirements, and prove they can detect such leaks reliably. Currently there is no incentive for pipeline operators to improve their minimum detectable leak detection technology, and this must improve in order to protect the environment and public safety.

2. Leak Isolation

TC's 10-minute rule for shutting down upon indication of a leak is questionable. The only thing that might be credible is that anything annunciated as a for-sure leak could be required to shut down within 10 minutes, but in most cases the annunciation will be much less definitive. At least that has been the case in the past. The Plains spill took 8 1/2 hours to shut down, and the Kalamazoo spill took several hours as well. Both were large ruptures, with presumably much more obvious indications than a 1.5% pin hole.

There might, for example, be an indication of a slightly abnormal low pressure, or a "low confidence" indication of a leak. But these would doubtfully be stated as "For sure you've got a leak". So the 10-minute rule would likely not apply to most anomalous indications, but would likely go on leaking until the operators are convinced there is a problem - which in most cases is when a bystander calls to say they're standing looking at an oil spout.

ORA recommend automated or remotely controlled pipeline shut-off valves to be located upstream of every creek, river, lake, and wetland, and check valves placed on the downstream side of each water feature. Valves must also be located at any other sensitive sites as identified by stakeholders and First Nations. Valve placement at all water crossings is crucial to reduce the volume of product released into the environment in the event of a pipeline rupture. The application reports that only major water bodies, that are as yet unnamed, will be equipped with shut-off valves.

Before valves are activated, there must be a way of isolating the leak location. Right now, absent a bystander report, all they can say, even if their leak detection system does work, is that the leak is within a 70 km section of pipe. So, if the current LDS technology were to be used, there would need to be detection instrumentation at each of these valve sites. Valves alone are not enough.

The fundamental problem, as per number 1 above, is that the lower LDS threshold is about 1000 times too high, which would require new technology to correct. It does appear, however, that TC and Enbridge have invested several million dollars in evaluating such technologies, though they have not made the results public.



Since TC would be required to clean up any detected spill, there is a considerable disincentive to improve upon current technology unless the regulators demand it.

Allowing a 2,000 m³ per day leak is simply irresponsible from an environmental impact standpoint.

TC must provide instrumentation that can confirm which segment of the pipeline the leak is in so it can be quickly isolated.

It is also recommended that above-ground valve facilities not be co-located with above ground natural gas transmission facilities such as compressor stations, valve installations etc. This will reduce the risk of an incident at a natural gas transmission facility damaging the pipeline facilities.

3. Safe Separation/Isolation of Oil and Gas Pipelines

There must be a safe separation and isolation of the gas pipelines and the proposed converted oil pipeline and pump stations in order to avoid catastrophic failures leading to explosions and release of crude oil.

In western Manitoba in 1995, this happened when, a TC pipeline 100-4 ruptured followed by an explosion. Due to delays in shutting down pipeline 100-4, the adjacent 100-3 pipeline ruptured with a subsequent explosion an hour later. If it had been a crude oil pipeline running adjacent to 100-4, it would have resulted in a major rupture and spill with significant environmental damage. There was also a gas pipeline failure in Englehart, Ontario, in September of 2009, on TC pipeline 100-2 when it ruptured, followed by an explosion. The force of the blast uncovered the adjacent TC pipeline 100-3.

The aging 20 to 40 year old oil and gas pipelines would run parallel to one another with a distance of only 10 metres separating them in most areas and, according to TC, in some areas the lines would also cross one another.

4. Increased Static Load

The weight of the crude oil and DilBit to be transported is much heavier than natural gas. A 10m section of the 100-2 pipe would contain approximately 500 kg of gas, and the weight for oil would increase to 8,700 kg – a 17 times increase. The weight of 10m of pipe with contents would increase from 2,800 kg to 11,000 kg – 4 times as heavy.

Poor compaction of material placed under the pipeline will start to sag and create higher stresses in the pipe structure. This was the cause of the 4,500 m³ Plains spill.

ORA recommend that all sections of the pipeline be tested for adequate compaction. If the compaction is inadequate to maintain the long-term integrity of the pipeline, corrective measures must be taken.

Poorly executed repairs can threaten the pipeline especially if compaction is not adequate, or when the fusion bonded epoxy coating is compromised by the quality of the field repair. Once the coating is breached stress corrosion cracking becomes much more likely. No doubt, there are other undesirable consequences of less-than-perfect



field repairs. In the case of the Plains spill, the current owner did not have access to the repair records of the previous owner.

ORA recommend an independent 3rd party review to ensure the design reflects these much more demanding requirements.

5. Increased Dynamic Load

Dynamic, or inertial loads, may be a much bigger issue. The pipeline would have 8.7 tons of oil moving at 1.7 m/s, which has a lot of kinetic energy. Inertial loads are 17 times those for the existing gas line when you attempt to stop movement or change its direction. Under normal operation the pipeline cycles off and on, so these inertial loads occur frequently. The pipeline runs around bends, uphill and downhill, and is subject to centrifugal force, which can tend to move the pipe sideways. Therefore, normal and emergency operations will impose much greater cyclic stresses and encourage metal fatigue.

