



**Tip of the Mitt Watershed Council  
Comment Regarding the Draft Final Report  
Alternatives Analysis for the Straits Pipelines  
Prepared by Dynamic Risk Assessment Systems, Inc.**

Tip of the Mitt Watershed Council, on behalf of its 2,300 plus members, would like to thank you for the opportunity to provide comments on the Draft Final Report Alternatives Analysis for the Straits Pipelines (Draft Report), prepared by Dynamic Risk Assessment Systems, Inc. (Dynamic Risk), released on June 29, 2017.

As a means of introduction, Tip of the Mitt Watershed Council, founded in 1979, is a nonprofit organization based in Petoskey, Michigan whose purpose is to protect, restore, and enhance water resources, including inland lakes, rivers, wetlands, groundwater, and the Great Lakes. We have staff appointed by Michigan's Governor to serve on the Michigan Pipeline Safety Advisory Board. We base all our programs on sound science and policy analysis, and have garnered respect for our work from local, state, and federal agencies, businesses, fellow environmental organizations, and citizens. Pursuant to our mission to safeguard our waters, we reviewed the Draft Report and offer the following comments.

These comments are in addition to joint comments submitted with four other Michigan Pipeline Safety Advisory Board Members, as well as comments submitted at the public feedback session in St. Ignace on July 25, 2017. These comments address the primary issues and areas of the Draft Report of greatest concern and are not intended to be comprehensive or an exhaustive list of every clarification needed. We reserve the right to submit additional comments as needed.

**Overall Comments**

Overall, Tip of the Mitt Watershed Council was highly disappointed in the Draft Report that was released to the public as it contains significant flaws and errors that result in inappropriate evaluations and conclusions. The Alternatives Analysis is a critical component for decisions about the future of Line 5. Yet, the Draft Report reviewed was riddled with flawed methodologies and assumptions, has extensive data gaps, and ultimately fails to meet the scope and statement of work.

## **Flawed Methodology**

### *Worst-Case Spill Scenario*

Dynamic Risk failed to evaluate the “worst-case spill” scenario as required per the Statement of Work. The identification of a true worst-case spill is fundamental to accurately evaluate the risk associated with maintaining the existing Straits pipelines. Instead of providing the worst-case spill or release scenario, Dynamic Risk put forth a “realistic” spill scenario to represent possible oil spills that do not represent worst case scenarios. Not only does this fail to fulfill the requirement of the scope of work, but this methodology results in an underestimation of the consequence of a failure as well as significant undervaluation of the costs associated with a release.

### *Risk Analysis*

Dynamic Risk underestimates the risk associated with the existing Line 5. First, the evaluation fails to account for the cumulative impact of rare events, such as sinking vessels, and terrorism, in addition to anchor strikes, underestimating the overall risk of the existing Straits pipeline. In addition, the risk to the public trust waters of the Great Lakes, including the Straits of Mackinac, does not solely come from the twin pipelines located on the State-owned bottomlands in the Straits. Portions of Line 5 located inland still pose a significant, if not greater, risk to the Great Lakes and Michigan’s public trust waters. In particular, Line 5 crosses a number of Lake Michigan tributaries as it traverses the Upper Peninsula, along the U.S. 2 corridor. Any leak or rupture along this portion would still result in an oil spill in Lakes Michigan-Huron and the Straits of Mackinac, and the same containment and recovery difficulties would still exist.

### *Spill Volumes*

The spill volume predicted was underestimated due to the failure to account for a worst-case spill scenario. In addition, there were only two spill scenario volumes analyzed – a full rupture and 3-inch leak on one of the twin pipelines. This fails to consider other potential release/spill scenarios including a small continuous release that goes undetected for a longer period of time or a release that occurs simultaneously on both pipelines.

