

September 30, 2016

Trans Mountain Pipeline Expansion Project (TMX) Ministerial Panel
Kim Baird
Annette Trimbee
Tony Penikett

Sent by Email: nrcan.ministerialpaneltmx-comiteministerieltmx.rncan@canada.ca

Dear Ms. Baird, Dr. Annette Trimbee, and Mr. Tony Penikett:

Thank you again for the opportunity to present to the Ministerial Panel's Local Government Roundtable on August 16, 2016.

We appreciate the federal government's commitment to further engaging on this project through the Ministerial Panel, and to consider additional evidence that was not provided through the National Energy Board process.

Please find attached for your reference a copy of our formal submission. This follow-up submission is provided to the Panel in response to the Panel's request for copies of the evidence filed by the City of Vancouver in the hearing before the National Energy Board, and to provide a more fulsome response to some of the questions posed by the Panel.

We hope feedback from Canadians will urge the Government of Canada to say no to Kinder Morgan's Trans Mountain Pipeline expansion and say yes to long-term growth and climate security.

Yours sincerely,



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TMEP - FOLLOW UP SUBMISSION TO MINISTERIAL PANEL

A. INTRODUCTION

1. On August 16, 2016, Vancouver Mayor Gregor Robertson and City Manager Sadhu Johnston presented to the Ministerial Panel to advocate against the proposed Trans Mountain expansion project (“TMEP”) on the basis that it is not in Vancouver or Canada’s economic or environmental interest. The key points of the presentation were:
 - (a) There is no social license to approve the pipeline expansion project.
 - (b) There is no economic case for Kinder Morgan’s expanded pipeline capacity.
 - (c) The risk of an oil spill is too high.
 - (d) The pipeline will have a significant impact on climate change and undermine Canada’s ability to meet our COP21 global climate commitments.
2. This follow-up submission is provided to the Panel in response to the Panel’s request for copies of the evidence filed by the City of Vancouver in the hearing before the National Energy Board and to provide a more fulsome response to some of the questions posed by the Panel. The City filed more than 3,500 pages of evidence with the Board, including 13 expert reports, on May 27, 2015. Since that time, all of the City’s expert reports have been available on both the NEB’s electronic registry and at the following City of Vancouver website address: <http://vancouver.ca/green-vancouver/neb-evidence-library.aspx>.
3. It is not practical to attach all of the City’s evidence to this submission, however, it continues to be available on the NEB’s electronic registry and the City of Vancouver website. Further, while we appreciate this opportunity to provide additional information to the panel, the City of Vancouver is cognizant of the limited scope of this Panel’s mandate.
4. This is not the forum for weighing and assessing complex expert evidence, correcting the errors in the hearing process, or filling the significant gaps in evidence resulting from these errors. The forum mandated by statute for undertaking this assessment is the public hearing process before the Board. That process together with the Board’s report, are currently the subject of judicial review proceedings before the Federal Court of Appeal.

B. QUESTIONS FROM THE PANEL

- a. **What does an “unflawed” NEB process look like?**
5. One of the City’s fundamental concerns about the hearing process was the lack of cross-examination. The Board’s decision to refuse oral cross-examination significantly undermines the reliability of the recommendations in the Board’s report for a number of reasons.
6. First, there was no ability to properly test Trans Mountain’s expert evidence. Instead, Trans Mountain and its experts were allowed to provide high level answers in writing that were often unresponsive to the questions asked; incomplete in the

information provided; self-serving; or were an outright refusal to answer the question at all. Trans Mountain failed to respond adequately or at all to 40% of the City's written information requests. When the City brought motions to the Board to compel responses, the Board ruled overwhelmingly in Trans Mountain's favour. The City filed motions seeking answers to 423 questions and the Board only compelled Trans Mountain to respond to 14.