Has TC's design made adequate allowance for this increased dynamic load and stress?

ORA recommend an independent 3rd party review to ensure the design reflects these more demanding requirements.

6. Highest Possible Safety Standards

The requirements of the CSA Z662 standard are intended to be the minimum requirements pipeline operators must meet. For NEB regulated pipelines the Onshore Pipeline Regulations adopt the current CSA Z662 standard with additional requirements. In Ontario, O.Reg. 210/01 adopts the CSA Z662 standard with additional requirements for pipelines regulated by the TSSA. O.Reg. 210/01 is modified using Director's Orders (DO Amendment to CAD 2012-11-01 FS-196-12).

The OEB consultants have reported that the pipeline currently only meets minimum standards. This is unacceptable as the pipeline runs parallel to many essential waterbodies, such as Lake Nipigon, Trout Lake, the Mattawa/Ottawa river system, and other drinking water sources.

TC must provide alternative pipeline routes to avoid impacts to public drinking water intakes throughout Ontario.

Pipeline standards must be upgraded to meet the highest possible requirements in order to protect the environment, and the public.

TC should also be required to exercise its corporate social responsibility by funding river clean-up and restoration projects, such as abandoned power dam removal, funding of fishery restocking and rehabilitation, etc...

7. Emergency Response Plan

It is difficult to assess whether the Project has world leading contingency planning and emergency response planning when this information is not yet available in the



application. Emergency Response Plans must be made available for public review and comment before the NEB hearings begin.

TC must ensure all portions of the pipeline are highly accessible for emergency response and clean-up.

8. Public Awareness

The public will be the first line of defence in minimizing the impact of leaks under 1.5% of daily throughput. Citizens living adjacent to the pipeline right of way (ROW), and members of the public who use the ROW, such as canoeists, boaters, hunters, trappers, prospectors, hikers, etc., must know what to do if they discover a release. Therefore, to improve upon detection, an enhanced public awareness program would be crucial, so that non-TC personnel can readily detect leaks along the pipeline and report any spill incidents effectively to the control centre.

ORA recommend the following be required:

- Install pipeline markers that are inter-visible, approximately every 200 m, along the entire length of the pipeline and keep them maintained
- Train, on an annual basis, the following on the identification of a release and how to report the release effectively:
 - All people residing or using the area with 10km of the pipeline ROW,
 - Emergency response personnel:
 - Police
 - Fire departments
 - EMS
 - Other agencies or groups that may provide early notification:
 - First Nations
 - MOECC
 - MNRF
 - MTO
 - Pilots using local airports or airfields
- TC must also work with cell phone companies to install cell towers near the pipeline ROW to guarantee 100% cell coverage anywhere along the ROW.

9. Identify and Map all Waterbody Crossings

The pipeline conversion would cross hundreds of pristine waterbodies across Ontario; however, the Application currently only lists 41 rivers and 5 provincially significant wetlands. All pipeline crossings of creeks, rivers, lakes, aquifers and wetlands must be identified, as well as municipal drinking water intakes, and clearly named and marked on a map to be included within the application.

The Application contains only intermittent mapping of oil spill trajectories when all waterbodies throughout Ontario must provide full bore rupture modeling on every kilometer of pipeline route to identify the zone of influence from potential worst case spills.



10. Park Protection Plans

There must be Park Protection Plans for the eight Provincial Parks, four Conservation Reserves and Conservation Areas, and two unaddressed Heritage Rivers (Missinaibi and Mattawa) that the pipeline would cross in Ontario.

11. Application Incomplete

The Project application and all supporting studies, plans and documents must be completed and submitted before the NEB consultation process formally begins. It is unacceptable that an incomplete application has been submitted, and that the NEB has accepted it in this form. The Project application cannot effectively be assessed until all the facts are provided.

12. Ontario Referendum

The Ontario government must hold a referendum to let the citizens decide what the province's position should be on the Project. Ontario will have minimal long-term economic gain from the pipeline as the value is all upstream and downstream of the province; and yet local communities will be subjected to a very high environmental and socio-economic risk and cost should a spill occur.

13. Ministry of Environment and Climate Change

The Ministry of Environment and Climate (MOECC) change will undoubtedly be engaged in the environmental clean-up of any spill that occurs; therefore, MOECC should also be consulted to the same degree as the Ministry of Energy.

It is premature to comment on the application's conclusion that the Project is not likely to cause significant adverse effects when the application is missing essential information, and is therefore incomplete.

A watershed and precautionary approach must be used when considering the risks to the public and First Nation communities, to waterbodies, endangered species and their habitats, as well as essential drinking water sources.

ORA appreciate the additional time that has been provided for the preparation of our submission. Thank you for this opportunity to comment.

Respectfully,

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