### *Economic Estimates of Spill*

The economic estimates of a spill are significantly underestimated due to flawed methodology. Economics were based upon the spill size and the amount of onshore oiling (i.e., 20 miles of shoreline impacted in three counties). These deficiencies associated with identifying the worst case spill lead to significant undervaluation. Second, the estimate failed to account for, or document inclusion of, impacts to commercial shipping, tribal fisheries, the drinking water supply to Mackinac Island, tourism on Mackinac Island, critical species impacts, hunting and birdwatching associated with the coastal wetlands including high-value ecosystems located in the three counties identified as most impacted by Dynamic Risk. Spill cost was also calculated at the 95th percentile as opposed to 100%, which would represent the worst case spill scenario. These serious deficiencies must be corrected for the final report to have validity.

### *Presumption that Getting Product to Market is Primary Objective*

The report largely assumes that it is the state's responsibility to find a pathway for Enbridge Energy, Limited Partnership to deliver the current maximum capacity of 540,000 barrels per day (bpd) of oil and natural gas liquids to export and domestic markets. However, the overall objective of the work was to provide an "independent, comprehensive analysis of alternatives to the existing Straits Pipelines, and the extent to which each alternative promotes the public health, safety and welfare and protects the public trust resources of the Great Lakes." A more appropriate analysis to achieve the objective is analyzing alternatives based upon partial capacity needed to provide for the citizens of Michigan and the Great Lakes Region.

### **Inaccurate Assumptions**

#### *Failure Comparisons*

Risk evaluations were not weighted evenly – the environmental risks were analyzed for the 4.5 miles in Straits while other analyses such as market impacts were completed for the entire infrastructure, resulting in a skewed analysis.

#### *Failure to Consider Multi-Modal Alternatives*

Dynamic Risk failed to consider multi-modal or mixed alternatives, which was not precluded by the scope of work. The report does not discuss, in a qualitative or quantitative sense, the extent to which the system might be optimized using a mix of modes to minimize costs or adverse environmental impacts. Multi-modal alternatives are feasible and prudent options that could prove to be economically and environmentally beneficial and deserve a thorough analysis.

#### *Spill Modeling Based Upon Unique Weather Conditions*

The spill modeling used current and meteorological information from 2014-2015 as a benchmark for simulating a representative range of conditions. However, these years were uncharacteristic with respect to precipitation and ice cover and, therefore, cannot be considered representative of Great Lakes conditions. In general, there has been a significant decline in ice cover in the Great Lakes, yet the two years used as a benchmark had extreme ice coverage. In 2014, the Great Lakes experienced near record ice cover and above average precipitation, leading to one of the fastest rebounds in water levels. In 2015, the Great Lakes were 85.4% ice covered on February 18 and the level of precipitation and spring runoff was even higher than 2014. More years should be included into the model to be truly representative of the conditions that may be experienced within the Straits of Mackinac.

#### *Economic Impacts of Alternative 5*

The economic impacts of Alternative 5, Status Quo, is not accurate. Dynamic Risk attributes 252 direct jobs to the State of Michigan, yet many of these jobs were related to the rupture, and subsequent cleanup, of Line 6B and not Line 5. According to a more recent media report, Enbridge provides "over 100 Michigan jobs paying \$8 million in wages."

### *Comparison with Offshore Transmission Pipelines*

The Draft Report focuses on operating experience of offshore pipelines to identify failure probability, however, Line 5 is not a traditional offshore pipeline and cannot be compared to offshore pipelines. The primary difference is the environment – salt water versus freshwater – which exhibit different chemical, physical, and biological characteristics. Therefore, any conclusion attributed to analysis of offshore pipelines in saltwater cannot be appropriately applied to pipelines located within freshwater systems. Likewise, while the greatest threat to offshore pipelines may be mechanical damage due to shipping activity, this again, is not comparable to the Great Lakes. For example, the conditions in the Gulf Coast or the North Coast are significantly different than the Straits of Mackinac.

### **Data Gaps**

#### *Effective Life of the Existing Pipelines*

Dynamic Risk Failed to provide the information on how long the existing pipelines can operate without replacement. Per the Statement of Work, Dynamic Risk was required to provide an analysis of “how long the existing pipelines can reasonably be operated without replacement as well as the course of action for replacement based on the estimated useful life of existing pipelines.” This is a critical analysis needed to evaluate options with respect to the future of Line 5 operations in the future.