7. In the absence of cross-examination and full document disclosure, Intervenor experts were prevented from fully responding to Trans Mountain's expert evidence. The Board itself was not able to resolve conflicts between the evidence of Trans Mountain's experts and the evidence filed by Intervenors. This error was compounded by the NEB's decision, first, to let thousands of pages of new evidence filed by Trans Mountain stand as "reply" evidence and, second, to refuse to allow Intervenors to file any evidence in Sur-reply.
8. The result of the Board's written question and answer process is an incomplete evidentiary record where many of the documents (for example, emergency response plans) and much of the detailed information requested by Intervenors was not volunteered by Trans Mountain nor was it required to be provided by the Board. In many cases, important studies were only at the preliminary stage, often in draft form, and Trans Mountain was not required to provide final, signed reports prior to the completion of the hearing process.
9. Two significant gaps in Trans Mountain's application, among others, relate to the human health risk assessment ("HHRA") and spill modelling. These two issues were first brought to the Board's attention on April 28, 2014, in a letter from the City of Vancouver filed in Response to Notices of Motion brought in connection with the HHRA. There, the City noted that Dr. Patricia Daly, Chief Medical Health officer for Vancouver Coastal Health had identified Trans Mountain's failure to undertake spill modelling and an HHRA in Burrard Inlet as a "critical information gap". At page 2 of its letter, the City said this:

... The potential health and safety risks posed to the lower mainland population, and to others along the pipeline route, should be the very highest priority for Trans Mountain and should be subject to the greatest scrutiny by the Board in this public hearing process.

*In communications with the City of Vancouver, Dr. Patricia Daly, Chief Medical Health Officer, Vancouver Coastal Health, noted additional deficiencies in the incomplete Qualitative Oil Spill HHRAs included in Volume 8B of the Application. Specifically, Trans Mountain has chosen Haro Strait as the single location to model a major marine spill, thereby ignoring the possibility of a spill in English Bay or Burrard Inlet. Dr. Daly advises that "HHRA for a spill in the Haro Strait can not be generalized to a similar spill in the urban setting [of Burrard Inlet or English Bay]. **The lack of spill modelling and related HHRA for the urban setting are critical information gaps.**"*

10. Subsequently, in May, 2015, the City of Vancouver filed written evidence with the Board which included a May 25, 2015 letter written jointly by Vancouver Coastal Health and Fraser Health¹, together with a research paper that was prepared for these Health Authorities in August 2014 titled: “*Guidance to Metro Vancouver and Fraser Valley Municipalities to Assist in Reviewing the Trans Mountain Pipeline Expansion Project from a Public Health Perspective*”². This document included a literature review on the health impacts of oil spills and outlined in detail the concerns and information gaps identified by the health authorities regarding the project proposal.
11. In the course of the TMEP Hearing, Trans Mountain filed some additional human health related evidence. However, the concerns raised by the Health Authorities remained unanswered. In their letter dated May 25, 2015, Vancouver Coastal Health and Fraser Health summarized their concerns, in part, as follows:

*[p. 3] In Conclusion, we continue to believe **there are significant information gaps with respect to public health protection in the Trans Mountain Pipeline Expansion Project proposal as submitted to the NEB.** In particular, and especially given the recent MV Marathassa fuel spill incident, **it is reasonable to expect that a proposal of this magnitude will include a comprehensive set of health impact assessments of the impact of possible major spills at locations along both the land and marine routes, particularly in densely populated urban environments, even if a spill is judged “not credible” in those locations.***

12. The May 25, 2015 letter refers to the air dispersion modeling commissioned by Metro Vancouver and completed by Levelton Associates³ and concludes that there is sufficient information in this report to support the **need for further detailed analysis of public health consequences** following a large spill in Burrard Inlet.
13. In a separate letter to Metro Vancouver, also dated May 25, 2015, the Health Authorities note that the Levelton report **provides more than adequate information to identify significant gaps in the oil spills risk analysis provided by Trans Mountain** in its application to the Board, and concludes that:

From a public health perspective, we believe the project proposal requires further work in assessing the air quality impacts from a large spill in the Burrard Inlet or English Bay. Specifically the air dispersion modelling should be improved through having

¹ Appendix 51 https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2449925/2450831/2784828/C77-28-5_-_Appendix_51_-_A4L7L0.pdf?nodeid=2784515&vernum=-2

² Appendix 50 https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2449925/2450831/2784828/C77-28-4_-_Appendix_50_-_A4L7K9.pdf?nodeid=2785191&vernum=-2

³ Appendix 52 https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2449925/2450831/2784828/C77-28-6_-_Appendix_52_-_A4L7L1.pdf?nodeid=2784516&vernum=-2

- *A complete set of time periods and weather conditions for the spill occurrence, giving consideration to future impacts from climate change;*
 - *A complete set of volatile chemical compounds from a spill of diluted bitumen (the Levelton report only modelled benzene);*
 - *Consideration of the potential cumulative health effects from concurrent exposures to multiple chemical compounds released from a spill;*
 - *More simulated spill locations, particularly closer to shore;*
 - *A complementary assessment of the long term health impacts from such a large spill.*
14. This further detailed analysis was never undertaken by Trans Mountain and represents a critical gap in the information that the Board relied on in completing its Report and providing its recommendations to the Minister.
15. The concern about Trans Mountain’s failure to properly model spill scenarios was also identified in the Royal Society of Canada’s Report published in November 2015 entitled *“The Behaviour and Environmental Impacts of Crude Oil Released into Aqueous Environments”*.⁴ In discussing Trans Mountain’s risk assessment prepared for the NEB, the authors of the Report noted that Trans Mountain’s assumption that it would only take 10 minutes from the start of a pipeline rupture to achieve valve shutdown ***“significantly (and possibly unrealistically) constrains the spill volume, thus fundamentally affecting the results of the risk assessment.”*** The Royal Society of Canada Expert Panel recommends, at p. 349, that *“risk assessment scenarios that assume a more likely combination of factors (less than full-bore rupture with a longer elapsed time to response) would be more relevant and comparable to actual spill cases.”*
16. The Board’s Report compounds the gaps in Trans Mountain’s Application evidence by failing to properly consider and assess the evidence that was before it.
17. Finally, separate and apart from the evidentiary issues and lack of due process, are the errors in the Board’s approach to the scope of its review. The Board refused to allow evidence of the upstream and downstream socio-economic and environmental impacts of the Project. It also refused to undertake an environmental assessment of the marine transportation component of the Project. Despite the fact that Trans Mountain’s sole justification for the Project is to gain access to overseas markets by way of a seven-fold increase in the number of tankers loading oil at Westridge Marine Terminal and transiting through Burrard Inlet, the NEB refused to assess the environmental impacts of this increased tanker traffic under *CEAA 2012*.
18. The Federal Government has subsequently undertaken its own climate change assessment, however, the public was given only 30 days to comment on the draft methodology and those who did comment, including the City of Vancouver, were never given notice that the methodology had been finalized. A draft emissions

⁴ http://www.rsc.ca/sites/default/files/pdf/OIW_Executive%20Summary_1.pdf - Executive Summary

assessment has since been published which is itself flawed. This will be discussed in more detail below.

19. In summary, the NEB Hearing process was fundamentally flawed for a number of reasons including, but not limited, to the following:

1. the failure to compel responses and information from Trans Mountain;
2. the failure to require disclosure of emergency response plans;
3. the failure to require Trans Mountain to complete proper Human Health and Air Quality Assessments;
4. the failure to allow Intervenor experts to respond to thousands of pages of new Reply evidence;
5. the failure to allow cross-examination of Trans Mountain's experts; and
6. the failure to properly analyze and assess the evidence that was filed.

20. As a result of this flawed process, the Board's Report is wholly deficient and the TMEP application should be rejected.

b. How would you define National Public Interest?

21. The National Public Interest must reflect the interests of the Canadian public, both today's generation and future generations of Canadians, not foreign-owned corporations. The overarching question should be: Does the project put the interests of Canadians, including the health of Canadians and the natural environment that we live in, ahead of the economic interests of corporations or other nations?