#### *Structural Integrity Impacts from Historic Excessive Spans*

While Dynamic Risk evaluated current inline inspection data and recent span lengths, documentation exists proving that the twin pipelines were in exceedance of the 75 foot span limit consistently throughout its history, including in excess of 140 feet that Enbridge engineers deemed to be “safe.” An analysis of the past exceedances is necessary to determine if the excessive span lengths impacted the structural integrity of the pipelines and increased the likelihood of fatigue or failure.

#### *Regulatory Requirements*

The Scope of Work required that the alternative analysis “consider regulatory requirements and timeframes associated with pipeline replacement such as permits, siting, land acquisition and routing.” However, the report fails to fulfill this requirement. Permitting and land acquisition represents a significant investment in time and resources which could hinder, or even prohibit, completion of certain projects. The inability to obtain necessary permits or acquire land could impact the feasibility of certain alternatives. If an alternative, while technically feasible, cannot be completed due to regulatory requirements, it must be removed from consideration. In particular, a State of Michigan representative has gone on record stating that a pipeline would not be permitted in the Straits of Mackinac today, yet there are two alternatives involving replacement of the pipeline in the Straits proposed as feasible. If these options would not be able to obtain the required permits, it would make those alternatives prohibitive.

### *Anchor Drop Data from the Great Lakes*

Further information on anchor drops in the Great Lakes, including general frequency and size of anchor/chain of vessels crossing the Straits, is needed to fully understand the risk associated with anchor drops on the Straits pipeline. In addition, Dynamic Risk needs to evaluate Enbridge's third party assessment modeling the scenario of an anchor drop from a large lake freighter directly striking the pipeline. According to Enbridge, "the results demonstrate that due to the high ductility of the pipe steel combined with the heavy wall thickness, the anchor strike, while it may cause some flattening of the pipe, is highly unlikely to puncture. That facet of the design was intentional as it allows damage to be absorbed while still containing the oil until a repair can be performed." This is in direct conflict to Dynamic's Risk conclusion that the greatest risk to the Straits pipelines is anchor strikes.

### *Commodity Evaluation*

The report failed to account for the product that is returned to Michigan's Lower Peninsula from Sarnia, Ontario. This could represent an important supply for Michigan residents and needs to be included in the analysis. In addition, many of Michigan's wells that supply crude oil to Line 5 from the Markwest pipeline are maturing and reaching the end of production. As these well are shut in, volumes that will need to be transported through Line 5 will decrease and could modify the need for Line 5 in the Lower Peninsula for Michigan crude oil.

## **Alternatives Analyses**

### *Alternative 1: Construct one or more new pipelines that do not cross the open waters of the Great Lakes*

- Northern Route
  - This alternative failed to consider the possibility of an above ground pipeline, which could avoid the issue associated with the geologic difficulties as well as utilizing the proposed TransCanada Energy East Pipeline project.
- Central Route
  - The St. Mary's River is not considered the "open waters" of the Great Lakes. This is not sufficient justification for dismissing this alternative. In fact, a river crossing would be likely more feasible both economically and environmentally than a new pipeline crossing in the Straits.
- There was no evaluation of constructing a 4' pipeline in Michigan's Upper Peninsula to deliver Natural Gas Liquids and an 8' pipeline in the Lower Peninsula to deliver Michigan's crude oil. This should be fully analyzed as a potential alternative.

### *Alternative 2: Utilize existing pipeline infrastructure*

Alternative 2 was dismissed prematurely. Dynamic Risk needs to conduct a full analysis of using existing infrastructure, without limitations of direct connections from Superior to Sarnia only. This includes getting more information on the existing third party infrastructure as

well as multi-model alternatives to consider building connector pipelines to hook up to existing infrastructure.

*Alternative 4: Replace the existing Straits pipeline*

- Timing and Regulatory considerations
  - The inability to obtain necessary permits and timing to complete replacement was not accurately assessed. First, a State of Michigan representative has gone on record stating that a pipeline would not be permitted in the Straits of Mackinac today. Therefore, replacement is not likely due to the inability to obtain the necessary permits. Even if permits can be obtained, the timeframe to complete the project was significantly underestimated.
- Risk to public trust waters
  - Alternative 4, both trenched and tunneled replacement, will not eliminate the risk to the public trust resources of the Great Lakes. Line 5 will still traverse across the Upper Peninsula, along the US 2 corridor, where there are a number of direct tributaries to Lake Michigan. Any leak or rupture along this portion would still result in an oil spill in Lakes Michigan-Huron and the Straits of Mackinac, and the same containment and recovery difficulties would exist. Therefore, this alternative fails to eliminate the risk to the public trust waters of the Great Lakes.
- Environment impacts and feasibility associated with construction of a tunnel
  - More explanation is needed on the replacement tunneling alternative with respect to environmental and feasibility. In particular, given the substrate, will a tunnel result in minimal impact to the State-owned bottomlands and what is the life expectancy of such a tunnel? In addition, if the annulus is filled with grout, as proposed in the Draft Report, how will inspections and repair/replacements occur? Are there examples that tunnels with a grout annulus is a proven technology that would provide sufficient protection for the Great Lakes?
- Impact of currents cover of trenched pipeline
  - Given the current knowledge of the currents and washouts experienced along the current twin pipelines, it is unreasonable to consider that a trenched replacement pipeline will remain covered for more than a few years. This fails to provide a reasonable alternative to the current Straits pipeline if it will be an exposed pipeline in a matter of a few years.

*Alternative 5: Maintain existing pipeline*

- Hydrostatic test results
  - Enbridge recently completed hydrostatic tests on both the East and West pipelines in the Straits. This information should be evaluated and included in the analysis of Alternative 5, Maintain Existing Pipeline.
- Excessive spans impact on pipeline integrity
  - As previously mentioned, while Dynamic Risk evaluated current inline inspection data and recent span lengths, documentation exists proving that the twin

pipelines were in exceedance of the 75 foot span limit consistently throughout its history, including in excess of 140 feet that Enbridge engineers deemed to be “safe.” An analysis of the past exceedances is necessary to determine if the excessive span lengths impacted the structural integrity of the pipelines and increased the likelihood of fatigue or failure.

- Evaluation of operational records
  - First, the evaluation should look at Enbridge’s operational record across entire system. Second, the report should comparatively analyze Enbridge’s operational record relative to that of other operators.

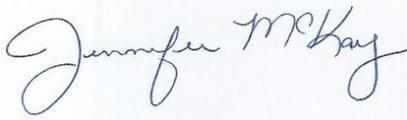
## Conclusion

Tip of the Mitt Watershed Council urges Dynamic Risk to give careful consideration to the comments provided and make significant changes to the Draft Alternative Analysis Report.

The Great Lakes are some of the most magnificent natural resources on Earth, holding nearly 20% of the planet's fresh surface water. In addition to the Lakes themselves, the region is richly endowed with high quality inland lakes, expansive forests, blue-ribbon trout streams, prairies, bogs, and the largest freshwater coastal wetlands on Earth. We need a thorough, comprehensive, and complete Alternatives Analysis to provide valuable information to inform future decisions on Line 5.

Thank you for the opportunity to provide comments. If you have questions regarding these comments, please do not hesitate to contact me at 231-347-1181 or by email at [jenniferm@watershedcouncil.org](mailto:jenniferm@watershedcouncil.org).

Sincerely,

A handwritten signature in blue ink that reads "Jennifer McKay". The signature is written in a cursive style with a light blue background behind it.

Jennifer McKay  
Policy Director

Tip of the Mitt Watershed Council  
426 Bay Street  
Petoskey, Michigan 49770