22. The Canadian Citizenship Guide is instructive. It highlights the importance of key considerations that were ignored by the Board: avoiding waste (in this case, the fact that the TMEP will quickly become a stranded asset) and protecting Canada's natural heritage for future generations. The Citizenship Guide states that:

"Every citizen has a role to play in avoiding waste and pollution while protecting Canada's natural, cultural and architectural heritage for future generations."

23. Questions that should be asked relevant to the National Public Interest include:

- i. Does the project provide energy to Canadians and, if not, is there any value added before export of the product?
- ii. Do the purported project benefits outweigh the benefits of investing in cleaner energy alternatives for Canadians?
- iii. Does the project align with Canada's international commitment to reduce carbon emissions to the extent required to achieve a 1.5°C (or even a 2.0°C) cap on the global rise in temperature?
- iv. Given the proximity of the expanded pipeline, terminal and marine transportation operations to major urban centres in the Vancouver Lower Mainland:
 - o has Trans Mountain demonstrated that proven emergency response resources will be in place prior to the commencement of operations to protect communities from the cumulative risk to

human health, the natural environment and the economy presented by the existing line 1 operations and the proposed expansion? and

- can the consequences of worst-case, small and medium-sized diluted bitumen spills in Burrard Inlet be fully mitigated?

24. The answer to every one of these questions is no and leads to the unavoidable conclusion that the TMEP is NOT in the National Public Interest.

i. The TMEP does not provide energy to Canadians and there is no value added before export of the product.

25. Given that all of the expanded pipeline capacity is intended to be shipped as an unrefined product to foreign markets, TMEP can't be in the national public interest. It will create temporary jobs for a very short period of time, jobs which would be created equally by infrastructure projects, such as rapid transit, which have the added long-term benefits of providing much needed transportation and reducing greenhouse gas emissions. There is no national public interest served by the TMEP.

ii. The benefits of investing in cleaner energy alternatives for Canadians far outweigh the purported project benefits.

26. The City's review of the economic case presented in the Board hearing process confirms that the economic benefits claimed by Trans Mountain just aren't there. To give just one example, according to Kinder Morgan Canada president Ian Anderson, Trans Mountain received a cash tax refund of \$4.2 million in 2013 even though it generated \$167 million in distributable cash flow available to its U.S. parent. Further, over a period of five years (2009 to 2013), Trans Mountain's average annual contributions to federal and provincial corporate taxes were a meager \$1.5 million.⁵

27. The fact is that even if there was an economic case for additional pipeline capacity when the TMEP was first proposed in 2013, this has changed dramatically over the past 3 years:

1. Oil prices have fallen below \$50 a barrel such that extraction and production of oil sands crude is no longer profitable;
2. The difference between North American oil prices and the average international oil price has narrowed significantly, from a high of \$17.82 in 2012 to less than one dollar (only \$0.76) for the first half of 2016;⁶ and
3. More stringent carbon emissions regulations have been introduced both in Canada and globally, and the regulatory environment will continue to move consumption away from carbon intensive fossil fuels such as Alberta bitumen.

⁵ <http://thetyee.ca/Opinion/2014/11/17/Trans-Mountain-Pipeline-Investments/>

⁶ <http://www.policynote.ca/the-new-climate-denialism-a-presentation-on-the-proposed-trans-mountain-pipeline-expansion/>

28. The economic case **against** additional pipeline capacity will only strengthen during the lifetime of the proposed TMEP as Canada and the international community shift increasingly toward renewable energy and both existing and new carbon emission reduction policies are implemented.
29. Trans Mountain and the Board both failed to consider existing and future carbon emission reduction policy initiatives in their assessment of the need for the Project. This failure to recognize Canada's changing energy future is all the more remarkable given the comments of the Board's Chair and CEO, Peter Watson, in his introduction to the 2016 Energy Futures Report. Mr. Watson had this to say:

*To use "uncertain" to characterize the past 18 months in Canadian energy would be an understatement. [...] **Among many factors contributing to the lack of clarity on Canada's energy future were the unprecedented market volatility, the rapid deployment of advanced technologies for renewable and fossil fuel energy production, a historic climate agreement in Paris, the denial of the Keystone II project in the U.S., the lifting of the U.S. oil export ban, as well as the lifting of sanctions on Iran. ...***

*In recent months the federal and many provincial governments in Canada have made announcements about new climate policy initiatives and the momentum is increasing, especially following the agreement at the 21st Conference of the Parties in Paris. [...] EF 2016 does not include these recent announcements, as it only reports on policies and programs that are law, or near law, at the time of analysis, but it does highlight their significance. **The insights from the report suggest to me that these policy developments will be critical factors in Canada's energy and environmental future, and the possible addition of climate policy developments beyond those just announced will represent a considerable uncertainty for long-term energy projections.***⁷

30. The Government of Canada has an obligation to support projects that produce long term growth and jobs. This long-term growth is in renewable energy and green transportation **not** the TMEP. For example, Bloomberg New Energy Finance projects that between now and 2040, investments in fossil fuels will be only a fraction (less than a third) of the \$7.8 trillion that will be invested in renewables.⁸
31. In his speech to Lloyd's of London in October 2015⁹, Mark Carney, Governor of the Bank of England and Chairman of the Financial Stability Board, issued a stark warning about the lack of long-term thinking by governments and businesses, warning that climate change is the tragedy of the horizon. He describes the tragedy of the horizon as follows:

⁷ Canada's Energy Future 2016, <http://www.neb-one.gc.ca/nrg/ntgrtd/ftr/2016/2016nrgftr-eng.pdf>, Introduction

⁸ <http://www.bloomberg.com/news/articles/2016-06-13/we-ve-almost-reached-peak-fossil-fuels-for-electricity>

⁹ <http://www.bankofengland.co.uk/publications/Pages/speeches/2015/844.aspx>

[T]he catastrophic impacts of climate change will be felt beyond the traditional horizons of most actors – imposing a cost on future generations that the current generation has no direct incentive to fix.

32. Mr. Carney concludes that the window of opportunity to act is finite and shrinking, noting that already the failure to act since 2010 has increased the task.
33. The oil industry, as one example of the “tragedy of the horizon”, has no direct incentive to prevent the catastrophic impacts of climate change. The Government of Canada not only has the incentive, because it needs to demonstrate that it is fulfilling its international commitment to address climate change, ***it also has the obligation to Canadians to exercise its authority in a manner that protects the environment and human health.***
34. The benefits of renewable energy projects far outweigh any purported short-term benefit of the TMEP and approval would only serve to reinforce the short-sighted thinking that has dominated Canada’s energy policy to date. It is in the public interest that the Government of Canada reject the TMEP.

iii. The TMEP does not align with Canada’s international Climate Change commitments.

35. Canada’s environmental policy is guided by the precautionary principle and is reflected in the Federal Sustainable Development Strategy as required by the *Federal Sustainable Development Act* which states that the Minister of Environment must “develop a Federal Sustainable Development Strategy based on the precautionary principle”.
36. The precautionary principle states that:

“Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation” (United Nations, 1992).

37. The ECCC 2016 draft makes a number of erroneous assumptions which minimize Canada’s contribution to global GHG emissions and fails to apply the precautionary principle. For example, Environment and Climate Change Canada’s (ECCC) 2016 draft estimate of upstream GHG emissions continues to ignore downstream GHG emissions associated with the volume of oil proposed to be transported by the TMEP. As the City stated in its April 18th letter to the ECCC:

The impacts of additional downstream GHG emissions from the processing, refining and use of the oil products to be transported by projects under review must be included in the proposed GHG Methodology if there is to be a comprehensive assessment of the true impacts of the project on global GHG emissions. [...] ignoring downstream GHG emissions may very well compromise Canada’s overall commitment to limit rise in global temperature to 1.5°C.

38. Downstream GHG emissions are a much more significant contributor of GHG emissions than upstream emissions. The City's expert, Dr. Mark Jaccard has estimated that the production of 590,000bbl/day of Alberta oil sands crude that would be transported by the TMEP would result in an upstream GHG emission of approximately 7.7 million tonnes per year. Comparatively, the associated downstream emissions are 10 times higher, and estimated at 71.1 million tonnes per year.
39. The ECCC 2016 draft estimate is an insufficient measure of the project's contribution to climate change for other reasons as well. For example, the upstream assessment considers only "direct emissions caused by" the TMEP and not all associated upstream emissions such as exploration, mining equipment operation, imported diluent, transportation of crude to the pipeline, etc.
40. The ECCC 2016 draft fails to recognize any of the measures to reduce GHG emissions from the oil and gas sector that have been announced since September 2015, or any of the policies that have been proposed nationally and globally pre-September 2015, but have not yet been implemented. It also ignores the fact that regulations aimed at reducing GHG emissions will only become more stringent over time.
41. Finally, the ECCC 2016 draft fails to attribute any incremental GHG emissions to a particular pipeline. To ensure that Canada meets its international climate change commitments, a conservative approach is required. All GHG emissions from the expanded volume of oil to be transported by the TMEP should be counted as increased GHG emissions. This is the only approach which will encourage confidence that the Federal Government is putting the protection of the environment and the health and welfare of Canadians ahead of corporate interests.
42. The Board has already found in its Report that greenhouse gas emissions from Project-related marine vessels alone would likely be significant. The case for rejecting the TMEP only strengthens when both upstream and downstream GHG emissions are considered.
 - v. ***Trans Mountain has not demonstrated that proven emergency response resources will be in place prior to the commencement of operations to protect communities from the cumulative risk to human health, the natural environment and the economy presented by the existing line 1 operations and the proposed expansion.***
43. To date, no comprehensive environmental assessment has been done on the impacts of the marine transportation aspects of the TMEP, or the risk of marine oil spills. The Board failed to require this as part of the Hearing process and none of Transport Canada, DFO or Environment Canada conducted any sort of assessment that would satisfy the requirements of *CEAA 2012*.
44. The voluntary TERMPOL Process that Trans Mountain engaged in does not qualify as an appropriate assessment of the Project and fails to protect the public interest. For example, Trans Mountain excluded a number of components from the

TERMPOL review process including *the assessment of the consequences of a spill or malfunction to the public*. Further, in its response to a City of Vancouver information request, the Government of Canada acknowledged that the TERMPOL Review Committee (the “TRC”) did not refer to a single document, research paper, or peer reviewed publication in assessing the validity of the reports designed and developed by Trans Mountain. The TRC simply proceeded on the assumption that they were accurate.

45. What we do know is that the current response regime cannot adequately respond to and mitigate the effects of a marine-based spill of diluted bitumen of any size.
46. As part of its Written Evidence, the City of Vancouver filed the expert report of Dr. Jeffrey Short¹⁰ entitled “*Fate and Effect of Oil Spills from the Trans Mountain Expansion Project in Burrard Inlet and the Fraser River Estuary*”. Dr. Short specifically addresses the impacts of a worst-case scenario oil spill as well as small and medium-sized spills in his report and concludes that oil spills that are considerably smaller in size than the worst-case scenario of 16,000 cubic metres can have substantial adverse effects on sea- and shorebirds as well as marine mammals and other organisms inhabiting the sea surface, shorelines and the water column. Dr. Short estimates that *the adverse effects for small to medium spills (100 to 1,000 cubic metres) have the potential to contaminate tens of kilometres of shoreline and persist over a period of decades*.

Current Spill Response Regime

47. Current regulations state that a response organization such as WCMRC must have 10,000 tonne response capacity over 10 days. According to Transport Canada, this is defined as “the amount of equipment and resources which must be stored and maintained at the ready for recovery operations.” This does not mean that the Response Organization will be capable of cleaning up 100 % of a 10 000 tonne spill over 10 days. A 100% clean-up has never happened in the history of oil spills. There are a number of reasons for this, which will apply equally to a spill from the TMEP pipeline or from a Tanker transiting oil from the Westridge Marine Terminal.
48. First, the 10-day planning standard itself is meaningless. It is widely acknowledged by experts, and by Trans Mountain itself, that on-water recovery of oil is no longer possible after 3 or 4 days because the oil will have dispersed into a thin sheen by that time. An additional time constraint identified by experts is that, in the case of diluted bitumen, the oil can quickly submerge below the water surface.

¹⁰ Dr. Short led numerous projects to evaluate the effects of spilled oil from the Exxon Valdez oil spill, and also led the scientific support team for the US Department of Justice to present the scientific basis for a \$100M claim against ExxonMobil Corp. for unanticipated long-term environmental damages caused by the oil spill. He has published more than 68 scientific papers on oil pollution fate and effects in peer-reviewed scientific literature, and has been retained since 2010 to organize and oversee scientific support for the Plaintiff’s Steering Committee in the multi-district litigation of lawsuits against British Petroleum PLC and other companies for their role in causing the 2010 Deepwater Horizon blowout in the Northern Gulf of Mexico.

49. The *MV Marathassa* provided a clear demonstration of the limitations of spill response even on a small-scale and under excellent conditions with nearby access to equipment. In its presentation to the Panel on August 16, 2016, WCMRC suggested that the vast majority of fuel spilled from the *MV Marathassa* was recovered. This is incorrect.
50. The fuel spill size from the *MV Marathassa* was estimated by the Canadian Coast Guard to be 2.7 cubic metres in size at the time that it conducted its overflight. This overflight took place the morning after the spill and approximately 12 hours after WCMRC first arrived at the scene to commence its response efforts.
51. WCMRC's own data confirms that a total of only 1.4 cubic metres of the spilled oil was actually recovered and that 1 cubic meter of this was recovered *prior* to the Canadian Coast Guard overflight.¹¹ What this means is that WCMRC only recovered 0.4 cubic metres (or 15%) of the 2.7 cubic metres that was observed by the Canadian Coast Guard. The remaining 85% the oil spill ended up on the shores (including City of Vancouver beaches and parks) or was otherwise unrecoverable.
52. Second, a factor ignored by Trans Mountain and similarly overlooked by the Board is that the recovery efforts of response organisations such as WCMRC are limited by the weather conditions (visibility, wind, and wave action) and the type of product involved. The City of Vancouver does not question the dedication of spill responders or their willingness to do work to the maximum ability under different circumstances. However, there are conditions that put responders at risk, and in which equipment cannot operate or will be less effective. Further, diluted bitumen poses unique response challenges from a responder health and safety perspective, and a response technology perspective.
53. Third, Trans Mountain's spill scenario failed to account for other real-life factors commonly experienced in spill events, such as delayed detection and reporting of a spill, delayed response time getting equipment mobilized and transported to the spill site and human error.
54. All of these factors serve to reduce the effectiveness of spill response. Incident reports from other real-life spills confirm that the industry average for spills is between 10 and 20 % recovery. It is the consequences of the 80 - 90 % of oil that remains in the environment and ends up on shorelines or on the bottom of water bodies that is the primary concern of communities like the City of Vancouver.

Enhancements to the Spill Response Regime

55. Trans Mountain relies on future enhancements to the spill response regime to offset the risks posed by the TMEP. However, until these enhancements are in place and proposed new technologies are proven, the extent to which risks can be effectively mitigated is a matter of pure speculation.

¹¹ Appendix 37 https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2449925/2450831/2786105/C77-27A-14_-_Appendix_37_-_A4L9D3.pdf?nodeid=2784536&vernum=-2

56. The recent National Academy of Science (NAS) study published in December 2015 entitled *“Spills of Diluted Bitumen from Pipelines: A Comparative Study of Environmental Fate, Effects and Responses”*¹² provides comprehensive and up-to-date research on diluted bitumen. The NAS study confirms that the weathering of diluted bitumen creates major challenges for responders noting that “regulations and agency practices do not take the unique properties of diluted bitumen into account, nor do they encourage effective planning for spills of diluted bitumen” (p 4, 112). The NAS Study was not considered by the Board, having refused to allow it to be filed as part of the written evidence.
57. In response to an information request from the City of Vancouver, Trans Mountain stated that “oil spill response plans and Response Organizations include strategies, tactics and equipment to respond promptly, minimize the potential for oil submergence or sinking and to address submerged or sunken oil”. However, no evidence was presented to the Board or Intervenors that would substantiate Trans Mountain’s claim. Further, it is clear from the NAS study that Trans Mountain is claiming the impossible.
58. A key recommendation of the NAS study is that the US Coast Guard “revise its oil-grouping classifications to more accurately reflect the properties of diluted bitumen and *to recognize it as a potentially nonfloating oil after the evaporation of diluent*” (p 118).
59. Existing spill response equipment and plans are developed for conventional crude products and do not account for the differences in the fate and effects of diluted bitumen compared to other types of oil. The significant gaps in existing spill planning and response regimes means that risks from diluted bitumen spills cannot be adequately mitigated. In this regard, the NAS study concludes that *“there are no proven techniques for containment of suspended or sunken crude oil to prevent remobilization and spreading prior to recovery”* (p 117).
60. No evidence was submitted to the Board that would suggest that WCMRC or Trans Mountain have access to technologies or equipment that is more advanced than what is available in the United States. Effective techniques for detection, containment and recovery of submerged and sunken oils in water bodies have yet to be developed (NAS study, p 117).
61. Both the NAS study and the Royal Society of Canada Report (discussed above), demonstrate the extensive gaps in the data and knowledge required to adequately conduct risk assessments, or develop effective preventive and response measures for oil spills involving diluted bitumen. The City of Vancouver agrees that there are significant enhancements required to bring the spill response regime up to an appropriate level to address current risk. The Federal Government appears to recognize this as well, however, its Area Response Planning initiative is still in the preliminary phases of a pilot project that could, and should, take years to mature if it goes beyond the pilot phase.

¹² <http://www.nap.edu/catalog/21834/spills-of-diluted-bitumen-from-pipelines-a-comparative-study-of>

62. The City of Vancouver has provided input to the Risk Assessment methodology proposed for the Area Response Plan pilot, and has identified a number of limitations. This includes a number of aspects of the methodology that do not align with the world-leading practices identified by Nuka Planning and Research in the report referenced by WCRMC, and also a number of serious omissions from a local community perspective.
63. A copy of the City's submission is attached for the panel's reference, and expands on concerns about the proposed methodology including concerns that the risk assessment does not align with the guiding principles of the Canadian Coast Guard, does not assess risk to human health, relies on incomplete or non-existent data, does not assess low -probability, high-consequence spills, includes no references, and has not been peer-reviewed.
64. The City hopes that the Federal Government will incorporate the City's recommendations into the assessment, however, the fact remains that this is only a pilot project with no dedicated funding for long term implementation and sustainment of the area response planning initiative.
65. As noted by the Royal Society of Canada, when it comes to understanding, assessing and mitigating the risks of oil spills the "research gaps are significant. The data needed to assess oil spill risks in Canada are often either absent or widely scattered among government agency, industry, and academic sources. Information needed to reliably assess the environmental sensitivity of areas at risk from oil spills is also very limited." (p 37).
66. Developing world-leading plans and processes will take years - not just to write, but to test, implement, improve and train. Until that happens, the Canadian public interest demands a decision from the Governor in Council rejecting Trans Mountain's application for the TMEP.